

# The Impact of Artificial Intelligence (AI) on Employment and Wage Inequality

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## Abstract

Artificial intelligence (AI) is transforming employment, skill demands, and wage distribution. While automation replaces routine jobs, it also creates new roles in data analysis, programming, and AI ethics. This shift benefits highly skilled workers but increases unemployment risks and wage gaps for low-skilled groups. It also deepens regional and gender inequalities, as areas with better digital infrastructure and skills gain more advantages, while women's limited access to technology widens disparities. Therefore, education, reskilling, and upskilling are essential for inclusion. Additionally, technologies like blockchain and digital financial inclusion improve access to financial services, supporting economic participation and reducing inequality.

**Keywords-** Artificial Intelligence (AI), Employment, Wage Inequality, Automation, Digital Skills.

## INTRODUCTION

Artificial Intelligence (AI) is becoming a dynamic force in global labor markets, reshaping employment structures, skill requirements, and wage distribution. As AI technologies advance, routine tasks are increasingly automated, leading to a shift in human labor demand and an increasing importance of advanced technical and cognitive skills (OECD, 2024; Frey & Osborne, 2017). While AI creates new job opportunities in highly skilled fields, it also poses serious challenges for low-skilled workers and can widen wage gaps (Acemoglu & Restrepo, 2020). The integration of AI into business processes not only impacts productivity, but also affects companies' wage policies, labor market dynamics, and regional inequalities. In addition to AI, other digital technologies such as blockchain and digital financial inclusion (DFI) are emerging as important drivers of economic transformation. Blockchain provides transparency, security, and operational efficiency in supply chain management (Ahmadova & Mammadov, 2025), while DFI helps reduce income inequality by creating wider access to formal financial services, especially for groups that have traditionally limited access to financial services, such as women and rural populations (Rzayeva, 2025). Understanding the interaction of AI with these complementary technologies is essential for developing effective policies that promote inclusive and fair labor market outcomes.

The aim of this study is to examine the multifaceted impact of AI on employment and wage inequality, and to assess the impact of automation, the emergence of new professions, digital skills, and regional disparities on the labor market. Taking into account the contributions of blockchain technology and digital financial inclusion, it identifies ways to mitigate the negative impacts of technological change and maximize the opportunities for inclusive economic growth.

Artificial intelligence (AI) is one of the main transformative forces in the labor market. AI increases the demand for workers with technical and digital skills, creating a more competitive environment in the labor market. This process encourages workers to improve their education and skills

(Arntz, Gregory & Zierahn, 2016). AI allows workers to move away from monotonous tasks and focus on creative work. At the same time, the disappearance of jobs in some areas can deepen inequality in the labor market. The spread of AI also affects the international labor market, changing the exchange of workers and wage differences between countries. Increased productivity has both positive and negative effects. To understand the impact of AI, it is important to consider not only the technology, but also the skill level of workers. Government and company policies should maximize the positive effects of AI and minimize its negative effects. The integration of AI into the labor market should be gradual and programs should be implemented to develop the appropriate skills of workers.

Automation is one of the most striking impacts of AI. Acemoglu & Restrepo (2020) show that robotization and automation reduce the employment opportunities of low-skilled workers. AI is more effective at performing repetitive tasks, which leads to job losses in some sectors. Bessen (2019) emphasizes that in some sectors, automation may increase demand, but this increase is not evenly distributed. Automation affects manufacturing and transportation sectors the most. The spread of AI is also changing office work, creating a need for new skills focused on analysis and management. Workers without digital skills may become unemployed. At the same time, reskilling programs are important to reduce these risks. Automation can increase wage inequality in the labor market, but with the right policies and education programs, this impact can be managed. AI both increases productivity and encourages workers to upgrade their skills. AI does not only automate existing jobs, but also creates new professions. The development of AI technologies not only changes existing work processes, but also leads to the emergence of new professions such as data analysis, programming and AI ethics. (Bughin et al. (2018)) The World Economic Forum (2020) shows that in the AI era, new professions in data analysis, programming and AI ethics are emerging. These new professions have the potential to increase workers' incomes. AI directs workers not only to technical skills, but also to strategic and creative skills. New

professions make the labor market more flexible, but may create labor shortages in some areas. Transformation increases the need for reskilling and upskilling of workers. This process should be supported not only by technological development, but also by education and public policy. New work models require more flexible working conditions. AI also improves the quality of work and strengthens competition in the labor market. Transformation is important for long-term economic growth.

