FISCAL AFFAIRS

AI and Role of Fiscal Policies

THE ECONOMICS OF AI: JOBS, GROWTH, AND EXISTENTIAL RISK

INDEPENDENT EVALUATION OFFICE

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Roadmap

1. Productivity benefits and labor market risks

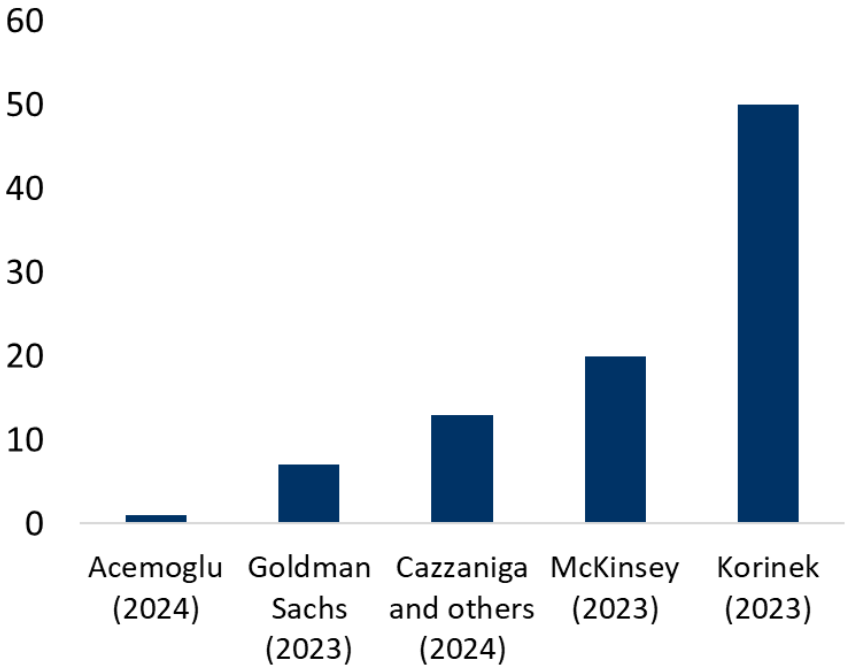
2. How can fiscal policies broaden the gains from AI while mitigating risks?
   - Should automation be taxed to discourage labor displacement? Are tax systems fit-for-purpose in a world of Gen AI?
   - How should social protection systems be upgraded to attenuate impact on workers?

3. Some takeaways

AI economic impacts are highly uncertain

Large range of estimated GDP impacts…

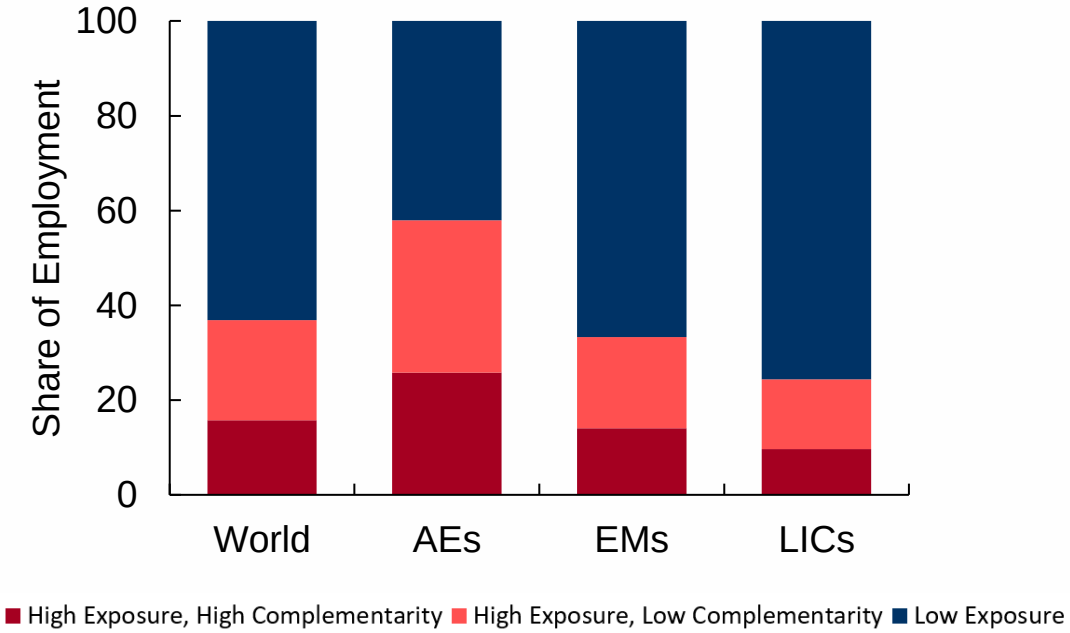
Estimates of total output gain over the next decade
(percent)



Sources: Acemoglu (2024), Cazzaniga and others (2024), Goldman Sachs (2023), Korinek (2023), and McKinsey (2023).
Note: McKinsey (2023) estimate an annual productivity boost of 0.5 to 3.4 percent, indicating a growth of 20 percent over a decade (average of the range). Cazzaniga and others (2024) estimate an increase between 10 percent and 16 percent, depending on the complementarity.

