45. THE ECONOMIC IMPACT OF ARTIFICIAL INTELLIGENCE ON LABOUR MARKETS

Litvinovich A. A.

Belarusian State University of Informatics and Radioelectronics
Minsk, Republic of Belarus

Liakh Y. V. – Senior Lecturer

While assessing the societal impact of Artificial Intelligence remains complex, this scientific paper investigates its effects on labour markets, with a focus on the IT sector. This paper highlights AI's dual role: as a catalyst for technological progress and as a force transforming traditional workflows. While automation enhances efficiency and introduces new capabilities, it also challenges existing norms, requiring societies to adapt to shifting economic landscapes.

It is hard to underestimate the impact of Artificial Intelligence (AI) on modern world. Since ancient times, human race has been constantly asking questions about the meaning of life and its origin, and it seems that they have created a digital one.

At first, it is necessary to consider what a technical system is. As defined by ScienceDirect, a technical system refers to a physical or digital facility that employs specific technology to deliver services within a defined operational environment [1]. The European Parliament (2023) notes that AI enables such systems to perceive their environment, process information, solve problems, and act toward specific objectives [2].

Artificial Intelligence is capable of writing comprehensive texts, creating videos with reasonable plot, generating images of different types. It uses what is commonly known as a prompt: a user input that describes a desired result.

Artificial Intelligence has caused a job displacement: according to International Management Group (2024), almost 40 percent of global employment is exposed to AI [3]. However, it should be remembered that in order to develop, AI needs information [4]. It follows that the result of AI work will be a processed variation of prior data. So, while AI may contribute to job loss, its development relies on human-generated data, suggesting a symbiotic relationship between automation and human labour.

According to Forbes (2023), Artificial Intelligence is expected to generate a diverse range of new roles in labour markets [5]. The list below outlines the position titles and their respective functions:

1. AI Prompt Engineers specialise in crafting optimised inputs to guide generative AI systems, enabling precise outputs for tasks like content creation, coding, and research.
2. The role of AI Ethics Compliance Managers involves developing policies to ensure AI systems operate fairly, adhere to regulations, and meet ethical standards.
3. As AI-Augmented Healthcare Diagnosticians, professionals use AI-powered tools to improve accuracy and efficiency in medical diagnostics and decision-making.
4. AI-Powered Cybersecurity Analysts rely on AI-driven systems to detect threats and automate responses, safeguarding digital infrastructure against attacks.
5. AI Transparency Auditors examine algorithms to identify biases, ensure explainability, and verify compliance with ethical guidelines.
6. In the role of AI-Human Collaboration Managers, individuals design workflows that seamlessly integrate human expertise with AI capabilities.
7. AI Sustainability Coordinators apply AI solutions to environmental monitoring, energy optimisation, and sustainable resource management.

Conversely, Yahoo Finance (2023) reports that AI is displacing the following occupations:

1. Medical Diagnosticians face reduced demand as AI-assisted imaging and pattern recognition technologies achieve diagnostic accuracy comparable to human experts in radiology and pathology.

2. The traditional role of Financial Analysts is being transformed by algorithmic trading platforms and AI-driven risk assessment tools that automate market forecasting and investment strategies.

3. Customer Service Representatives are seeing their routine tasks handled by advanced chatbots, with human agents increasingly reserved for escalated or complex customer interactions.

4. Legal Researchers now work alongside AI document review systems that can process case law and contracts at speeds unattainable by human paralegals alone.

5. Manufacturing Technicians find their roles evolving as predictive maintenance algorithms and computer vision systems handle most production line monitoring and quality control functions.

6. Content Moderators now primarily review edge cases, as AI filtering systems have become proficient at identifying and flagging inappropriate content at massive scale [6].

While it is well understood that AI has impact on all countries, some of them are more prone to the exposure. This uneven exposure stems from several key factors.

- Economic Structure: Nations heavily reliant on routine, automatable jobs (e.g., manufacturing, basic data processing) face higher displacement risks.
- Digital Infrastructure: Countries with underdeveloped tech ecosystems struggle to adopt AI competitively, risking economic marginalisation.
- Workforce Preparedness: Regions with limited STEM education investment may see widening skill gaps as AI reshapes labour demands.

AI impact distribution across different types of economies is illustrated in Figure 1.

