Impact Of Artificial Intelligence on Employment Opportunities

Siddhi Handore[1], Sakshi Shirole[2], Radhika Shelar[3], Pavan Malani[4]
[1,2,3]*Student, M.Sc. (Computer Science), K. K. Wagh Arts, Commerce, Science & Computer Science College, Saraswati Nagar, Nashik under SPPU, Pune, Maharashtra, India*
[4]*Assistant Professor, Department of Computer Science, K. K. Wagh Arts, Commerce, Science & Computer Science College, Saraswati Nagar, Nashik Affiliated to SPPU, Pune, Maharashtra, India*
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***Abstract*—Artificial intelligence (AI) is changing how organisations hire people, divide up tasks and design jobs. Public debate, however, often treats the possibility that AI could affect a job as proof that the job will be lost. This paper brings together secondary evidence from the International Monetary Fund, the International Labour Organization, the World Economic Forum, the OECD, the Stanford Digital Economy Lab and the Government of India to ask what AI is actually doing to employment opportunities. Estimates suggest that between a quarter and two fifths of global employment is exposed to AI, but the record of what has really happened is more modest. Over 2012-2019, an OECD study shows employment growth has been very similar in occupations with high and lower AI exposure, though some recent data showing US young workers are losing in terms of employment in occupations with higher exposure is a bit more mixed. While many more jobs are expected to be created than lost, companies are expecting a big need to train existing employees on AI tools. The paper concludes that AI is changing tasks and skills far more than it is wiping out work, and that who gains will depend on education, reskilling and policies that protect people entering the labour market.**

***Index Terms*—Artificial intelligence, Employment, Automation, Job Displacement, Generative AI, Reskilling, India**

I. INTRODUCTION

Artificial intelligence has become increasingly popular in the workplace in recent years. Generative AI makes it possible to generate reports, code, images and answer customer queries, all tasks previously considered uniquely human. Therefore, a common concern in policy making, employment, and education is whether AI will cause more job losses than gains. This issue is very important for nations with many people entering the labour market such as India. Often different viewpoints are expressed in these situations. Job displacement, increased unemployment and decreased demand for routine skill sets are discussed in some circumstances. In contrast, new careers, increased productivity and increased demand for skilled workers are highlighted in others. In addition, statistics presented in differing sources are often measuring different aspects. Some statistics are measuring exposure to AI, some are measuring employer expectations, and very few are measuring employment outcomes. As different statistics can be combined to present a more alarming conclusion, the true picture of AI's effect on employment is obscured. This study attempts to clarify the major estimates of the impact of AI on employment, contrast these with initial evidence of outcomes and discuss implications for employees, education and policy with particular reference to India. Firstly, how much employment is exposed to AI, and whether this leads to job losses, will be explored. Secondly, whether more jobs are expected to be created than removed, will be investigated. Finally, what skills and policy changes will be required to enable employees, specifically new graduates, to remain employed.

II. RESEARCH OBJECTIVES

1. To study the impact of Artificial Intelligence on employment opportunities.
2. Industries and Occupations Most Affected by AI.
3. Analysis of Whether AI Creates More Employment Opportunities or Leads to Job Displacement.
4. Impact of AI on Employment Opportunities for Fresh Graduates.

5. Skills Required to Remain Employable in an AI-Based Economy.
6. Role of Education and Skill Development in Adapting to AI-Based Technologies.

It is likely to generate new careers and an increased need for skilled professionals alongside increased productivity and new jobs. At the same time, it can lead to job losses for those whose tasks are automated and a decreased need for unskilled workers alongside a loss of the bottom rungs of ladders that graduates can use to gain work experience. However, there are also views that it is more likely to bring changes to people's jobs than make them lose their jobs and that employees who work with AI will be better off than those who do not. Some of the new roles include:

Table 1: New common roles in employment due to AI.

Role	Key Responsibilities
AI Engineer	Develop AI-based applications
Machine Learning Engineer	Develop and train machine learning models
Data Scientist	Analyse data to gain insights
AI ethics specialist	Ensure AI is used responsibly
Prompt Engineer	Create and optimise prompts for AI
AI trainer	Help improve responses from AI models
Robotics engineer	Create automated robotic systems
AI security specialist	Secure AI systems.

Note: Examples of new roles in employment, figures are not representative of exact numbers of roles.

