THE IMPACT OF ARTIFICIAL INTELLIGENCE ON LABOR MARKET

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Abstract: This article studies the impact of AI on labor markets of jobs displacement, creation, productivity gains and policy implications. Based on recent research and reports such as the Institute of Global Affairs, the International Monetary Fund (IMF), and academic research, the analysis argues AI presents both challenges and opportunities. An advanced AI may – according to a frequently cited report of Frey and Osborne9 from the University of Oxford – take over 40% of jobs worldwide, most notably in cognitive tasks; however, it also increases productivity and creates new jobs, raising GDP by 5–14% in high-income countries until the year 2050. The findings highlight the necessity of policies, such as retraining programs and social safety nets, to address inequality and help people transition to an AI-driven economy.

Keywords: Artificial intelligence (AI), labor market, job displacement, employment, productivity, policy, inequality.

Introduction: Machines and algorithms in the artificial intelligence (AI) sector are working much faster than previously thought, throwing up fundamental questions about their impact on employment. Even as AI can boost productivity, spur growth, and open new markets, it also has the potential to displace workers, widen wage inequality, and lower labor's share of national income. These dynamics are critically important for policymakers, firms, and workers to negotiate the transition to an AI-mediated future successfully.

This article examines the role of AI on labor markets. It draws on analysis from recent studies, including contributions published by the Institute of Global Affairs, the IMF and various academic papers, to offer a thorough account of the

impact of AI on employment, wages and productivity. The analysis also underlines the policy conclusions to meet the challenges and exploit the opportunities.

Research data and methods: This study examines how AI technologies influence labor markets by analyzing secondary data from leading sources like IMF reports, OECD database, and NBER working papers. The study uses comparative analysis on employment and wage data from sectors known to be high AI adopters. Furthermore, with SWOT analyzes this study examines Ai impact on labor market. The results are enriched with cases from technology companies and government policy texts for pragmatic insights. The approach is based on the synthesis of research, given the constraints of regional differences in data coverage and a rapidly changing technology environment for AI.

Literature review: Many scholars have researched the role of artificial intelligence in job market, and examined the reasons behind the impact of the artificial intelligence on those fields. While some researchers studied the role of AI in one specific country, others examined AI's impact on all over the world.

One of the researches conducted by Institute of global affairs[1]. The Institute of global affairs carried out a detailed study of the effects of AI on the labor market where they identify that 23.8% of UK private-sector work hours (means 6 million worker annual output) are automatable. As for the 1-3 million jobs that the report suggests might vanish, it does argue that new jobs would probably replace those lost, and the overall gain, even after adjusting for the reduction in employment and the additional cost of retraining redundant workers, will inevitably increase national income by 11% (in other words £300bn/year) by 2050.

[1] Institute for Global Change. (2023). *The impact of AI on the labor market: Will productivity gains bring shared prosperity?* https://institute.global/insights/economic-prosperity...

Similar research was conducted by the IMF[2] where the number of jobs that are exposed to AI is reported to be 40% at the global level and 60% in advanced economies. Crucially, AI is expected to destroy and create jobs, but will likely exacerbate the gap in income when high-skilled jobs are disproportionately affected.

Webb[3] used a novel technique for comparing job tasks by AI job to patent summaries to show that AI mainly displaces high-skilled labor – an inversion of historical trends in automation. His models indicate that AI could erase 90:10 wage inequality but leave top 1% earners untouched.

NBER[4] published recent work that used NLP methods to gauge task-level AI exposure. They find that demand for labor falls where AI can standardize tasks but rises where workers can shift to complementary tasks.

The analysed studies provide insights into how artificial intelligence is reshaping the world's labormarkets. These analyses highlight both the problems of job displacement and wage inequality, especially for high-skilled workers as well as the potential for remedies through retraining workers and through policy interventions to capture AI's productivity benefits. The research emphasizes the importance of balanced approaches to managing AI's disruptions and benefiting from new opportunities for economic growth from AI adoption.

Results: To deeply understand the role of AI in transforming labor markets all over the world, this analysis examines important changes in employment patterns, demographics of the workforce, and productivity growth. The results show a consolidated analysis of data from leading research institutions such as

[2] International Monetary Fund. (2024, January 14). *AI will transform the global economy. Let's make sure it benefits humanity*. https://www.imf.org/en/Blogs/Articles/2024/01/14/ai-will-transform-the..

[3] Webb, M. (2019). *The impact of artificial intelligence on the labor market* (SSRN Working Paper 3482150). Social Science Research Network. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3482150

[4] Acemoglu, D., & Restrepo, P. (2024). *Artificial intelligence and jobs: Evidence from US labor markets* (Working Paper No. 33509). National Bureau of Economic Research. https://www.nber.org/papers/w33509

IGA (2024), IMF (2024), and Webb (2019) with sector-specific findings from NBER (2025). In this article, we outline the key implications of these results for the process of job transformation, the growth of new patterns of inequality, and the scope for increasing productivity depending on the different economies and industries where jobs are carried out. The analysis sheds light on the disruptive challenges and opportunities for labor markets globally, focusing on heterogeneities between advanced and emerging economies.