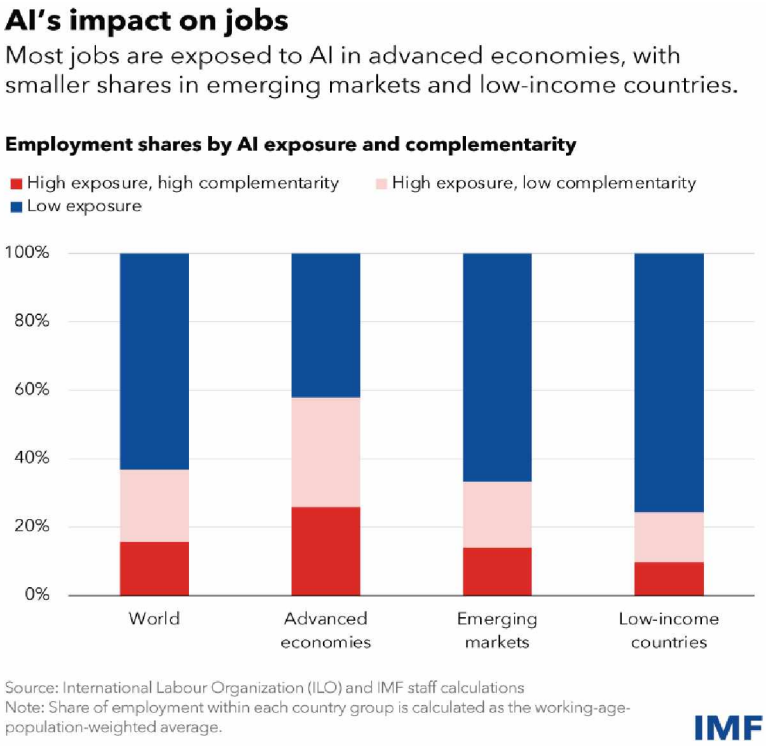

Figure 1 – AI impact distribution across different types of economies

It should be noted that, as Forbes (2023) highlights, certain jobs remain inherently resistant to AI replacement. These include occupations that require creativity, leadership skills, deep empathy, high degree of emotional intelligence, adaptability, ethical judgment. Additionally, Artificial Intelligence is not capable of replacing people in fields such as education and psychology [7].

To conclude, Artificial Intelligence has made a significant impact on the labour markets of advanced economies, mostly because it is offering new tools that allow its users to automate repetitive tasks and therefore to use resources more efficiently. As a result, certain professional roles susceptible to automation are experiencing measurable displacement. **Technological advancement is generating new occupational categories, thereby mitigating potential increases in unemployment rates.**

However, the long-term economic and social implications of AI-driven labour market shifts remain uncertain. Governments, educational institutions and entrepreneurs must collaborate to ensure workforce adaptability through reskilling initiatives, fair transitions for displaced workers and regulatory procedures that encourage innovation while protecting labour stability. Schools and companies should combine their efforts to

teach skills needed for future jobs, like understanding AI, using data responsibly, and working with technology. As AI keeps changing workplaces, investing in lifelong learning and stronger worker protections will be key to making sure progress benefits both the economy and people's lives.

References:

1. Technical System – an overview [Electronic resource] – Mode of access: https://www.sciencedirect.com/topics/computer-science/technical-system. – Date of access: 24.03.2025.

2. What is Artificial Intelligence and how is it used? [Electronic resource] – Mode of access: https://www.europarl.europa.eu/topics/en/article/20200827STO85804/what-is-artificial-intelligence-and-how-is-it-used. – Date of access: 24.03.2025.

3. AI Will Transform the Global Economy. Let's Make Sure It Benefits Humanity [Electronic resource] – Mode of access: https://www.imf.org/en/Blogs/Articles/2024/01/14/ai-will-transform-the-global-economy-lets-make-sure-it-benefits-humanity. – Date of access: 27.03.2025.

4. Russell, Stuart J.; Norvig, Peter. Artificial Intelligence: A Modern Approach (4th ed.) / Stuart J. Russell, Peter Norvig // Pearson Education. – 4th ed. – Hoboken: Pearson, 2021. – 1136 p. – ISBN 978-0-13-461099-3. – LCCN 20190474.

5. 20 New and Enhanced Roles AI Could Create [Electronic resource] – Mode of access: https://www.forbes.com/councils/forbestechcouncil/2023/07/06/20-new-and-enhanced-roles-ai-could-create/. – Date of access: 27.03.2025.

6. 6 Jobs Artificial Intelligence Is Already Replacing and How Investors Can Capitalize on It [Electronic resource] – Mode of access: https://finance.yahoo.com/news/6-jobs-artificial-intelligence-already-150339825.html. – Date of access: 27.03.2025.

7. Jobs AI Just Can't Do [Electronic resource] – Mode of access https://www.forbes.com/sites/eliamdur/2023/11/25/jobs-ai-just-cant-do/. – Date of access: 27.03.2025.