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The Advent of Artificial Intelligence (Ai) And Unemployment Circumstances in India

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Abstract
Artificial intelligence (AI) is reshaping India's labour market, with 12 million jobs projected by 2025. However, concerns about employment displacement persist, particularly in the IT industry. Governments must prioritize human engagement and skill development for effective AI partnerships. Globally, AI influences both productivity and displacement. The rapid advancement of Artificial Intelligence (AI) has significantly impacted various sectors, reshaping employment patterns and creating new challenges in India. While AI-driven automation enhances efficiency, it also leads to job displacement, particularly in labor-intensive industries. This paper explores the relationship between AI adoption and unemployment in India through a review of literature and data analysis. Policymakers must keep track of technological changes and assist workers in adjusting to and profiting from technology, guaranteeing a balanced approach to human-AI partnership.

Keywords: AI, Unemployment, productivity, displacement

Introduction

The rapid development of artificial intelligence (AI) is drastically transforming the global job environment, with India at the vanguard of this transformational path. With the integration of AI technology, the Indian workforce is now confronting a dual narrative of job creation and displacement, demanding a more sophisticated understanding of the changing employment dynamics.

According to recent estimates, including those from the NASSCOM Future Skills platform, AI is expected to produce around 12 million employment in India by 2025, outnumbering the total number of jobs lost to automation. This hopeful vision emphasises the importance of upskilling activities and adapting to new employment requirements to reap the potential benefits of AI-driven businesses (NASSCOM, 2022). However, worries stay, particularly in industries such as information technology, where job displacement threats are high owing to automation-driven efficiency improvements. Recently India's first AI-powered school teaching robot was introduced at a Kerala school. It is powered by robotics and AI technologies, has a voice assistant, and operates on an Intel processor. Iris developed as part of the Atal Tinkering Lab initiative, intends to revolutionise traditional education and expand its linguistic skills to include 20 languages. It also raises fears about educational, and faculty's employability. Every field is now conquering AI, which has both harmful and beneficial effects on the economy.

Review of Literature

Several studies have examined the impact of AI on employment in India and globally. Frey & Osborne (2017) estimated that automation threatens 47% of jobs in the U.S., a trend that may have parallels in India's service and manufacturing sectors. Das et al. (2021) highlighted that low-skilled jobs in India are at the highest risk due to automation in industries like textiles, retail, and logistics. A study by the International Labour Organization (ILO) (2022) suggested that automation could disproportionately affect the informal sector, which constitutes over 80% of India's workforce.

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PwC (2018) reported that AI could generate more jobs than it displaces by creating new roles in AI development, data science, and cybersecurity. NASSCOM (2022) found that AI adoption in India could contribute to the emergence of over 2.3 million technology-related jobs by 2030. The World Economic Forum (2023) predicted that AI and machine learning would drive demand for skills in cloud computing, robotics, and data analytics.

The sectoral impact of AI varies significantly. In IT and software, there is increased demand for AI specialists, automation engineers, and cybersecurity experts, while traditional software roles are evolving. Manufacturing is witnessing a rise in robotics and smart factories, reducing the need for low-skilled workers but increasing roles in AI maintenance and oversight. Healthcare sees AI-powered diagnostics creating new jobs for AI specialists and medical data analysts, but traditional healthcare administrative roles are diminishing. Retail and e-commerce are experiencing automation with chatbots, automated checkouts, and personalized marketing, reducing the need for retail salespersons. Banking and finance rely on AI-driven risk assessment, fraud detection, and automated trading, creating new jobs but eliminating traditional clerical roles.

