

Finance & economics | Solow, the sequel

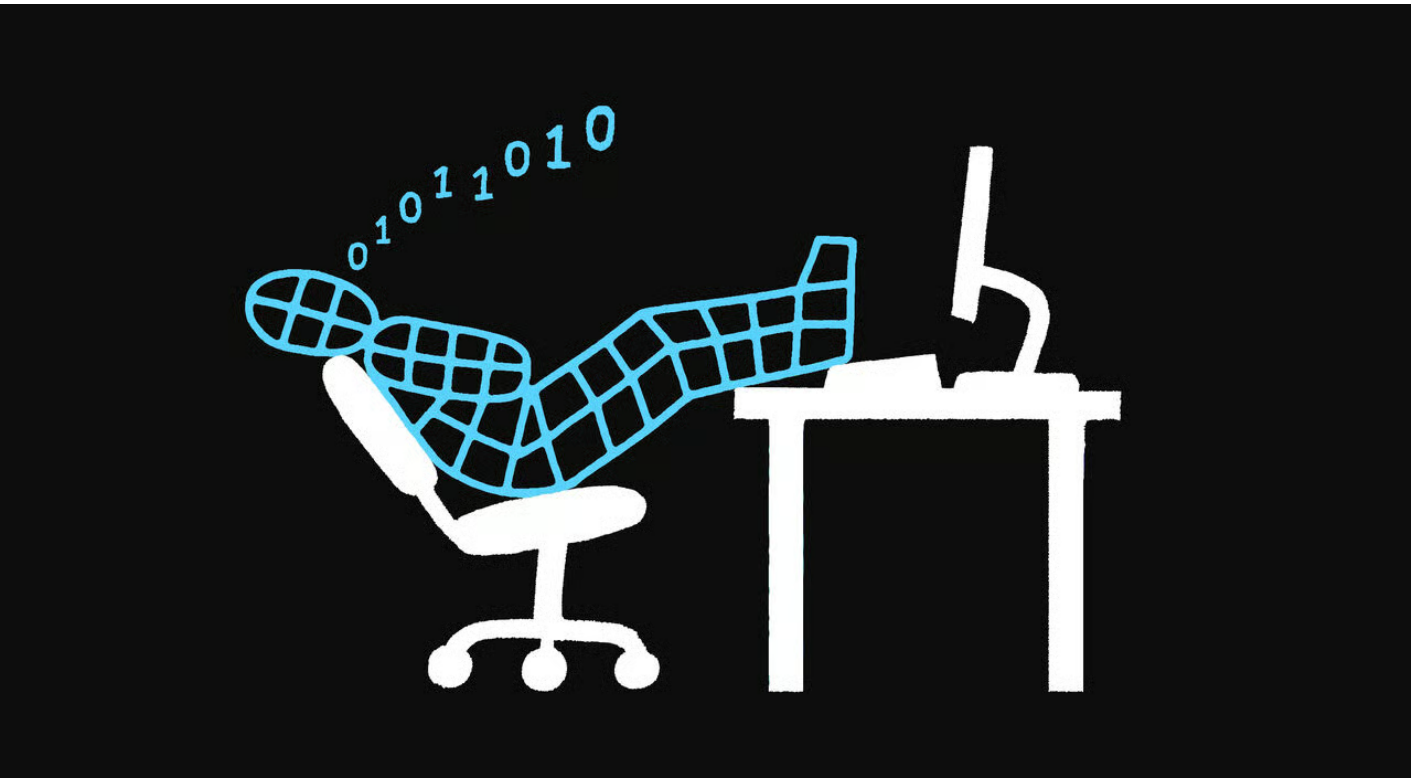
The AI productivity boom is not here (yet)

Artificial intelligence is improving fast. Its effect on output, not so much

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Summary



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ARTIFICIAL INTELLIGENCE is advancing at startling speed. The latest models can now complete complex, time-eating tasks with little human supervision. This month one of [OpenAI's](#) models helped derive a new result in theoretical physics. No wonder an essay declaring that “Something Big is Happening” and, in recent days, a blog post of a similar tenor, [have gone viral](#).

Is something big happening to the economy, too? Scott Bessent, America's treasury secretary, predicted last year that AI would soon start “biting”—by which he meant lead to noticeable improvements in productivity. Kevin Warsh, President Donald Trump's nominee to lead the Federal Reserve, is counting on an AI-driven productivity boom to help tame inflation.

A puzzle in America's macroeconomic data appears, at first glance, to suggest that Messrs Bessent and Warsh are right. The economy grew by a brisk 2.2% in 2025, according to data released on February 20th. Yet hiring slowed sharply over the same period. Employers added only about 15,000 jobs a month on average—equivalent to annual employment growth of just 0.1%. This combination suggests that each worker is generating more output.

