Stone Center on Inequality and Shaping the Future of Work

Innovation in the Age of AI: U.S. and Global Considerations

SIMON JOHNSON • MIT SLOAN • Personal views only

Disclaimers

- These slides convey just my personal views
  - They do not represent any aspect of UK government policy (other than what has already been announced/reported)
- This presentation does not attempt to summarize UK AI policy in its entirety
  - For government policy, see speeches by the relevant ministers (and accompanying official statements of detail)
- The examples here are illustrative and for discussion purposes
  - They are **not** intended to be comprehensive

What Impact Will AI Have on Jobs (and Incomes)?

Over the next 10-20 years…

Two widely held views, supported by technology experts

1. **Techno-optimism:** productivity increases & scientific breakthroughs so large that no one needs to work again
   - Let the AI industry accelerate
   - Share gains through universal basic income, etc.
2. **Extreme techno-pessimism:** rapid automation will create mass unemployment, almost no one gets a job
   - Without boosting marginal productivity/wages by much

Or perhaps, over the medium term/policy horizon:

- US productivity growth remains on trend
- Job market polarizes further, and wealth/income gaps widen
- Global inequality increases within and across countries

But it doesn't have to be this way

- AI today offers a major choice: pro-worker, or not
- Who decides which path to take and on what basis?
- What policies could make a difference?



This image was generated using Midjourney AI

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What Do We Know (So Far) About AI Impact?

1) A bigger question: Can technology be shaped, by people or policy?

- Acemoglu and Johnson: *Power and Progress* (2023)
- Can we build a Pro-Worker version of AI? Increasing the demand for human expertise…

2) What is the likely productivity/growth impact from AI, over next 6-10 years

- Widely different estimates from leading experts
- What will we learn, and when?

3) What will drive US policy choices?

- National security considerations: China
- How could this affect the world – and Pro-Worker policy options in other countries?

SHAPING THE FUTURE OF WORK

"We Will All be Gods"… or, Good Jobs for Whom?

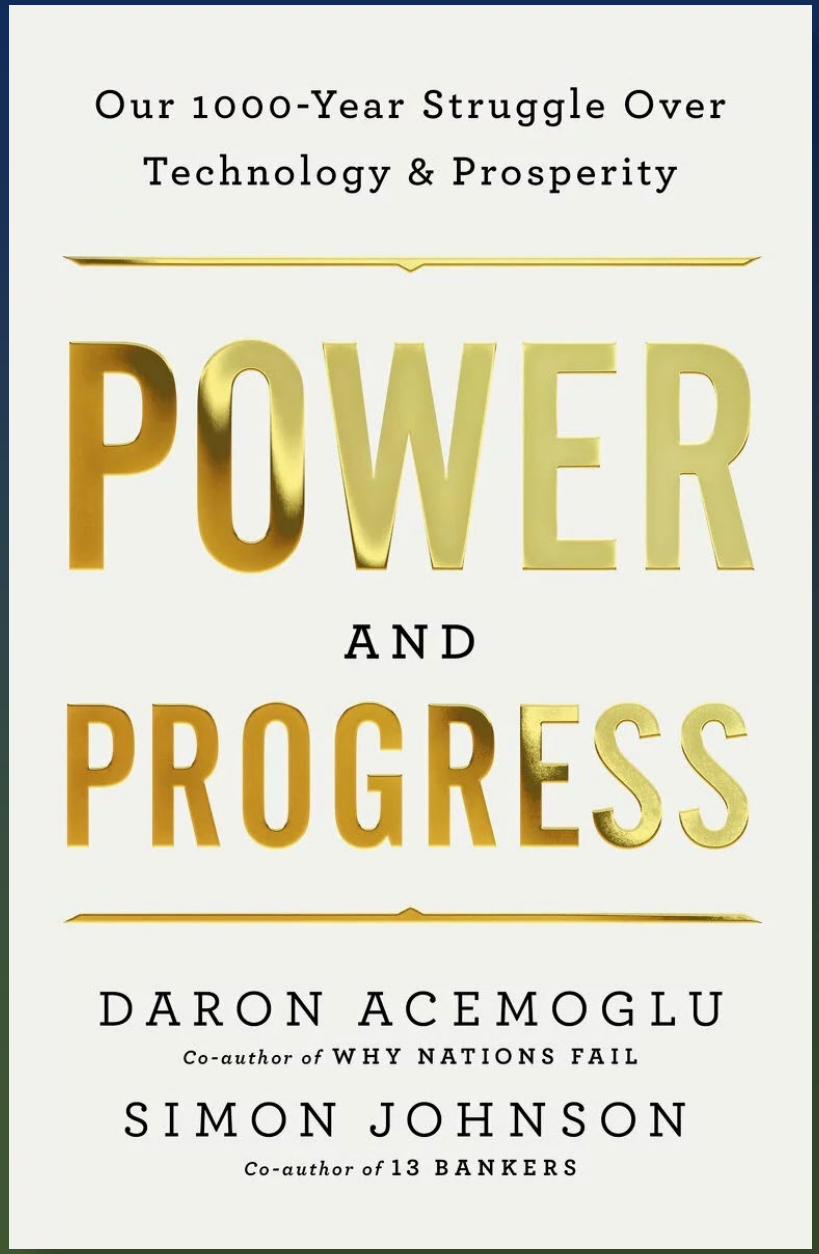
BASED ON ANALYSIS AND IDEAS FROM:

Power and Progress: Our Thousand-Year Struggle Over Technology & Prosperity

By Daron Acemoglu & Simon Johnson

With support from MIT's *Stone Center for Inequality and the Future of Work*, co-directed by Daron Acemoglu, David Autor, and Simon Johnson.

Operating as part of Blueprint Labs, MIT Department of Economics.



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What Will AI Do? When? For Whom?

