

# Intelligence “On Tap”

## The Early Economics Of AI Agents

Investment in technology—particularly, spending on software, hardware, and AI-related infrastructure—continues to drive U.S. economic growth.

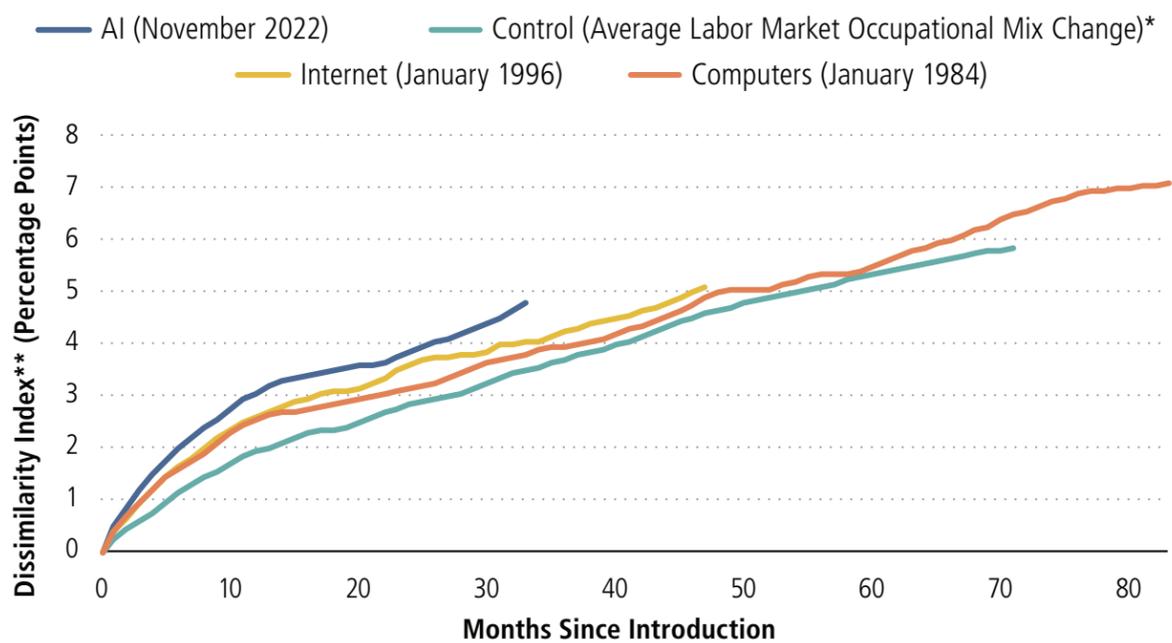
But beyond headline spending figures, a key question remains: how exactly is economic life being transformed? Some critics have dismissed current AI offerings as “just chatting with chatbots.” Others worry that broader AI adoption will replace workers, thereby increasing unemployment.

Critics of new technology often lack imagination. One near-term possibility is that AI will move beyond back-and-forth chatbots and toward independent AI “agents” that could function like a scalable pool of junior analysts across various fields, effectively putting intelligence “on tap” (like a beer tap!). Need “intelligence” to work on a project? Pour yourself a helping!

If the vision materializes, it could significantly alter the economic landscape and, once again, demonstrate that fears that AI will replace the human workforce are misplaced. Firms could gain access to a virtually unlimited supply of labor, increasing the productivity of existing employees and creating new jobs and companies that were previously unimaginable.

«DOES THE IDEA OF INTELLIGENCE “ON TAP” SOUND TOO FAR-FETCHED?»

fig 1. OCCUPATION OVERHAUL: CHANGES IN OCCUPATIONAL MIX OVER PERIODS OF TECHNOLOGICAL CHANGE



Sources: The Budget Lab, Bureau of Labor Statistics

\*Using post-GFC period as control

\*\*Measures percent of workers in new occupations relative to the baseline

### SCIENCE FICTION?

Does the idea of intelligence “on tap” sound too far-fetched? Early evidence suggests AI adoption is already occurring rapidly.

