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Artificial Intelligence and Employment: Opportunities and Challenges for Youth

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Abstract

Artificial Intelligence (AI) is becoming an important source of technological change in modern economies. Its development is influencing the way firms organise production, provide services and allocate tasks between workers and technology. This paper examines the relationship between artificial intelligence and employment, with particular attention to young workers. It adopts a literature-based theoretical approach and discusses the potential employment opportunities and challenges associated with AI. Economic theories of technological change suggest that technology can substitute for labour in some tasks while complementing labour in others. AI may therefore reduce demand for certain routine tasks while increasing demand for workers with analytical, digital, creative and interpersonal capabilities. Recent international evidence also indicates that exposure to generative AI does not necessarily imply complete job replacement; in many occupations, the more likely effect is transformation of existing tasks. The paper discusses the possible effects of AI on labour demand, productivity, occupational change, skills and youth employment. It also highlights the importance of education, reskilling and lifelong learning in helping young people adapt to technological change. The paper concludes that the economic consequences of AI depend not only on the technology itself but also on how firms, educational institutions, governments and workers respond to the transition.

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1. INTRODUCTION

Artificial Intelligence has emerged as one of the most important technologies shaping contemporary economic activity. AI systems can process information, identify patterns, generate content, support decisions and automate selected tasks. As these capabilities expand, firms are increasingly considering AI as a tool for improving productivity and reorganising work.

The relationship between technological change and employment is not new. Earlier waves of mechanisation and computerisation generated concerns about worker displacement, but they also created new activities and increased demand for labour in other areas. Autor argues that automation can substitute for labour in routine and codifiable tasks while complementing workers in activities requiring problem solving, adaptability and creativity [1].

The task-based approach developed by Acemoglu and Restrepo similarly emphasises that automation can displace labour from existing tasks while the creation of new tasks can increase demand for labour [2,3]. This framework is useful for understanding AI because many AI applications perform particular tasks rather than replacing entire occupations.

Recent evidence on generative AI reinforces the importance of this distinction. The International Labour Organization's 2025 assessment estimates that one in four workers globally are in occupations with some degree of generative-AI exposure, while most jobs are expected to be transformed rather than made redundant [4].

Youth are an important group in this transition because they are entering the labour market at a time when occupational requirements are changing rapidly. Young workers may benefit from new technology-intensive opportunities, but they may also face difficulties when entry-level tasks become automated. The World Economic Forum's Future of Jobs Report 2025 identifies AI and big data, networks and cybersecurity, and technological literacy among the fastest-growing skill areas expected through 2030 [5].

Against this background, this paper provides a theoretical discussion of AI and employment, focusing on the opportunities and challenges faced by young workers.

2. OBJECTIVES OF THE STUDY

- To examine the theoretical relationship between artificial intelligence and employment.
- To discuss the potential employment opportunities created by AI.
- To examine the major employment challenges associated with AI, particularly for young workers.
- To identify the importance of skills, education and reskilling in an AI-driven labour market.

3. METHODOLOGY

The paper follows a qualitative, literature-based review approach. It does not use primary survey data or statistical estimation. The discussion is based on established economic literature on technological change and automation and recent reports from international institutions. Major sources include research published by the American Economic Association, the

International Labour Organisation, and the World Economic Forum [1–5]. The purpose is to synthesise existing theoretical and empirical insights rather than to estimate a new causal relationship.

4. Artificial Intelligence and Technological Change

Artificial Intelligence refers broadly to computer-based systems capable of performing tasks that normally require aspects of human intelligence, such as learning, prediction, language processing, pattern recognition and decision support. Generative AI is a more recent category capable of producing text, images, code, audio and other forms of content.

From an economic perspective, AI can be treated as a form of technological change that affects the production process. Firms may adopt AI because it can reduce the cost or time required for particular activities, improve accuracy, support workers and create new products or services. The economic effect depends on which tasks are automated, which tasks are complemented and what new activities emerge.

5. AI and Labour Demand

The effect of AI on labour demand is not necessarily uniform. When AI performs a task previously performed by workers, a displacement effect can occur. Acemoglu and Restrepo describe automation as a process through which capital replaces labour in tasks previously assigned to workers [2,3]. However, technological change can also generate a productivity effect. Lower production costs can expand output and increase demand for workers in non-automated activities. In addition, new tasks and occupations may emerge. Therefore, the final employment effect depends on the balance between labour displacement, productivity gains and the creation of new tasks.

Autor's analysis similarly shows that automation can complement labour and increase demand for skills such as problem solving, adaptability and creativity [1]. This suggests that AI should be analysed as a technology that changes the composition of labour demand rather than simply as a technology that eliminates employment.

6. Employment Opportunities Created by AI

AI can create opportunities directly through the expansion of occupations related to AI development, data analysis, machine learning, cybersecurity, digital services and technology management. It can also create indirect opportunities as firms develop new products, services and business models.