Aspect	Findings
Job displacement	AI will displace 1-3 million jobs in the UK, with between 60,000-275,000 made redundant at the peak year. Worldwide, 40% of jobs are exposed, especially those involving cognitive work.
Job creation	New AI development and oversight jobs will make up for some of the losses over time.
Wages and inequality	AI could narrow 90:10 wage inequality – but with risk of widening skills gap.
Productivity	AI among other technologies could increase the UK's GDP by 5-14% by 2050 and increase global productivity by 0.25% per year.
Geographic variations	Advanced economies have 60% of jobs at risk, compared with 40% in emerging markets and 26% in low-income countries

Table 1: Comparative analysis of AI's labor market Consequences

Job displacement and creation: AI is projected to lead to the displacement of 1 to 3 million jobs in the UK, and the peak rate of job replacement ranges from 60,000 to 275,000 annually, depending on the scenario. Internationally, almost 40 percent of jobs are at risk of automation by AI, cognitive tasks (e.g.,

administrative, finance) more at risk than manual tasks[5]. But the same will also generate new jobs in AI development, maintenance and oversight, which will help mitigate these losses eventually.

Impact on wages and inequality: However, contrary to fears, AI could lessen 90:10 wage inequality by fueling the demand for high-skilled tasks, as proposed by Webb[6]. But there is a danger that the gains from AI will flow mainly to the adaptable, perhaps exacerbating the skills divide. AI, warns the IMF, could increase gross inequality in society, drifting apart the income groups.

Productivity gains: The potential of AI to boost productivity is considerable, with estimates that it could have a 5-14% impact on the UK economy's GDP by 2050. The potential of AI to save time and enhance the efficiency of saving time for the global economy is significant, with time savings particularly high in education and health, amounting to an additional 6% in attainment and 1% of GDP in productivity in reduced workdays lost over a decade.

Geographic and sectoral variations: The effect of AI depends on the region and the sector. Advanced economies are more exposed (60% of jobs) but also benefit more from AI adoption. Some sectors – like finance, education and healthcare – are particularly impacted, for which AI offer challenges, but also opportunities.

[5] International Monetary Fund. (2024, January 14). *AI will transform the global economy. Let's make sure it benefits humanity*. https://www.imf.org/en/Blogs/Articles/2024/01/14/ai-will-transform-the..

[6] Webb, M. (2019). *The impact of artificial intelligence on the labor market* (SSRN Working Paper 3482150). Social Science Research Network. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3482150

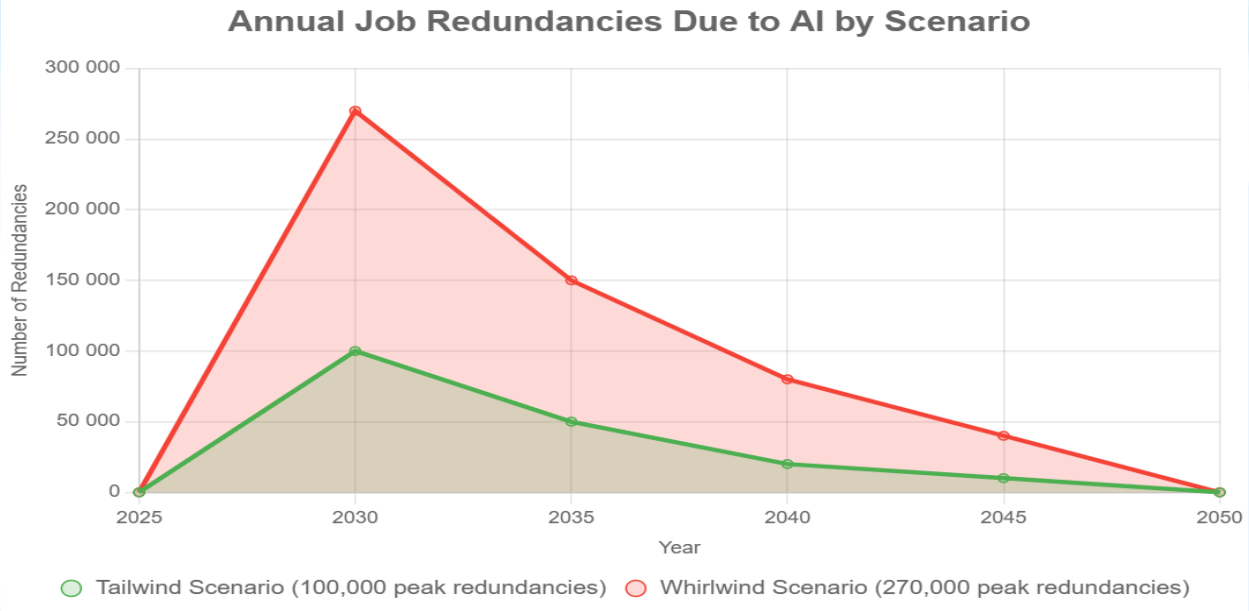

Table 2: Annual job redundancies due to ai by scenario.