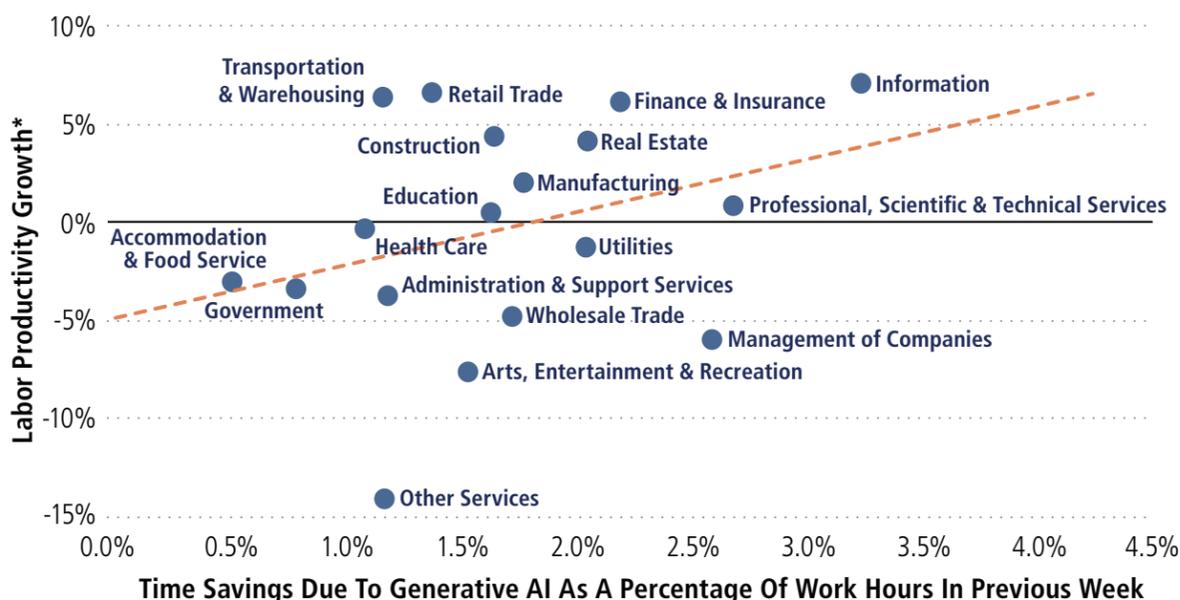
According to the St. Louis Fed’s Real-Time Population Survey, as of August 2025, more than half the U.S. working-age population reported using AI, representing a 10-percentage-point

increase over the last 12 months.<sup>1</sup> The adoption of generative AI for work has also risen to 37.4%, with usage concentrated among adults holding a bachelor’s degree or higher.

At the firm level, 10% of U.S. firms reported having incorporated generative AI into their production processes.<sup>2</sup> However, a much larger share of firms report adopting AI, or at least experimenting with it, in one or more business functions.<sup>3</sup>

«GENERATIVE AI MAY HAVE ALREADY BEEN PRODUCING ONE OF THE GREATEST CHANGES IN JOB COMPOSITION TO DATE»

