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THE ECONOMIC IMPACT OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES ON THE LABOR MARKET AND FUTURE PROFESSIONS

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Abstract. *This article examines the economic impact of artificial intelligence (AI) technologies on the labor market and on the formation of future professions. As AI increasingly permeates manufacturing, services, finance, education, healthcare, and public administration, the content of labor processes and the competencies expected of employees are undergoing substantial change. The study analyzes how AI automates certain labor tasks and affects existing jobs, while considering the opportunities it creates for new occupations and work tasks. Attention is given to the growing demand for digital and analytical skills, together with the economic significance of retraining and upskilling the workforce. The paper further examines how artificial intelligence affects labor productivity, work efficiency, production costs, and enterprise competitiveness, and considers how technological change reduces demand for certain occupations while altering the content of others and increasing demand for entirely new ones. The research was conducted using a desk-research design and a comparative-analytical methodology based on official reports of international organizations, including the International Labor Organization, the OECD, and the World Economic Forum. The findings show that AI's effect on the labor market is a complex, multidirectional process that cannot be reduced to job losses alone, since it also generates new professions, tasks, competencies, and economic opportunities. Developing human capital, cultivating digital skills, and sustaining labor market competitiveness under conditions shaped by artificial intelligence constitute key economic tasks of the present period. The conclusions inform practical recommendations for Uzbekistan's labor market and are of value to economics students, researchers, and policymakers shaping future employment policy.*

Keywords: *artificial intelligence, automation, labor market, future professions, digital economy, labor productivity, digital skills, professional competencies, technological unemployment, human capital.*

INTRODUCTION

In recent years, the rapid development of artificial intelligence (AI) technologies has been driving fundamental change across virtually every sector of the economy. Earlier waves of technological transformation - the steam engine, electrification, and the computer revolution - each reorganized labor markets over the course of decades; the diffusion of AI is occurring on a markedly compressed timescale and across a far broader range of occupations, from routine clerical work to tasks once considered the exclusive domain of highly skilled professionals. The expanding use of AI

in manufacturing, finance, trade, transport, education, healthcare, and public administration is having a particularly strong effect on how labor processes are organized. As a result, not only the content of existing jobs but also the requirements employers place on their staff are shifting.

It would be a mistake to view AI's impact on the labor market simply as a matter of technology replacing human labor. While automating certain tasks can reduce demand for labor, technological development simultaneously creates conditions for new tasks, new products and services, and new professions to emerge. D. Acemoglu and P. Restrepo describe this through two opposing forces: a "displacement" effect that results from automation, and a "reinstatement" effect associated with the emergence of new tasks [1]. Understanding which of these two forces predominates in a given sector, occupation, or country is one of the central empirical and policy questions raised by the spread of AI.

In 2025 a study by the International Labor Organization assessed the impact of generative AI on the global labor market at scale. According to the study, roughly one in four workers worldwide holds a job that is exposed, to some degree, to generative AI. At the same time, the study finds that a change in the content of existing occupations and their tasks is considerably more likely than the outright disappearance of jobs [2]. This distinction between exposure and displacement is critical for policymakers, since it implies that the primary economic challenge is not mass unemployment as such, but the reallocation of tasks within occupations and the retraining this reallocation demands.

This process also makes the question of how future professions will take shape increasingly pressing. As artificial intelligence, big data, algorithms, and digital platforms continue to advance, demand is rising for roles such as AI specialists, data analysts, machine learning engineers, and digital transformation specialists. At the same time, most traditional occupations now require new skills connected to the use of digital technologies, meaning that the boundary between "technology occupations" and "traditional occupations" is itself becoming less distinct.

These global shifts are also highly relevant to Uzbekistan's labor market. The growth of the digital economy, the expanding use of automation within enterprises, and the wider adoption of AI tools may all bring about structural change in the demand for labor resources in the years ahead. Recent state programs aimed at digital transformation and the development of AI-related regulation in Uzbekistan [7; 8; 9] indicate that these questions are already being placed on the national policy agenda, even though systematic empirical research on their labor market consequences remains limited.

The aim of this study is to assess the economic impact of artificial intelligence technologies on the labor market and on the formation of future professions. In line with this aim, the research pursues the following objectives: to examine the theoretical foundations of the relationship between technological change and employment; to assess the scale and nature of generative AI's exposure across occupations worldwide; to analyze AI's effect on labor productivity, work processes, and enterprise competitiveness; and to identify the implications of these global trends for Uzbekistan's labor market and education system. The object of the research is the labor market under conditions of accelerating AI adoption, while its subject is the set of economic relations that arise as AI technologies reshape labor demand, occupational structures, and workforce competencies. The scientific novelty of the study lies in its systematization of international empirical evidence on AI's labor market exposure and in extending these findings, through comparative and thematic analysis, to the specific institutional and economic conditions of Uzbekistan - a context that remains under-examined in the domestic economic literature.

