SECTION: EMERGING INFORMATION TECHNOLOGIES: ARTIFICIAL INTELLIGENCE AND DATA ANALYTICS FOR THE DIGITAL FUTURE

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE LABOR MARKET AND ECONOMIC MODELS

CZU: 331.5:004.8
DOI: https://doi.org/10.53486/csc2025.02

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Abstract: The use of artificial intelligence in various areas of economic activity is transforming the labor market. AI creates both new opportunities and challenges for the state, employers, and employees. One of the positive impacts in the economic sphere is the automation of processes with the help of AI, which leads to increased productivity and reduced costs. However, there are also problems caused by AI, such as the disappearance of certain professions related to logistics, finance, and services from the labor market. This research article analyzes the positive and negative effects of AI on the labor market and economic models. The changes brought about by the integration of AI into production processes require development in the field of education for a more flexible transition to the digitalization of the economy and encourage the transformation of the labor market.

Keywords: Artificial intelligence (AI), labor market, economic models, information technology, automation.

JEL Classification: J23, O24

INTRODUCTION

The Fourth Industrial Revolution has accelerated the pace of adoption of technologies and shifted the frontier between humans and machines across sectors and geographies. Technology is altering the way we work, but also changing job content, skills in need, and which jobs are being displaced.43 Understanding how technologies will impact labour markets is crucial for determining whether people will be able to transition from declining occupations to the jobs of tomorrow. ("*The Future of Jobs Report 2023*", accessed date 10.02.2025)

Artificial intelligence is significantly impacting the labor market, as stated in the World Economic Forum's The Future of Jobs Report 2023. However, the report also states that AI will create an estimated 97 million new jobs, which will have a positive impact on the labor market. It is important to note that the types of jobs that AI will create will be different from those that will

disappear. Currently, AI used to automate repetitive and routine tasks, such as data entry and processing. Therefore, jobs that require these skills are likely to be automated in the future. However, jobs that require human skills, such as problem solving, creativity, and empathy, are less likely to immediately replace by machines. These qualities are essential for roles that involve making complex decisions and requiring human intervention. (Goncharenko K., "*Artificial Intelligence and the Labor Market: Key Challenges and Opportunities*", accessed 10.02.2025).

Artificial intelligence is now widely used to automate repetitive and routine tasks such as data entry and processing. Accordingly, jobs requiring such skills are likely to replace by automated systems in the future. However, professions that require human qualities, such as complex problem solving, creativity, and empathy, are less likely to automate in the short term. These qualities are important for roles that involve complex decision-making and require human intervention.

MAIN CONTENT

Artificial intelligence currently used to automate repetitive and standard tasks such as data entry and processing. Therefore, professions requiring such skills are likely to be automated in the future. However, positions that require human qualities, such as problem solving, creativity, and empathy, are less likely to be replaced by machines quickly. These characteristics are the basis for professions that require complex decision-making and human involvement.

Developing, implementing, and maintaining artificial intelligence technologies requires skilled professionals. New roles such as artificial intelligence specialists, data analysts, and machine learning engineers are emerging, providing job opportunities for people with the right skill set. It does not replace people, it empowers them. Using new technologies, humans can work side by side with intelligent systems, combining their unique skills of problem solving, creativity, and empathy with efficiency and computing power. Such collaboration can lead to more efficient and effective outcomes. (Goncharenko K., "*Artificial Intelligence and the Labor Market: Key Challenges and Opportunities*", accessed 10.02.2025)

According to statistics from the International Monetary Fund, 40% of jobs in the global labor market may be affected by the development of artificial intelligence. This trend is likely to deepen inequality. Artificial intelligence will have a significant impact on the labor market, especially in economically developed countries, where changes may affect about 60% of jobs. The consequences of this process will be both positive and negative. Productivity growth through automation of routine tasks will optimize workflows and increase efficiency in many professions, while artificial intelligence can perform some of the tasks currently performed by humans, leading to a reduced need for certain specialists, slower hiring rates, and, in some cases, even the disappearance of certain professions. (Georgieva Kristalina "*AI Will Transform the Global Economy. Let's Make Sure It Benefits Humanity*", accessed 14.02.2025*)*

In contrast, in developing and low-income countries, the impact of AI is expected to be 40% and 26%, respectively, meaning that these countries face less direct impact from AI. The lack of infrastructure or a skilled workforce to take advantage of AI increases the risk of growing inequality between countries due to innovative technologies. Artificial intelligence can affect the level of income in different social groups. Those who are able to use it effectively in their work will benefit from increased productivity and higher wages. At the same time, research shows that AI can help accelerate the professional development of less experienced workers, helping them to learn new skills faster and improve their performance. At the same time, it may be easier for younger workers to

utilize AI capabilities than older ones. Experts of the World Economic Forum believe that AI development will lead to adverse consequences ("*Artificial intelligence could replace about 40% of jobs worldwide - IMF*", accessed 15.02.2025).