Policy Horizon: Next 5-10–20 Years…

It will displace labor through automation

- Replace workers with machines and algorithms, average productivity per worker increases
- But this does not necessarily increase wages (e.g., British Industrial Revolution, 1780–1840)

And create new tasks, requiring human expertise

- More than 60% of U.S. jobs in 2018 did not exist in 1940 (Autor et al., 2024)
- This new task creation process was fast enough to underpin shared prosperity, 1940–80
- **But since 1980, new task creation (for less educated workers) has not kept up with the loss of good jobs due to automation**

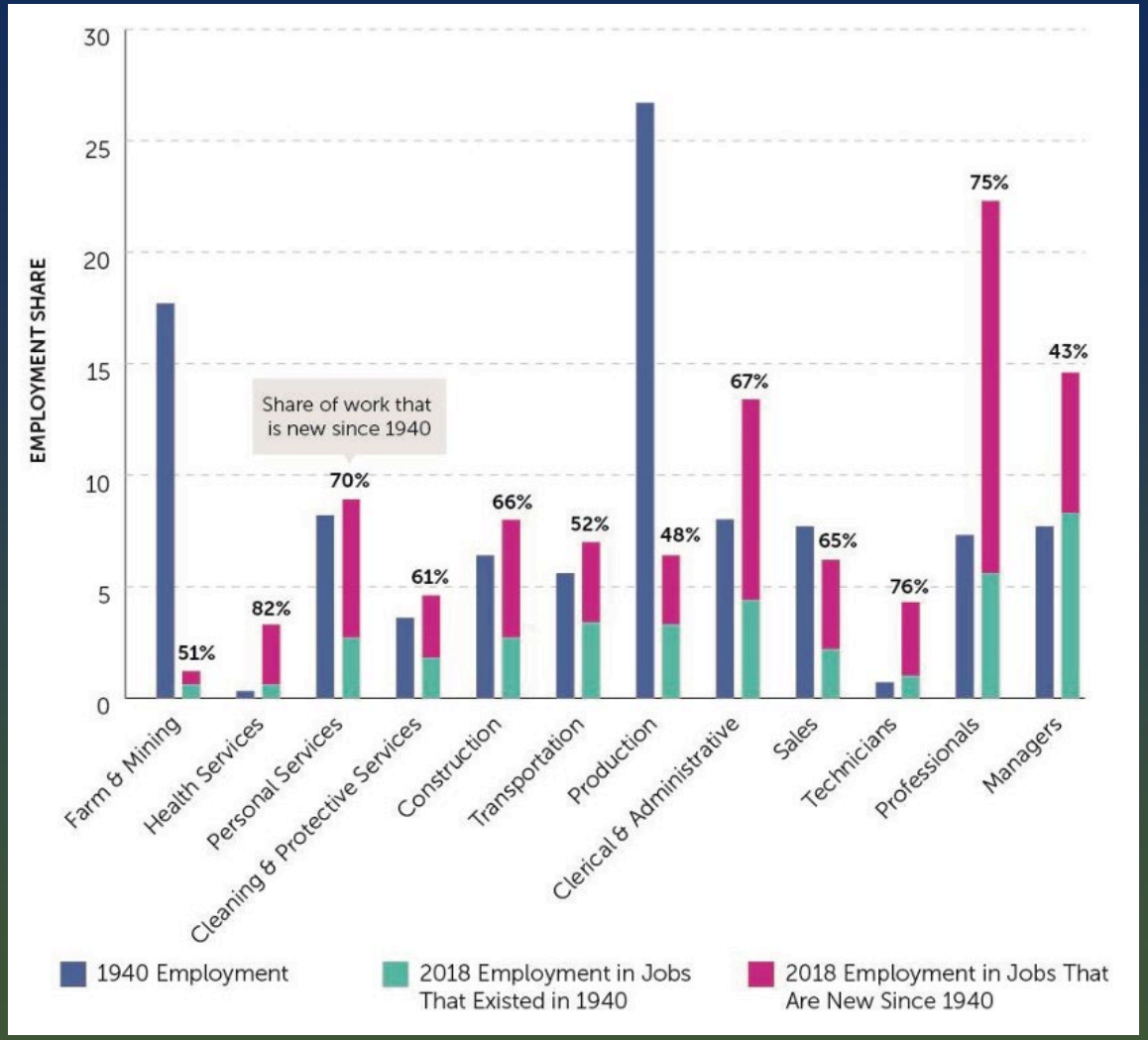


Exhibit from Autor, David. (2022). "The Labor Market Impacts of Technological Change: From Unbridled Enthusiasm to Qualified Optimism to Vast Uncertainty." NBER Working Paper No. 30074.

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Since 1980s, U.S. Companies Focused on Using Automation to Squeeze Labor Costs

Job market polarization since ~1980

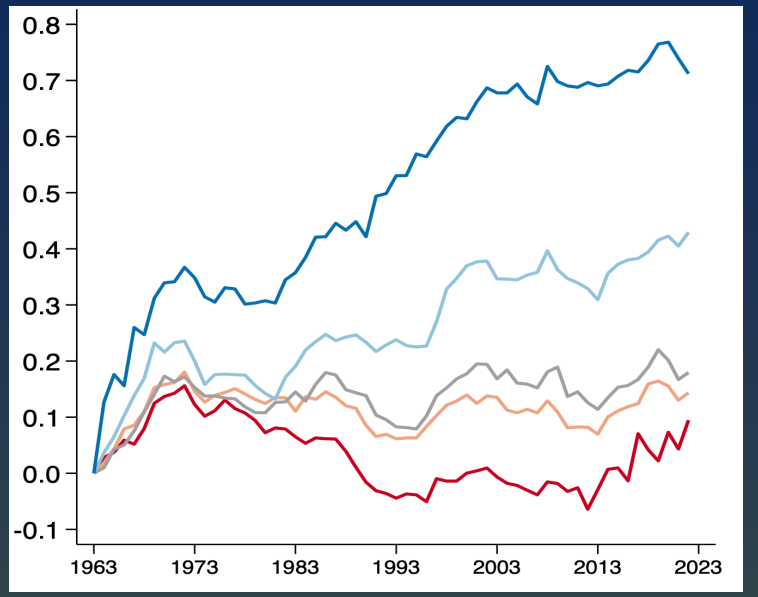
- Broadly shared wage growth, 1945-1980
- But growing divergence in last 40 years
- Labor is a cost to be minimized (Milton Friedman)