LITERATURE REVIEW

The relationship between artificial intelligence and the labor market has been widely studied within economics, labor economics, and research on technological change. The existing literature on this subject generally falls into three strands: the automation and displacement of labor, the transformation of work tasks within occupations, and the emergence of entirely new occupations and skill requirements.

Within the first strand, Acemoglu and Restrepo provide one of the most influential theoretical

frameworks. Analyzing the effect of technological development on the labor market over several decades of U.S. data, they argue that automation reduces the need for human labor in particular tasks, while the emergence of new tasks reshapes labor demand in the opposite direction. Their central insight is that the net effect of technology on employment and wages depends on the relative strength of these two forces at any given time, rather than on any inherent tendency of technology to destroy or create jobs [1]. This framework is particularly useful for interpreting AI, since generative AI plausibly affects both forces simultaneously - automating some cognitive tasks while enabling entirely new categories of digital work.

Agrawal, Gans, and Goldfarb approach artificial intelligence from a different angle, treating it primarily as a technology for automating prediction rather than a general-purpose substitute for labor. In their view, AI lowers the cost of decision-making under uncertainty, which can raise efficiency across many areas of economic activity without necessarily displacing the workers who make the final decisions. Their argument implies that AI's labor market effects will depend heavily on the complementary human judgment required alongside improved prediction, a point echoed in later empirical work on task-level exposure [5].

The second strand of the literature, concerned with task transformation, is well represented by the OECD's report "OECD Employment Outlook 2023: Artificial Intelligence and the Labor Market." The report examines how AI affects jobs, worker tasks, working conditions, and wages across member countries, and shows that AI's impact on the labor market is closely tied to how widely the technology has diffused within a sector and to workers' capacity to make use of it. Notably, the OECD report finds that highly skilled occupations are not automatically insulated from AI exposure, since many analytical and knowledge-based tasks are themselves susceptible to automation by generative models [3].

The ILO's 2025 study, part of the third strand, assessed the extent to which generative AI affects different occupations using a refined occupational exposure index. It found that AI's impact varies considerably across occupations: some clerical and administrative occupations show a high degree of automation potential, while in many professional and managerial occupations the technology instead complements human labor by handling routine sub-tasks and freeing time for higher-value activities [2]. This occupation-level heterogeneity is a recurring theme across the literature and underscores why aggregate exposure statistics must be interpreted with care.

The World Economic Forum's 2025 "Future of Jobs Report" situates AI within a broader set of macro-trends - demographic change, the green transition, and shifting trade patterns - that are jointly reshaping global employment. The report notes that technological change will significantly affect the structure of the labor market in the years ahead, and, alongside AI- and big-data-related skills, it stresses that human skills such as analytical thinking, creativity, adaptability, and collaboration will retain their importance even as automation expands [4]. This finding is consistent with the view, shared across much of the reviewed literature, that AI is best understood as reshaping the mix of tasks within jobs rather than eliminating jobs wholesale.

A smaller but growing body of regional literature has begun to examine these questions in the context of Uzbekistan and Central Asia specifically. Rahimov [10; 17] and Isadjanov [13] discuss the interrelationship between artificial intelligence and labor economics and propose strategies for retraining human capital, while Irmatova and Iskandarova [14] and Goyipnazarov [15] examine, respectively, the new requirements AI implementation places on human capital and an econometric approach to assessing its labor market effects. Abdurahmonov and Zokirova [16] provide a broader theoretical treatment of labor economics and human capital that situates these AI-specific studies within the national academic tradition. Taken together, this regional literature signals growing scholarly interest but also confirms that empirical, data-driven research on AI's labor market effects in Uzbekistan remains at an early stage.

Taken as a whole, the existing scholarship suggests that AI's effect on the labor market should not be treated as a one-directional process, but rather as a complex one that encompasses the transformation of work tasks, the automation of particular activities, and the emergence of new types

of economic activity. This synthesis forms the conceptual basis for the analysis presented in the following sections.

METHODOLOGY

The study employed a desk-research design combined with qualitative, comparative-analytical methods, an approach well suited to a topic for which internationally comparable primary data are more readily available at the global and regional level than at the level of individual national labor markets such as Uzbekistan's.

The principal sources of empirical evidence were official analytical reports published by the International Labor Organization, the Organization for Economic Co-operation and Development (OECD), and the World Economic Forum, selected because each organization applies a transparent, internationally standardized occupational classification and exposure methodology, which allows their findings to be compared across countries and over time. These sources were supplemented with peer-reviewed scholarly work by authors such as Acemoglu and Restrepo and Agrawal, Gans, and Goldfarb, chosen for their influence on the theoretical framing of technology-labor relationships in the economics literature, as well as with regional studies addressing Uzbekistan's labor market and human capital specifically.

