Pause Artificial Intelligence Research?
An economic interpretation of the concerns highlighted in 2023's A.I. Pause Letter

Avi Goldfarb

University of Toronto

future of life INSTITUTE

Pause Giant AI Experiments: An Open Letter

We call on all AI labs to immediately pause for at least 6 months the training of AI systems more powerful than GPT-4.

View this open letter online.

Published	PDF created	Signatures
March 22, 2023	May 5, 2023	27565

AI systems with human-competitive intelligence can pose profound risks to society and humanity, as shown by extensive research[1] and acknowledged by top AI labs.[2] As stated in the widely-endorsed Asilomar AI Principles, *Advanced AI could represent a profound change in the history of life on Earth, and should be planned for and managed with commensurate care and resources.* Unfortunately, this level of planning and management is not happening, even though recent months have seen AI labs locked in an out-of-control race to develop and deploy ever more powerful digital minds that no one – not even their creators – can understand, predict, or reliably control.

"Should we risk loss of control of our civilization?"

"Should we develop nonhuman minds that might eventually outnumber, outsmart, obsolete and replace us?"

"Should we let machines flood our information channels with propaganda and untruth?"

"Should we automate away all the jobs, including the fulfilling ones?"

National Bureau of Economic Research

THE ECONOMICS OF ARTIFICIAL INTELLIGENCE

An Agenda

Edited by Ajay Agrawal, Joshua Gans, and Avi Goldfarb

1

Artificial Intelligence and the Modern Productivity Paradox
A Clash of Expectations and Statistics

Erik Brynjolfsson, Daniel Rock, and Chad Syverson

The discussion around the recent patterns in aggregate productivity growth highlights a seeming contradiction. On the one hand, there are astonishing examples of potentially transformative new technologies that could greatly increase productivity and economic welfare (see Brynjolfsson and McAfee 2014). There are some early concrete signs of these technologies' promise, recent leaps in artificial intelligence (AI) performance being the most prominent example. However, at the same time, measured productivity growth over the past decade has slowed significantly. This deceleration is large, cutting productivity growth by half or more in the decade preceding the slowdown. It is also widespread, having occurred throughout the Organisation for Economic Co-operation and Development (OECD) and, more recently, among many large emerging economies as well (Syverson 2017).[1]

Potential for a Productivity Boom?

9

Artificial Intelligence and Economic Growth

Philippe Aghion, Benjamin F. Jones, and Charles I. Jones

9.1 Introduction

This chapter considers the implications of artificial intelligence for economic growth. Artificial intelligence (AI) can be defined as "the capability of a machine to imitate intelligent human behavior" or "an agent's ability to

RESEARCH - REPORT

Machines of mind: The case for an AI-powered productivity boom

Martin Neil Baily, Erik Brynjolfsson, and Anton Korinek · Wednesday, May 10, 2023

There is an emerging literature that estimates the productivity effects of AI on specific occupations or tasks. Kalliamvakou (2022) finds that software engineers can code up to twice as fast using a tool called Codex, based on the previous version of the large language model GPT-3. That's a transformative effect. Noy and Zhang (2023) find that many writing tasks can also be completed twice as fast and Korinek (2023) estimates, based on 25 use cases for language models, that economists can be 10-20% more productive using large language models.

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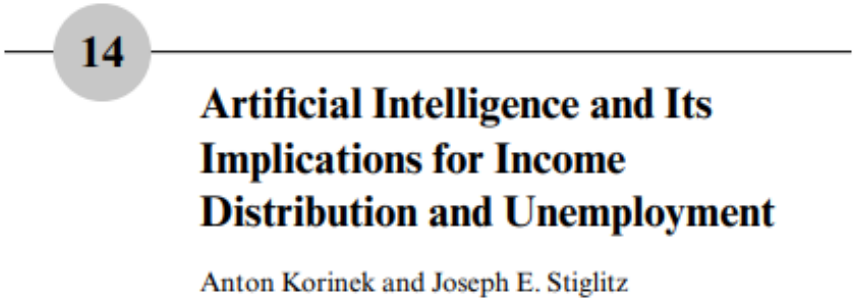
14

Artificial Intelligence and Its Implications for Income Distribution and Unemployment

Anton Korinek and Joseph E. Stiglitz

“If progress in AI cannot be halted, our description above suggests mechanisms that may ensure that humans can afford a separate living space and remain viable: because humans start out owning some of the factors that are in limited supply, if they are prohibited from transferring these factors, they could continue to consume them without suffering from their price appreciation.”

“Should we develop nonhuman minds that might eventually outnumber, outsmart, obsolete and replace us?”

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“Should we develop nonhuman minds that might eventually outnumber, outsmart, obsolete and replace us?”

American Economic Journal: Macroeconomics 2021, 13(1): 299–332
https://doi.org/10.1257/mac.20170105

Are We Approaching an Economic Singularity? Information Technology and the Future of Economic Growth†

By William D. Nordhaus*

III. Rapid Technological Change through Superintelligent Innovation

A first possible source of extremely rising economic growth comes from rapid improvements in technology generated by superintelligent agents. This approach can be seen easily using a Cobb-Douglas production function of the form $Y_t = K_t^{\alpha}(A_t L_t)^{1-\alpha}$. Here and below, assume that Y is output, K is capital, L is labor, A is labor-augmenting technology, s is the savings rate, and t is time. For most of the discussion, I assume the savings rate is constant. For a given rate of labor-augmenting technological change of h, the growth of output will be $g \rightarrow n + h$. Singularity quite naturally arises if technological change becomes extremely rapid.