The development of artificial intelligence technologies leads to structural changes in the labor market, reshaping the content of jobs and the skills required. AI technologies can both create new job opportunities and have the potential to widen the wage gap between high- and low-skilled workers (OECD - 2024). As automation and intelligent systems take over routine tasks, the demand for advanced technical skills increases, while traditional roles may be reduced or eliminated. Understanding the dynamics of employment changes driven by AI is important for designing policies that promote fair wage growth and inclusive labor market outcomes (Frey & Osborne, 2017; Arntz, Gregory & Zierahn, 2016; OECD, 2019). The impact of automation and AI on the labor market varies by skill level. According to the OECD (2019), low-skilled workers are the group most at risk, as their routine tasks can be performed by AI. Bessen (2019) notes that wages in low-skilled jobs grow more slowly and unemployment is higher. It is important for governments and companies to support labor market adaptation in a planned manner.

Education and training programs are one of the main tools to mitigate this impact. The introduction of AI also increases inequality between different sectors in the labor market. Workers without digital skills are more at risk as technology advances. Social protection mechanisms are essential to protect the incomes of low-skilled workers. The spread of AI creates new opportunities for highly skilled workers. Brynjolfsson & McAfee (2014) note that high technical skills accelerate wage growth and increase the value of workers in the labor market. Professions such as programming, data analysis and strategic management are in high demand in the AI era. IMF (2025) shows that while the introduction of AI increases the incomes of highly skilled workers, it widens the wage gap between them and low-skilled workers. This may lead to increased inequality in the labor market. At the same time, highly skilled workers gain additional bonuses and opportunities as they adopt new technologies. The impact of AI is not only measured in wages, but also increases the quality of work and project opportunities. In my opinion, companies can ensure both productivity and fairness in the labor market by developing programs aimed at highly skilled workers. The development of digital skills provides greater flexibility and income opportunities in the labor market. The spread of AI intensifies inter-professional competition, and highly skilled workers benefit from this.

The spread of AI can deepen employment gaps between regions. The European Economic Review (2025) shows that AI innovation increases the labor share in high-tech regions, but job opportunities remain limited in developing regions. Bughin et al. (2018) note that regional differences depend on the availability of technological infrastructure and digital skills. Public policies and resource allocation are important to

ensure that AI does not increase inter-regional inequality. The development of education and technology infrastructure is one of the main tools to reduce regional differences. The changes brought by AI have different effects in urban and rural areas, which requires the adaptation of the inter-regional labor market. The introduction of AI technologies leads to the reshaping of wage policies and the division of labor, as well as increasing the productivity of companies. Bessen (2019) notes that although AI increases the productivity of workers, it requires the initiative of companies to ensure an equitable distribution of wages. OECD (2024) shows that while AI provides productivity growth, wage gaps can increase. In my opinion, companies should support high productivity with policies of collaboration and equal distribution. Productivity growth creates higher income opportunities in the labor market, but some workers are not able to benefit from this growth. The introduction of AI by companies increases competition in the labor market and encourages workers to develop their skills.

AI is changing work models in the gig economy. Graham, Hjorth & Lehdonvirta (2017) note that digital platforms offer temporary work opportunities to workers, but social protection and stability are weak. AI platforms optimize the distribution of work and manage tasks more efficiently. In my opinion, protection of the rights of gig workers and reskilling programs can ensure equality in the labor market. AI can also increase the skills of platform workers and increase their wage opportunities. AI also changes the quality of jobs. De Stefano (2016) notes that as gig and freelance work increase, the share of full-time jobs decreases. AI and platforms provide workers with more flexible and short-term work on projects. This poses risks in terms of job security and social security. To prevent this, governments and companies must implement policies that maintain stability in the labor market. While AI offers new opportunities for workers, protecting the rights of full-time workers should be one of the important issues for companies.

This technological transformation requires workers to acquire new skills and makes reskilling programs one of the main tools of the labor market. The World Economic Forum (2020) shows that in order to adapt to technological changes, workers need to be trained in digital skills and strategic thinking. OECD (2019) notes that reskilling programs help maintain the presence of low- and medium-skilled workers in the labor market. In my opinion, education and reskilling in the AI era should be supported by government and company cooperation. These programs increase labor market inclusion and reduce income inequality.

