

Artificial Intelligence: A Discussion of Impact on the Social Wealth

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Abstract. New technologies have been rapidly adopted in the workplace since the fourth industrial revolution. Artificial intelligence and machine learning technologies are prime examples of this. It is debatable whether people are adequately prepared to deal with the challenges and crises that AI technology may bring. However, only some substantive results indicate how people can avoid the wealth divide that technology can create from the current perspective. This paper summarizes the potential benefits and drawbacks of artificial intelligence technologies on labor markets, identifies the economic and employment imbalances that could be caused by the concentrated development of markets and conclude that avoiding AI requires a multifaceted approach to monitoring and avoiding the structural disruptions it can cause. From the perspectives of workers, policy administrators, and businesses, several potential solutions are provided. The findings presented above are being used to avoid an increase in unemployment among primary practitioners and an increase in poverty among the poor.

Keywords: Artificial Intelligence; Job crisis; Labor market; Market structure; Response strategy.

1. Introduction

The growth of related technologies, such as artificial intelligence and machine learning, has resulted in massive changes across various industries over the last decade. These intelligent manufacturing technologies automate production processes and effectively reduce production costs, making them popular in a wide range of organizations. According to Almada-Lobo, the business sector and society have undergone significant changes due to this new technology [1]. There is no doubt that new information technologies, such as artificial intelligence, have the potential ability to drastically improve people's lives and workplaces significantly. Artificial intelligence was first introduced more than half a century ago to produce activities that could be performed instead of humans, including machines that need to use reasoning, judging, and completing tasks [2].

At present, given the disruptive changes of artificial intelligence, all sectors of society need an appropriate strategy to adapt to the future. Many forecasts have also been made concerning the potential impact of this new technology's revolution on all parts of life. The drive for artificial intelligence may have far-reaching repercussions and changes on the labor market, in addition to the automated replacement of technology. Frank et al. also note the potential issues and disruptions in the labor sector [3]. Concerns about future unemployment have sparked a lot of interest and inquiry. MIT economists Brynjolfsson and McAfee anticipate that robotics and artificial intelligence technology will create structural conditions for widespread unemployment [4]. In such a scenario, the social wealth disparity could widen dramatically, resulting in an increasingly pronounced trend toward social wealth concentration.

Another forecast considers these to be unwarranted alarmism. The influence of AI is considered favorable, indicating that its use might considerably boost jobs while preventing the centralization of wealth in society. Like other technologies, artificial intelligence and machine learning are just productivity boosters. This fosters economic growth and employment generation [5]. Albus' previous research found no evidence that any technology innovation leading to better productivity will lower the number of jobs. Artificial intelligence exists to assist humans in becoming more productive while also producing better content [6]. Finally, all of these impacts boil down to one question: whether the advancement of AI is a possible mechanism for hastening the concentration of wealth in society. The

current literature is still investigating whether the influence of AI on labor market structure will be helpful or destructive, primarily by making predictions about future events rather than providing substantive answers and recommendations. In summary, this study aims to provide a clearer answer to whether AI may generate social wealth divergence, as well as realistic proposals for these questions and future research possibilities in this field.

2. Different Predictions for the AI

2.1 Negative Insights to Productivity

2.1.1 Change in Attitude

Over the last two hundred years, two significant technical changes have occurred in the human world. With the remarkable advancements brought about by the machine era, Brynjolfsson and McAfee in 2016 suggest a second machine age - artificial intelligence brought about by developments in computer science [4]. Machine learning, which is based on a model and algorithms, refers to the execution of tasks without specific practical guidance, is at the heart of artificial intelligence. At the moment, the primary attention of AI study is on training computers to analyze and solve basic challenges [7]. Current intelligence technologies, which are increasingly being employed as general-purpose technologies in many industries, continue to rely on adjacent technology clusters like machine learning, genetic algorithms, the IOT, and cloud-based services [8]. Along with the rapid breakthroughs and successes of artificial intelligence and machine learning, these technologies have been integrated into the way humans live their daily lives - from intelligent navigation systems to machine-learning autonomous driving [9].