The A.I. Dilemma: Growth versus Existential Risk

Charles I. Jones*
Stanford GSB and NBER

September 12, 2023 — Version 0.7
Preliminary, comments appreciated

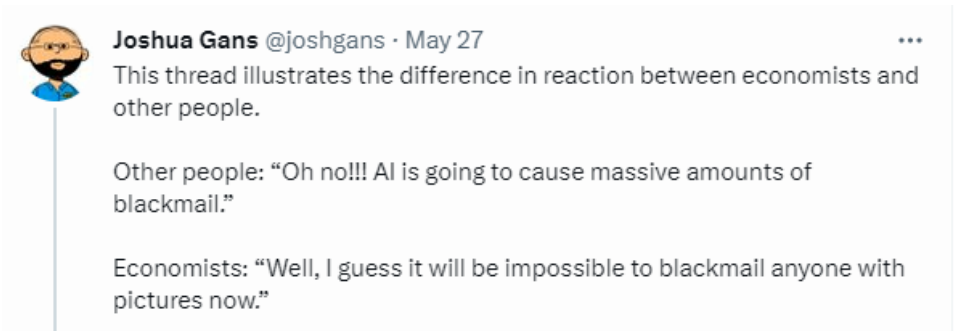
Abstract

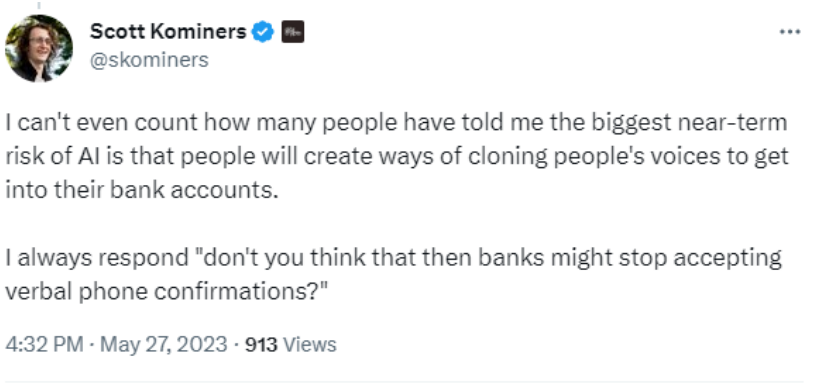
Advances in artificial intelligence (A.I.) are a double-edged sword. On the one hand, they may increase economic growth as A.I. augments our ability to innovate or even itself learns to discover new ideas. On the other hand, many experts note that these advances entail existential risk: creating a superintelligent entity misaligned with human values could lead to catastrophic outcomes, including human extinction. This paper considers the optimal use of A.I. technology in the presence of these opportunities and risks. Under what conditions should we continue the rapid progress of A.I. and under what conditions should we stop?

“Should we let machines flood our information channels with propaganda and untruth?”

“Should we let machines flood our information channels with propaganda and untruth?”

- The economics are more complicated than popular discourse suggests. Lots of big open questions. Little research to date.





Journal of Economic Perspectives—Volume 10, Number 3—Summer 1996—Pages 103–118

Cheap Talk

Babbling equilibrium

Joseph Farrell and Matthew Rabin

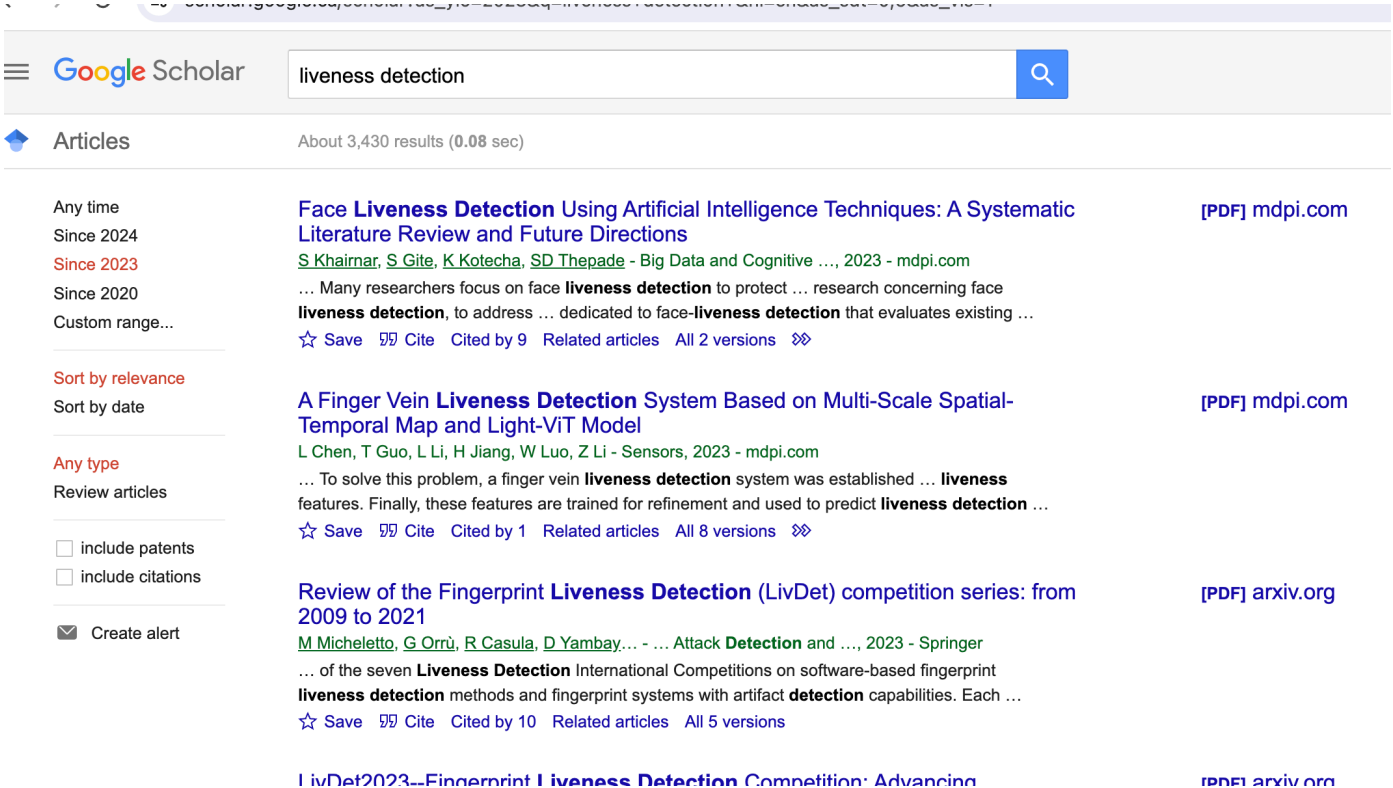
"Simply by making noises with our mouths, we can reliably cause precise new combinations of ideas to arise in each other's minds."
—Steven Pinker, *The Language Instinct* (1994), p. 1

"A verbal contract isn't worth the paper it's written on."
—attributed to Yogi Berra

"Your grandmother was making noises like she was going into town."
—Emily Ann Cramer, circa 1965, verbal communication to J. F.