The World Economic Forum's 2025 report identifies technology-related roles among the fastest-growing occupations and reports increasing employer demand for AI and big-data skills, technological literacy, analytical thinking and creative thinking [5]. These findings indicate that technological change can create new forms of labour demand alongside the automation of selected tasks.

AI can also support workers in existing occupations. For example, professionals may use AI for information retrieval, drafting, data processing, forecasting or routine administrative work while retaining responsibility for judgement and

decision-making. In such situations, AI functions as a complement to human labour.

7. Employment Challenges of AI

The main employment challenge is the possibility that some tasks will become less labour-intensive. Workers whose jobs contain a high share of automatable tasks may experience changes in job content, reduced demand for particular skills or the need to move into other occupations.

The ILO's 2025 global assessment finds that clerical occupations continue to have relatively high exposure to generative AI, while exposure has also increased in some highly digitised professional and technical occupations [4]. Exposure, however, does not mean that an occupation will disappear. It indicates potential for tasks within that occupation to be affected.

Another challenge is skill mismatch. If the demand for digital, analytical and technological skills grows faster than workers can acquire them, labour-market adjustment may become difficult. This can contribute to differences in employment opportunities and earnings between workers with different skill levels.

There are also concerns about job quality, work organisation and inequality. Recent ILO research notes that the effects of generative AI include not only employment questions but also changes in productivity, work organisation and job quality [6].

8. AI and Youth Employment

Young people occupy a distinctive position in the labour market. They often have stronger exposure to new digital technologies but may have less work experience and fewer established occupational networks. This combination can produce both opportunities and vulnerabilities.

AI may create new entry routes into technology-intensive occupations and increase demand for workers who combine economic, business or domain knowledge with digital capabilities. At the same time, some traditional entry-level tasks may be easier to automate. If these tasks previously provided young workers with opportunities to gain experience, their transformation could affect the transition from education to employment.

The appropriate response is therefore not to assume that young people will either lose or gain from AI uniformly. Outcomes are likely to vary according to occupation, skills, education, access to technology and the ability of workers and institutions to adapt.

9. Skills Required in the AI Era

The growing use of AI increases the importance of both technical and human skills. Technical skills include digital literacy, data analysis, AI awareness, programming and cybersecurity. Human skills include analytical thinking, communication, creativity, adaptability, teamwork and problem solving.

The World Economic Forum's 2025 employer survey identifies analytical thinking as a leading core skill and places AI and big data among the fastest-growing skill areas [5]. This suggests that the labour market may increasingly reward combinations

of technological and human capabilities rather than technical skills alone.

For young workers, lifelong learning becomes particularly important. Education systems can provide foundational digital and analytical skills, while employers can support continuous training and reskilling. Such measures can reduce adjustment costs when occupational tasks change.

10. Economic Implications

The adoption of AI can influence several economic variables simultaneously. Higher productivity may reduce unit costs and increase output. Changes in labour demand can affect employment and wages. New tasks may create additional demand for labour, while automation may reduce demand for workers performing specific routine tasks.

The distributional consequences are also important. Workers with complementary skills may benefit more quickly from AI adoption, while workers whose tasks are more exposed to automation may face greater adjustment pressures. The overall effect therefore depends on the interaction between technological change, human capital, investment, labour-market institutions and education.

From a broader development perspective, access to AI-related opportunities may depend on digital infrastructure and the affordability of technology. Policies that expand access to education, training and digital resources can influence how widely the benefits of AI are distributed.

11. Suggestions

Educational institutions should strengthen digital literacy, analytical thinking and practical technology skills.

Young workers should be encouraged to develop complementary human skills such as communication, creativity, adaptability and problem solving.

Governments and employers should expand accessible reskilling and upskilling programmes.

Training programmes should combine AI-related technical knowledge with domain-specific knowledge rather than focusing only on programming.

Labour-market policies should monitor occupational changes and support workers who need to transition between tasks or occupations.

AI adoption should be accompanied by attention to job quality, worker participation and equitable access to technological opportunities.

12. CONCLUSION

Artificial Intelligence is changing the economic organisation of work by altering the tasks performed by workers and technologies. Its effect on employment cannot be understood simply as a choice between job creation and job destruction. Economic theory and recent international evidence show that automation can displace labour from some tasks while technological change can also complement workers, raise productivity and create new tasks and occupations. Young workers are likely to experience both opportunities and adjustment pressures as the labour market evolves. The ability to benefit from AI will depend substantially on education,

digital capability, adaptability and access to reskilling. Therefore, the central economic challenge is to support a transition in which productivity gains from AI are accompanied by opportunities for workers to develop complementary skills and participate in emerging forms of employment.

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Conflict of Interest

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