However, according to the OECD, extensive use of AI poses concerns about values, justice, privacy, security, and responsibility. Despite the fact that these technologies are revolutionizing society and economies by boosting automation and efficiency in healthcare, manufacturing, finance, and transportation [10]. Machine labor outperforms manual labor in data processing and analysis. In specific ways, AI is being used to replace elements needed for production such as human deployment, capital, and land. Ernst et al. also suggest that attention should be turned to the potential unemployment caused by artificial intelligence [11]. This is due to the fact that machines and algorithms can perform tasks previously performed by humans, this implies that machines can have the same vocations and career-related abilities as people.

2.1.2 Crisis in the Workplace

As a result, there is the potential for job relocation, which could lead to increasing unemployment and influence wealth distribution inequalities [12]. Artificial intelligence, supplemented by machine learning skills, continues to provide increased productivity in executing automated activities while requiring less labor. Hirst predicts that low-skilled people will face widespread unemployment as innovation and technology levels improve [13]. This anxiety is heightened by an estimate that machinery would automate half of all occupations in the United States within the next several decades [14]. The first potential victims are repetitive grassroots workers and service workers, such as drivers, assembly line workers and waiters. In this pessimistic view, AI will inevitably lead to increased unemployment, with more and more elementary and low-level workers being replaced by machines. In contrast, higher-skilled workers will earn more and more as they acquire the skills to control the machines [15]. Roubini also acknowledges that more skilled workers, such as technologists and application developers, will earn more in the automation process than those working at lower levels [16]. The UK government produced research in 2021 that highlighted the potential influence of artificial intelligence on the labor sector [17]. People are beginning to wonder whether the labor market will still follow the same structure that has been inherent for decades under the influence of related technologies such as machine learning [18]. Workers are increasingly recognizing the importance of being technologically literate in order to adapt to the increasingly digital workplace and the threat to their career prospects.

2.1.3 Similar Transformations during the Industrial Revolution

Fears that technological change might eliminate blue-collar jobs began to emerge, and these fears were not unwarranted; Keynes was an early proponent of the idea that technological advances could also lead to widespread technological unemployment [19]. During the eighteenth and nineteenth centuries, the introduction of new machinery and a completely new factory system contributed significantly to an increase in economic productivity and quality. It also intensified the social and economic changes of the time. The industrial management system spawned a new middle class of manufacturing managers and supervisors and the development of a new class of workers - those at the bottom of the factory ladder who worked long hours but were paid low wages. As communication and transportation improved due to industrialization, new modes of communication and transport, such as the telegraph and trains, favorably stimulated economic and trade growth [20], but this also led to the displacement of workers who had been doing this work, such as telegraphists, skilled workers and artisans. The mechanization of production processes saw them replaced by factory workers who needed to be more skilled in these skills, often for low wages and working long hours on dangerous machinery and in unhealthy conditions. The factory owners and industrialists exploited these workers in the opposite environment. As a result, although the economy proliferated, the wealth was concentrated in dominated by a small number of factory owners and capitalists, with the majority of the working class earning low wages.

Similar to how the industrial revolution and the rise of the factory system led to significant changes in the way goods are produced and distributed, the rise of artificial intelligence and automation can increase efficiency and productivity across industries, but it can also lead to the replacement of human labor in repetitive and low intelligence jobs, particularly for workers in manufacturing and services, exacerbating social wealth disparities. The income divide will arguably expand as a result of the digital revolution [21]. The issue is that when all positions in the service sector are replaced by AI, wages and employment options for these low-wage people with limited education fall, leading to even more inequality as jobs utilizing AI and automation technologies are more highly valued and well compensated. Furthermore, as the demand for AI-related talents grows and improves, pay for these jobs may rise as well, making it more difficult for individuals without increased cognitive skills to fill these positions and widening the income gap between those with and those without them [22].