"Won't that kid ever shut up?"
—W. R., circa 1965, verbal communication to A. R.

New verification tools



Journal of Economic Perspectives—Volume 30, Number 3—Summer 2016—Pages 133–140

Motivated reasoning

The Mechanics of Motivated Reasoning

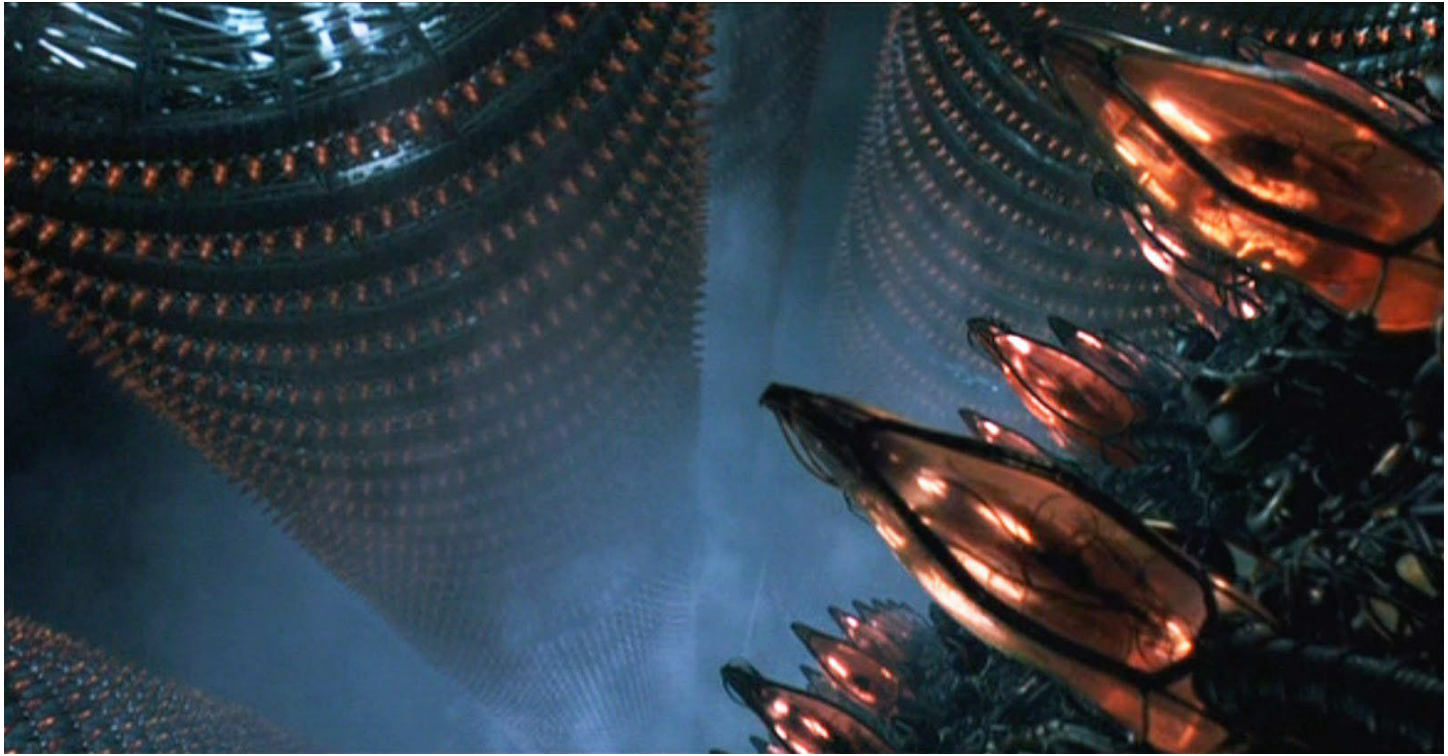
Nicholas Epley and Thomas Gilovich

Whenever we see voters explain away their preferred candidate's weaknesses, dieters assert that a couple scoops of ice cream won't *really* hurt their weight loss goals, or parents maintain that their children are unusually gifted, we are reminded that people's preferences can affect their beliefs. This idea is captured in the common saying, "People believe what they want to believe."

But people don't *simply* believe what they want to believe. The psychological mechanisms that produce motivated beliefs are much more complicated than that. Personally, we'd like to believe that our contributions to the psychological literature might someday rival those of Daniel Kahneman, but, try as we might, the disparity in citations, prizes, invitations—you name it—makes holding such a belief impossible. People generally *reason* their way to conclusions they favor, with their preferences

“Should we automate away all the jobs, including the fulfilling ones?”

Wrong question!



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"Baumol (1967) observed that sectors with rapid productivity growth, such as agriculture and even manufacturing today, often see their share of gross domestic product (GDP) decline while those sectors with relatively slow productivity growth—perhaps including many services—experience increases. As a consequence, economic growth may be constrained not by what we do well but rather by what is essential and yet hard to improve."

7

Artificial Intelligence, Income, Employment, and Meaning

Betsey Stevenson

The evolution of artificial intelligence (AI) evokes strong emotions in people. Some imagine a dystopia in which people are replaced by machines. Machines will develop the content we read, and the entertainment we enjoy. Artificial intelligence will pick our friends and our politicians, and ultimately take away any sense of human agency. And worst of all, those machines

"There are really two separate questions: there is an employment question, in which the fundamental question is, can we find fulfilling ways to spend our time if robots take our jobs? And there is an income question, can we find a stable and fair distribution of income?."

