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The Paradoxical Effect of AI on the Unemployment Rate in the USA

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ABSTRACT

In recent years, there has been a growing concern about the potential impact of artificial intelligence (AI) on the US labour market. As AI technology continues to advance, many people worry that it will lead to the automation of a wide range of jobs, potentially causing widespread unemployment. In this research paper, we investigate how AI has affected the US unemployment rate in the last 10 years, and make predictions about its likely impact in the coming 10 years.

The analysis reveals that AI has had a modest but measurable impact on the US unemployment rate in the past decade. In particular, we find that the deployment of AI technologies has led to the displacement of workers in certain industries, such as manufacturing and customer service, resulting in job losses. However, we also find that the adoption of AI has also led to the creation of new jobs in other industries, such as software development and data analysis.

Looking forward, it's predicted that the impact of AI on the US unemployment rate is likely to increase in the coming 10 years. As AI technologies continue to advance, we expect that more and more jobs will be automated, potentially leading to higher levels of unemployment. However, it is also expected that the growth of AI-related industries will continue to create new job opportunities, offsetting some of the job losses.

Overall, the research suggests that the impact of AI on the US labor market is complex and multifaceted. While AI has the potential to cause widespread job displacement, it also has the potential to create new job opportunities and drive economic growth. To mitigate the negative effects of AI on employment, it will be important for policy makers and industry leaders to develop strategies to support workers who are at risk of losing their jobs, and to invest in education and training programs to help people acquire the skills they need to succeed in the AI-powered economy of the future.

Keywords: Artificial Intelligence, employment rate, jobs.

INTRODUCTION

Throughout the years technology has been developing faster than ever before. With self- driving cars, smart assistants, automated financial investing and a lot more, the increase in Artificial Intelligence (henceforth, AI) development has invited fascination from experts and commoners alike. Artificial intelligence refers to the imitation of human intellect and discernment in computers and machines that are programmed to make decisions and act like humans (Burns et al.). With the use of AI, engineers and developers have been able to create machines that execute real-life tasks based on algorithms and data given to mimic humans. AI is being used in multiple industries making jobs easier and facile for workers. For example, AI can be found to be used prominently in the financial industry to help predict and reduce financial/loan risks, read and handle data while enhancing user experience through chatbots. ("How Artificial Intelligence Is Influencing the Banking and Finance Sector - Day One: AI Development Services, App Development Company"). AI's power has been massively underestimated, with the possibility of considerably increasing productivity rates and the ability of intelligent machines to carry out non-standard tasks; with this came multiple billion-dollar AI-based start-ups using Robotic Process Automation (RPA) (Tracxn). Towards the end of 2020, funding for AI used in various companies, sectors and industries in the United States of America increased to 4.7 billion USD ("Topic: Artificial Intelligence (AI) in the United States"). Studies suggest that 93% of organisations in the US have engaged in AI in some form or another while most have already fully integrated AI in standard business operations since 2021 (Statista 2022). As a result of this trend, the

unfolding of public concerns in regards to the total replacement of human workers by computer systems and robots has risen.

Objective

The objective of this research paper is to examine the impact of artificial intelligence (AI) on the US unemployment rate in the last 10 years, and to make predictions about its likely effect on the rate in the coming 10 years. To achieve this objective, we will conduct a detailed analysis of the relationship between AI and unemployment, drawing on data from government and industry sources. Our goal is to provide a comprehensive and nuanced understanding of the ways in which AI has affected the labor market in the past, and to make informed predictions about its future impact on employment. By shedding light on the complex relationship between AI and unemployment, our research aims to inform policy makers and industry leaders as they seek to navigate the challenges and opportunities presented by the rise of AI.

REPLACEMENT OF HUMAN WORKERS BY AI TECHNOLOGY IN THE LAST 10 YEARS

Through the years, a multitude of workers have fallen victim to job losses because of automation and large-scale industrialization. According to a study from the University of Chicago (2021), it was found that adding one machine per 1,000 workers causes the unemployment rate to increase by 0.18%. Despite this not sounding like a big change, in a country of more than 330 million people while also being the largest economy in the world, this is proportionate to more than a million job dismissals. By measuring nominal GDP, the United States of America is the largest economy in the world, predominantly through contribution by the service sector ("The Top 25 Economies in the World"). This includes finance, real estate, healthcare, insurance and business services, primarily run by human- workers. With the massive loss of jobs, the US economy was and still is at risk. While the world has been in the 4th industrial revolution for more than a century, AI has continued to develop. The access to unprecedented processing power, storage capacity, and access to knowledge is unlimited (Schwab 2016).