2.1.4 Monopoly and Market Concentration

Another notable problem is that the major developments in AI technology are still only in the hands of a few companies and individuals, such as Microsoft, Google, Alibaba, and Tesla. Despite the fact that there are still countless teams and small companies in the sector, these tech giants still hold an irreplaceable monopoly in the AI field. The utilization of AI technology has enabled these businesses to gain productivity jumps, making it easier for them to win in an exciting marketplace [23]. At the same time, the higher input costs required by the AI industry raise the barriers to entry for other firms. These factors have significantly influenced the market structure and have led to a market that is rapidly moving towards concentration. Most obvious is the economic and employment imbalance that this concentration is creating [11]. The increase in productivity through artificial intelligence can lead to greater profits and wealth for the companies and individuals who use and control these technologies. The working class and those engaged in basic labor will face displacement as machines replace them, all leading to increased poverty and reduced social mobility and increasing socio-economic inequality by allowing more and more wealth to be concentrated in the control of limited firms and dominant players. Furthermore, under the influence of this model of market concentration, when a small number of firms or individuals control a large market share, there is also the risk of higher prices and less innovation, which negatively affects consumer choice and indirectly leads to reduced access to markets for Small and medium-sized enterprises. As AI systems get more sophisticated, companies with larger market shares may also have a significant impact on public policy and regulation as well.

2.2 Positive Insights into Productivity

Artificial intelligence will have a distorting effect and change on the job market. However, there is also much evidence that argues that AI can have a positive impact on the labor market, reducing unemployment through job creation. This suggests that more efficient manufacturing as a result of AI and automation's machine learning skills would also contribute to the expansion and the development of new markets, commodities, and operations, hence increasing demand for jobs and lowering unemployment. According to this compensation hypothesis, focusing solely on fewer jobs leads to a misunderstanding of economic mechanisms [24]. Technological advancements will create greater chances for everyone. Equestrians and messengers are not laid off due to the invention of steam technology; instead, they improve their working conditions by learning how to operate new technologies; drivers and couriers are outstanding examples of this. According to Nobel Laureate economist Herbert Simon, there will be a slew of issues during the AI revolution's transition period, but it will create more jobs in the long term [25]. Countless jobs will also be generated as whole new markets arise, and developing countries can gain enormous economic productivity by inventing new technology [26].

These optimistic views suggest that AI technology will enable markets to achieve unprecedented efficiencies and drive humans to their maximum potential. An interesting example is that when ATMs were first introduced to US banks half a century ago, the number of people working at bank counters did not decline. In fact, although the advent of ATMs replaced two-thirds of bank tellers, the number of bank branches grew by almost half. However, the only thing that has been affected is the job description of these counter service staff, who are more like salespeople who come to present their new investment products and solutions to their clients, as most of the regular business has been replaced by atm machines. Therefore, automation does not lead to unemployment but new and even more important jobs. Su also explains that unemployment due to AI is structural [27]. Jobs are not lost as a result of automation; rather, the nature and content of the labor are altered. This is because, in this situation, authorities and businesses compensate for lost jobs by supporting job development in other industries. As Gordon in 2018 finds, automation is only an evolutionary process. It cannot be considered a revolution, although the application of artificial intelligence will undoubtedly have a detrimental influence on jobs [28].

3. Recommendations

From this, Ernst et al. conclude that the consequence of AI-based innovations on employment is still unknown [11]. One obvious and understandable explanation is that the growth of automation reduces jobs in agricultural operations, forcing people to move to manufacture, and as manufacturing jobs are automated people begin to move to services, and eventually, the next jobs in services remain unanswered as machines automate these jobs as well[29]. This is because as low-skilled jobs are replaced, workers in these positions will need to pay higher learning costs to master AI technology to potentially avoid displacement, which is clearly unrealistic. However, education and vocational training programs are still available for these workers affected by automation. Avoid job losses from AI and automation technologies displacing their labor in repetitive and low-skilled jobs by training workers in the new skills they need to transition to new, higher-skilled jobs.