WHY MIGHT INEQUALITY INCREASE?

The Global Decline of the Labor Share*

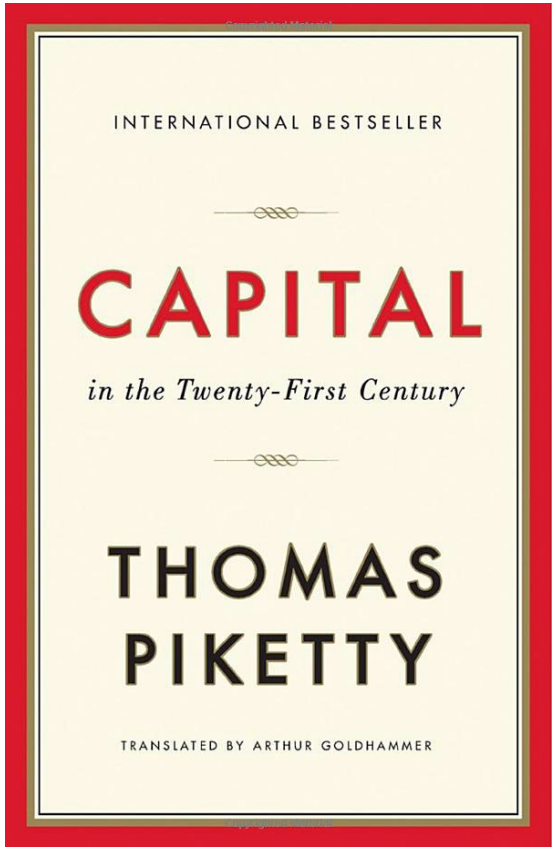
Loukas Karabarbounis, Brent Neiman

The Quarterly Journal of Economics, Volume 129, Issue 1, February 2014, Pages 61–103,
https://doi.org/10.1093/qje/qjt032
Published: 24 October 2013

Abstract

The stability of the labor share of income is a key foundation in macroeconomic models. We document, however, that the global labor share has significantly declined since the early 1980s, with the decline occurring within the large majority of countries and industries. We show that the decrease in the relative price of investment goods, often attributed to advances in information technology and the computer age, induced firms to shift away from labor and toward capital. The lower price of investment goods explains roughly half of the observed decline in the labor share, even when we allow for other mechanisms influencing factor shares, such as increasing profits, capital-augmenting technology growth, and the changing skill composition of the labor force. We highlight the implications of this explanation for welfare and macroeconomic dynamics.

JEL: E21 - Consumption; Saving; Wealth, E22 - Investment; Capital; Intangible Capital; Capacity, E25 - Aggregate Factor Income Distribution



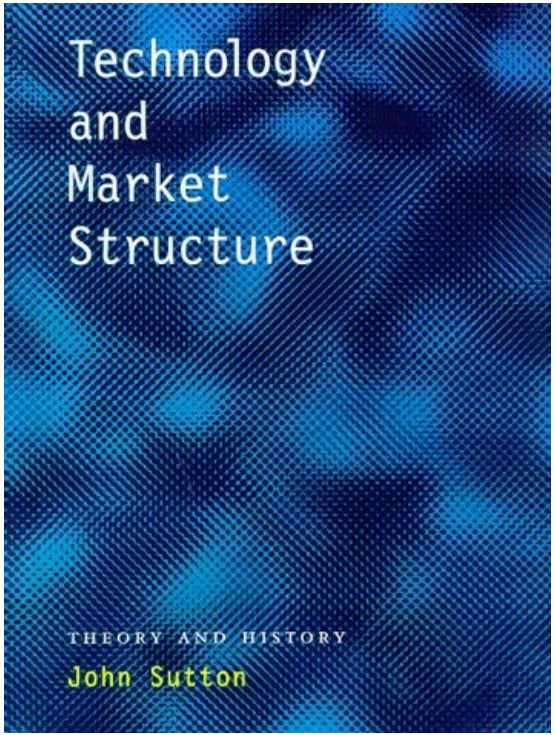
Market Power

Business | Schumpeter

Why tech giants want to strangle AI with red tape

They want to hold back open-source competitors

Brett Ryder



The Digital Markets Act: An economic perspective on the final negotiations

Fiona Scott Morton, Monika Schnitzer, Paul Heidhues, Amelia Fletcher, David Dinielli, Jacques Crémer / 11 Feb 2022

Prohibition of self-preferencing

Self-preferencing occurs where a vertically integrated platform favours its own related services. The draft DMA already includes a prohibition on self-preferencing within ranking services. The current debate is whether this ban should be extended to 'other settings'.

Such an extension seems attractive in principle, since any sort of self-preferencing can be highly anti-competitive. However, it may prove challenging to enforce in practice. Identifying self-preferencing conduct should be easier in the context of organic rankings, where no payments are made and rankings are designed to be 'consumer-centric'. It becomes more complex in a context where business users pay (directly or indirectly) for positioning or prominence.

REGULATION (EU) 2022/1925 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 14 September 2022

on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act)

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

THE JOURNAL OF INDUSTRIAL ECONOMICS

Original Article | Open Access

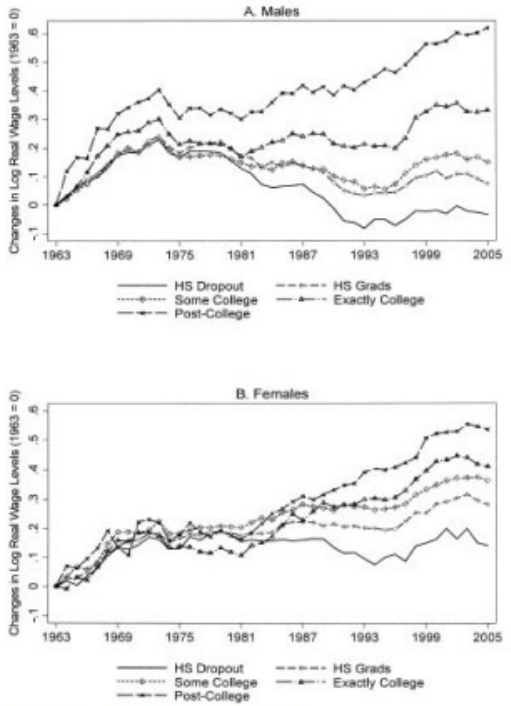
Self-Preferencing in Markets with Vertically Integrated Gatekeeper Platforms*

