

“The rise of generative AI: modeling exposure, substitution, and inequality effects on the US labour market”

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Discussion by

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The Impact of Artificial Intelligence on the Macroeconomy and Monetary Policy
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This Paper: Question/Approach

To what extent—and how—will AI improvements impact the labor market?

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- Leverages O*NET and ChatGPT to measure AI capabilities for wide range of skills
- Maps skills into tasks, occupations, and industry
- Derives the amount of skills that AI can replace
- Disentangles the total impact effect between core skills and side skills
- Measures impact of AI improvements on substitutability of skills across occupations over income distribution

O*NET Data Example: Skills/Abilities of Economists

Definition

“Conduct research, prepare reports, or formulate plans to address economic problems related to the production and distribution of goods and services or monetary and fiscal policy. May collect and process economic and statistical data using sampling techniques and econometric methods.”

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Skills/Abilities	Economist
Written comprehension (level)	5.00/5.00
Oral comprehension (level)	4.88/5.00
Originality (importance)	3.12/5.00
Social perceptiveness (level)	3.00/5.00
Negotiation (level)	2.50/5.00
Stamina (level)	0.00/5.00

O*NET Data Example: Skills/Abilities of Economists vs. Environmental Economists

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Asking ChatGPT 4o

nowadays central banks have clear mandates. does it mean that with future improvements in AI we can fire almost all central bankers and run monetary policy mainly through AI tools? Which type of tasks will most likely disappear? Answer in less that 100 words please, I need it for a presentation slide



With AI advancements, central banks could automate tasks like data analysis, economic forecasting, and routine policy simulations. These functions, which rely heavily on processing vast datasets and running models, could be done more efficiently by AI. However, tasks involving crisis management, judgment in uncertain conditions, and balancing political and ethical considerations will still require human oversight. While AI may reduce the need for technical roles, strategic and high-level decision-making by central bankers will likely remain essential.



This Paper: Findings

- Low AI ability → 7% AI exposure for skills, uniform across income
 - ▶ Low-income: large exposure, but tasks not so important
 - ▶ High-income: low exposure, but tasks are important
- High AI ability → 26% exposure for low-income jobs + 45% exposure for high-income jobs
 - ▶ Exposure for low-income jobs is mainly for core skills
 - ▶ Exposure for high-income jobs is mainly for side skills
- AI is complementary to high-income jobs and substitutable for low-income jobs

My Take on the Paper

- Very nice paper with a novel and clever way to measure AI exposure of skills/tasks/occupations at different levels of AI capabilities
- Raphael, David, and Josef uncover that AI will actually exacerbate inequality
- Results line up with findings of Albanesi, Dias da Silva, Jimeno, Lamo, and Wabitsch (2024)

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- Raphael, David, and Josef uncover that AI will actually exacerbate inequality
- Results line up with findings of Albanesi, Dias da Silva, Jimeno, Lamo, and Wabitsch (2024)
- Analysis pictures the current situation. I wonder to what extent we can use measurement of “local changes” in AI capabilities, especially for this type of technology

Narrative of the Paper

- Today medical doctors have a wide array of non-core tasks, from writing up their reports, admin, bureaucracy, etc. In doing this, medical doctors are helped by medical assistants
- These side tasks take time away from medical doctors' core tasks, which actually determine the value of the health services
- High AI capabilities will help doctors to do side tasks easily:
"AI Dr. Siri: write up the report summarizing everything I just told the patient, and email to the hospital admin. Also book the next relevant appointments, finding the best time in my schedule"
- AI crowds out medical assistants, and boosts the time medical doctors devote to core tasks
- AI as a super-charged income polarization phenomenon

We May Need More Medical Assistants and Less Medical Doctors

Artificial intelligence [+ Add to myFT](#)

Artificial intelligence promises to transform diagnosis of heart disease

Rollout of stethoscope with pioneering technology could save lives and ease the strain on the NHS



Medical staff experiment with a stethoscope that uses artificial intelligence to detect heart disease instantly © Imperial NHS Trust

The Real AI Threat

- Paper considers AI effect based on **current computer interaction** of each task
- Yet, AI is a type of technology which can substantially alter the notion of computer interaction
- If so, we should expect:
 - ▶ First phase in which AI is complementary to high-income jobs
 - ▶ Second phase in which AI may be complementary to social-intensive high-income jobs, but replaces all other high-income jobs

Monetary Policy Implications

- Current setting derives a measure of complementarity/substitutability which can be important for slope of Phillips curve
- Later on, my coauthor will show that higher automation curtails workers' bargaining power, flattening the wage Phillips curve
- This measurement approach can help understand in which industries/geographies this effect will be stronger

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- This measurement approach can help understand in which industries/geographies this effect will be stronger
- Fornaro and Wolf (2022) argue that monetary policy can alter automation (AI investment) decisions
- If so, a out-of-sample (prediction) algorithm can help figure out this effect
- May also be relevant to think about changes in education system

Thank you!