fig 2. TRULY PRODUCTIVE: INDUSTRY-LEVEL AI USAGE VERSUS LABOR PRODUCTIVITY GROWTH\*



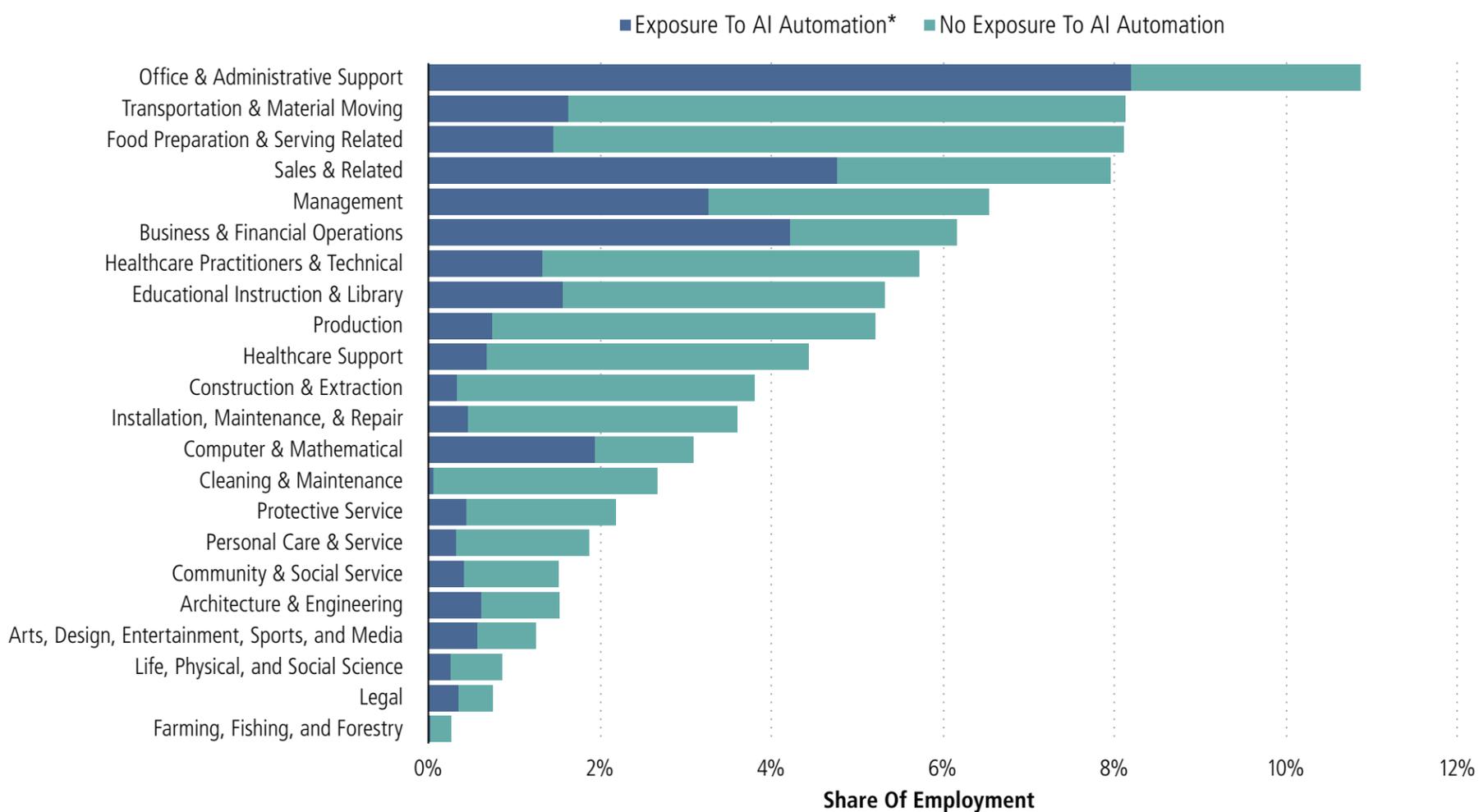
Sources: Federal Reserve Bank of St. Louis, Bureau of Economic Analysis, Bureau of Labor Statistics, Real-Time Population Survey

\*Compared to pre-pandemic trend

Compared with earlier technological shifts, generative AI may have already been producing one of the greatest changes in job composition to date (see Figure 1). Specifically, the share of job postings requiring AI skills has risen by 80% in the information technology sector and by 31% in the professional, scientific, and technical services sector. These sectors also report levels of AI usage and have experienced the fastest labor productivity growth since the pandemic (see Figure 2).

Over the same period, the unemployment rate for recent college graduates has trended upward, with the aggregate youth unemployment rate

fig 3. AUTOMATION ERA:  
SHARE OF U.S. EMPLOYMENT EXPOSED TO AI AUTOMATION\*



Sources: Penn Wharton Budget Model, Bureau of Labor Statistics  
\*An occupation is considered to be exposed to AI if 50% of the tasks can be replaced by generative AI

reaching a cyclical high in the second quarter of 2025. The demand for traditional “junior” positions appears to be declining.

Estimates suggest that approximately 34% of current jobs could have more than half of their tasks performed by generative AI, particularly in office and technology-related roles (see Figure 3).

**AGENT OFFERINGS**

So, where does this leave us? For starters, the basic AI chatbot offerings *already* provide an intern-like experience.

