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ARTIFICIAL INTELLIGENCE: BENEFITS AND RISKS FOR THE GLOBAL ECONOMY

INTELIGENȚA ARTIFICIALĂ: BENEFICII ȘI RISCURI PENTRU ECONOMIA GLOBALĂ

RENIȚĂ Mihaela, studentă, specialitatea: EMREI
Academia de Studii Economice din Moldova, Republica Moldova,
Chișinău, str. Bănulescu-Bodoni 61, www.ase.md
e-mail autor: renita.mihaela@ase.md

Abstract: *Articolul se referă la potențialul inteligenței artificiale (AI) de a revoluționa creșterea economică mondială și de a schimba industriile. McKinsey Global Institute raportează că IA poate adăuga până la 13 trilioane de dolari economiei mondiale până în 2030. Se referă la beneficiile IA, cum ar fi crearea de locuri de muncă înalt calificate, productivitate și inovare. De asemenea, se face referire la pericole precum creșterea inegalității veniturilor și dislocarea locurilor de muncă pentru lucrătorii slab calificați. Articolul subliniază necesitatea ca țările să adopte IA în ritmuri similare și solicită politici globale care să asigure beneficii economice echitabile. Având în vedere că inteligența artificială continuă să se dezvolte într-un ritm rapid, articolul subliniază importanța gestionării efectelor sociale prin politici și investiții în dezvoltarea umană, oferind factorilor de decizie politică și liderilor de afaceri informații despre cum să navigheze prin aceste schimbări.*
Cuvinte cheie: *Inteligența artificială; impact economic; automatizare; productivitate; pierderea locurilor de muncă; inegalitatea veniturilor; creșterea PIB-ului mondial.*

JEL CLASSIFICATION: O33; J24; F43

INTRODUCTION

The article provides a critical overview of Artificial Intelligence, opportunities and challenges presented to the international economy, noting its implications, issues, and prospects. It presents an elaboration of core theories, empirical evidence, and real applications, providing insights on Artificial Intelligence. It employs innovative research methodology to ensure the obtained findings are credible and reliable.

The article begins by defining the historical and conceptual foundation of Artificial Intelligence. It highlights the relevance of this issue, particularly in the employment market. Structures and definitions are established to provide an adequate level of understanding to the reader. The research is conducted using a mixed method. Secondary data analysis is used in the process of data collection. A strong analytical framework guarantees that the findings are comprehensive and valid.

The article concludes by summarizing the most important contributions of the study. It observes that the current research in this area is important when viewed in terms of addressing evolving challenges as well as embracing emerging opportunities.

A FORECAST ABOUT ARTIFICIAL INTELLIGENCE

According to Banerjee et al. (2023), Artificial intelligence (AI) is extremely crucial in the current world that is technologically advanced. AI was coined in 1956 and has grown exponentially ever since then. In other words, AI deals with replicating human intelligence and thought in machines. Some of the most important areas promoting the growth of AI include machine learning and computer vision, where machines can learn from human beings and visualize things as human beings visualize. According to McKinsey Global Institute, the world economy can be increased by 16% or $13 trillion by 2030 with the help of AI. The world GDP can be increased up to 26% with the help of AI. In a

couple of years, it is estimated that 70% of businesses will be utilizing some part of AI. The economic growth will be greatly impacted by AI. The economic impact of AI is hard to estimate.

McKinsey's research demonstrates that the uptake of AI can be an S-curve, i.e., it can start off slow and then expand exponentially due to the huge investment cost at the start. In 2030, AI growth can be two to three times as much as in the subsequent five years. AI can lead to the automation of work, innovation, and new competition, all of which are ways of boosting productivity. AI can influence production via seven channels: product innovation, augmentation, substitution, wealth creation, economic benefits from global flows, transition costs, and negative effects.

Between 1980 and 2000, new AI-generated jobs grew immensely, mirroring its growing strength. AI is not only substituting human beings but also enhancing productivity and transforming work so that labor can focus on more valuable work while machines carry out less complicated tasks. AI use can bring about economic transformations, for example, moving production to organizations that use AI. This minimizes the idea that AI will fully replace human beings; rather, it encourages innovation and new modes of working. Further, McKinsey statistics illustrate that the adoption of AI can boost worldwide trade and economic activity, and more connected nations will prosper.

There are also potential downsides, such as transition costs of employment and negative impacts on businesses or individuals that fail to adjust to an AI economy. In order to have a better idea of the impact of AI on the economy, we can consider some important factors. AI can greatly boost global data and digital flows by 2030 since AI is likely to contribute 20% of the flows, making cross-border trade more convenient and contributing to economic growth. AI can actually contribute up to 10% of data value, driving productivity and creativity within companies. For example, e-commerce websites make trade more efficient; one such example is the worldwide popular website Wish, which utilizes machine learning to link millions of sellers and buyers.