Statistical data of job losses

The potential for job losses in the US was broken down into 3 categories: Low potential, Medium Potential and High potential. 24.83% of jobs fall into the High potential category, while 35.86% fall into Medium potential and 39.31% fall into Low potential ("Are You a High Potential?"). However, evidently, each job will somehow get affected by the increasing rise of automation. In 2020 itself, more than 300,000 robots were installed in companies. Since 2000, more than 260,000 jobs have been lost in the US to automation solely in the manufacturing workforce (Flynn, 2022). The AI market during 2020 was valued at $60 billion and experts predict an annual growth rate of 40.2% (Howarth). The demand for automation and AI has been increasing within the last decade requiring more jobs in technology, causing a paradoxical effect and raising questions about whether AI really is increasing or decreasing the US unemployment rate.

THE FUTURE OF ARTIFICIAL INTELLIGENCE IN USA

Although most jobs are at risk because of the rise of artificial intelligence, a large portion of these jobs fall in the uneducated category. This means that a large percentage of high-paying jobs that require a bachelor's degree or above will only face 29% of job change due to AI/automation (Jain, 2021). Predictably, we are supposed to be in the 5th industrial revolution within the next few years ("Will the 5th Industrial Revolution Be the next Renaissance?"). Therefore, the use of industrial robots and machines has and will only increase. Currently, the US uses 293,200 industrial robots and that is expected to increase by at least 40,000 a year (Flynn, 2022). The power of automation is currently under analysis but data analysts predict that AI/automation has the power to eradicate more than 80 million jobs in the US in the next decade (Vega). This would almost be 46% of the current jobs, which would indefinitely have an impact on the economy. However, estimates show that having a college degree and sufficient education can protect you from the loss of your job by at least 21% (Emilie Dozer '21). The risk of job loss due to automation also plays into gender roles where women in the US currently have a 33.9% risk of job loss as a result of automation while men have a 24.0% risk (Flynn, 2022). Studies also show that 85% of the jobs that will exist in 2030 haven't been invented yet (*Realizing 2030: A Divided Vision of the Future*). Therefore, this also raises questions about the interchange ability of jobs. Workers losing jobs right now could potentially be getting higher-paying jobs in the future within the AI and tech industries.

A potential decrease of the unemployment rate

Through evaluating the multitude of implications that AI and automation would have on jobs in the United States of America, a potential decrease in the unemployment rate is definitely a possible consequence that should not be overlooked. Without artificial intelligence and robots, major tech companies worldwide such as Tesla, Apple, Microsoft and more wouldn't function as they are. The creation of these robots and automation is entirely based on the human workforce. Providing substantial participation while creating and programming Artificial Intelligence is something that companies require humans to do. Hence, in line with that logic, the more robots and artificial intelligence used by companies, the more jobs needed to continuously enhance and work with these technologies.

However, the complete reliance on artificial intelligence will require more workers to start upskilling and reskilling themselves to find jobs in the near future. With this trend, it's possible that there would be a decrease in the unemployment rate.

The evolution of the internet and how it affected jobs in the US

The current fascination and increase in industrialised uses of artificial intelligence can similarly be compared to the rise of the internet more than 20 years ago. While most believed at the time that the internet would strip away a multitude of jobs in various sectors and industries, it has created millions of jobs in the US today. According to PwC (2019), 63% of CEOs believe that Artificial Intelligence will have a larger impact than the internet. Besides this, the World Economic Forum (2021) estimated that there will be at least 97 million new jobs created through AI in 2025. While they still estimate 85 million jobs to be lost, the jobs made seem to have a higher ratio. According to analysts, 85% of the jobs that will exist in 2030 have yet not been invented today. This means that around 20 years ago there were no jobs involving the internet in any way, while there are millions ranging from software engineers to game developers and so much more. Therefore, it can be assumed that the rise of artificial intelligence within the next decade corresponds to the rise of the internet with similar practical concerns as well as similar results. With the internet being able to create millions of jobs today, it seems like artificial intelligence will be able to do the same.

CONCLUSION

Through evaluating predictions of AI on the unemployment rate it can be concluded that replacing human workers within the decade with automation and artificial intelligence could, paradoxically, create demand for more workers. With a multitude of industries and sectors requiring robots and artificial intelligence within the next few years, it's extremely important for each company to have a sufficient number of employees handling and constantly improving to work with robots and artificial intelligence. While this is in play it's also important to acknowledge the complete eradication of jobs in the retail and manufacturing sectors. While computers have already started replacing retail checkout workers, it's very likely that almost every job that doesn't require a bachelor's degree or a specific amount of education will be replaced by AI and robots. Conclusively, we cannot be sure of AI's effect on the long-term unemployment rate, but some trends do point to a largely paradoxical effect on the unemployment rate in the United States of America. We can only observe how Artificial Intelligence will continue to have an effect on the employment rate.

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