We can let interns or chatbots run with research, see what comes back, make adjustments and suggestions, and then iterate. Except that the time AI operates in seconds, and has access to vast amounts of publicly available information with an impeccable memory. Chatbots also gladly work nights and weekends.

«CURRENT AI ADOPTION BY FIRMS BARELY SCRATCHES THE SURFACE OF WHAT IS TO COME.»

However, current AI adoption by firms barely scratches the surface of what is to come.

Since late 2024, new systems, such as OpenAI’s Operator, have begun to complete tasks on the user’s behalf, including simulating website interactions and transactions, thereby enabling

an autonomous AI agent.

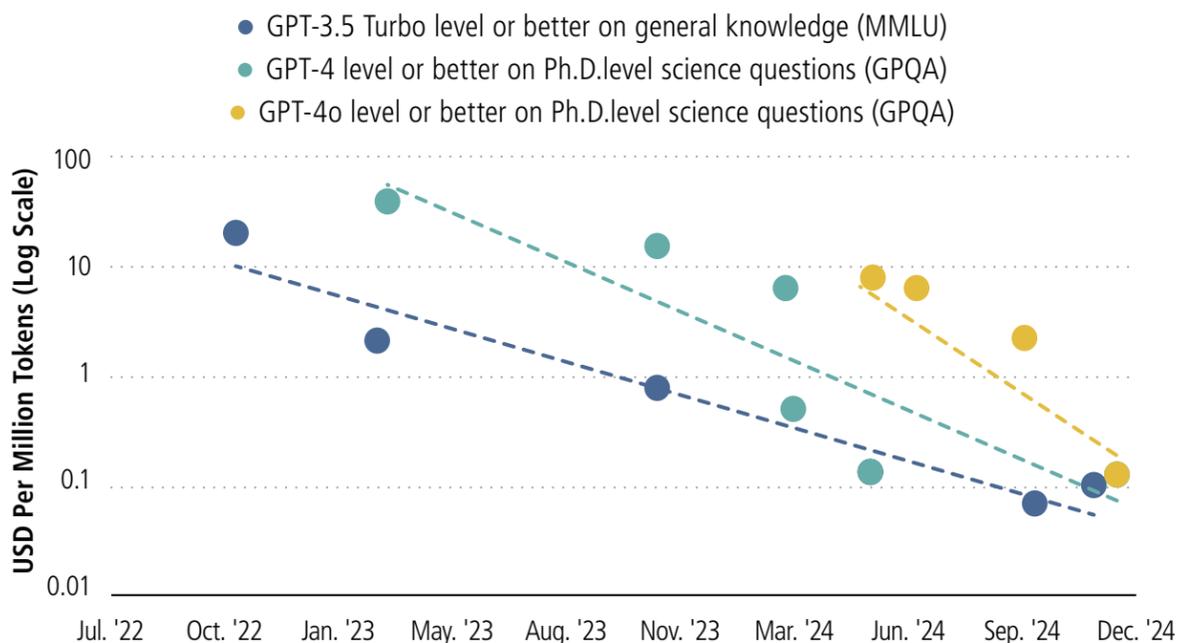
These agents can now function outside their original browser. For example, AI can now organize travel plans and book flights and hotels on behalf of users, aligning with their preferences obtained directly or indirectly from past conversations and internet search history.

Beyond personal use, AI agents have already been integrated into the workforce as customer service representatives, answering questions and assisting with order confirmation in supply chain roles.

OpenAI agents can also fill out forms, organize files, and manage calendars. More recently, Anthropic, a competitor to OpenAI, launched a multi-agent research function within its Claude AI. The function focuses on open-ended research questions, systematically exploring multiple angles of the prompt and returning well-structured and cited results.