Jorge Padilla, Joe Perkins, Salvatore Piccolo

First published: 20 May 2022 | https://doi.org/10.1111/joie.12287 | Citations: 7

Computing and the internet increased inequality

FIGURE 5.—TRENDS IN COMPOSITION-ADJUSTED REAL LOG WEEKLY FULL-TIME WAGES BY GENDER AND EDUCATION, 1963–2005 (MARCH CPS)



See notes to table 1 for details on samples and data processing.

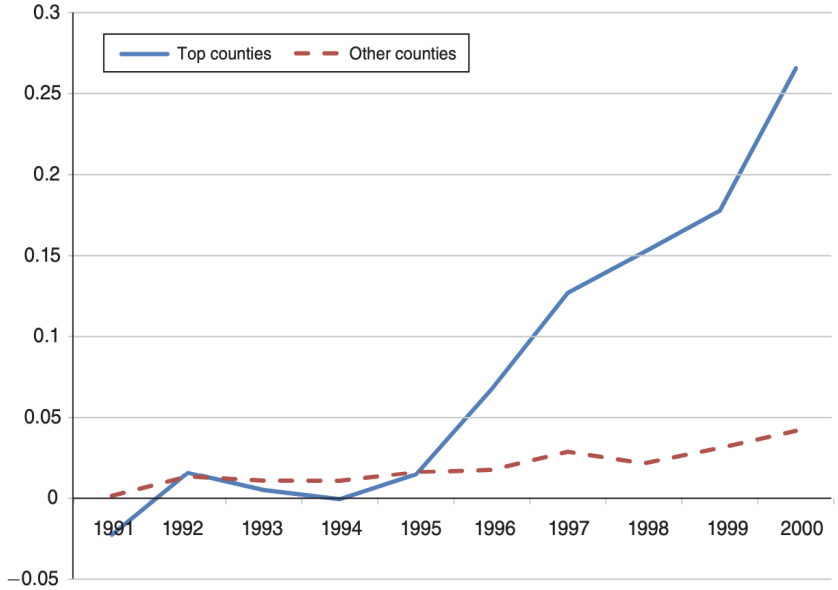
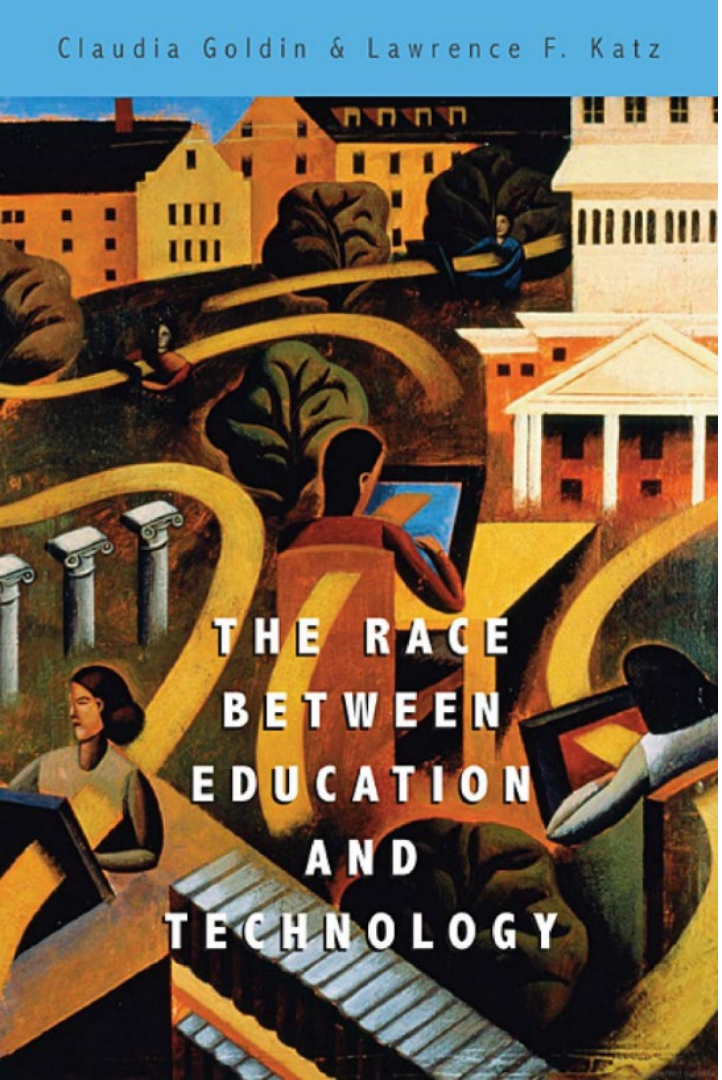


FIGURE 2. MARGINAL EFFECT OF ADVANCED INTERNET YEAR-BY-YEAR IN TOP COUNTIES



TRENDS IN U.S. WAGE INEQUALITY: REVISING THE REVISIONISTS

David H. Autor, Lawrence F. Katz, and Melissa S. Kearney*

Abstract—A recent "revisionist" literature characterizes the pronounced rise in U.S. wage inequality since 1980 as an "episodic" event of the first half of the 1980s driven by nonmarket factors (particularly a falling real minimum wage) and concludes that continued increases in wage inequality since the late 1980s substantially reflect the mechanical confounding effects of changes in labor force composition. Analyzing data from the Current Population Survey for 1963 to 2005, we find limited support for these claims. The slowing of the growth of overall wage inequality in the 1990s hides a divergence in the paths of upper-tail (90/50) inequality—which has increased steadily since 1980, even adjusting for changes in labor force composition—and lower-tail (50/10) inequality, which rose sharply in the first half of the 1980s and plateaued or contracted thereafter. Fluctuations in the real minimum wage are not a plausible explanation for these trends since the bulk of inequality growth occurs above the median of the wage distribution. Models emphasizing rapid secular growth in the relative demand for skills—attributable to skill-biased technical change—and a sharp deceleration in the relative supply of college workers in the 1980s do an excellent job of capturing the evolution of the college/high school wage premium over four decades. But these models also imply a puzzling deceleration in relative demand growth for college workers in the early 1990s, also visible in a recent "polarization" of skill demands in which employment has expanded in high-wage and low-wage work at the