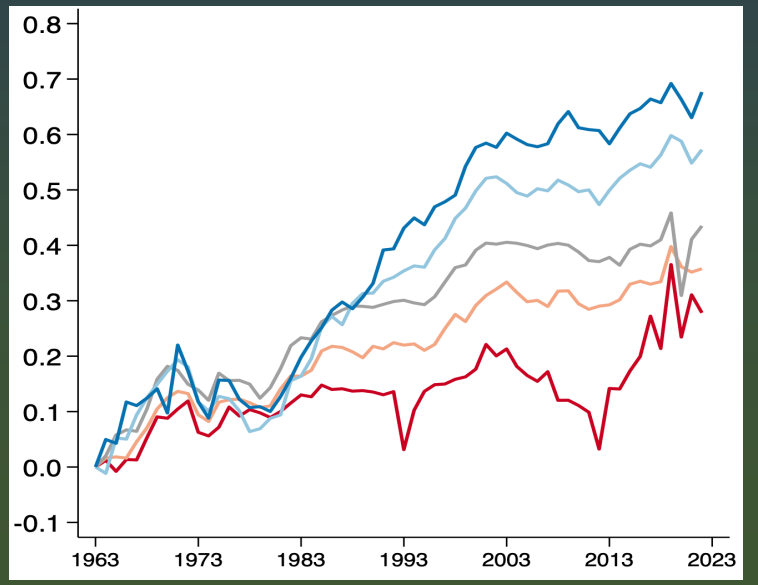
AI could exacerbate this divergence

- Skill-biased technologies drive job-market polarization: boost for the most educated
- AI could easily continue these polarizing trends (e.g., no more “cut and paste” jobs)
- Pushing middle-income people down to the lower end of the labor market, where it is hard to make a decent living

Risks for misinformation, social media

- Impact on democracy, mental health, children





The change in real (log) weekly earnings, since 1963
Working age adults, ages 18–64, USA
Top panel: Male
Lower panel: Female

Exhibit updated from Autor, David. (2019). “Work of the Past, Work of the Future.” AEA Papers and Proceedings. 109(2019): 1–32.

60% of US labor force does not have a 4-year college degree

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Analytical Example: Which Path are We On? Macroeconomic Forecasts Regarding AI Impact (US and Global)…

Technical Debate About Specific Growth Assumptions

- Task exposure may be lower than anticipated, or work automation may not be worthwhile (in terms of output/quality)
- Cost savings and process improvement may be slow, with underwhelming aggregate impact
- Freed-up labor may not be productively reemployed (see decline in male labor force participation in US since Global Financial Crisis, 2008)
- Using task-level estimates of exposure and productivity gains, Acemoglu (2024) projects a "modest" 0.66% increase in total factor productivity over 10 years (increase in annual productivity growth rate of 0.06%); lower if consider hard to learn tasks…

Among Experts, Widely Divergent Views on Likely Outcomes

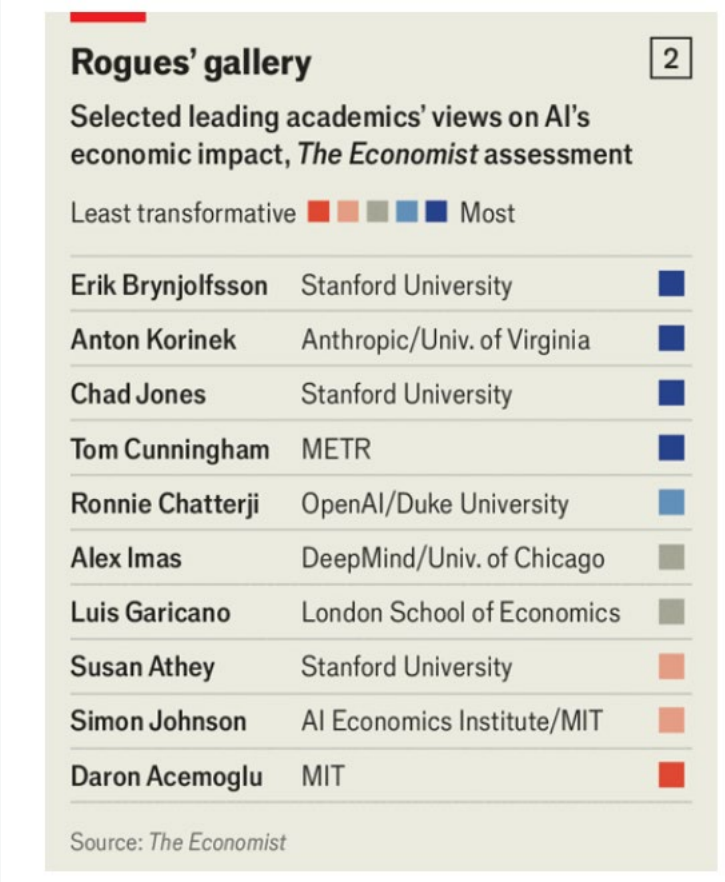
- AI and generative AI could be incremental technologies in macroeconomic terms
- Displacement effects could mean further reductions in the labor share of income and lost opportunities for people with "basic cognitive skills"
- *OR:* AI transforms science, accelerates progress, takes over creation of further AI

> *"You can see the computer age everywhere but in the productivity statistics."*
>
> Robert Solow,
> 1987 Nobel Prize in Economics

> *AI is just that new thing that's going to get us that 1% to 1.5% productivity growth that we've been getting for decades…"*
>
> John Williams,
> President of the New York Fed