III. LITERATURE REVIEW

Exposure to AI

It is estimated that nearly 40% of employment globally is exposed to AI. Approximately 60% of employment in advanced economies is exposed, 40% in emerging markets and 26% in low-income countries. (Cazzaniga et al., 2024) [1]. Within exposed employment, approximately 50% of employment may be improved by the addition of AI whilst 50% may be at risk of displacements. Both females and degree holders are more exposed to AI in employment, although are better placed to benefit.

International Labour Organisation (ILO)

When considering generative AI only, it is estimated that 25% of employment globally is exposed. This rises to 34% in high income countries and decreases to 11% in low-income countries. (Gmyrek et al., 2025) [2]. Approximately 3.3% of employment globally fall into the highest exposure group. Within this group 4.7% of female employment exists, compared to 2.4% of male employment. However, clerical jobs face the greatest exposure; but it must be noted that these are potential exposures and not actual job losses. Rather than being eliminated entirely, it is more likely that employment in clerical jobs will be changed.

Expected Employment Changes

According to the WEF's Future of Jobs report 2025, data from surveys of over 1000 employers, representing over 14 million employees in 22 industries and 55 economies, indicate that 170 million new jobs will be created and 92 million will be displaced by 2030. This equates to a net gain of 78 million jobs (or ~7% of current employment). (WEF, 2025) [3]. Nearly 40% of skills required within jobs are expected to change in the next 10 years. 77% of employers plan to train their employees in new skills in order to meet the changes, and 63% state that closing the skills gap is the biggest challenge in transforming business.

However, around 41% of employers are expected to decrease their workforce in certain areas due to AI automation. Fastest growing roles include big data specialists, fintech engineers and AI/Machine Learning specialists. It must be noted that these figures are employer expectations, therefore are influenced by a range of economic, technical and demographic factors. They are not specific to AI.

Observed Employment Changes

Less evidence is available, and less dramatic conclusions can be drawn. Between 2012 and 2019, Georgieff and Hyee (2021) [4] found that employment increased in almost all occupations. In general, there is no relationship between AI exposure and the change in employment. However, looking at the distribution

of computer use shows increases in employment in the high computer use occupations, and a suggestive reduction in average hours worked from increased AI exposure in the low computer use occupations. The ILO (2025) [5] notes that exposure to new digital technologies was associated with increased employment-population ratios.1.05% in low-income countries, 0.13% in upper middle-income countries, and 0.12% in high income countries. Very little change was seen in lower middle-income countries. However, this is just a correlation which has been observed and this does not prove causality.

Recent data from the US payroll system is less positive for new employees. Since the rise of generative AI, employment in the most exposed occupations for ages 22-25 has fallen by 16% relatively (although this was reported as 13% in previous versions of this paper). (Brynjolfsson et al., 2025) [6]. This decrease is particularly seen in occupations where AI is likely to be replacing rather than supporting. However, employment was stable or increasing for employees aged 26-55 in the same occupations. As a work-in-progress, the findings of this paper (or those in the IMF Staff Discussion Note referred to in the text, which have not undergone formal peer review) should be considered indicative, and should be interpreted accordingly.

Evidence from India

Approximately 26% of employment in India is in highly exposed occupations. 14% of employment could be improved by AI support, in turn improving productivity. Additionally, 12% of employment in India is in occupations at higher risk of displacement. (IMF, 2025) [7]. (The 14% and 12% refer to the whole workforce, not 26%.) Due to a large amount of agricultural employment in India, the overall exposure may be less than other economies with high service and manufacturing-based employment. On the supply side, the Ministry of Labour and Employment noted in response to a question in the Lok Sabha, that India's AI skilled workforce is expected to increase from 6-6.5 lakh professionals to over 12.5 lakh (an increase of ~15% per year) by 2027. (FutureSkills PRIME initiative is being implemented to re-skill) (GoI, 2025) [8]. Mehta et al (2025) [9] considers exposure, automation and enhancement in occupation within India, and how this varies by sector.

IV. DISCUSSION

Exposure ≠ displacement

The exposure values do not equate to displacement. According to statistics from the IMF and India, some employees will benefit from artificial intelligence, whilst others will be displaced as they are at higher levels of exposure, and this is reliant on such things as operational costs, rules and regulations, the structure of organisations and whether it aids or replaces workers. This is consistent with earlier research on workplace automation, which finds that automation substitutes for labour in some tasks but also complements labour and raises the demand for it [10].

Tasks change within occupation

Within software development, basic coding may be automated. However, software development professionals are still required to understand the needs of a business, design suitable systems, and fix complex issues, and maintain applications. Task-based research similarly shows that automation displaces labour from specific tasks, while the creation of new tasks in which labour has an advantage counterbalances this effect [11]. Similarly, within banking, customer service and marketing, administrative and content creation tasks may be automated, however AI engineers, data scientists, and AI ethics/security specialists may develop. (Note that these examples are indicative, and not empirical findings. In order to accurately test this, data at occupation level should be considered, particularly within India's large IT and business processes sectors.)

