

Analysis the Effects of Artificial Intelligence on Employment and Income Inequality

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Abstract: *The rapid proliferation of Artificial Intelligence (AI) technologies across global industries has triggered fundamental shifts in labour market structures, occupational demand, and income distribution. This empirical study investigates the measurable effects of AI adoption on employment rates and income inequality across 15 developed and developing economies during the period 2015–2021. Using a mixed-methods quantitative approach grounded in secondary data from the World Bank, International Labor Organization (ILO), Organization for Economic Co-operation and Development (OECD), and McKinsey Global Institute, the study employs descriptive statistics, Pearson correlation analysis, and multiple regression modelling to examine the relationship between AI investment intensity, sectoral employment displacement, and Gini coefficient variations. The findings reveal a statistically significant negative correlation ($r = -0.74$, $p < 0.01$) between AI adoption intensity and routine-task employment, while a positive correlation ($r = 0.68$, $p < 0.01$) is observed between AI investment and the widening of the Gini coefficient in economies with weak redistributive policy frameworks. The regression model explains 71.3% of the variance in employment displacement ($R^2 = 0.713$, $F = 34.82$, $p < 0.001$), confirming that AI investment, sector type, and education level are significant predictors. Notably, economies with strong reskilling programmers and progressive taxation structures show moderated inequality effects (Gini change < 0.02). The results are critically compared with the findings of Acemoglu and Restrepo (2020), Frey and Osborne (2017), and Autor (2015), providing nuanced insights into the dual-edged nature of AI-driven economic transformation. The study concludes with evidence-based policy recommendations for inclusive AI governance.*

Keywords: Artificial Intelligence; Employment Displacement; Income Inequality; Gini Coefficient; Labour Market Disruption; AI Adoption Index; Reskilling Policy