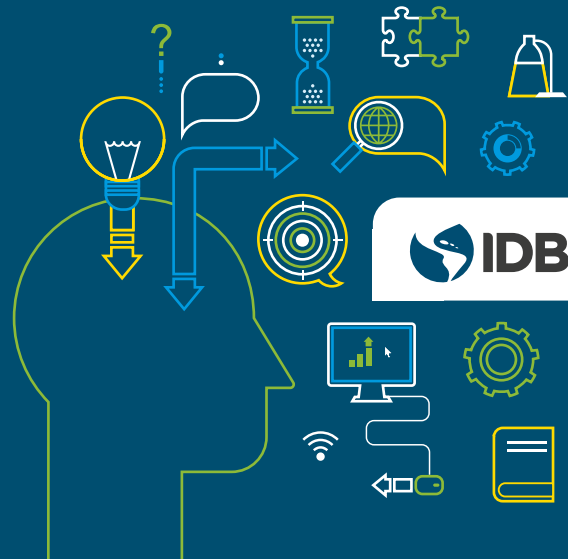# Which Jobs Are Most Likely to Be Affected by Artificial Intelligence?

N.° 144 | December 2024

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→ There is an increasing likelihood of job replacement by AI over time, with significant implications for workforce planning and policy development.

→ Women and lower-skilled workers face disproportionately higher exposure to AI replacement.

→ Office and administrative roles exhibit the highest exposure levels, while roles requiring complex problem-solving, interpersonal skills, or human interaction remain less affected.

CONTEXT

The rapid advancement of artificial intelligence (AI) is transforming labor markets by automating tasks and reshaping industries. Unlike earlier technological innovations, AI extends beyond automating routine physical tasks to encompass cognitive, creative, and decision-making functions. This evolution raises critical concerns about workforce displacement, income inequality, and the future of work. Traditional approaches to assessing job susceptibility to AI often depend on human expert evaluations, which risk introducing biases and assumptions. Moreover, these methods frequently focus narrowly on task automation, neglecting broader social, ethical, and regulatory factors that significantly influence AI adoption.

PROJECT

To address the limitations of human biases, researchers have developed the AI-Generated Index of Occupational Exposure (GENOE), leveraging large language models to conduct expert-like assessments. This approach aims to provide a more objective and comprehensive evaluation of the likelihood of job replacement by AI, considering not only task automation but also contextual factors such as social, ethical, and regulatory constraints, providing a nuanced understanding of AI's potential impact on the workforce. A variety of occupations and their associated tasks are considered.

RESULTS

The application of GENOE revealed several key findings regarding the potential impact of AI on employment. Figure 1 illustrates the progressive increase in occupational exposure over time, with the average likelihood of job replacement by AI starting at 0.28 within one year, rising to 0.38 in five years, and reaching 0.44 over ten years. This trend reflects the expanding capabilities of AI technologies and their increasing integration across industries.

Exposure levels vary significantly across occupations, emphasizing disparities in vulnerability. Routine-intensive roles, such as data entry and administrative support, exhibit the highest exposure, often surpassing 0.7 over the ten-year horizon. Conversely, jobs requiring complex problem-solving, creativity, or interpersonal skills—such as healthcare, legal professions, and education—show lower exposure scores, typically below 0.25. These findings highlight the importance of task complexity and human-centric skills in mitigating the risk of AI-driven displacement.

Key Concept

OCCUPATIONAL EXPOSURE TO AI

The degree to which a particular occupation is susceptible to replacement or transformation due to advancements in artificial intelligence technologies.

Gender disparities are also evident, with women facing higher exposure levels due to their overrepresentation in vulnerable sectors like office and administrative support. Regional analyses further illustrate the broad impact of AI: in the U.S., 43 million jobs are at risk within a year, rising to 70 million over a decade. In Mexico, 16 million jobs are exposed in the short term, growing to 26 million over ten years. These patterns emphasize the uneven distribution of risks across demographic groups and regions.

The GENOE index's ability to replicate traditional human expert-based assessments validates its reliability and robustness. These insights emphasize the need for strategic workforce planning, targeted interventions, and policies aimed at protecting vulnerable workers, ensuring that the integration of AI into labor markets promotes equity and economic resilience.

POLICY IMPLICATIONS

The insights gained from GENOE have several important implications for policymakers, employers, and workers. The first involves strategic workforce planning, as understanding the varying degrees of AI exposure across occupations enables the development of targeted strategies to mitigate potential job displacement. This includes investing in reskilling and upskilling programs tailored to the needs of workers in high-exposure occupations.

An additional consideration is education and training. Educational institutions and training programs should emphasize skills that are less susceptible to automation, such as critical thinking, creativity, and emotional intelligence. Aligning curricula with the evolving demands of the labor market is essential to prepare the workforce for future challenges.