Policymakers and regulators should also respond with strategies. As Schumpeter has pointed out, the greatest limitation to social development is not the absence of ideas, but the lack of strong social or economic benefits [30]. The first is that governments can designate relevant wealth regulations and laws to reduce income inequality and poverty by reformulating and redistributing taxation and wealth, for example, by increasing taxes on AI companies. This can also be done by increasing spending on education, healthcare, and housing and improving the social welfare system. Furthermore, to address the potential monopoly of the current tech giants in the AI tech sector, encourage industry competition through the spread of anti-monopoly laws to avoid too high a concentration in the market. Regulate the possible adverse effects and consequences of the decisions of these giant industry companies.

Moreover, given the extensive application of computer deep learning, government regulation and the use of private data are essential. Avoid wealth and power being held in the leadership of a tiny group of individuals simultaneously. Promoting open source and decentralization of AI is also an important aspect of avoiding the concentration of wealth. Allowing greater access and collaboration between small and medium-sized companies and researchers reduces the concentration of power while also simplifying code and programming-type programs and offering more basic practitioners the possibility of switching careers. Policymakers can also encourage a more ethical approach to the development and deployment of the new technology, making the process transparent, accountable, and fair as a way to ensure that AI itself is not socially biased and unequal.

4. Conclusion

There is no denying the significance of digital revolutions like artificial intelligence, which will touch almost every area of our lives and work, effectively improving productivity. In this paper, the question is posed and examined: how significant is the impact of the rise of artificial intelligence in increasing the concentration of wealth in society? The paper describes the potential disruption and impact of AI on the framework of the labor market - the displacement of blue-collar workers. There is also the potential for a non-virtuous circle created by firms and individuals dominating AI - the concentration of markets brought about by declining social mobility, driving more and more profits into the hands of this small group of individuals. Ultimately, the evidence provides that there is still a great deal of ambiguity in the face of future AI breakthroughs. The paper argues that this is inevitable in the absence of adequate regulation and supervision. To avoid this, therefore, it is necessary for policymakers to intervene and use strategies that are sensible, through antitrust laws, to limit the monopoly that could be created by the current few AI technology giants in the future. And to respond to the advent of the technological revolution by upgrading the skills of the current low-ability workers in society through education and training. All of the above analyses and discussions are based on early forecasts of AI's influence in the context of historical examples. These projections are only taken into account in the context of the current social environment and position, and the future direction of technological growth is outside the scope of this article. As a result, it is not simple to assume with certainty that the impact of previous technological revolutions can be applied to the field of AI even though AI is simply a branch of computer technology. At the same time, in order to make really universal recommendations for solutions, the examination of the impact of AI must take into account other elements in different industries, as well as technological variations between developed and developing countries. Furthermore, uncontrollable and unknown events such as environmental degradation and warming, nuclear warfare, and contagious diseases may intensify the usage of AI in the face of insufficient controls. Given these limitations, as well as the significance of the solutions and implications of the discussion contributed in this paper to the existing literature, it is critical that future research includes a survey and analysis of different countries or regions facing AI in different economic contexts, as well as specific implications and solutions for the future transformation of labor market structures in the face of AI. Future research should also include a survey and analysis of different countries or regions confronted with AI in different economic contexts, as well as specific implications and scenarios for future labor market structures confronted with the transformations required by AI, and combine these conditions to provide more refined responses and recommendations.

References

- [1] Almada-Lobo F. The Industry 4.0 revolution and the future of Manufacturing Execution Systems. *Journal of Innovation Management*, 2016, 3(4): 16-21.
- [2] Nilsson N. J. Artificial intelligence, employment, and income. *Human Systems Management*, 1985, 5(2): 123-135.