The analysis proceeded in two stages. First, key quantitative indicators were extracted from each source - in particular, the share of employment exposed to generative AI, and estimates of new versus disappearing jobs - and organized into a comparable format. Second, these indicators were examined using thematic analysis, in which recurring conceptual themes (automation and displacement, task transformation, and the emergence of new occupations) were identified across sources and used to structure the interpretation of the evidence. Where quantitative indicators were available for multiple country-income groups, they were compared across those groups to assess whether AI's labor market exposure differs systematically with a country's level of economic development.

The study covers the period 2019–2026, corresponding to the period of rapid development and diffusion of generative AI technologies, beginning shortly before the publication of Acemoglu and Restrepo's foundational 2019 article and extending through the most recent ILO and WEF reports available at the time of writing. This time frame was chosen deliberately to capture both the pre-generative-AI theoretical literature and the subsequent empirical evidence specific to large language models and related technologies.

As with any desk-research design, the methodology has clear limits: it synthesizes and reinterprets existing secondary data rather than generating new primary measurements, and its conclusions are only as reliable as the underlying reports on which it draws. These limitations are addressed further in the Discussion section.

ANALYSIS AND RESULTS

One of the central questions in assessing AI's impact on the labor market is identifying which occupations and work tasks are affected, and to what degree.

The ILO's 2025 study found that roughly 25 percent of jobs worldwide are exposed, to some extent, to generative AI. This figure does not, however, mean that all of these jobs will automatically disappear; the study indicates that generative AI is more likely to alter certain tasks within existing occupations than to replace them outright [2]. Table 1 summarizes the study's principal global indicators.

Table 1

Global employment exposure to generative AI [6]

Indicator	Value
Global employment exposed to some degree to GenAI	25%
Global employment with the highest level of	3.3%

exposure	
Employment exposed in high-income countries	34%
Employment exposed in low-income countries	11%

The table shows that AI's effect on the labor market varies substantially with a country's level of economic development. In high-income countries, a much larger share of jobs is exposed to AI than in low-income countries - a threefold difference that may reflect the wider adoption of digital technologies, the larger share of knowledge-based and clerical services in these economies, and generally higher rates of computer and internet use among the workforce [2]. For a lower-middle-income country such as Uzbekistan, this pattern suggests that direct exposure to generative AI may currently be lower than the global average, but that exposure is likely to rise as digitalization proceeds, which strengthens the case for proactive rather than reactive policy responses.

An important distinction here is that "a job exposed to AI" and "a job eliminated by AI" are not the same thing. The automation of certain tasks within an occupation does not necessarily mean the occupation disappears altogether; on the contrary, as repetitive and technical tasks decline, the share of analytical, creative, and interpersonal tasks in an employee's work may actually grow. This reallocation of tasks within a job, rather than the elimination of the job itself, appears to be the more common pattern documented across the reviewed sources.

The framework proposed by Acemoglu and Restrepo helps explain this process at a theoretical level. Automation replaces certain tasks previously performed by people with technology, but technological development can also generate new tasks and new forms of labor activity. The effect of technology on labor is therefore, at one and the same time, a process that can reduce demand for the existing workforce in some tasks and give rise to new demand in others [1]. Applied to the present case, this implies that a full accounting of AI's labor market effect must consider not only the occupations at risk of automation but also the new occupations - prompt engineers, AI trainers, data annotators, and AI governance specialists, among others - that are emerging alongside them.

Another significant economic effect of AI concerns labor productivity. The ability to process large volumes of data quickly, prepare documents, analyze information, or automate routine operations can shorten the time needed to produce a unit of output or service. In sectors such as finance, accounting, and customer service, where a large share of tasks involves structured information processing, these productivity gains can be particularly pronounced.

Higher productivity, however, does not automatically translate into higher income or employment for every worker. The outcome also depends on how the technology is introduced, on employees' capacity to make use of new tools, on the institutional conditions of the labor market - including collective bargaining arrangements and labor regulation - and on the extent to which productivity gains are shared between firms, workers, and consumers rather than captured solely by capital owners.

The development of AI and digital technologies is simultaneously shaping demand for new occupations in the labor market - occupations connected, above all, to working with data, developing algorithms, managing AI systems, and creating digital products. The World Economic Forum's 2025 report projects that, by 2030, various macroeconomic and technological shifts will create 170 million new jobs worldwide while eliminating 92 million, for a net gain of roughly 78 million jobs [4]. These figures reflect the combined effect of technological, economic, demographic, and other macro-level trends, not AI alone, and should therefore be read as an indication of the broad direction of change rather than a precise forecast attributable to any single technology.