A third issue is the formulation of regulatory frameworks, as policymakers must consider the ethical and social implications of AI deployment in the workplace. Establishing regulations that promote responsible AI use, protect workers' rights, and ensure equitable access to new opportunities is crucial.
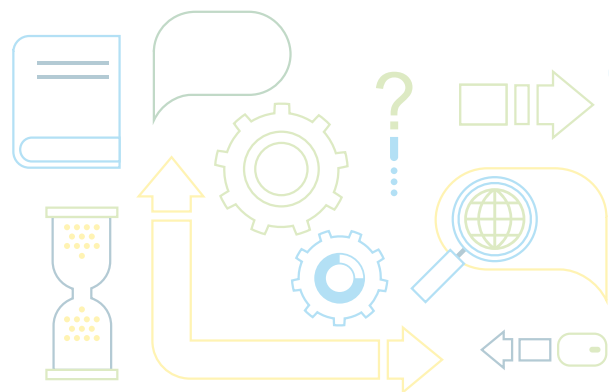
Finally, as AI-driven automation transforms the employment landscape, strengthening social safety nets becomes imperative to support individuals transitioning between jobs or facing displacement. This may involve enhancing unemployment benefits, providing income support, and facilitating access to retraining programs.

By proactively addressing these areas, stakeholders can harness the benefits of AI while mitigating its potential adverse effects on employment.
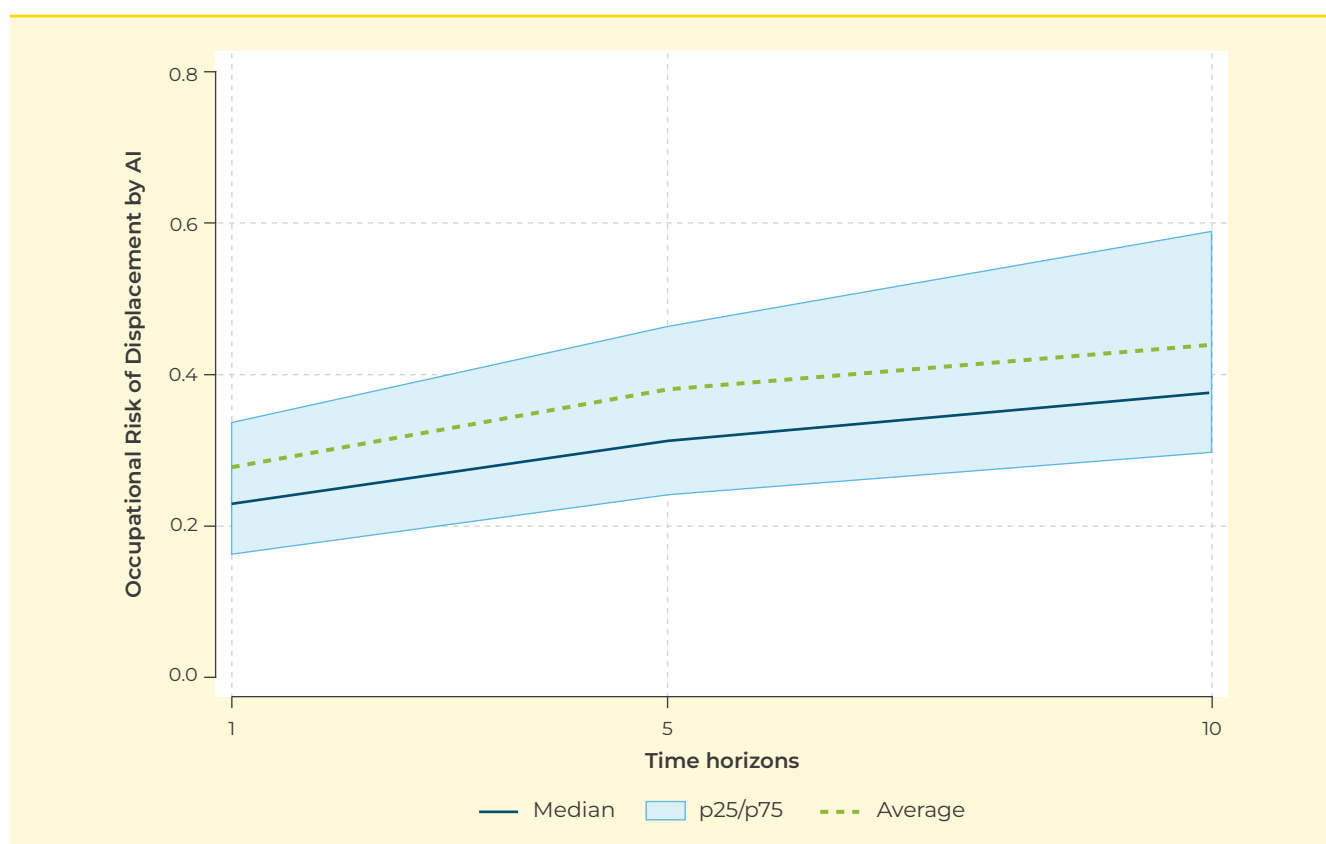
I-GENERATED INDEX OF OCCUPATIONAL EXPOSURE (GENOE)