- [3] Frank M R.. Toward understanding the impact of artificial intelligence on labor. Proceedings of the National Academy of Sciences, 2019, 116(14): 6531-6539.
- [4] Brynjolfsson E. and McAfee A. The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies. New York: W.W. Norton & Company, 2014.
- [5] Mustascu M. Artificial intelligence and unemployment: New insights. Economic Analysis and Policy, 2021, 69: 653-667.
- [6] Steier R. and Albus J. From Washington: The robot revolution: an interview with James Albus. Communications of the ACM, 1983, 26(3): 179-180.
- [7] Clark J. Why 2015 Was a Breakthrough Year in Artificial Intelligence. Bloomberg.com, 2015. <https://www.bloomberg.com/news/articles/2015-12-08/why-2015-was-a-breakthrough-year-in-artificial-intelligence?leadSource=uverify%20wall>.
- [8] Bresnahan T F., Trajtenberg M. General purpose technologies “Engines of growth”?. Journal of Econometrics, 1995, 65(1): 83-108.
- [9] Fatima S., Desouza K C., Dawson G S. National strategic artificial intelligence plans: A multi-dimensional analysis. Economic Analysis and Policy, 2020, 67: 178-194.
- [10] OECD. Artificial intelligence in society. Paris Organisation For Economic Co-Operation And Development Oecd, 2019.
- [11] Ernst E., Merola R., Samaan D. Economics of Artificial Intelligence: Implications for the Future of Work. IZA Journal of Labor Policy, 2019, 9(1).
- [12] Agrawal A., Gans J., Goldfarb A. Economic Policy for Artificial Intelligence. Innovation Policy and the Economy, 2019, 19: 139-159.
- [13] Hirst T. Does technological innovation increase unemployment?//World Economic Forum. 2014. <https://www.weforum.org/agenda/2014/11/does-technological-innovation-increase-unemployment/>.
- [14] Frey C B., Osborne M A. The Future of employment: How Susceptible Are Jobs to computerisation?. Technological Forecasting and Social Change, 2013, 114(1): 254-280.
- [15] Autor D H., Katz L F., Krueger A B. Computing Inequality: Have Computers Changed the Labor Market?. The Quarterly Journal of Economics, 1998, 113(4): 1169-1213.
- [16] Roubini N. Rise of the machines: Downfall of the economy?. EconoMonitor, 2014.
- [17] GOV.UK. The Potential Impact of Artificial Intelligence on UK Employment and the Demand for Skills A report by PwC for the Department for Business, Energy and Industrial Strategy. 2021. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1023590/impact-of-ai-on-jobs.pdf.
- [18] Xu Shi, Stienmetz J., Ashton M. How will service robots redefine leadership in hotel management? A Delphi approach. International Journal of Contemporary Hospitality Management, 2020, ahead-of-print(ahead-of-print).
- [19] John Maynard Keynes. Economic possibilities for our grandchildren. Seattle, Wa: Entropy Conservationists, 1930.
- [20] Berrill K., Ashton T S. The Industrial Revolution 1760-1830. The Economic Journal, 1949, 59(235): 403.
- [21] Susskind R E., Susskind D. The future of the professions: how technology will transform the work of human experts. Oxford, United Kingdom; New York, Ny: Oxford University Press, 2017.
- [22] Hirschi A. The Fourth Industrial Revolution: Issues and Implications for Career Research and Practice. The Career Development Quarterly, 2018, 66(3): 192-204.
- [23] Hobson S., Mojsilović A., Puri R., Smith J R. AI for Management: An Overview. The Future of Management in an AI World, 2019: 3-19.
- [24] Autor D H.. Why Are There Still So Many Jobs? The History and Future of Workplace Automation. Journal of Economic Perspectives, 2015, 29(3): 3-30.
- [25] Simon H. The Steam Engine and the Computer: What Makes Technology Revolutionary. EDUCOM Bulletin, 1987, 22(1): 2-5.
- [26] Schmidt E, Cohen J. The New Digital Age: Transforming Nations, Businesses, and Our Lives. Knopf Doubleday Publishing Group, 2014: 336.

- [27] Su G. Unemployment in the AI age. *AI Matters*, 2018, 3(4): 35-43.
- [28] Gordon R J. Why Has Economic Growth Slowed When Innovation Appears to be Accelerating? National Bureau of Economic Research. 2018.
- [29] Atkinson R D, Wu J J. False Alarmism: Technological Disruption and the U.S. Labor Market, 1850-2015. *SSRN Electronic Journal*, 2017.
- [30] Schumpeter J. *Capitalism, socialism and democracy*. London: Routledge, 1976.