AI and other digital technologies can deepen wage inequality. Technology-driven automation accelerates the growth of worker incomes in some sectors, while reducing them in others. AI has the potential to create a gap between both high-skilled and low-skilled workers. These gaps also vary across regions and industries. While AI provides wage advantages for skilled workers, low-skilled workers remain at risk. Digital skills shortages can limit both employment opportunities and income levels for workers. Social programs and educational initiatives are essential to address the inequalities brought by AI. This is a key step to increase inclusiveness in the labor market. AI also increases the productivity of companies, but

policies are needed to ensure fair distribution in the labor market. The World Economic Forum (2021) shows that women lag behind men in accessing technology and developing digital skills. Brynjolfsson, Rock & Syverson (2018) note that AI increases the number of highly technical jobs in areas that are dominated by men, resulting in relatively low wages for women. AI can also affect women's traditional employment sectors by automating routine tasks. In order to reduce gender inequality, women's access to digital skills and training opportunities in technology should be increased. Public policies and corporate initiatives can ensure women's fair participation in the labor market in the era of AI. At the same time, reskilling programs can reduce wage gaps by developing women's technical and strategic skills.

Digital skills are a key factor determining income disparities in the labor market in the AI era. Arntz, Gregory & Zierahn (2016) note that workers with digital skills have higher salaries and job opportunities. Programming, data analysis, and technical skills provide an advantage in the labor market. The increase in digital skills leads to flexibility in the labor market and allows workers to adapt to new technologies (World Economic Forum (2020)). Education and reskilling programs play a key role in the development of digital skills. AI focuses workers not only on technical skills, but also on strategic thinking and problem-solving skills. This reduces disparities in the labor market.

At the same time, other digital technologies, such as Blockchain technology, play an important role in the economy and operational management. Blockchain provides a decentralized and immutable framework, ensuring real-time tracking and confirmation of transactions between parties. As a result, product tracking becomes transparent, operational errors are reduced, and trust between partners increases. However, the implementation of technology is not only about technological integration; regulatory compliance and initial investment costs must also be carefully considered (Ahmadova & Mammadov, 2025).

Digital financial inclusion (DFI) acts as an important tool for reducing inequality in the labor market and inclusive economic growth. Rzayeva (2024) notes that DFI is a key tool for reducing inequality in the labor market and for inclusive economic growth. and other digital platforms. The study used panel data and case study methods from Kenya, India, and Bangladesh to examine the relationship between DFI and income inequality. The results show that as DFI increases, the Gini index tends to decrease, meaning that access to digital financial instruments reduces income inequality. In particular, groups with limited access to traditional banking services, such as women and rural populations, have easier access to financial opportunities through DFI (Rzayeva, 2024).

AI, Blockchain, and DFI together increase the capabilities of technology in the labor market, both increasing productivity and providing new tools to reduce inequality. However, these technologies should not only increase productivity, but should also be accompanied by policies and programs that promote social inclusion.

Ensuring equality in the labor market in the future depends on the integration of technologies such as AI, Blockchain, and DFI. Like artificial intelligence, blockchain technology has emerged as an important innovation in the digital economy

and has significant implications for transparency, efficiency, and security in supply chain management. provides improvements. This technology increases trust between parties by ensuring secure and transparent recording of transactions and enables transparent tracking of goods, verification of transactions, and seamless integration between partners (Ahmadova & Mammadov, 2025). Brynjolfsson & McAfee (2014) note that although technology increases productivity, planned policies are required for equitable distribution. Reskilling and education programs increase labor market flexibility. It is possible to maintain labor market inclusiveness by taking advantage of AI. To achieve this goal, public policy, corporate initiatives, and technology integration should be implemented in a complementary manner. Technology and social policy should create synergy to ensure equality in the labor market. Proper management of AI and digital technologies can reduce income inequality in the labor market.

## CONCLUSION

Artificial Intelligence has emerged as a major factor transforming global employment structures and wage distribution. This technology creates new opportunities for highly skilled workers, while also impacting low-skilled and marginalized groups by putting routine jobs at risk (Bessen, 2019; OECD, 2019). Regional and gender disparities further complicate labor markets and highlight the importance of inclusive policies to address structural inequalities. Additional digital technologies, such as blockchain and digital financial inclusion, offer opportunities to ensure transparency, operational efficiency, and equitable access to economic resources (Ahmadova & Mammadov, 2025; Rzayeva, 2024). These technologies help reduce wage disparities, increase financial inclusion, and support the creation of new job opportunities. To ensure equitable outcomes in the AI era, governments and organizations need to implement comprehensive strategies that combine reskilling programs, inclusive labor policies, and technology integration. By combining productivity growth with social justice, labor markets can adapt to the changes brought about by AI and reduce income inequality. As a result, the future employment and wage distribution depends on the coordinated application of technology, education, and policy to build inclusive and sustainable labor markets.

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