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One Way to Compare Views…



Rogues' gallery

2

Selected leading academics' views on AI's economic impact, *The Economist* assessment

Least transformative ■ ■ ■ ■ ■ Most

Erik Brynjolfsson	Stanford University	■
Anton Korinek	Anthropic/Univ. of Virginia	■
Chad Jones	Stanford University	■
Tom Cunningham	METR	■
Ronnie Chatterji	OpenAI/Duke University	■
Alex Imas	DeepMind/Univ. of Chicago	■
Luis Garicano	London School of Economics	■
Susan Athey	Stanford University	■
Simon Johnson	AI Economics Institute/MIT	■
Daron Acemoglu	MIT	■

Source: *The Economist*

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One potential way to think about comparisons and to potentially update any baseline view (this is an MIT project, not official work of any kind)

Labor Market Consequences of Technological Change

WHAT INPUTS DETERMINE GROWTH DUE TO AI

Preliminary Draft Stone Center

Acemoglu and Aghion & Bunel use the same formula yet different assumptions lead to TFP estimates 10 times apart

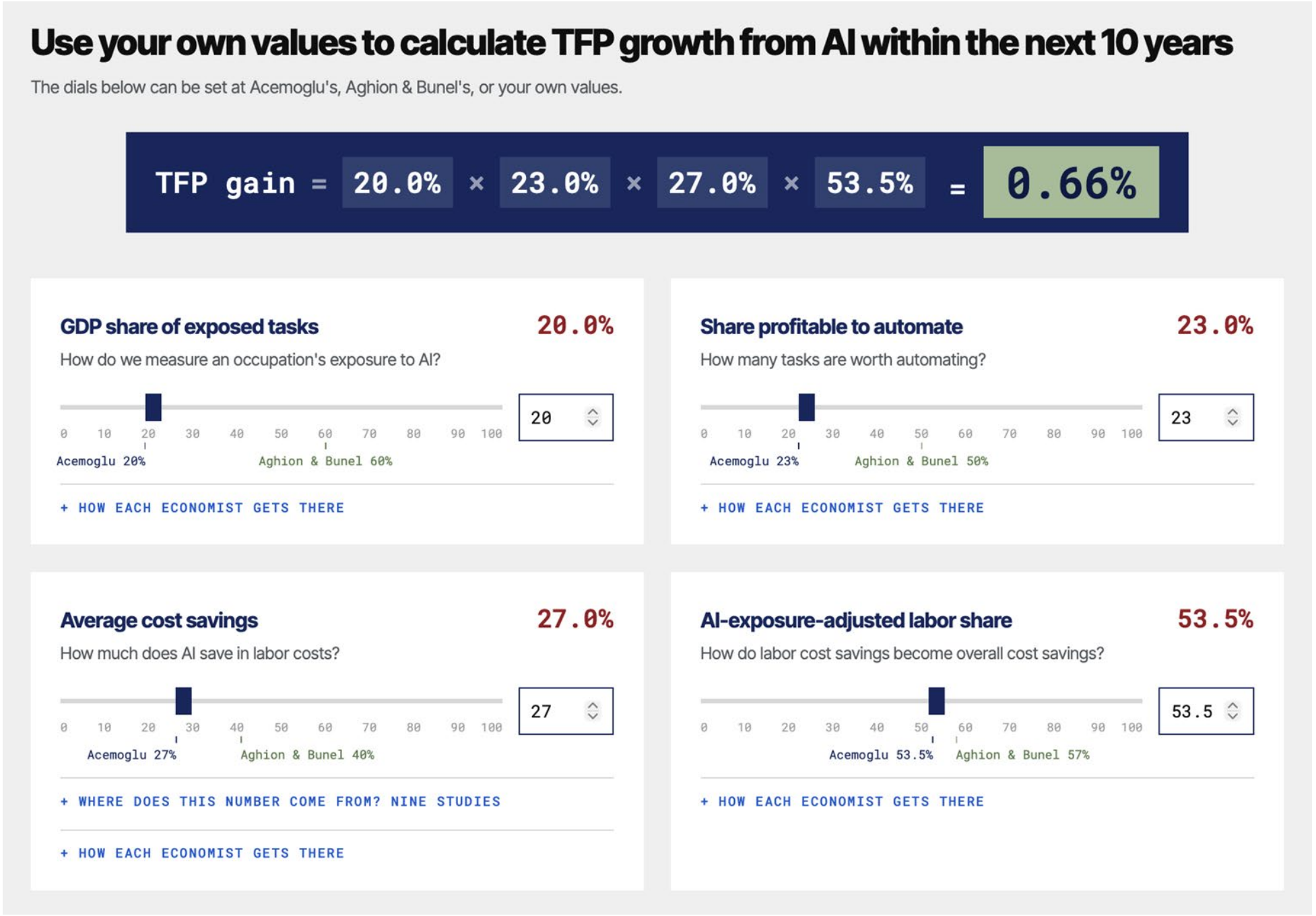
Acemoglu (2024) and Aghion & Bunel (2024) use the same framework to calculate TFP, yet three inputs differ substantially.

PUBLISHED VALUES

The two sets, side by side

COMPONENT	ACEMOGLU	AGHION & BUNEL	RATIO
GDP share of exposed tasks	20%	60%	3.0×
Share profitable to automate	23%	50%	2.2×
Average cost savings	27%	40%	1.5×
AI-exposure-adjusted labour share	53.5%	57%	1.07×
Resulting TFP gain	0.07pp/yr	0.68pp/yr	≈10×

Reminder: this is an illustrative MIT project, not official work of any kind



Average cost savings

27.0%

How much does AI save in labor costs?