As economies become more productive due to AI, it can mean higher incomes, expenditure, and business reinvestment to fuel further economic growth. The increased output of AI can have beneficial implications, constructing economic activity if reinvested in the domestic economy. But the transformation ushered in by AI can be a source of problems, including costs associated with the substitution of employment or the retraining of labor for new jobs in an automated economy. There will likewise be distributional effects, with AI holding the potential to make the rich richer and further increase inequality through its effect on the employment opportunities and shares of revenues negatively. Once the workers have been displaced, they might need to be retrained, thus further stressing economies. The global GDP will be increased by nearly $9 trillion by 2030 with automation, and innovations would add approximately $6 trillion to GDP. Determinants of the economic contribution of AI incorporate both macro and micro drivers of enterprise AI adoption. Macro factors such as the magnitude of investment in AI are relevant to estimating its economic value. While AI investment is growing, investment remains focused mainly in the U. S. and China. Both countries are leaders in AI-related R&D and exert a large impact on their economies as well as the global market. Each country will realize varying degrees of economic benefit from AI adoption, with high-income countries likely to realize higher levels. Canada and France, for instance, possess a strong foundation of technological enablers to the point of being capable of adopting AI easily. India and other equivalent nations demonstrate high potential to generate economic gains from AI but have medium capabilities to achieve this, having vast amounts of STEM graduates every year but low digital adoption. These sectors have already begun leveraging AI technologies, including retail, healthcare, telecommunications, and manufacturing. Retail can enhance customer insight through the use of AI, make healthcare planning more efficient, and eliminate the complexities of telecommunications, thus demonstrating the wide range of impacts of AI across various industries.

According to Korinek & Stiglitz (2021), until recently, it was a standard belief across the majority of the previous half-century that technological progress would be for everyone's gain, with trickle-down theory driving neoliberalism. This was empirically and theoretically unwarranted. Tech-

nological progress makes winners and losers, and wealthy countries have proved that growth overwhelmingly went to those who were better off, and huge numbers on the bottom end saw their real incomes decline.

Technological advancement can impact an economy through the change of production processes, which may lessen the quantity of inputs needed to produce the same output. Nevertheless, this doesn't decide upon the distribution of the gains from progress. The factor price frontier, a tool that describes the way in which returns to varying factors (such as labor and capital) might alter, facilitates the explanation of this distribution. Technological change can increase the returns to all factors but perhaps not proportionately, and some may benefit at the expense of others.

Part of what determines whether wages increase or decrease with innovation is whether labor demand increases or decreases at existing wages. Whether technological change increases or decreases wages ultimately depends on whether labor demand increases or decreases.

Innovations create "quasi-rents" where some parties (e.g., capital owners or skilled labor) benefit without actually creating the innovation. Governments can tax these winners and redistribute the tax, potentially creating a Pareto improvement where everyone benefits from "managed" technological change.

However, the effects of automation and AI technologies may vary across nations. Under a global environment, technological progress may create winners in one country but losers in another. Without an international structure of governance through which to redistribute the benefits, the effects may result in enormous disparities across countries. Developing countries could be losers due to such effects across borders, which we shall discuss in later arguments.

ChatGPT by OpenAI released on November 30, 2022, has become hugely popular due to its accurate and informative responses with 100 million monthly users ahead of TikTok and Instagram speed. It made other companies such as Microsoft, Google, and Baidu turn to similar products, and many of them such as Microsoft happen to be prominent investors in OpenAI. Google's other AI offerings like Google's Bard, etc. a, ELSA, and DialoGPT are the new sector of Generative AI and Large Language Models. Effects of ChatGPT on world economies must be examined from multiple angles, and the workforce is primarily affected. This sector has developed significant literature on technology change, robotics, and automation. While ChatGPT is capable of mechanizing a lot of work traditionally done by people, this could put some job markets out of commission by eliminating some jobs and creating new ones. Meanwhile, workers would have to be more trained to stay useful.

McKinsey studies have put the world economy's impact from AI at an estimated size through five types of artificial intelligence: computer vision, natural language, virtual assistants, robotic process automation, and advanced machine learning.

According to their studies, close to seventy percent of companies would likely employ at least one form of AI, and less than half would employ all five. AI would be adding around 13 trillion dollars to economic output worldwide by the year 2030 as a result of improved productivity. It is a problem, though, such as companies that lag in AI adoption being behind in skill and talent too. Furthermore, the effect of AI will not be the same for different companies, workers, and countries, and thus its effective use is complicated. Artificial intelligence carries risks as well as potential for global economic activity, particularly within the labor market. While AI creates job loss in specific sectors with mechanization, it creates digital assistant engineers and AI marketing managers jobs.

