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## **The Impact of Ai Skills and Chatgpt Advancements on Uk Salaries: Evidence from Online Job Advertisements**

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### **Abstract**

**Purpose** – This paper investigates the wage effects of artificial intelligence (AI)-related skills and occupational exposure in the United Kingdom labour market. It focuses particularly on the impact of two major technological shocks—the public release of ChatGPT-3.5 and ChatGPT-4—on salary dynamics, using a unique dataset of online job advertisements from 2020 to 2023.

**Design/methodology/approach** – The analysis combines establishment-level fixed effects regressions and Difference-in-Differences (DiD) estimations. AI exposure is measured using the share of AI-related vacancies and weighted occupational exposure scores (AIOE), based on a taxonomy developed by Felten et al. (2021). The treatment group comprises job adverts requiring at least two AI skills. The empirical design leverages the exogenous timing of the ChatGPT releases to estimate their differential impact on AI and non-AI job postings.

**Findings** – The results indicate that establishments with higher AI exposure experienced significant changes in predicted salary growth following the release of ChatGPT-3.5 and ChatGPT-4. DiD models confirm that AI-related occupations gained relative wage advantages post-shock. However, these effects vary by job type and seniority level. While AI skills appear to attract wage premiums, the distributional consequences suggest early signs of wage polarization and potential displacement effects for mid-level roles.

**Research limitations/implications** – The analysis relies on predicted salaries derived from job postings, which may differ from realized wages. Additionally, the classification of AI skills is based on textual indicators, which could lead to some degree of measurement error. Further research could explore longitudinal outcomes at the worker level or incorporate realized wage data from administrative records.

**Originality/value** – This is the first study to empirically link ChatGPT-related large language model (LLM) innovations to UK salary outcomes using establishment-level AI exposure, contributing new evidence to the literature on technological change and labour economics.



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**Keywords:** Artificial Intelligence (AI), Labour Economics, Income Distribution, Chatgpt, Ai Skills, Ai Job, Llm