The same WEF report identifies technology-, data-, and AI-related specializations among the occupations expected to see the strongest demand in the years ahead [4]. This points to the growing importance, in the future labor market, of combining two complementary types of competencies:

• technological competencies - data analysis, the use of AI tools, programming, and the ability to work with digital platforms;

• human competencies - critical thinking, creativity, problem-solving, communication, teamwork,

and adaptability.

Technical knowledge alone, in other words, is unlikely to be sufficient going forward. An employee's ability to work alongside AI systems and to critically evaluate the results they produce is itself becoming an important competency - arguably as important as technical proficiency with any single software tool, given how rapidly specific AI applications are evolving.

The development of AI technologies also presents both new opportunities and new challenges for Uzbekistan's labor market. In finance, banking, accounting, marketing, trade, education, public administration, and services, the use of AI makes it possible to automate certain standard and repetitive tasks, potentially freeing employees to focus on tasks requiring judgment, client interaction, and local contextual knowledge that AI systems cannot easily replicate. In the public sector specifically, AI-supported document processing and citizen-service tools could improve efficiency, but only if accompanied by adequate staff training and clear regulatory guidance, an area addressed in part by recent national initiatives on AI ethics and governance [9].

In this context, developing the workforce's digital competencies takes on particular importance. Building AI- and digital-technology skills within educational institutions, and retraining and upskilling the existing workforce, both strengthen the labor market's capacity to adapt to technological change. Universities and vocational institutions have a specific role to play here, since curricula that lag behind technological practice risk producing graduates whose skills are already partially obsolete by the time they enter the labor market.

For students of economics in particular, skills in data analysis, the digital economy, the use of AI tools, and the economic evaluation of technological processes will carry considerable weight in their future careers, whether in the private sector, public administration, or academic research.

DISCUSSION

The findings presented above are consistent with the aim and objectives set out in the introduction. They confirm that AI's impact on the labor market is not one-directional but emerges instead from the interplay between automation and the creation of new tasks, and they show that this impact is unevenly distributed across countries at different income levels and across occupations with different task compositions. This conclusion aligns closely with the results reported by Acemoglu and Restrepo and by the ILO, and it lends empirical support to the balance between "displacement" and "reinstatement" effects discussed in the literature review [1; 2].

At the same time, the analysis qualifies some of the more alarmist narratives that equate AI exposure with imminent, large-scale job loss. As the discussion of Table 1 shows, exposure to generative AI is not synonymous with job elimination, and the OECD and WEF findings both suggest that human skills - critical thinking, creativity, and interpersonal communication - will remain economically valuable even as automation expands into cognitive tasks previously considered safe from technological substitution [3; 4].

For Uzbekistan, the practical implication of these global findings is that policy attention should focus less on preventing AI adoption and more on managing the transition it entails: expanding digital-skills training, aligning higher-education curricula with emerging labor market demand, and building institutional capacity for AI governance in both the public and private sectors. The regional literature reviewed above [10; 13; 14; 15; 17] points in a similar direction, though it also confirms that locally grounded, quantitative evidence on these questions remains scarce.

The main limitation of this study is that the analysis relies largely on international sources and global indicators, since disaggregated statistical data on AI's labor market exposure specific to Uzbekistan are not yet systematically available. As a result, the extrapolation of global patterns to the local context should be treated as indicative rather than definitive. A further limitation is inherent to the desk-research design itself: because the study synthesizes existing reports rather than collecting new survey or administrative data, its conclusions cannot capture labor market dynamics that have not already been documented by the sources reviewed.

These limitations point directly to an agenda for future research. Empirical studies using

Uzbekistan's own occupational classification system, together with firm-level or household survey data on AI adoption and its employment effects, would substantially strengthen the evidence base available to domestic policymakers and would allow the theoretical framework developed by Acemoglu and Restrepo to be tested directly against local conditions rather than inferred from international comparisons.

CONCLUSION

The findings show that the development of AI technologies is having a substantial economic effect on the structure and content of the labor market - an effect that cannot be adequately captured simply in terms of job losses. Alongside automating certain labor tasks, AI is also contributing to the emergence of new tasks, occupations, and areas of economic activity.

AI's impact on the labor market manifests primarily along three lines: the automation of existing work tasks, changes in the content of traditional occupations, and the emergence of new occupations altogether. In the future labor market, what will matter is therefore not simply possessing a single area of professional knowledge, but the ability to work with new technologies and to continually update one's skills.

For Uzbekistan, strengthening the link between the education system and the labor market, developing young people's digital competencies, expanding retraining programs for the existing workforce, and preparing specialists for new AI-related occupations stand out as key practical tasks arising from this research. Artificial intelligence remains one of the key technological forces shaping the future development of the labor market, and its ultimate economic effect will depend not only on the technology itself but also on human capital, the quality of education, workers' adaptability, and the labor market's capacity to respond to changing conditions.

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