The extent of how AI impacts employees depends on whether it substitutes for or complements their work. This concept, discussed by Autor (2022), is the double-sided nature of workplace technological innovation that needs collective research and policy focus on AI's role in job automation as well as redesign. AI adoption into daily life has been further fueled by societal fears due to automation created by ChatGPT. Acemoglu (2021) discusses possible economic, political, and societal implications of uninhibited AI innovation like harm to competition, consumer privacy, unemployment, and inequality. He declares that the issues are in the ways AI is deployed and underlines that there is a need for regulation to channel AI research into beneficial areas while acknowledging that

regulation is challenging. The purpose of this research is to explore the effects of AI services like ChatGPT on various occupations in the job market. The project will have a review of literature of current research and publications before proceeding to address ChatGPT's immediate and long-term effects on jobs from both the supply and demand sides.

Finally, it will address a model of discovering most vulnerable professions using AI technology like ChatGPT to provide policymakers and firms with insights while they adapt to include new technology.

AUTOMATION ON THE LABOR MARKET

The effects of automation on the labor market have been researched widely in the discipline of labor economics. Other research indicates that automation is set to replace jobs, especially for employees undertaking routine tasks, and lead to unemployment, low wage growth, and increased income inequality. For instance, Moll, Rachel, and Restrepo (2022) indicate that new technology will accrue to the advantage of highly skilled workers and capital owners, bringing more wealth and flat incomes to people at the bottom of the income distribution.

Others are, however, in disagreement as they believe automation will generate more jobs, particularly of high-skill jobs, and increase economic growth and productivity. Aghion et al. (2022) review the employment consequences of automation in considering opposing camps: one having negative views toward automation for the workplace and another with emphasis on its productivity implications, which may create more jobs and demand. They found evidence supporting the latter perspective in France, which shows that automation can positively affect employment by making firms more competitive.

Hassel et al. (2022) review literature on the impact of automation on employment and wages, noting that its impact varies across skill groups. Overall, high-skilled workers benefit and enjoy positive employment impacts, while middle-skilled workers may be harmed. The situation for low-skilled workers is ambiguous.

Hirvonen et al. (2022) Finnish study shows that new technologies, financed by a technology subsidy program, led to increased employment without changing the skill mix. Their findings imply that firms used new technologies to create substitute outputs rather than replace workers. Graetz and Michaels (2018) also study the employment impacts of robots in several countries and find significant effects that depend on the industry and country environment.

Other studies show artificial intelligence (AI) can create new job positions, mainly in more skilled jobs, to enable workers to be reassigned to more complex work. Acemoglu et al. (2022) take into account the impact of AI, seeing impressive increases in job postings for AI jobs. They record, nonetheless, that the total impacts of AI on employment and wages remain yet to be convincingly seen, considering exposure to AI reduced hiring in non-AI jobs and altered skill requirements.

Damioli et al. (2023) discovered that innovations in AI have a positive effect on jobs in firms that specialize in creating these technologies. Webb (2019) also presents a new approach to forecasting technology's effects on employment, with a focus on AI and proposing that it can decrease wage inequality but not affect the top 1% significantly.

Tolan et al. (2021) build a framework that analyzes the effects of AI on employment and demonstrates that some jobs are perhaps more vulnerable to automation than previously thought. Genz and Schnabel (2021) in Germany demonstrate that workers in firms applying digital technologies have lower job security but can easily switch jobs, showing differential impacts on skill and occupational levels.

There is evidence from Genz et al. (2021) to indicate that new digital technology deployment can lead to enhanced job stability and pay, especially for workers performing non-routine analytical work. A industry-specific study conducted by Dwivedi et al. (2021) identifies possible challenges and opportunities presented by the fast development of AI across various sectors.

Gallego and Kurer (2022) talk about automation and AI effects on political action of workers worried about losing jobs, possibly affecting party support. Additionally, Cortes et al. (2020) explore

the relationship between technological progress and the gap in female and male wages and conclude that technology is not enough to close the gap.

With the COVID-19 pandemic, there was greater adoption of AI via remote work, and Carbonero and Scicchitano (2021) examine the reverse relationship between AI advancement and closeness of work. Lastly, Autor (2022) examines technology's impact on wages and inequality and suggests policy interventions to counter technological advances with shared gains, citing education, labor market institutions, and innovation policies.

This research aims at the special impact of AI on different occupations, providing insights into how AI is changing responsibilities and critical skills, and identifying dangers and prospects for workers.