This literature reaches two broad conclusions. First, much of the rise in U.S. earnings inequality during the 1980s appears to be explained by shifts in the supply of and demand for skills combined with the erosion of labor market institutions—including labor unions and the minimum wage—that protected the earnings of low- and middle-wage workers.[2] Second, a number of influential studies argue that the surge of inequality evident in the 1980s reflected an ongoing, secular rise in the demand for skill that commenced decades earlier and perhaps accelerated during the 1980s with the onset of the computer revolution. When this secular demand shift met with an abrupt slowdown in the growth of the relative supply of college-equivalent workers during the 1980s—itself a consequence of slowing educational attainment for cohorts born after 1949 and of smaller entering labor force cohorts—wage differentials expanded

SPECIAL ISSUE REVIEW

Skills, education, and the rise of earnings inequality among the "other 99 percent"

DAVID H. AUTOR Authors Info & Affiliations

SCIENCE · 23 May 2014 · Vol 344, Issue 6186 · pp. 843-851 · DOI: 10.1126/science.1251868

Abstract

The singular focus of public debate on the "top 1 percent" of households overlooks the component of earnings inequality that is arguably most consequential for the "other 99 percent" of citizens: the dramatic growth in the wage premium associated with higher education and cognitive ability. This Review documents the central role of both the supply and demand for skills in shaping inequality, discusses why skill demands have persistently risen in industrialized countries, and considers the economic value of inequality alongside its potential social costs. I conclude by highlighting the constructive role for public policy in fostering skills formation and preserving economic mobility.

The task-based model

American Economic Review 2018, 108(6): 1488–1542
https://doi.org/10.1257/aer.20160696

Robots and Jobs: Evidence from US Labor Markets

Daron Acemoglu

Massachusetts Institute of Technology

Pascal Restrepo

Boston University

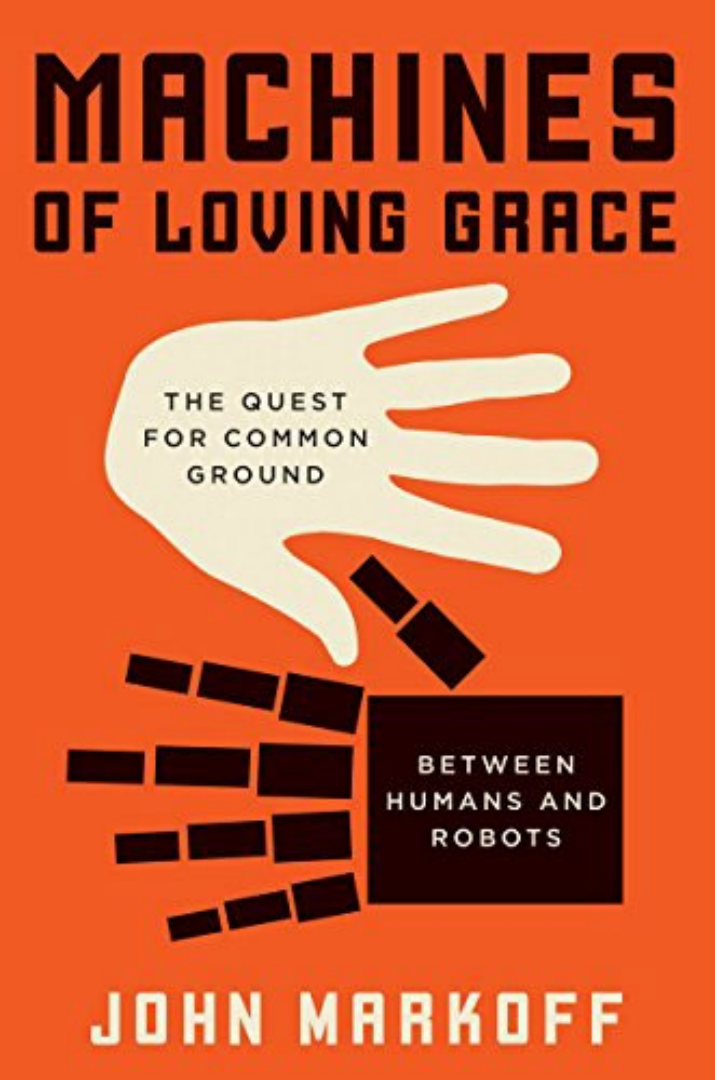
We study the effects of industrial robots on US labor markets. We show theoretically that robots may reduce employment and wages and that their local impacts can be estimated using variation in exposure to robots—defined from industry-level advances in robotics and local industry employment. We estimate robust negative effects of robots on employment and wages across commuting zones. We also show that areas most exposed to robots after 1990 do not exhibit any differential trends before then, and robots' impact is distinct from other capital and technologies. One more robot per thousand workers reduces the employment-to-population ratio by 0.2 percentage points and wages by 0.42%.