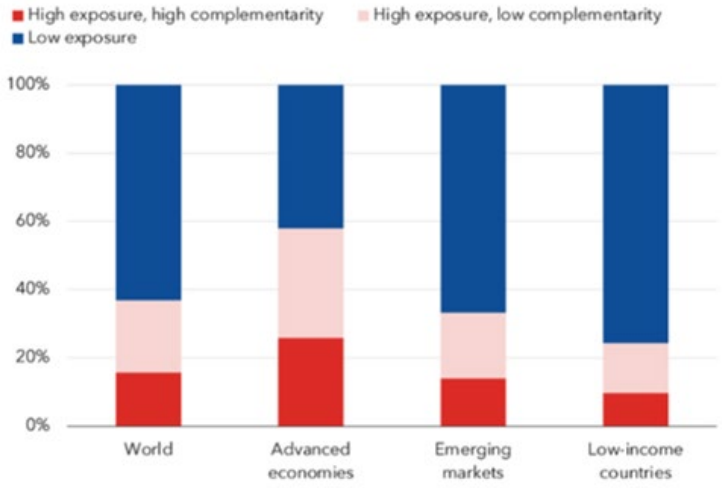

Figure 1. AI's impact on jobs.

Source: *International Labour Organization (ILO) and IMF staff calculations.*

At the same time, new professions related to the development, implementation, and maintenance of artificial intelligence systems are already appearing on the labor market. Companies are looking for specialists with a deep understanding of AI and the ability to work with large amounts of data. The requirements for analytical skills and the ability to quickly adapt to new technologies are also growing (Sam Fox, "*The impact of artificial intelligence on the labor market and employment - challenges and prospects*", accessed 15.02.2025).

The use of artificial intelligence in various industries, such as finance, transportation, and medicine, is actively stimulating the demand for specialists with knowledge and skills in this field. All this leads to the transformation of workplaces and the requirements for modern workers. With the help of AI, repetitive routine tasks automated, which helps workers focus on more complex and creative tasks.

Automation, fueled by AI technologies, has become a key factor in the transformation of many industries. The application of AI allows for the automation of a wide range of tasks, from simple routine operations to complex analytical processes. For example, in the manufacturing sector, automated systems using AI can analyze data from sensors in real time and make decisions that would previously have required human intervention (Gordienko K., "*Impact of artificial intelligence on economic models and strategies*", accessed 15.02.2025).

AI opens up new horizons for optimizing business models by providing businesses with tools to accurately analyze large amounts of data and make informed decisions based on it. One example is pricing models. Thanks to machine learning algorithms, companies can analyze market data in real time and change prices for products or services based on current supply and demand conditions. One example is pricing models. Thanks to machine learning algorithms, companies can analyze market data in real time and change the prices of products or services based on current supply and demand conditions. This approach allows you to maximize profits, optimize inventory, and reduce losses (Gordienko K., "*Impact of artificial intelligence on economic models and strategies*", accessed 15.02.2025).

CONCLUSIONS

Today, AI affects almost all sectors of the economy, helping to automate processes and minimize financial costs. Adapting modern economic models, planning new business strategies will lead to the effective development of AI. However, there are not only positive consequences from the implementation of AI, but also risks and challenges. First, it is necessary to organize retraining of personnel whose professions require automation. Despite certain obstacles, the impact of AI is constantly growing on economic models and the labor market, stimulating increased productivity, the creation of new jobs and improving the quality of services.

REFERENCES

1. Goncharenko K., "*Artificial Intelligence and the Labor Market: Key Challenges and Opportunities*", May 2024. Available at: https://budni.robota.ua/career/shtuchniy-intelekt-ta-rinok-pratsi-osnovni-vikliki-ta-mozhlivosti [Accessed 10.02.2025].
2. Georgieva Kristalina "*AI Will Transform the Global Economy. Let's Make Sure It Benefits Humanity*", January, 2024. Available at: https://www.imf.org/en/Blogs/Articles/2024/01/14/ai-will-transform-the-global-economy-lets-make-sure-it-benefits-humanity [Accessed 14.02.2025].
3. Gordienko K. Economic theory, Macro- and Regional economy. August 16, 2024; Oxford, UK: VII International Scientific and Practical Conference «THEORETICAL AND EMPIRICAL SCIENTIFIC RESEARCH: CONCEPT AND TRENDS». Available at: https://archive.logos-science.com/index.php/conference-proceedings/article/view/2156 [Accessed 15.02.2025].
4. "*Artificial intelligence could replace about 40% of jobs worldwide - IMF* ", January, 2024. Available at: https://www.slovoidilo.ua/2024/01/15/novyna/svit/shtuchnyj-intelekt-mozhe-zaminyty-40-robochyx-miscz-vsomu-sviti-mvf?utm_source= [Accessed 15.02.2025].
5. "The future of jobs report 2023", April, 2023. Available at: https://www.weforum.org/publications/the-future-of-jobs-report-2023/ [Accessed 10.02.2025].
6. Sam Fox, "*The impact of artificial intelligence on the labor market and employment - challenges and prospects*", January, 2024. Available at: https://mediacom.com.ua/vpliv-shtuchnogo-intelektu-na-rinok-pratsi-ta-zajnyatist-vikliki-ta-perspektivi [Accessed 15.02.2025].