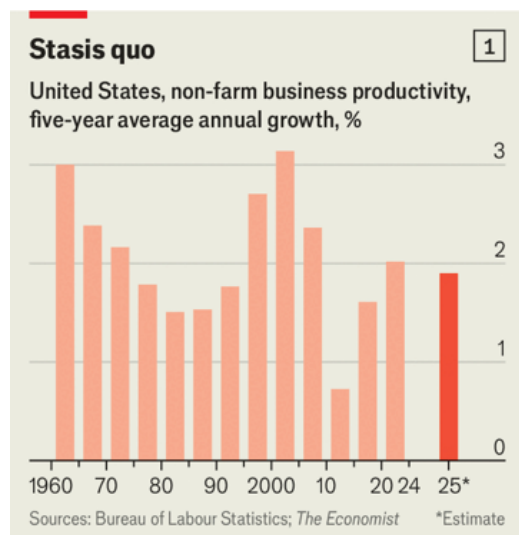


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The evidence of substantial, AI-fuelled productivity gains, however, is thin. Real GDP grew at an annualised rate of just 1.4% in the fourth quarter of 2025 (though a government shutdown was partly to blame). And the recent gap between growth in output and employment is not especially unusual. Since 1950 it has been at least two percentage points in nearly one-third of years. Although official figures have yet to be released, an estimate based on real GDP growth and aggregate hours worked suggests productivity growth of about 1.9% in 2025. That would be just below the long-run average of 2% or so and far short of the improvements made during the internet boom of the 1990s and 2000s (see chart 1).

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Moreover, the gap between output and employment growth could be caused by many factors. Much of America's recent GDP growth reflects a surge in investment, chiefly in AI infrastructure. Jason Furman of Harvard University estimates that some 90% of GDP growth in the first half of 2025 came from spending on data centres and related capital investments (though such calculations do not deduct imported capital

investment is excluded, are close to zero. Dynamics in the jobs market point in the same direction. Tighter immigration policy has reduced labour-force growth, lifting average productivity by removing many workers in relatively low-productivity sectors like farming and construction. A sharp decline in temporary employment has had a similar effect.

How would economists know if AI contributed to higher productivity? Broadly, they need to examine three things: how widely the technology is adopted, how intensively it is used and how much it boosts output when applied to individual tasks.

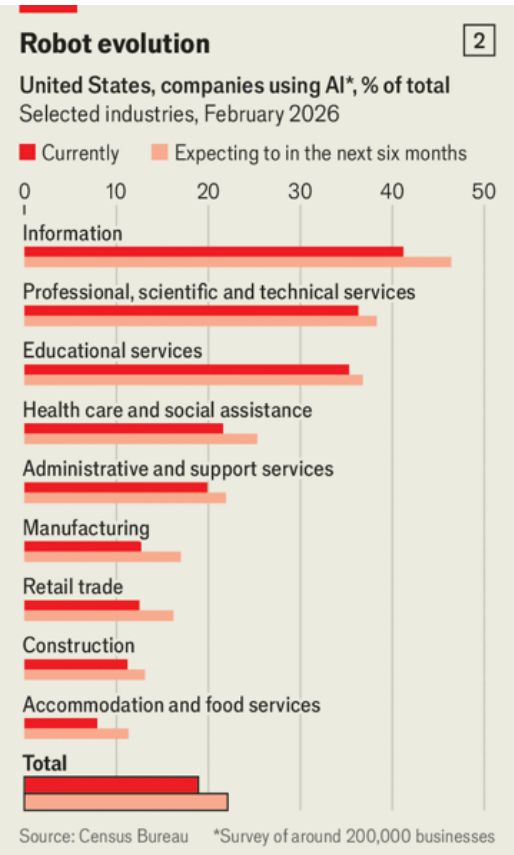


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Adoption is starting to rise (see chart 2). A tracker by Alex Bick of the Federal Reserve Bank of St Louis and colleagues estimates that 41% of American workers used generative AI at work in November 2025, up from 31% a year earlier. Other surveys have reached similar conclusions. Jon Hartley of Stanford University and his colleagues estimate that usage rates rose from roughly 30% at the end of 2024 to 36% a year later.

Yet adoption alone says little about how AI influences productivity. Intensity of use also matters. Mr Bick found that only about 13% of working-age adults use it every day. The share of total work hours involving generative AI remains small, having risen from 4.1% in late 2024 to just 5.7% by mid-2025. Most usage consists of discrete tasks rather than wholesale automation. OpenAI’s data suggest its models are mostly used in workplaces for writing assistance and information queries. Anthropic’s Claude is used mainly to help people write computer code.

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When AI is used, the benefits can be large. In 2023 Shakked Noy and Whitney Zhang of the Massachusetts Institute of Technology found that using ChatGPT reduces completion times for writing tasks by nearly 40%. In a study of consultants at the Boston Consulting Group, Fabrizio Dell’Acqua of Harvard Business School and his co-authors found AI-driven productivity improvements of 12–25% on realistic professional tasks. A broader review by Maria del Rio-Chanona of University College London and her colleagues reports average productivity gains of 15–30% in real-world settings.

