

Projecting AI Impacts on Employment

Employment Projections program staff, U.S. Bureau of Labor Statistics

EP-Info@bls.gov

BLS approach to generative AI's impact on employment projections

- The goal of this research was to identify structural changes to the economy over the next ten years stemming from generative AI use.
- Employment Projections (EP) developed an understanding of employment trends in occupations and industries most likely to be impacted by generative AI.
- BLS projections are based in historical trends, but as AI is a new factor, extensive research was conducted using both qualitative and quantitative information.
- EP used exposure scores published by Felten et al. (2021) and later updated these scores using Eloundou et al. (2024) to identify occupations most likely to have AI-related impacts to narrow the scope of research.
- EP analyzed findings to learn about how occupational utilization may change within and across industries as a result of advances in generative AI.
- EP considered both productivity and capital/labor replacement effects, along with considering some potential increases in demand for some occupations to support AI expansion.
- EP adjusted the employment projection matrix with findings, selecting factors to incorporate into projections data conservatively.

Assumptions

Projections data provide a potential scenario for changes in the economy over a decade.
Grounded in historical relationships in employment data.

The projected U.S. economy will be at approximately full employment/potential output.
Do not try to anticipate future business cycle activity.

Assume that labor productivity and technological progress will be in line with the historical experience.
Productivity will increase and technology will progress.

Long-term projections

- The projections are not intended to be a forecast of what the future will be; but instead, are a description of what could be expected to happen in the long term under these specific assumptions and circumstances.
- BLS's methods are designed to measure and reflect structural changes that occur gradually and are not designed for extremely rapid structural change.

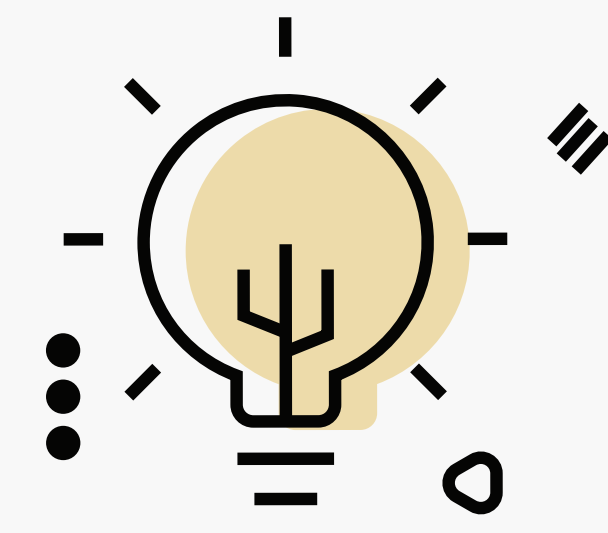
Productivity and technological change

- The lack of relevant historical data on AI technology necessitates assumptions about both the time frame and scale of technological impacts.
- BLS assumes that labor productivity and technological progress will be in line with historical experience. Productivity will increase and technology will progress, and both are assumed to behave comparably to the past.

New technologies and adoption

- BLS conducts research on factors that are expected to impact employment, particularly those which may not be reflected in historical data, such as new technologies. However, BLS generally applies adjustments based on this research conservatively, where there is convincing evidence for a change.
- There have been many claims about new technologies displacing jobs, and although such displacement has occurred in the past, it tends to take longer than technologists typically expect. Various technologies have had occupational impacts throughout recent history, but many affected occupations have still seen employment growth.
- New technologies are adopted by businesses and matured throughout the economy slowly. Even when a new technology advances rapidly, it takes time for employers and workers to determine how to best incorporate the technology into their work.
- New technologies such as autonomous vehicles or AI are harder to assess than technologies that constitute incremental improvements. Brand-new technologies inherently present many sources of uncertainty, including those related to degree of usefulness, developmental roadblocks, regulatory constraints, and pace and cost of adoption.