The Race between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment†

By Daron Acemoglu and Pascual Restrepo*

We examine the concerns that new technologies will render labor redundant in a framework in which tasks previously performed by labor can be automated and new versions of existing tasks, in which labor has a comparative advantage, can be created. In a static version where capital is fixed and technology is exogenous, automation reduces employment and the labor share, and may even reduce wages, while the creation of new tasks has the opposite effects. Our full model endogenizes capital accumulation and the direction of research toward automation and the creation of new tasks. If the long-run rental rate of capital relative to the wage is sufficiently low, the long-run equilibrium involves automation of all tasks. Otherwise, there exists a stable balanced growth path in which the two types of innovations go hand-in-hand. Stability is a consequence of the fact that automation reduces the cost of producing using labor, and thus discourages further automation and encourages the creation of new tasks. In an extension with heterogeneous skills, we show that inequality increases during transitions driven both by faster automation and the introduction of new tasks, and characterize the conditions under which inequality stabilizes in the long run. (*JEL* D63, E22, E23, E24, J24, O33, O41)

MUST INEQUALITY INCREASE WITHOUT REDISTRIBUTION?



Introduction:
One group designed powerful machines that allow humans to perform previously unthinkable tasks, like programming robots for space exploration, while the other works to replace humans with machines, like the developers of artificial intelligence robots to perform the work of doctors and lawyers.

Conclusion:
The solution to the contradiction inherent in AI versus IA lies in the very human decisions of engineers and scientists…who all have intentionally chosen human-centered design.

The Turing Trap: The Promise & Peril of Human-Like Artificial Intelligence

Erik Brynjolfsson

In 1950, Alan Turing proposed a test of whether a machine was intelligent: could a machine imitate a human so well that its answers to questions were indistinguishable from a human's? Ever since, creating intelligence that matches human intelligence has implicitly or explicitly been the goal of thousands of researchers, engineers, and entrepreneurs. The benefits of human-like artificial intelligence (HLAI) include soaring productivity, increased leisure, and perhaps most profoundly a better understanding of our own minds. But not all types of AI are human-like – in fact, many of the most powerful systems are very different from humans – and an excessive focus on developing and deploying HLAI can lead us into a trap. As machines become better substitutes for human labor, workers lose economic and political bargaining power and become increasingly dependent on those who control the technology. In contrast, when AI is focused on augmenting humans rather than mimicking them, humans retain the power to insist on a share of the value created. What is more, augmentation creates new capabilities and new products and services, ultimately generating far more value than merely human-like AI. While both types of AI can be enormously beneficial, there are currently excess incentives for automation rather than augmentation among technologists, business executives, and policy-makers.

A good start would be to replace the Turing Test, and the mindset it embodies, with a new set of practical benchmarks that steer progress toward AI-powered systems that exceed anything that could be done by humans alone.

SCIENCE

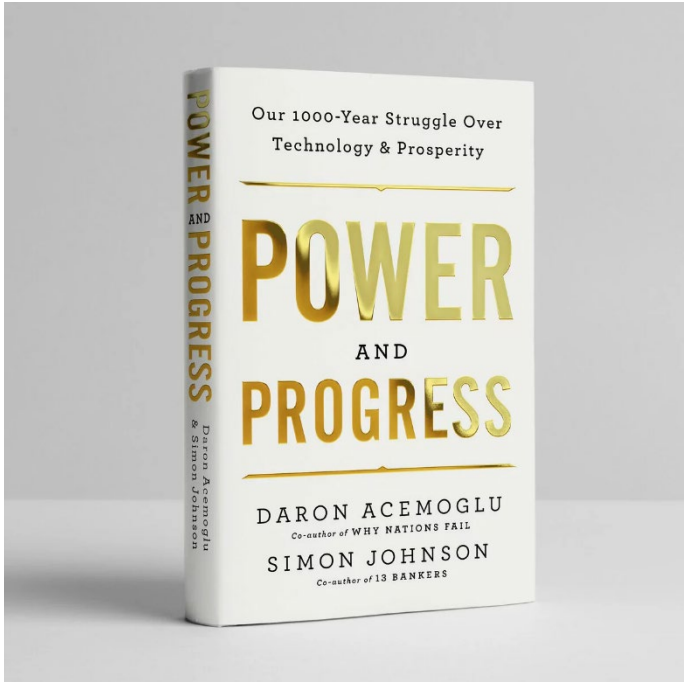
Forum BOSTON REVIEW

AI's Future Doesn't Have to Be Dystopian

AI can be used to increase human productivity, create jobs and shared prosperity, and protect and bolster democratic freedoms—but only if we modify our approach.

Daron Acemoglu

Democracy, Economy, Politics, Redesigning AI, Science and Technology



Current developments, such as they are, go in the direction of automating teachers–for example, by implementing automated grading or online resources to replace core teaching tasks. But **AI** could also **revolutionize** education by **empowering** teachers to adapt their material to the needs and attitudes of diverse students in real time. We **already know** that what works for one individual in the classroom may not work for another; different students find different elements of learning challenging. AI in the classroom can make teaching more adaptive and student-centered, generate distinct new teaching tasks, and, in the process, increase the productivity of—and the demand for—teachers.

- Markoff, Brynjolfsson, and Acemoglu/Johnson's writing suggests that they want to change the objectives and philosophy of the entire research field.

- The underlying hypothesis is that if the technical objectives of AI research are changed, then this will steer the economy away from potential loss of jobs, devaluation of skills, inequality, and social discord following from this.

- In this way, society can avoid what Brynjolfsson calls the "Turing Trap", where AI-enabled automation leads to a concentration of wealth and power.

POLICY FORUM

Do we want less automation?

AI may provide a path to decrease inequality

AJAY AGRAWAL, JOSHUA S. GANS, AND AVI GOLDFARB Authors Info & Affiliations

SCIENCE • 13 Jul 2023 • Vol 381, Issue 6654 • pp. 155-158 • DOI: 10.1126/science.adh9429

Impressive achievements made through artificial intelligence (AI) innovations in automating the tasks required in many jobs have reinforced concerns about labor market disruption and increased income inequality. This has motivated calls for change in the direction of AI innovation from being guided by task automation to instead focusing on labor augmentation (*1*). But task automation and labor augmentation are not polar opposites. Instead, automation of some tasks can lead to augmentation of labor elsewhere. Furthermore, AI automation may provide a path to reversing the trend of increasing income inequality by enabling disproportionate productivity improvements for lower-wage workers, allowing them to perform at levels that would previously require years of education and experience.

