

THE SOLOW PARADOX: WHY BRILLIANT ARTIFICIAL INTELLIGENCE (AI) TECHNOLOGY ARE NOT LEADING TO WIDESPREAD GROWTH AND PROSPERITY

In 1987, Robert Solow, an American economist from the prestigious Massachusetts Institute of Technology (MIT) and winner of that year's Nobel Prize in Economics for defining the role of innovation in economic growth, explained his now famous paradox in an article in the New York Times.

It stated that IT would be everywhere, except in productivity statistics. In other words, the technical progress brought about by the new information and communication technologies would not have as much impact on the economy as the previous industrial revolutions, which generated significant sources of productivity, which in turn led to long growth cycles.

This observation was called the *Solow paradox*, and was formulated as follows: "you can see the computer age everywhere but in the productivity statistics". This can be attributed to the time lag between investment in knowledge and its impact, due to the time spent on training and the effects of obsolescence.

The sustained growth experienced by the United States in the 1990s then seemed to prove Solow wrong. With its record levels of productivity, the United States managed to contradict the paradox. *Businessweek* even spoke of a new economic paradigm. Even Solow himself believed in it, saying "It's possible that this is the end of the computer paradox, but I'm not sure". (Le Monde de l'économie, 18 April 2000). A few years later, he even admitted to having made a mistake and acknowledged that the productivity gains were real.

Last June, however, David Rotman - editor of the MIT Technology Review - wrote that productivity has in fact been dismal since 2004, despite our living in the age of "Facebook, smartphones, self-driving cars, and computers that can beat a person at just about any board game".

Another MIT economist, Erik Brynjolfsson, believes that we are in the same situation as at the end of the 1980s when Solow announced his famous paradox.

According to Rotman, artificial intelligence is a "general-purpose technology". Like the steam engine, electricity, and the internal-combustion engine, these inventions will eventually transform our lifestyles, but before that can happen, businesses must be reinvented and other complementary technologies will have to be created to exploit these technological breakthroughs. This can take a lot of time, which is why such inventions don't always lead to productivity gains.

The author highlights the argument put forward by British economist John Van Reenen. Reenen believes that these technologies will not lead to huge productivity gains in Europe, largely because European companies - unlike US-based ones - missed out on the massive spurt in productivity during the 1990s due to their lack of flexibility.

Suzette Saint-Marc
Syndicat des agents du Conseil de l'Europe



“You can see the computer age everywhere but in the productivity statistics”
Robert Merton Solow

*MIT Technology Review, June 2018: *The productivity paradox - Why brilliant AI technologies are not leading to widespread growth and prosperity*; <https://www.technologyreview.com/s/611482/the-productivity-paradox/>

*L'express Entreprise, March 2003: https://lentreprise.lexpress.fr/rh-management/le-paradoxe-de-solow_1514591.html

*Alternative économiques, May 2013: *Le paradoxe de Solow* (The Solow Paradox); <https://www.alternatives-economiques.fr/paradoxe-de-solow/00046912>