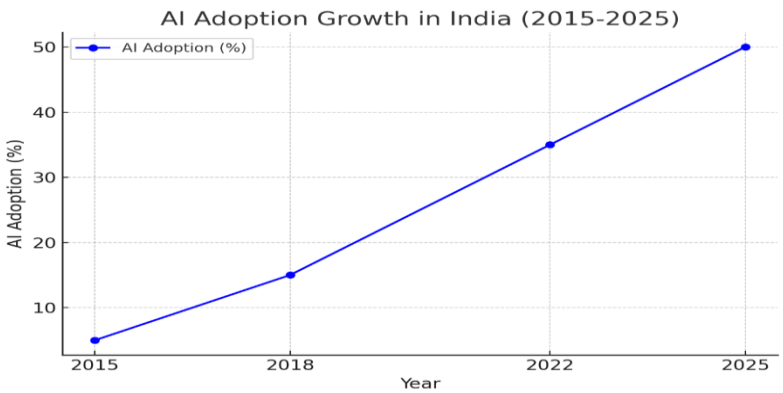
Policy and Economic Considerations

Government reactions to AI-induced unemployment highlight the need for human intervention in AI technology to protect employment interests. Union Finance Minister Nirmala Sitharaman has emphasised the need to invest in indirectly creating jobs, especially in highly efficient industries like AI, arguing for a multifaceted strategy to address unemployment (Sitharaman, 2023). The Indian government is addressing issues regarding job displacement caused by the fast growth of AI technology. The government wants AI platforms to acquire clearance before implementing experimental systems, as well as transparent labelling for AI systems. This regulatory intervention tries to offset the negative effects of AI on employment while protecting people's interests. It aims to find a compromise between maximising AI advantages and maintaining workers' well-being in an increasingly automated society. Preventative steps, such as developing strong legislative frameworks and implementing extensive upskilling efforts, are critical in reducing negative impacts on employment and enabling a seamless transition to AI-driven businesses.

Result and discussions

The study analyzed data from sources like the Periodic Labour Force Survey (PLFS), NASSCOM, and World Bank reports to assess AI's impact on unemployment in India. AI adoption has been steadily rising in India, with a recorded increase from 5% in 2015 to a projected 50% by 2025. This rise has corresponded with increasing job displacement, affecting millions of workers across various sectors.

Figure 1: AI Adoption Trends in India



Source: NASSCOM

This line graph depicts the increase in AI adoption, highlighting its rapid growth and projected impact on employment.
The impact of AI varies by sector. Manufacturing has seen significant job losses, with 3.2 million jobs displaced but 1.5 million new roles created. IT and software witnessed 0.5 million jobs lost but 2.3 million created. Retail lost 2 million jobs, while creating only 0.8 million. Healthcare saw 0.7 million jobs lost but 1.2 million created. Banking and finance, as well as transportation and logistics, also reflect mixed impacts of AI adoption.

Table 1: AI Impact on Employment Sectors

Sector	Jobs Lost (millions)	Jobs Created (millions)
Manufacturing	3.2	1.5
IT & Software	0.5	2.3
Retail	2.0	0.8
Healthcare	0.7	1.2
Banking & Finance	1.3	1.7
Transportation & Logistics	2.5	1.0

Source: World Economic Forum

Table 1 compares job losses and gains across significant sectors, illustrating AI's dual role in disrupting and creating employment opportunities.

International Perspectives on AI and Employment
The influence of AI on employment varies by sector worldwide. While automation may eliminate jobs in certain industries, it also generates new possibilities and increases productivity in others, such as healthcare, finance, and manufacturing. Beyond job automation, AI has the ability to disrupt industries such as agriculture, finance, healthcare, and education by increasing efficiency and innovation (World Economic Forum, 2021).

AI presents both obstacles and potential for India's workforce. As the country deals with the complexities of AI integration, proactive measures such as strong upskilling programmes, well-defined regulatory frameworks, and strategic investments are critical to ensuring a smooth transition to a future where human-AI collaboration determines innovation and economic expansion.

Conclusion
AI adoption in India presents both challenges and opportunities. The major challenges include a widening skill gap, as many workers lack AI-related skills necessary for job transition. Economic disparities may widen, with AI-driven jobs concentrated in urban areas, leaving rural areas behind. Regulatory and ethical concerns regarding AI, including data privacy, surveillance, and algorithmic bias, require attention and regulation.
On the other hand, opportunities exist in upskilling and reskilling initiatives, with government and private sector collaboration playing a key role. AI-driven startups are contributing to job creation in emerging industries, while public-private partnerships can help manage workforce transitions and ensure AI benefits are distributed equitably.
In conclusion, addressing the impact of AI on employment in India demands a comprehensive approach that takes into account both domestic and global factors. By taking early measures and exploiting AI's revolutionary potential, India can navigate the changing work landscape, assuring equitable growth and long-term development in the modern era of artificial intelligence.

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