GPTs are GPTs: An Early Look at the Labor Market Impact Potential of Large Language Models

Tyna Eloundou, Sam Manning, Pamela Mishkin, Daniel Rock

We investigate the potential implications of large language models (LLMs), such as Generative Pre-trained Transformers (GPTs), on the U.S. labor market, focusing on the increased capabilities arising from LLM-powered software compared to LLMs on their own. Using a new rubric, we assess occupations based on their alignment with LLM capabilities, integrating both human expertise and GPT-4 classifications. Our findings reveal that around 80% of the U.S. workforce could have at least 10% of their work tasks affected by the introduction of LLMs, while approximately 19% of workers may see at least 50% of their tasks impacted. We do not make predictions about the development or adoption timeline of such LLMs. The projected effects span all wage levels, with higher-income jobs potentially facing greater exposure to LLM capabilities and LLM-powered software. Significantly, these impacts are not restricted to industries with higher recent productivity growth. Our analysis suggests that, with access to an LLM, about 15% of all worker tasks in the US could be completed significantly faster at the same level of quality. When incorporating software and tooling built on top of LLMs, this share increases to between 47 and 56% of all tasks. This finding implies that LLM-powered software will have a substantial effect on scaling the economic impacts of the underlying models. We conclude that LLMs such as GPTs exhibit traits of general-purpose technologies, indicating that they could have considerable economic, social, and policy implications.

Subjects: **General Economics (econ.GN)**; Artificial Intelligence (cs.AI); Computers and Society (cs.CY)
Cite as: arXiv:2303.10130 **[econ.GN]**
(or arXiv:2303.10130v4 **[econ.GN]** for this version)
https://doi.org/10.48550/arXiv.2303.10130

Writing

Algorithmic Writing Assistance on Jobseekers' Resumes Increases Hires

Emma van Inwegen
MIT

Zanele Munyikwa
MIT

John J. Horton
MIT & NBER

March 7, 2023

Abstract

There is a strong association between the quality of the writing in a resume for new labor market entrants and whether those entrants are ultimately hired. We show that this relationship is, at least partially, causal: a field experiment in an online labor market was conducted with nearly half a million jobseekers in which a treated group received algorithmic writing assistance. Treated jobseekers experienced an 8% increase in the probability of getting hired. Contrary to concerns that the assistance is taking away a valuable signal, we find no evidence that employers were less satisfied. We present a model in which better writing is not a signal of ability but helps employers ascertain ability, which rationalizes our findings.

Call Centers

Generative AI at Work

Erik Brynjolfsson, Danielle Li & Lindsey R. Raymond

WORKING PAPER 31161 **DOI** 10.3386/w31161 **ISSUE DATE** April 2023

We study the staggered introduction of a generative AI-based conversational assistant using data from 5,179 customer support agents. Access to the tool increases productivity, as measured by issues resolved p
skilled workers, a
suggestive evide
workers and help
assistance impro
improves employ

Goodbye, humans: Call centers 'could save $80b' switching to AI

You'll just have to learn to code instead – oh wait, computers can do that, too

Katyanna Quach

Thu 1 Sep 2022 // 08:03 UTC

Center on Regulation and Markets at BROOKINGS

POLICY BRIEF | JUNE 2023

THE TURING TRANSFORMATION:

ARTIFICIAL INTELLIGENCE, INTELLIGENCE AUGMENTATION, AND SKILL PREMIUMS

AJAY AGRAWAL, JOSHUA GANS, AND AVI GOLDFARB

Almon Brown Strowager, an American undertaker from the 19th century, allegedly angry that a local switch operator (and wife of a competing undertaker) was redirecting his customer calls to her husband, sought to take all switch operators to their employment graves. He conceived of and, with family members, invented the Strowager switch that auto-

including a Bar exam, the SAT, and various AP-level courses. AI pioneer and Turing Award winner Geoff Hinton remarked in 2016 that time was up for radiologists and that no one should continue training in that field. Whether that will hold true or not, it is hardly surprising that recent developments in AI have reinforced the widespread view that the intent of AI research is to re-

"One worker's automation is another's augmentation. Automation of rare high value skills can mean augmentation for everyone else. Similarly, augmentation that complements the lucky humans with rare high value skills can mean increased inequality and a hollowing out of the middle class."

- The first 50 years of computing contain many technologies that appear to be intelligence augmenting, creating new capabilities and new products and services.
- The last 10 years have seen a rise in artificial intelligence applications, whose inventors directly aspire to automate tasks currently performed by humans.
- The apparently augmenting technologies appear to have increased inequality.
- But one person’s automation is another’s augmentation.
- Perhaps the automating technologies will decrease inequality, depending on whose work gets automated and whose gets augmented.

Pause Giant AI Experiments: An Open Letter

We call on all AI labs to immediately pause for at least 6 months the training of AI systems more powerful than GPT-4.

View this open letter online.

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AI systems with human-competitive intelligence can pose profound risks to society and humanity, as shown by extensive research[1] and acknowledged by top AI labs.[2] As stated in the widely-endorsed Asilomar AI Principles, *Advanced AI could represent a profound change in the history of life on Earth, and should be planned for and managed with commensurate care and resources.* Unfortunately, this level of planning and management is not happening, even though recent months have seen AI labs locked in an out-of-control race to develop and deploy ever more powerful digital minds that no one – not even their creators – can understand, predict, or reliably control.

"Should we risk loss of control of our civilization?" Should we develop nonhuman minds that might eventually outnumber, outsmart, obsolete and replace us?"

"Should we let machines flood our information channels with propaganda and untruth?"

"Should we automate away all the jobs, including the fulfilling ones?"

Open questions

- Will AI lead to a large improvement in productivity?
- If it does, which forces dominate with respect to inequality?
- What does equilibrium look like when fake images, sounds, and videos are easy to create?
- How soon, and under what circumstances, should we be concerned about market power?

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THE ECONOMICS OF ARTIFICIAL INTELLIGENCE

An Agenda

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