A novel measure that quantifies the potential impact of AI on occupations and their associated tasks, utilizing synthetic AI surveys conducted with advanced language models.

FIGURE 1. I-Generated Index of Occupational Exposure to AI (GENOE) over Time

Source: Authors' calculations using data from O*NET and surveys conducted with GPT-4o through OpenAI's API.
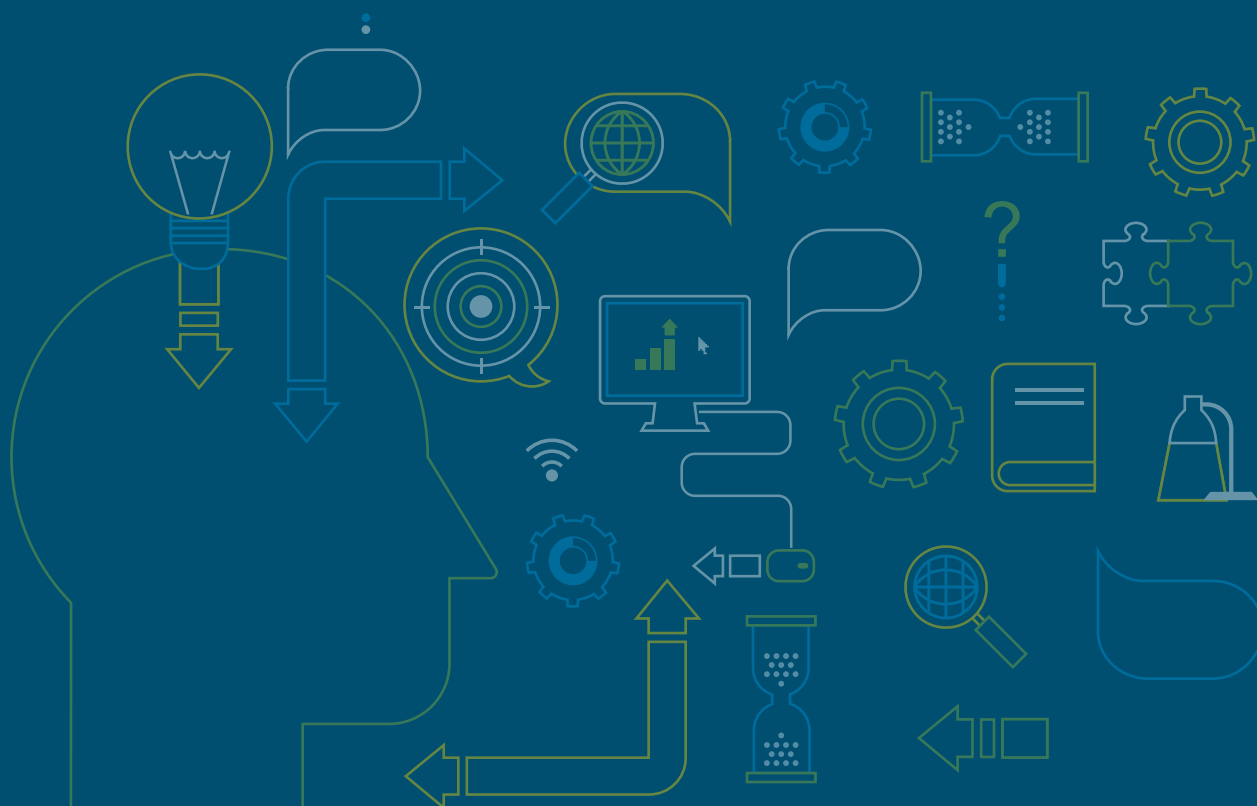*Note:* This table shows the descriptive statistics of the GENOE at the SOC-18 occupational level for the one, five, and 10-year horizons.

FULL STUDY

Benítez-Rueda, Miguel, and Eric Parrado. 2024. "Mirror, Mirror on the Wall: Which Jobs Will AI Replace After All? A New Index of Occupational Exposure." IDB Working Paper No. 1624. Washington, DC: Inter-American Development Bank. http://dx.doi.org/10.18235/0013125.

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