-WHERE DOES THIS NUMBER COME FROM? NINE STUDIES

STUDY	VALUE	USED BY
Noy and Zhang (2023) Writing tasks assisted with Chat GPT	40% speed	Acemoglu A&B PWBM
Brynjolfsson et al. (2023) Customer support agents assisted with generative AI tool 14% headline 25% three months post-deployment	14% task completion rate	Acemoglu A&B PWBM OECD
Peng et al. (2023) Software developers implementing HTTP servers assisted with AI pair programmer	56% speed	A&B PWBM
Cui et al. (2025) Software developers using AI-based coding assistant	26% task completion rate	PWBM

AI-exposure-adjusted labor share

53.5%

How do labor cost savings become overall cost savings?



-HOW EACH ECONOMIST GETS THERE

ACEMOGLU

53.5%

Industry-level AI exposure estimates from Eloundou et al. (2024) combined with industry labor shares from BEA.

AGHION & BUNEL

57%

Value comes from Acemoglu's April 2024.

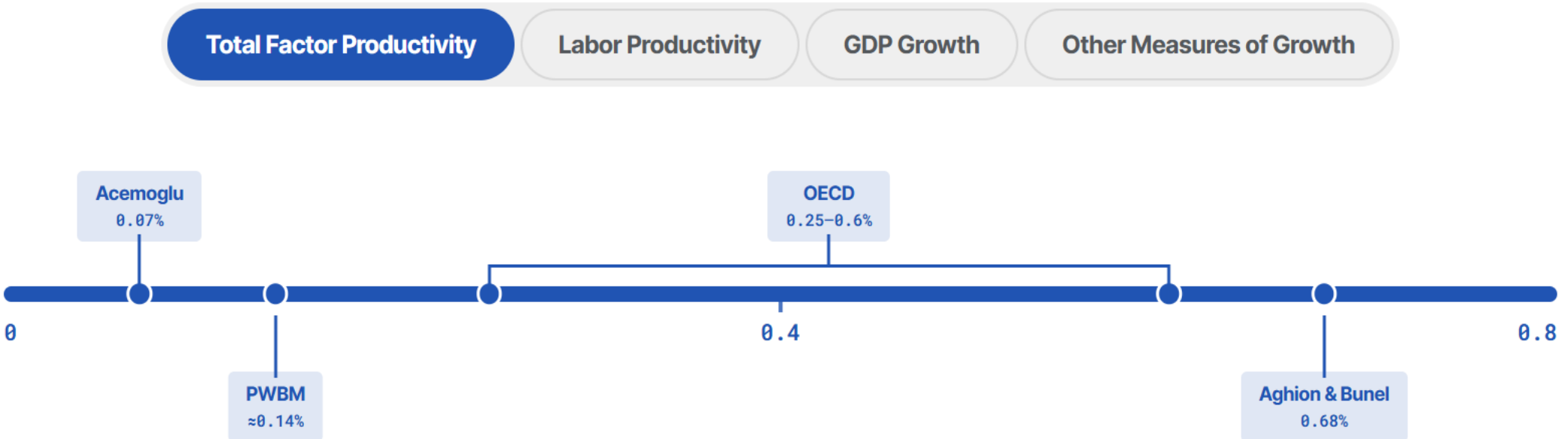
KEY DIFFERENCE

No difference in methodology, Aghion & Bunel uses value from Acemoglu's April draft.

BEYOND ACEMOGLU AND AGHION & BUNEL

The rest of the field

The two estimates above are part of a growing field of literature. Select growth metrics below to see how other studies predict AI will change the economy. We are updating this page as new studies take place.

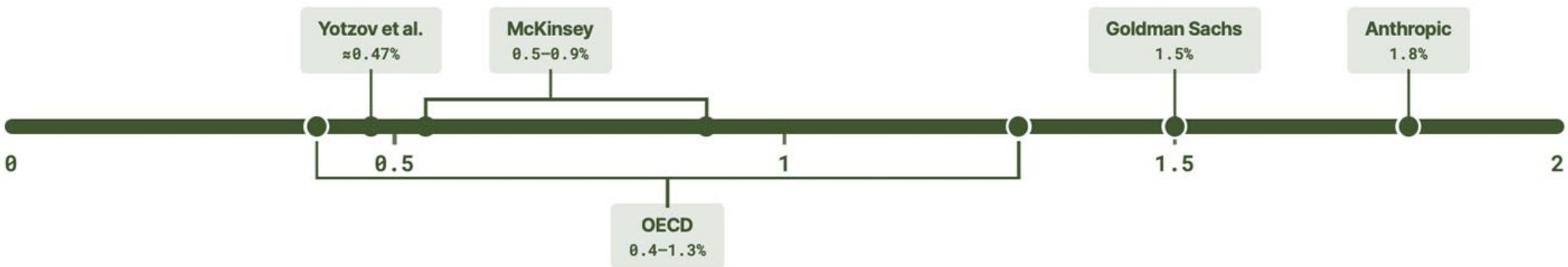


BEYOND ACEMOGLU AND AGHION & BUNEL

The rest of the field

The two estimates above are part of a growing field of literature. Select growth metrics below to see how other studies predict AI will change the economy. We are updating this page as new studies take place.

Total Factor Productivity | **Labor Productivity** | GDP Growth | Other Measures of Growth



What Will Be US Policy?

- Plenty of discussion about the impact on jobs
  - And clearly pushback on data center construction etc.
- But the overriding consideration is – and likely will remain – geopolitical competition with China
- China is making a determined push on science and technology, challenging for leadership
- Some technologies are of overriding importance for defense, e.g., aviation 1920s-30s
- AI will plausibly have a broad impact, across commercial activities and defense
- Losing the “AI race” could have significant implications, and might be hard to catch-up
- It is still possible for the US to push for Pro-Worker versions of AI…

Hamilton Project, Brookings Institution, February 2026

Building Pro-Worker Artificial Intelligence

Daron Acemoglu, David Autor, and Simon Johnson[1]

TABLE 1

Types of technologies and their labor market consequences

	Example technology	Labor productivity	Value of human expertise	Change in labor's share of national income	Pro-worker?
1. **Labor-augmenting technologies**	Electric cable stripper replaces hand stripper	+ More output per hour	+/– Expertise more relevant/useful, but higher output could lower price.	≈ 0 No task reallocation	Ambiguous
2. **Capital-augmenting technologies**	Ligher, faster electric cable stripper	+ More output per hour	+/– Expertise more relevant/useful, but higher output could lower price.	≈ 0 No task reallocation	Ambiguous
3. **Automation technologies**	Cable installing robot	+ More output per hour	– Existing expertise made obsolete.	– Fewer tasks done by labor, more by capital	Not pro-worker
4. **New task-creating technologies**	Ethernet, fiber optics, occupancy sensing	+ More output per hour	+ New expertise needed.	+ More tasks done by labor, fewer by capital	Unambiguously pro-worker
5. **Expertise-leveling technologies**	Blood oximeter	+	+/– Entrants benefit. Incumbent expertise potentially devalued.	+/– Ambiguous due to offsetting effects	Ambiguous

Source: Authors' analysis.