Table 2 shows the Institute for global changes scenario analysis in the UK labor market for AI induced job displacement. In the Tailwind Scenario disruption is mild with the peak number of redundancies at around 100,000 per year in 2030 to 2035, after which the number of job losses will decrease as the number of new jobs will increase. The Whirlwind Scenario, conversely, predicts acute short-term effects, peaking around 270,000 annual losses by 2040–2045, and then a recovery over the next five years. This visualization illustrates that the labor market impacts of AI will be large, but temporary, with the level and duration of displacement being contingent on the speed of AI adoption. The estimated rebound in both of these scenarios aligns with the Institute's overarching conclusion that 1-3 million net cumulative job losses will be eventually gapped by new AI-fueled jobs, even though the transition could take decades if adoption happens quickly.

Discussion: This study's findings investigate AI's impact on labor market: while it has risks of displacement and inequality, the AI also offers opportunities to growth and innovation. In order to capture these benefits and to avoid potential drawbacks, the following policies are necessary:

Education & Training: Ongoing learning and reskilling are key to enable the workforce for new jobs. Artificial Intelligence could, for example, increase mean education levels by 6 per cent which would result in an increase of six per cent in GDP over a period of 60 years.

Social Safety Nets: Developing unemployment benefits and supportive services that can help tide workers over during transitions. The proposed UK LIFESPAN fund which permits early access at redundancy might provide a model.

Regulation and Ethics: Fair and transparent practices in AI deployment are critical to the protection of workers and to preventing discrimination.

Primers on Policy Proposals Fostering adoption: Policies that drive widespread use of AI can offset sector and region disparities.

Furthermore, early-warning systems–the UK government's Early Awareness and Opportunity System is one example–can help prepare workers for displacement and provide them with a customized risk assessment and any retraining they will need. No one should underestimate the power of government to create collaboration among businesses, workers, and educators.

Swot analysis of AI's impact on labor markets:

AI is changing the global labor markets with increased productivity, job displacement and labor re-patterning. This SWOT analysis examines the major internal competences (strengths/weaknesses) and external factors (opportunities/threats) which shape AI's impact on the labor market, based on the data provided by the Institute of Global Affairs 2024, IMF 2024 and sectoral studies. The results will help guide strategies to realize the potential of AI in ways that are safe.

STRENGTHS	WEAKNESS
- Significant productivity gains (23.8%-time savings in UK private sector) - Creation of high-value tech roles - Enhanced human capabilities in healthcare/education	- Skills mismatch in 42% of exposed jobs - Short-term displacement (60,000–275,000 UK jobs annually) - Algorithmic bias risks
OPPORTUNITIES	**THREARS**
- GDP growth potential (5–14% by 2050) - Reskilling for higher-value work - Global policy coordination to reduce disparities	- Widening income inequality (Gini coefficient +5–8%) - Advanced vs. emerging economy gaps (60% vs. 40% exposure) - Delayed policy responses amplifying disruption

The SWOT analysis demonstrates AI as a double-faced power in labor market, that is a force that can trigger unprecedented productivity and on the other hand, it can bring about considerable disruption. On the one hand, AI's more immediate strengths — it can automate 23.8% of routine tasks and create tech jobs with high value — hold out a promise of a market transformation in economic efficiency. The flip side is that, having exposed Britain's flaws, from acute skills shortages to the loss of short-term jobs, they need to be urgently addressed.

On the one hand, AI has transformative potential in boosting GDP by 5 – 14% through optimized workflows; on the other, it carries systemic risks, including exacerbating the income gap between the high skilled who benefit and the vulnerable who face displacement. Geographic differentials add another

dimension to this picture: advanced economies are going to have a different set of issues than emerging markets (40% job exposure vs 60%).

Conclusion: AI and its consequences for labormarkets are profound, both challenges and opportunities. Yes, it may substitute for some jobs, especially cognitive ones, but in doing so, it increases productivity and gives rise to new jobs. AI is poised to add material GDP to advanced economies over the next three decades, but only in the presence of proactive policies. Education, social protection and ethical control are key to make sure that AI's gains are widely spread. With advancements of AI on the rise, public-private-education partnerships will be crucial to developing a workforce that is both adaptable and equal.

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