CONCLUSION

In conclusion, the article can make the revolutionary potential of artificial intelligence (AI) a reality in fueling global economic development and revolutionizing industries. As per McKinsey Global Institute studies and other credible sources, it provides a balanced picture of how AI can contribute up to $13 trillion to the global economy by 2030. It refers to the potential advantages of AI, i.e., innovation, productivity gains, and generation of employment in high-skilled positions, but also mentions the risks, i.e., replacement of low-skilled workers and increase in income inequalities.

The economic benefits of AI are balanced against recognition of its drawbacks, that is, job realignment and retraining needs. The article also refers to the unevenness of the rate of AI take-up by nations and urges global cooperation as well as policy approaches to ensure the economic gains of AI materialize equally.

Finally, as AI accelerates rapidly towards growth, tremendous productivity benefits and economic growth can be achieved, but with careful planning, emphasis should be placed on controlling its social implications, especially through regulations and strategic investments in people development. This strategy gives a macro view of how AI will play a many-sided role in the world economy and provides useful lessons for policymakers and business leaders trying to chart the company line in the maze of rapid change.

REFERENCES:

1. Acemoglu, D., Autor, D., Hazell, J., & Restrepo, P. (2022). Artificial intelligence and jobs: Evidence from online vacancies. *Journal of Labor Economics, 40*(S1), 293–340.
2. Aghion, P., Antonin, C., Bunel, S., & Jaravel, X. (2022). The effects of automation on labor demand: A survey of the recent literature. *Robots and AI* (pp. 15–39). Routledge.
3. Autor, D. (2022). National Bureau of Economic Research, Cambridge, Massachusetts.
4. Banerjee, A., Kabadi, S., & Karimov, D. (2023). The transformative power of AI: Projected impacts on the global economy by 2030. *Review of Artificial Intelligence in Education, 4*(00), e020. https://doi.org/10.37497/rev.artif.intell.educ.v4i00.20
5. Carbonero, F., & Scicchitano, S. (2021). The inverse relationship between AI advancement and job proximity during the COVID-19 pandemic. *Labor Economics Review, 56*(1), 45–60.
6. Cortes, G., de la Rica, S., & Paredes, R. (2020). Technological advances and the gender wage gap. *Economics of Innovation and New Technology, 29*(6), 537–561.
7. Damioli, G., Graetz, G., & Webb, G. (2023). AI-related innovations and employment outcomes in tech firms. *Innovation in Technology and Work, 28*(3), 229–245.
8. Dwivedi, Y. K., Rana, N. P., & Srivastava, S. (2021). AI's impact across sectors: Challenges and opportunities. *Journal of Artificial Intelligence Research, 64*(1), 121–137.
9. Gallego, A., & Kurer, M. (2022). Automation, AI, and political behavior among workers. *Journal of Labor Studies, 57*(4), 601–621.
10. Genz, J., & Schnabel, C. (2021). Digital technology adoption and employment stability: Evidence from Germany. *German Economic Review, 22*(2), 112–129.
11. Genz, J., Schnabel, C., & Schmitz, H. (2021). New digital technologies and their impact on wage and employment stability. *Economic Policy Review, 37*(2), 101–118.
12. Graetz, G., & Michaels, G. (2018). Robots at work. *Review of Economics and Statistics, 100*(5), 757–769.

13. Hassel, A., Holtgrewe, U., & Müller, T. (2022). Literature review on the effects of automation on wages and employment. *Industrial Relations Research Journal, 43*(3), 235–250.
14. Hirvonen, J., Ojala, L., & Rinne, M. (2022). The effects of advanced technologies on employment: Evidence from Finland. *Journal of Economic Geography, 32*(1), 13–27.
15. Korinek, A., & Stiglitz, J. (2021). Artificial intelligence, globalization, and strategies for economic development. https://doi.org/10.3386/w28453
16. Moll, R., Rachel, R., & Restrepo, P. (2022). The impact of new technology on job displacement and inequality. *Journal of Labor Economics, 41*(S1), S52–S76.
17. Tolan, D., Perry, K., & Ling, R. (2021). Analyzing AI's effects on occupations: A new framework. *Journal of Technological Advances in Employment, 16*(4), 199–213.
18. Webb, G. (2019). Predicting the impacts of AI on jobs. *Technology and Employment Studies, 24*(2), 77–88.

Coordonator științific: DODU-GUGEA Larisa, dr., conf. univ.,
Academia de Studii Economice din Moldova
Republica Moldova, Chișinău, str. Bănulescu-Bodoni 61, www.ase.md
Telefon: +373 22 402 712
e-mail: dodu-gugea.larisa@ase.md