THE HAMILTON PROJECT

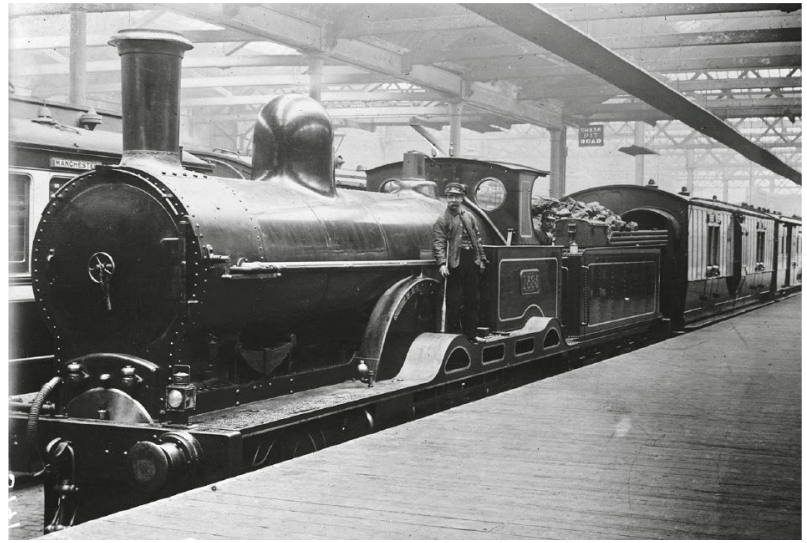
BROOKINGS

When the Productivity Bandwagon Delivered Shared Prosperity in History:

Railways, Cross-Sectoral Impact, and New Tasks

Many new tasks requiring expertise (UK, US, elsewhere)

- In the 1800s, engineers emerged from skilled craftspeople/artisans ("tinkerers" – Joel Mokyr)
- Among their accomplishments: improved steam engines, locomotives, and building the new railways
- These created new, high-skill, high-pay jobs needing expertise
  - e.g., engine drivers, firemen, signal operators, ticket sales)
- Importantly, **railroads had many uses and affected tasks across a broad cross-section of the economy**, including goods and commerce, travel and tourism…
- These new tasks required expertise acquired through practical experience, raising the market value of work that could be done by people without (much) formal education
- **Science arrives to boost productivity** in late 19th century
  - With a further government-funded acceleration from 1940



Archimedes Passenger Train, Euston Station, 1880s



George Stephenson's Rocket, 1829

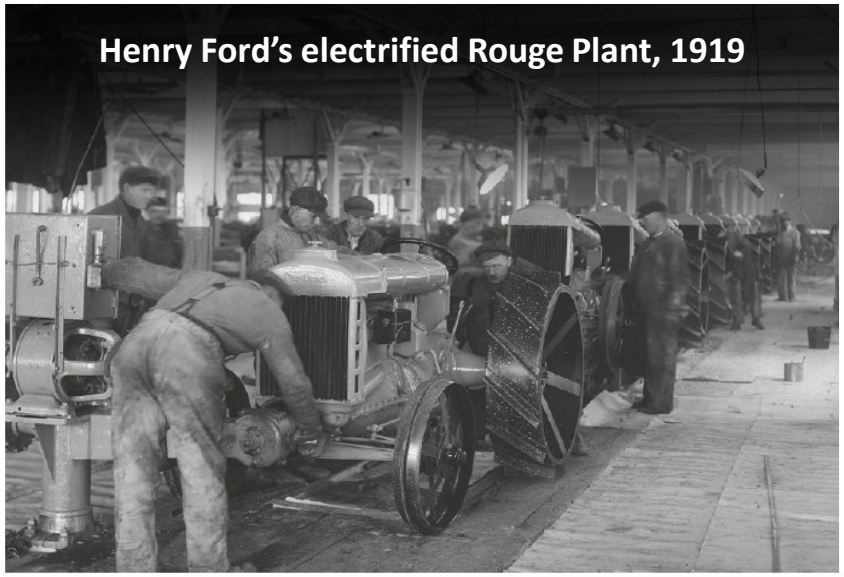
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When the Productivity Bandwagon Delivered Shared Prosperity in History:

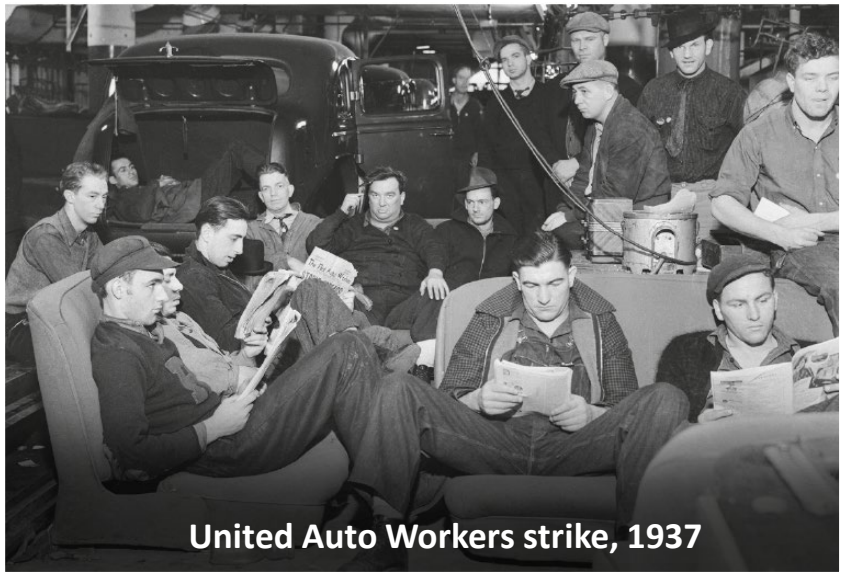
New Tasks and Worker Power

Lessons from the US automobile industry, 1900-1929

- Automation, but electrification and the modern factory dramatically boosted marginal worker productivity in new tasks that required expertise
- Big increase in demand for labor, at the same time as automate core parts of assembly line
  - Employment: ~20,000 -> 300,000
  - Annual auto production: ~20,000 -> 3 million
- Labor organizations became stronger, bolstering sharing of productivity gains and worker voice
  - Fight for representation and to share in gains from higher productivity
- National security implications: quickly switch manufacturing capacity into aircraft engines, military vehicles from 1941…
- From a stock of 6 aircraft carriers in December 1941, to producing 1 carrier per month in early 1945



Henry Ford's electrified Rouge Plant, 1919



United Auto Workers strike, 1937

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UK AI Economics Institute

- Situated at the heart of government, from spring 2026
  - Originally under Department for Science, Innovation and Technology (DSIT) and UK Treasury -> …
  - Adjacent (metaphorically) to AI Security Institute: https://www.aisi.gov.uk/, established 2023/2025
- Access to data from across government + private sector
  - Data agreements already in place, with strong privacy protections
- Goal: provide the most accurate economic analysis available, with all appropriate caveats
  - Advising policymakers, not making policy
- Open to all conversations with academia, government, and private sector
  - Aiming to hire specialist staff, e.g., post-doctoral fellows
- Focus on the UK, but tracking the global conversation (and all relevant evidence)
  - Including on international division of labor, positioning of British economy (science investments, etc.)
- Also important:
  - Not trying to duplicate work being done by others (although we will want to replicate…)
  - Not aiming to step into the space occupied by other officials, e.g., central banks

UK Pro-Worker AI Adoption Prize (Nominations Close Soon!)

- Aiming to encourage the adoption of pro-worker AI…
  - By rewarding (recognizing) companies that found some version of this way forward
- Prize will be awarded later this year
  - Companies (and others) can nominate themselves
  - Expert panel of judges, including representatives from across society
- The prize
  - Recognition by the UK government, for a long list of companies
  - For the top three: business cases will be written up by leading UK academics
    - Attempting to create role models
    - Case writing will be funded by the Hewlett Foundation (thank you!)
- Emphasizing there is a lot to learn about AI innovation (cf. Hayek)

Tech Town Initiative

- In the spirit of Grand Challenges (e.g., DARPA/self-driving vehicles)
- Focus on one town in the North of England: Barnsley
  - A well-run mid-sized city, former coal mining community
  - With a well defined/agreed issue: shorter healthy lives than elsewhere
- What interventions can made a difference?
  - Technology, adoption behavior
- And can those results be replicated elsewhere? With what AI?
  - Healthcare delivery (National Health Service +)
  - Empowerment of local people
  - Role of trusted government

Choosing a Pro-Worker Path for AI

Areas with potential for consensus

- Grand Challenges for education, healthcare, consumer protections/choice
- Standards for workplace surveillance: safety vs. privacy
- AI help to deliver better service, all levels of government

What else is needed

- Robust funding for “breakthrough science”
- Strengthen REGIONAL competitive advantages of knowledge-based services (including biotech, strong export sectors)
- Support national security: ability to develop and apply full stack of technology (e.g., drones)

And support democracy

- Against misinformation and disinformation
- Issues of surveillance, control, manipulation



See also, Acemoglu, Daron, David Autor and Simon Johnson. (2023).
“Can We Have Pro-Worker AI? Choosing a Path of Machines in Service of Minds.”
MIT Shaping the Future of Work Initiative, policy memo.

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Our 1000-Year Struggle Over Technology & Prosperity