Case Study 01



Generative AI is expected to reduce employment of several business and office administration occupations

- Generative AI is largely expected to improve productivity growth for certain occupations within these two groups, thus moderating or reducing (but not eliminating) employment demand for them.
- Many occupations involve desk work utilizing computer software; further software advances driven by AI could raise the productivity of many analysts but are unlikely to eliminate employment demand for them.
- Increased automation has been a key factor in many of these occupations for years, but AI is expected to accelerate this factor for some, with technological advances in the ability to summarize documents and other unstructured forms of content.

Example occupations

Business and financial operations

13-1031 Claims adjusters, examiners, and investigators: In recent years, insurance companies have deployed drones to take aerial photographs of sites, without sending a human examiner into the field. In the future, AI is expected to work in tandem with drone technology to further bolster productivity by taking photographs, autogenerating analysis, and producing initial payout estimates, replacing tasks traditionally completed by an adjuster.

13-1032 Insurance appraisers, auto damage: These workers can use the same damage-assessment software for cars and trucks as claims adjusters, examiners, and investigators. Once photographs of the automobile are taken, the analysis and initial payout estimates, traditionally prepared by an adjuster, can be autogenerated by AI.

13-2041 Credit analysts: AI can synthesize large amounts of data and reach big-picture conclusions, and, indeed, these tasks are the essence of a credit rating, which combines a range of financial information on a potential borrower into an overall score. As AI improves, the speed and accuracy of producing credit scores and reports is expected to increase.