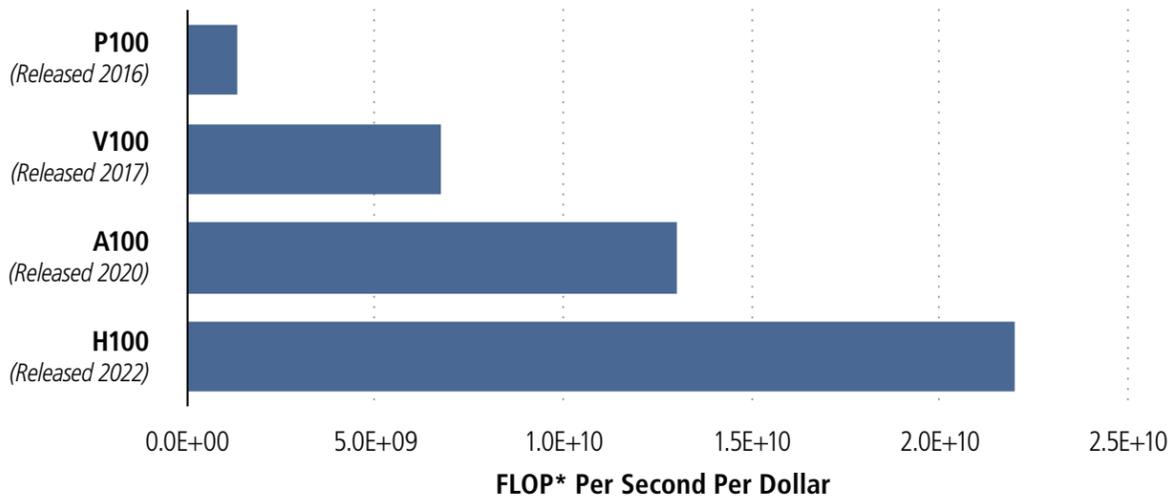
Although still relatively new, AI agents’ capabilities warrant consideration of implications for the workforce.

fig 4. COST IMPROVEMENT:  
LARGE LANGUAGE MODELS INFERENCE PRICE BY PERFORMANCE STANDARDS



Source: EPOCH AI

fig 5. CHEAPER CHIPS:  
INFLATION-ADJUSTED PERFORMANCE PER DOLLAR  
OF SELECT NVIDIA DATACENTER GPUS



Source: EPOCH AI

\*Floating Point Operations (FLOP) is a unit of computation. Total FLOPs measure the amount of computation required to train or run an AI model.

For example, using AI agents at work may help reduce human-induced frictions that often limit firm growth. AI agents can also minimize principal-agent costs by sharing information seamlessly, replicating processes across multiple projects within the firm, and executing tasks without incentive misalignment.<sup>4</sup> Unlike human teams, these agents do not suffer from burnout or organizational silos.

We can imagine a scenario in which future firms are managed by a multi-structured AI agent system, or at least incorporate them across various branches, to ensure seamless communication across departments and the replication of successful strategies.<sup>5</sup>

**THE COST OF DOING BUSINESS**

Another key difference between hiring AI agents and interns is cost.

Historically, firm-level AI integration has required training on existing data, expanding data storage and cloud-based infrastructure, hiring AI specialists, and maintaining AI systems—a far more time-consuming and costly process than hiring interns or junior analysts.

Today, that cost calculation may be changing rapidly.

\$20 per million tokens (unit of data processed by AI) in November 2022 to just \$0.07 per million tokens in October 2024, representing a rate of decline of nine times per year (see Figure 4 on page 2). What’s more, the inference cost of higher-performing models released in 2024 is decreasing by 900 times per year, making newer, higher-performing models more efficient and more accessible to users (see Figure 4 on page 2 again).<sup>6</sup>

Hardware training costs have also decreased rapidly. According to EPOCH AI’s analysis, the hardware cost of training an LLM to a fixed performance level has declined by 30% per year. In contrast, performance per dollar has increased rapidly with each new Graphics Processing Unit (GPU) generation (see Figure 5).

**LUMP OF LABOR FALLACY**

To an average reader of news, though, the idea of a cheap army of junior analysts invading every field might generate fears for job security rather than optimism about improved work productivity.

However, this fear reflects the “lump of labor fallacy,” the mistaken belief that there is a fixed amount of work in an economy that must simply be redistributed across jobs.

History suggests that the economic pie can always grow, and it often grows faster with new technology, implying more jobs in the future rather than fewer.