Impact may be felt most by new entrants

As highlighted in the Stanford study (Brynjolfsson et al, 2025) [6], AI appears to disproportionately affect early career employees within high exposure roles, whilst employees with more experience appear unaffected. This can indicate that the first phases of professional employment can be complex for fresh graduates. This is in accordance with the findings of the WEF [3]. In this article, it is stated that skills gaps are the major barriers to change. As nearly 40% of skills in jobs will change by 2030, continuous learning will be essential in order to remain employed. While the majority of employers plan to invest in employee skills training in the next year, low-skilled workers and those in small businesses, and particularly those

working in the informal economy, risk being left behind unless public initiatives are put in place. Key findings from this research are summarised in the Table 2. As the statistics vary in definition and purpose, they should not be added together.

Table 2: Key estimates.

Source	Measure	Estimate
IMF (Cazzaniga et al., 2024) [1]	Global employment exposed to AI	Almost 40% (about 60% advanced; 40% emerging; 26% low-income)
ILO (Gmyrek et al, 2025) [2]	% of employment exposed to generative AI	25% globally, 34% in high income countries, 11% in low-income countries.
WEF (2025) [3]	Jobs created / displaced by 2030 (employer projection)	170 million / 92 million (net +78 million)
IMF (2025) [7]	% of employment in India: high exposure / complementary / at risk	26% / 14% / 12%
Brynjolfsson et al (2025) [6]	% decline in employment for 22–25-year-olds within most exposed occupations (US)	16% decline

Note: Different measurement. ILO=International Labour Organisation, IMF= International Monetary Fund, WEF=World Economic Forum.

Challenges and solutions

The evidence points to several challenges: the skills gap, named as the main barrier by 63% of employers surveyed by the WEF [3]; uneven access to training for small businesses and the informal economy; and narrowing entry-level pathways for graduates [6]. Responses include reskilling programmes such as FutureSkills PRIME [8], which complement the 77% of surveyed employers who already plan to train staff [3], the inclusion of AI-related skills in education, entry-level roles kept open by employers, and regular measurement of employment, hours and job quality rather than exposure alone.

V. RESEARCH METHODOLOGY

This research is qualitative and makes use of secondary data. Findings from multiple sources have been collated including reports and working papers from the IMF, ILO, WEF and OECD, research from a university centre (Stanford Digital Economy Lab), a reply to a question in the Indian parliament from the Government of India and 1 journal article. Based on my search results, I chose these sources as they come from reliable ones. Secondly, they were all written during the years of 2021-2025. Finally, these sources provide valuable and meaningful information/statistics regarding artificial intelligence and opportunities in jobs. Each figure has been recorded as it is stated in sources and has been labeled as either an estimate of exposure, projections, or observations, as these figures attempt to answer different questions.

Limitations

As each study differs in definition of AI exposure (IMF considers a wide variety of AI, ILO only considers generative AI), and sample and time frames, these figures can only be described and not added together. Figures from the WEF relate to employer expectations, not results. Figures from the staff note and Stanford paper have not undergone formal peer review. As only secondary data has been used, no original findings from surveys have been included. Further research could include a survey of students, new graduates and professionals to determine attitudes towards AI and willingness to develop AI related skills. Clearly state sample size and data collection methods.

VI. CONCLUSION

There appears to be an impact of AI on employment, however this impact cannot be taken at face value. Between 25-40% of employment globally is exposed to AI. The OECD study (2012-2019) found no clear overall correlation between AI exposure and employment growth. However, initial findings from the US demonstrate that young employees in highly exposed occupations are losing employment. Within

India, 26% of employment is in highly exposed occupations, 14% of employment may benefit, and 12% are at higher risk. However, as AI skilled workers are growing rapidly in number, opportunities and risks exist.

Implications

Policymakers should invest in training schemes for reskilling/upskilling, such as FutureSkills PRIME. To properly ready graduates, universities must ensure AI awareness and skill flexibility is taught inside courses, so that they can work alongside AI. Additionally, to train employees on artificial intelligence and ensure pathways within employment, employers must also invest inside companies, for training purposes. Researchers should prioritise measured changes in employment, hours, and quality of employment, particularly within India’s service sectors. As AI is becoming more prevalent, regular updates to evidence should be made.

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