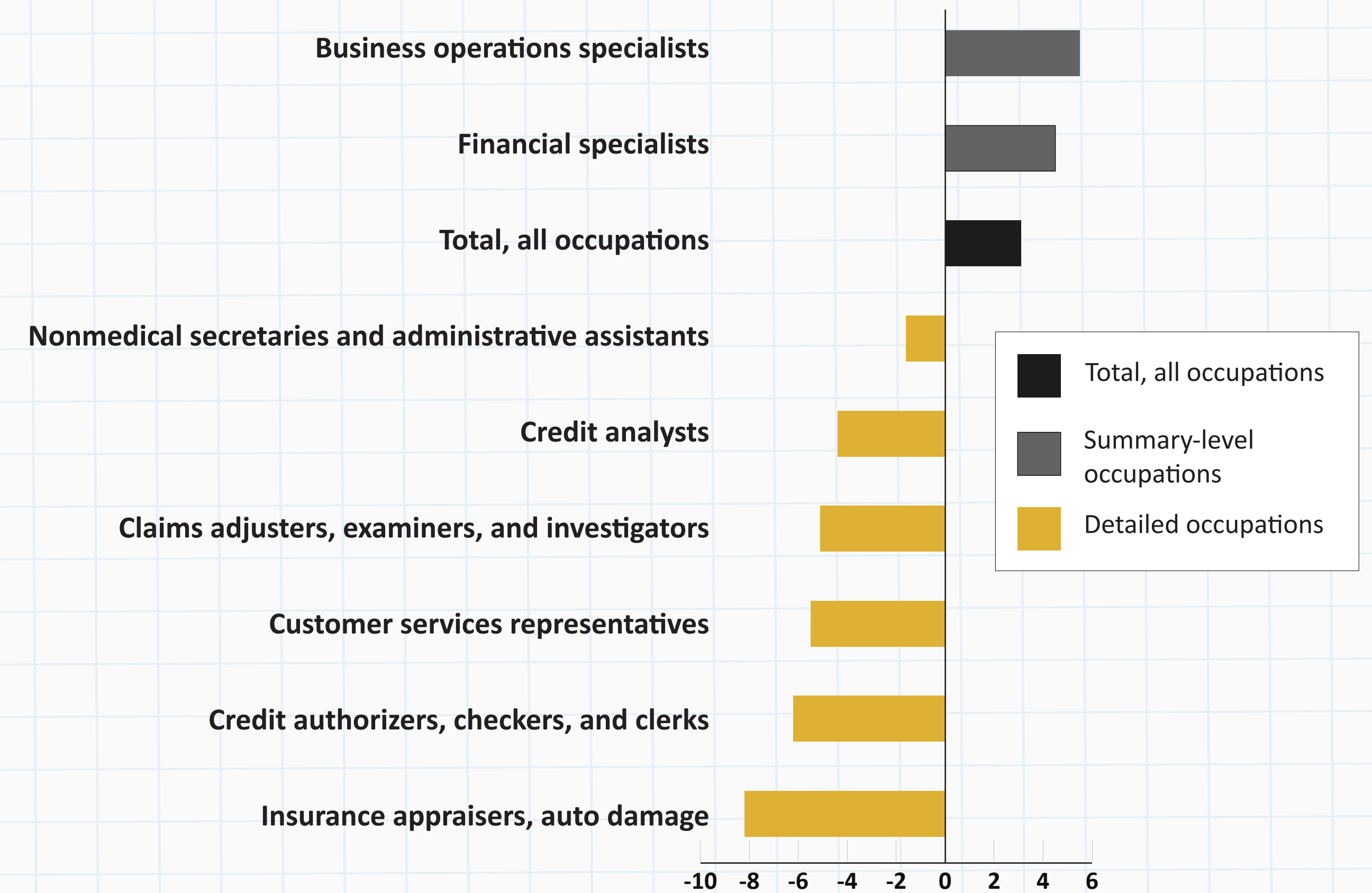
Office and administrative support

43-4041 Credit authorizers, checkers, and clerks: AI can complete tasks that are the essence of a credit rating, which combines a range of financial information on a potential borrower into an overall score.

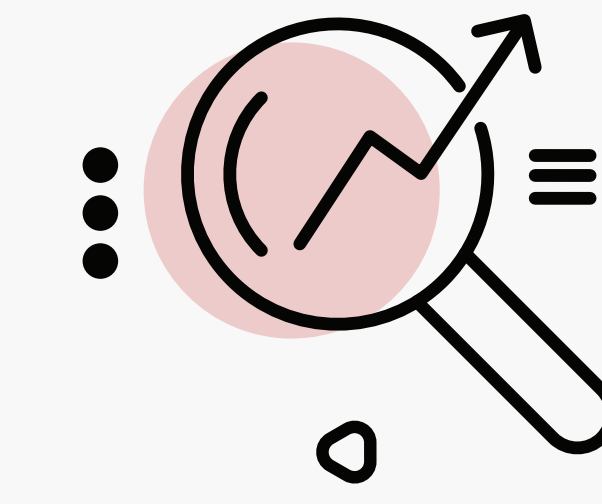
43-4051 Customer service representatives: AI chatbots can filter user issues by topic, category, and complexity, allowing human customer service representatives to focus on more difficult inquiries. Additionally, fewer customer service representatives may be needed to help a growing number of customers as a result of productivity gains from AI chatbot usage.

43-6014 Nonmedical secretaries and administrative assistants: Productivity gains associated with the adoption of digital tools, such as automated phone systems and virtual assistants, are expected to constrain demand for these workers.

Selected Business and Administrative Support Occupations, Projected Employment Change, Percent, 2024–34



Case Study 02



Generative AI is expected to have a mixed effect on employment of computer occupations

Tailwinds from AI on computer occupations

- Occupations focused on design are expected to have more growth, generally, than those focused on production.
- Increasing demand for computer science research, development of AI-integrated tools, and improved IT infrastructure are expected to support strong demand.
- Many companies report that IT infrastructure is their biggest obstacle to AI demand, leading to projected demand increases for occupations that support IT infrastructure improvements.
- AI-assisted code may be less secure, which is expected to support demand for testing and for information security.
- Increased productivity from the use of AI may lower prices and increase demand for software products, thus boosting employment demand.

Headwinds from AI on computer occupations

- Programming is one of many work activities in which new LLMs and generative AI are well suited to augment worker efforts and increase productivity.
- Generative AI already is widely used to develop, test, and document code; improve data quality; and build user stories that articulate how a software feature will provide value.
- Some programming tasks can be performed by other occupations via AI assistance, such as some web design, database management, and testing.
- Occupations less focused on design and abstract thinking are expected to be more affected by productivity enhancements.

Selected Computer Occupations, Projected Employment Change, Percent, 2024–34