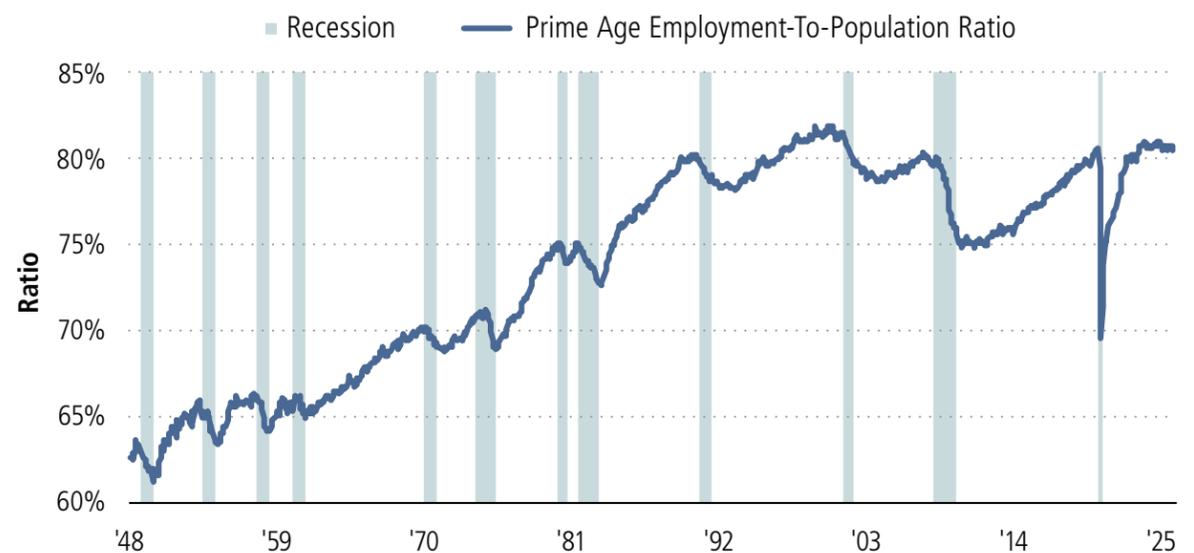
The development of such new “general-purpose technologies” as AI has never stopped. Instead, the entire advancement of the human race has rested on general-purpose technologies, such as electricity, steam engines, railroads, internal combustion engines, computers, and the internet. While the introduction of certain technologies has generated bubbles, the economy’s long-term productivity gains are evident.

**«SURE, NEW TECHNOLOGIES WILL REPLACE CERTAIN JOBS. BUT MORE OFTEN, THEY CREATE ENTIRELY NEW ONES.»**

Sure, new technologies will replace certain jobs. But more often, they create entirely new ones. For example, the introduction of computers replaced typists, filing clerks, and human operators who had previously manually connected phone calls. But it also created entirely new fields, such as software engineering, IT services, data science, digital design, and streaming.

As a result, with each innovation, labor demand has continued to grow, as reflected in the U.S. prime-age employment-to-population ratio (see Figure 6). But the mix of jobs in the U.S. economy has been continually changing as new technologies are developed (see Figure 7 on page 4). In fact, 60% of today’s employment is in jobs that didn’t exist before the 1940s!<sup>7</sup> The majority of employment has shifted from production and clerical jobs in the 1940s to higher-skilled services occupations.

