



By: Diane Coyle

How to measure AI's real economic impact?



Is AI transforming the economy in any real sense, or is the promise of rapid growth mere hype?

US stock markets certainly favor the former view: shares of AI and tech companies have accounted for about three-quarters of the **S&P 500's** gains this year.

Venture capital investors appear equally convinced, having poured \$200 billion into the AI sector in 2025 alone, according to one **estimate**.

It is no surprise, then, that analysts are increasingly asking whether we are witnessing another **tech bubble**, reminiscent of the dot-com boom of the 1990s, and whether, as before, it might eventually burst and drag equity markets down with it.

Yet, as my Cambridge colleague William Janeway points out, even **speculative** bubbles can leave behind vital infrastructure and innovations that sustain long-term growth.

If AI follows that pattern, how powerful could its impact be? The dot-com boom offers some useful lessons.

In the second half of the 1990s, emerging digital technologies nearly doubled **US productivity** growth to 2.5%.

Although economists' forecasts vary, some **studies** suggest that today's wave of AI investment could produce a similarly significant boost in GDP growth.

The most fervent AI evangelists go further, arguing that the imminent arrival of artificial general intelligence (AGI) could be utterly transformative.

Anthropic CEO **Dario Amodei**, for example, has contended that AI's potential is being radically underestimated and that, if developed safely, such systems could drive breakthroughs in biology, neuroscience, and economic development, potentially eradicating disease, reducing poverty, and fostering global cooperation.

Traditional economic metrics

If such a world of abundance is indeed on the horizon – and even if it materializes only in the distant future – it is crucial to track how this transformation plays out.

But as I explain in my recent book **The Measure of Progress**, traditional economic metrics still struggle to capture the effects of the “old” digital economy, let alone the emerging AI-driven one.

Transformative technologies such as steam power and electricity took decades to register in official statistics

GDP growth is a prime example. At best, it is a lagging indicator of structural change.

Economic **historians** have shown that transformative technologies such as steam power and electricity took decades to register in official statistics, and even when their effects became visible, the measured income gains were surprisingly modest.

But it would be absurd to claim these technologies were not transformative; their impact simply manifested in ways that conventional metrics failed to reflect.

Basic facts are missing

When it comes to AI, some of the most basic facts are missing or incomplete.

For example, how many companies are using generative AI, and in which sectors? What are they using it for? How are AI tools being applied in areas such as marketing, logistics, or customer service? Which firms are deploying AI agents, and who is actually using them?

Although research on AI is expanding rapidly, what is required now is systematic data collection.

Tech companies have begun to recognize that the current information vacuum does them no favors

Reliable statistics would not only help businesses gauge demand and opportunity but also enable governments to design policies that foster growth and protect consumers.

Tech companies like **Anthropic** and **OpenAI** have begun to recognize that the current information vacuum does them no favors, especially given their products' reliance on data.

Without a clearer understanding of AI's economic impact, public debate will inevitably focus on risks and anxieties, from the prospect of a "**jobpocalypse**" to the potential psychological effects of human-like chatbots.

Industry initiatives aimed at closing this gap, though limited in scope, are essential.

Valuable insight into AI's transformative effects

That said, other indicators can provide valuable insight into AI's transformative effects.

In a recent working **paper** with John Poquiz, I argue that any meaningful set of indicators should include key inputs for AI development, particularly energy consumption, labor-market shifts, and data use.



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States– are in disarray, and most policymakers remain overly cautious about drawing on new data sources and methodologies

Another important measure is the adoption of AI-driven services, so-called **agentic AI**.

Time-use data, both at home and in the workplace, could also prove useful, as would structural indicators such as shifts in industrial composition and organizational design.

More broadly, a fuller picture of structural change would help us understand AI's broader economic effects, from sectoral reallocation to shifting workflows.

Unfortunately, few such metrics currently exist. Compounding the problem, many **statistical agencies** – most notably in the United States– are in disarray, and most policymakers remain overly cautious about drawing on new data sources and methodologies.

Academics, for their part, are eager to improve how we measure and understand AI's economic impact.

For now, however, we are in the same position as the Victorians, who learned more about how steam power, railways, and the telegraph were reshaping their world from the novels of Charles Dickens and George Eliot than from official statistics.

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