POWER AND PROGRESS

DARON ACEMOGLU

Co-author of WHY NATIONS FAIL

SIMON JOHNSON

Co-author of 13 BANKERS

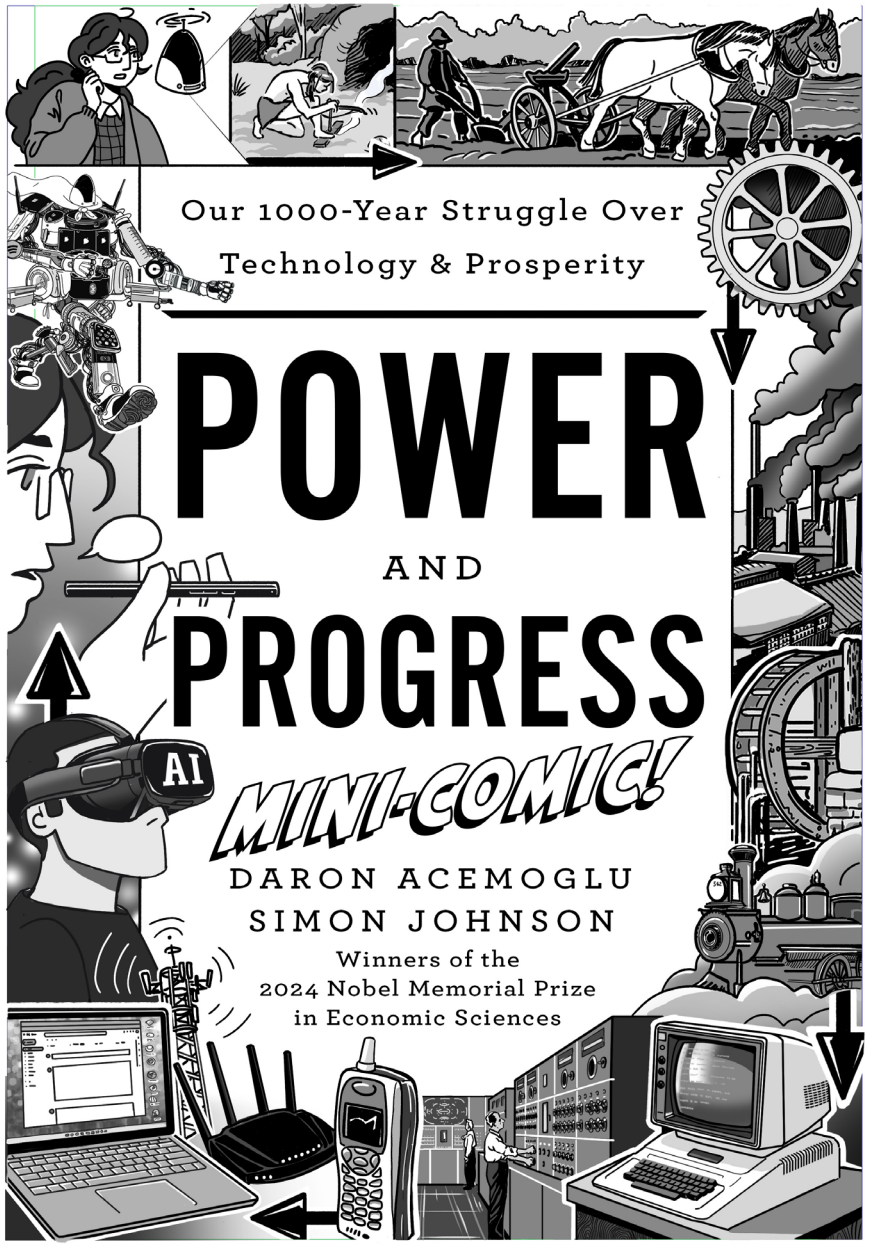


Longlist, Baillie Gifford Prize for Non-Fiction

Shortlist, 2024 Lionel Gelber Prize

...and featured on reading lists from *Forbes*, *Bloomberg*, McKinsey, *Financial Times*, MIT Sloan, and *Project Syndicate*

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Our 1000-Year Struggle Over
Technology & Prosperity
POWER
AND
PROGRESS
AI
MINI-COMIC!
DARON ACEMOGLU
SIMON JOHNSON
Winners of the
2024 Nobel Memorial Prize
in Economic Sciences





Pro-Worker AI

For weekly discussions of these and related issues: “Power and Consequences”



Substack: Power and Consequences
Also on YouTube: @PowerConsequences
And wherever you get your podcasts

Finally, on a personal note:

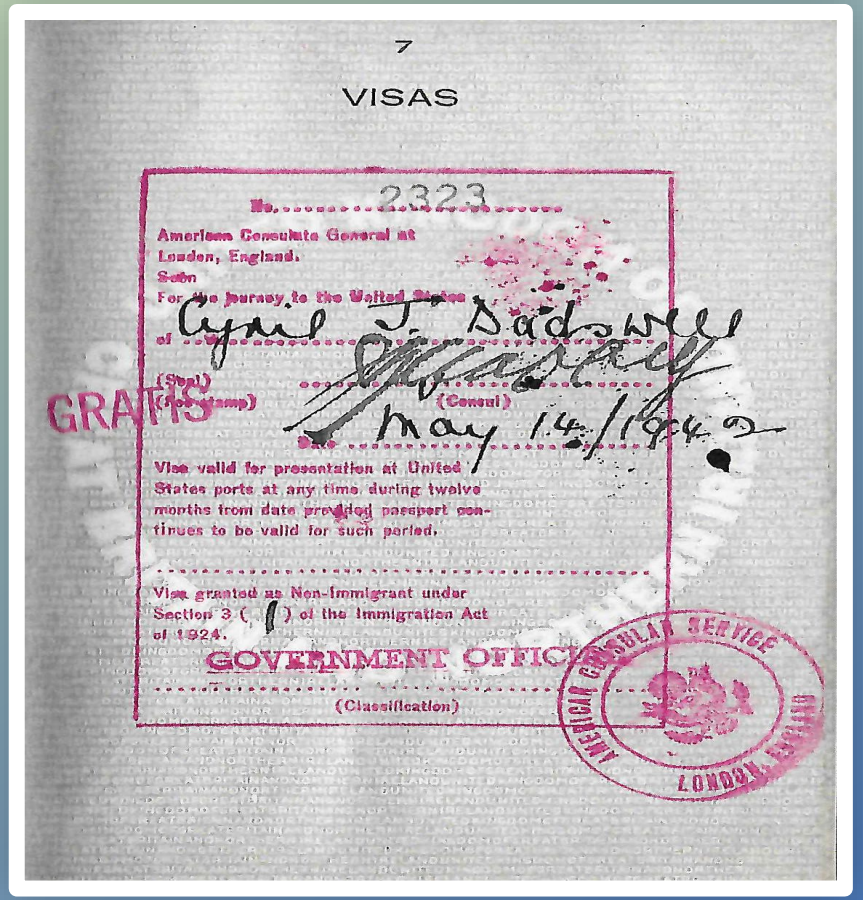
A page from Cyril Dadswell's passport, United States Visa, issued May 14, 1942

British steel executive, on technical mission

(Passport now in the Nobel Prize Museum)

1940-45: Scientific and technological leadership passed from Europe to the United States, never (yet) to return

Could the UK now develop/adopt technology in ways that could inform policy choices in the United States?



Cyril Dadswell's Passport, US Visa, May 14, 1942

With great power over technology comes great responsibility…