The Impact of Artificial Intelligence on employment and unemployment

Abstract

Artificial intelligence (AI) is transforming global labor markets by reshaping how work is organized, performed, and valued. As a general-purpose technology, AI enhances productivity and innovation while automating routine and repetitive tasks, producing diverse effects across regions, industries, occupations, and workers. While AI may displace certain forms of tasks, it simultaneously generates new employment opportunities through higher productivity, capital accumulation, capital deepening, and technological innovation—making it both a source of disruption and a driver of long-term economic growth.

The study examines the relationship between AI, employment, unemployment, and training programs. It develops a comprehensive theoretical framework that connects three key mechanisms—technological substitution, productivity effect, and innovation-driven job creation. The framework illustrates how these forces shape short- and long-term employment and unemployment outcomes across different worker groups and sectors. The study highlights that, in the long run, the creation of new high-productivity, labor-intensive tasks, supported by training programs, can help displaced low- and middle-skilled workers who perform routine tasks transition into new, higher-productivity roles and reduce skill mismatches in the labor market.

By integrating theoretical insights with empirical analysis, the study examines how artificial intelligence (AI) differently affects employment and unemployment across industries, occupations, and skill levels, highlighting its benefits for high-skilled roles and challenges for routine and lower-skilled jobs. Study shows that AI, when supported by effective training policies, can promote sustainable employment and inclusive labor market transformation.

Keywords: Artificial Intelligence; Automation; Employment; Unemployment; Training;