fig 6. INVENT MORE, EMPLOY MORE:  
U.S. PRIME AGE EMPLOYMENT-TO-POPULATION RATIO  
SINCE 1948

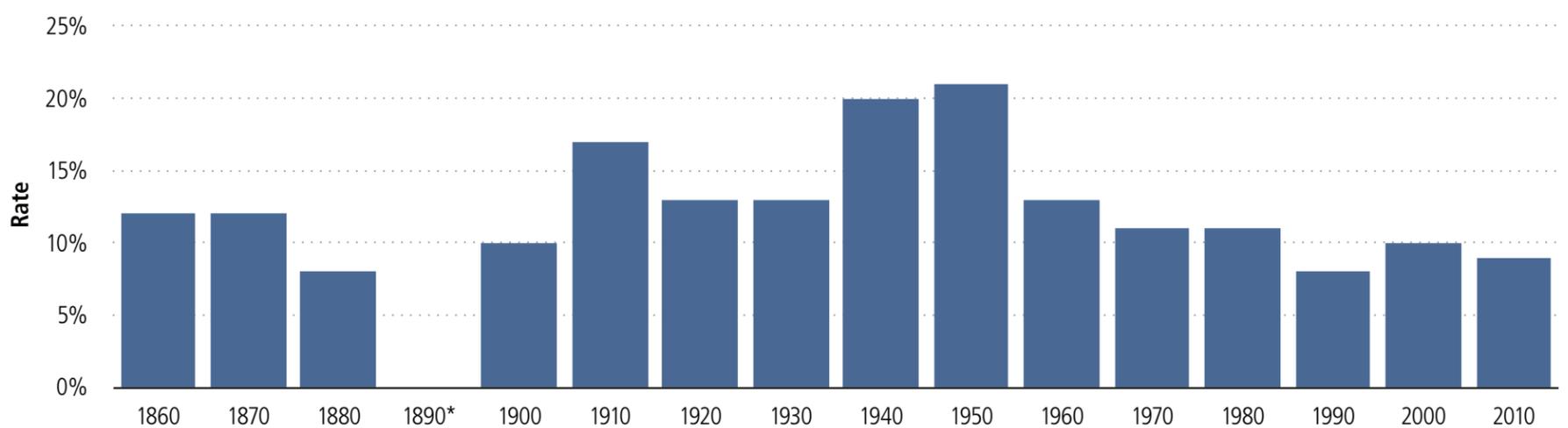


Source: Bureau of Labor Statistics

**«THE MONETARY COST OF GENERATING AN OUTPUT HAS FALLEN FROM \$20 PER MILLION TOKENS IN NOVEMBER 2022 TO JUST \$0.07 PER MILLION TOKENS IN OCTOBER 2024.»**

For example, the monetary cost of generating an output, or the inference cost of advanced large language models (LLMs) that can match the performance of Chat GPT-3.5, has fallen from

fig 7. CHANGING MIX:  
RATE OF CHANGE IN THE DISTRIBUTION OF WORKERS' OCCUPATIONS



Sources: Jed Kolko (Harvard Business Review 2018), U.S. Census Bureau, The Budget Lab

\*No data was available for 1890

«NEW TECHNOLOGY CAN BRING NEW WORKERS INTO ROLES THAT WERE ONCE INACCESSIBLE.»

### EVOLVING EXPERTISE

More interestingly, new technology can bring new workers into roles that were once inaccessible. For example, the introduction of GPS allowed more people to become cabbies, a job that previously required years of memorizing routes by heart.<sup>8</sup>

Existing expert occupations can also be made more productive by new technology, as GPS has done for air traffic controllers, replacing ground-based radio beacons with precise satellite navigation.

AI is no different today. In the short run, AI may replace repetitive tasks and reduce labor demand in specific sectors. However, over the long run, AI will create *new* occupations and

enable *more* workers to take on high-skilled work. For example, with the help of AI coders, workers without a sophisticated coding background can also use coding to streamline their workflow.

Finally, the ability of AI to boost productivity—in other words, to drive more output with fewer people—might be the optimal solution to sustain U.S. economic growth despite decelerating population growth over the next decade. Put differently, AI will help us solve the more immediate problem where “rich countries will run out of workers before [they] run out of jobs.”<sup>9</sup>

### IMAGINATION ERROR

Concerns about AI often originate from a lack of imagination—a problem that even tech experts can stumble on!

For example, at a stockholder meeting in 1953, the then-CEO of IBM, Thomas J. Watson, remarked that he expected the demand for IBM’s new computer, which *rented* for between \$12,000 and \$18,000 a month, to be five units.<sup>10</sup>

Well, he was wrong twice. The demand for that specific new computer was 18 units. Today, 95% of the U.S. population owns a computer, and a sky-blue 13-inch MacBook Air that computes a billion times faster would cost \$999, before adjusting for inflation.

Similar misjudgments appear today, as pundits struggle to imagine how different the future may look from the present. In an agentic AI economy, people can focus on more interesting jobs and accomplish vastly more work. The result will be more output, not less, for existing workers, and a change in the composition of what constitutes work for those entering the workforce or changing jobs.

Finally, some argue that “this time is different”: blue-collar jobs will remain, whereas white-collar office jobs may suffer. Well, we have news for you: agentic AI could eventually take a physical form, through robotics.

But we’ll save that for another article. 

### ENDNOTES

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