Taking all three factors into account, a back of the envelope calculation suggests AI has so far made only a

much it improves efficiency, and you get a boost of about 0.25-0.5 percentage points to productivity growth over the past year. This calculation is almost certainly too generous. It assumes that all time saved is redeployed productively, and that workers neither shirk nor produce lower-value output. Early evidence points to a messier reality. Some studies suggest workers spend more total time working when using AI, others that the technology is sometimes used to generate low-quality “slop” that requires editing or verification.

All this signals a deeper flaw in the argument that AI is powering a productivity boom. Such improvements are usually made not just when workers use a new tool more often, but also when firms reorganise production around it. Early factories became only a bit more efficient when steam engines were replaced with electric motors; the real revolution came decades later after floor plans were redesigned to make the most of electric power. More recently, productivity growth was a disappointment for years after personal computers became widespread. It sped up only once firms adopted business models that exploited the technology to its full potential. Much of America's productivity revival in the 1990s came not from Silicon Valley but from retail, where computers transformed logistics and inventory management.

There is little sign that AI has reached a similar stage. A recent study by Ivan Yotzov of the Bank of England and others found that executives spend only about one and a half hours a week using AI. Nine out of ten senior managers see no measurable improvement in labour productivity. The organisational rewiring, in other words, has barely begun. Something big may indeed be happening with AI itself. For now, it remains largely invisible in the macroeconomic data.

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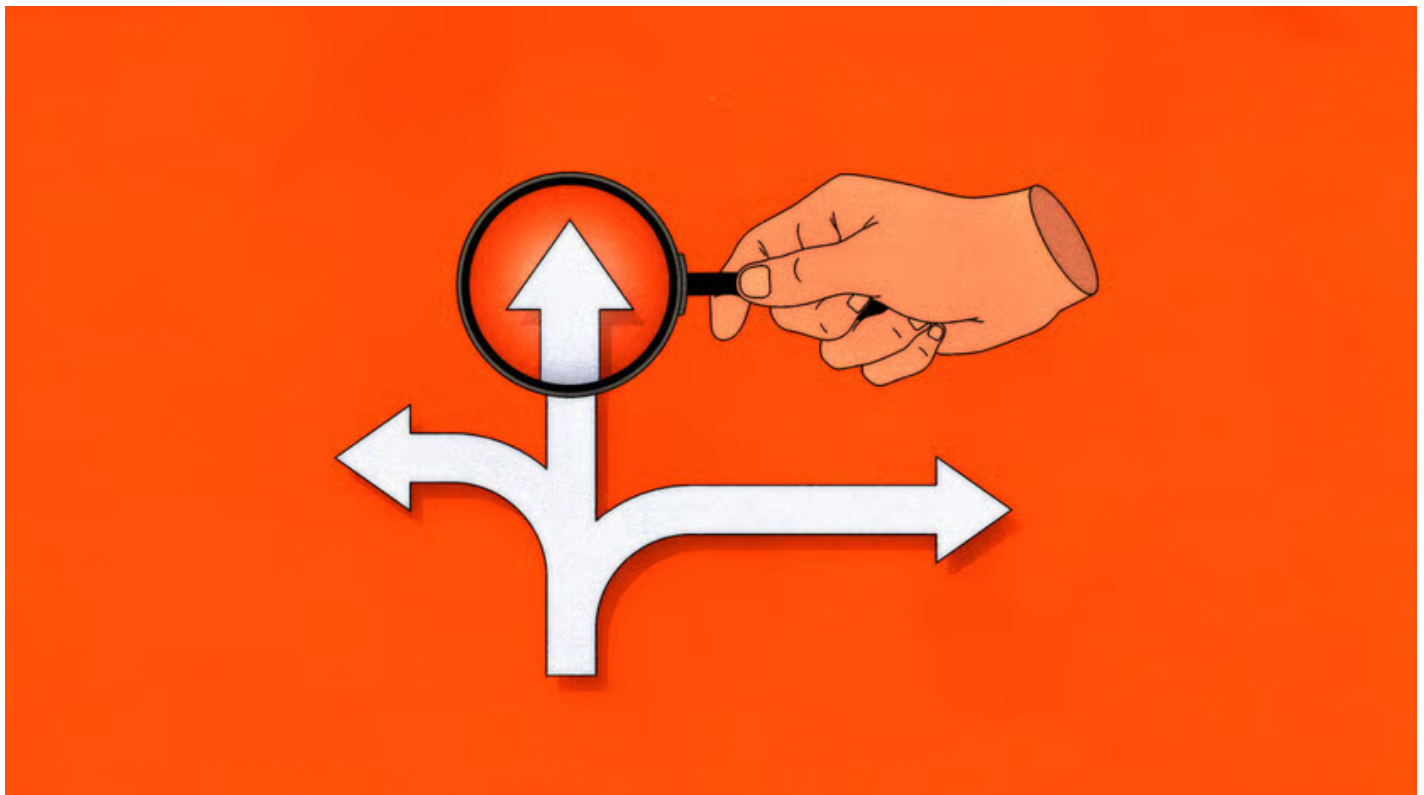
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