… with more than 40 percent of employment likely exposed globally

Employment Shares by AI Exposure and Complementarity
(percent)

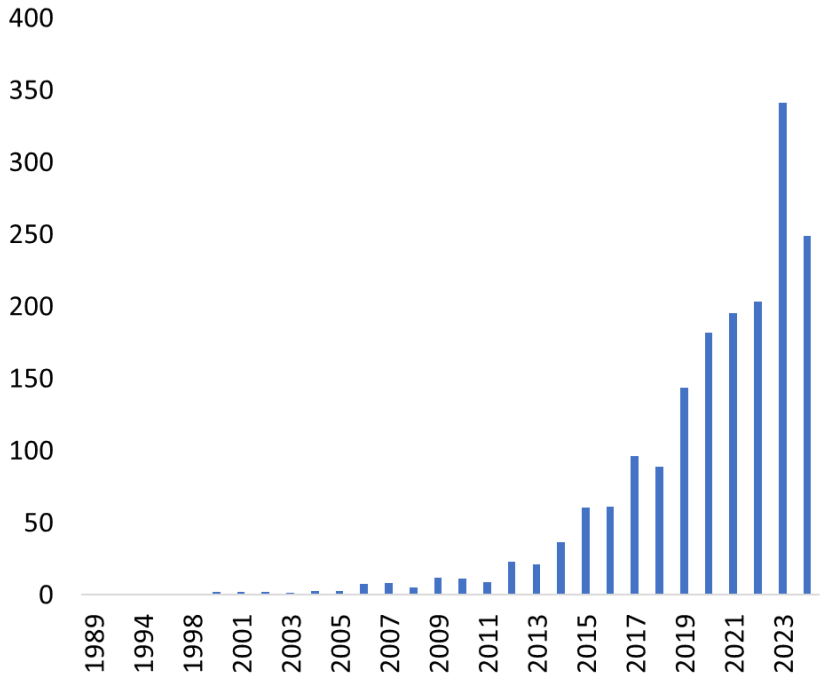


Sources: American Community Survey (ACS); Gran Encuesta Integrada de Hogares (GEIH); India Periodic Labour Force Survey (PLFS); International Labour Organization (ILO); Labour Market Dynamics in South Africa (LMDSA); Pesquisa Nacional por Amostra de Domicílios Contínua (PNADC); UK Labour Force Survey (LFS); and IMF staff calculations.
Note: Country labels use International Organization for Standardization (ISO) country codes. ISCO stands for International Standard Classification of Occupations. AEs = advanced economics; EMs = emerging markets; LICs = low-income countries; World = all countries in the sample. Share of employment within each country group is calculated as the working-age-population-weighted average.

Existential risks posed by AI development have surged…

Concerns about existential risks have significantly increased…

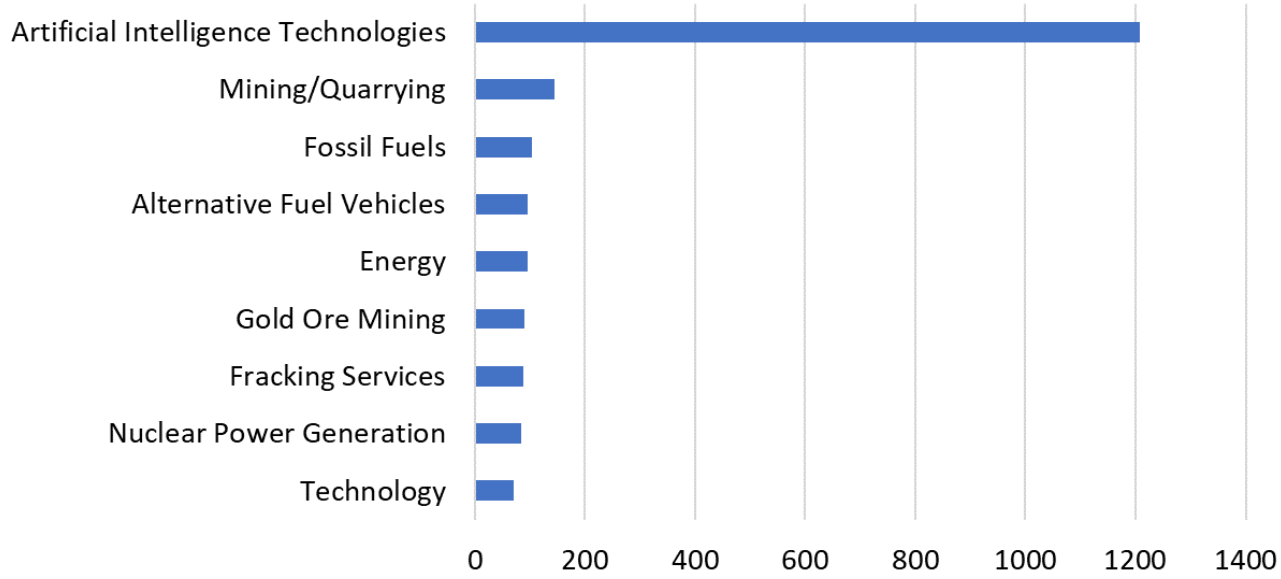
Measuring Existential Risk Concerns



Source: Factiva and IMF's staffs estimates
Note: Text-based index measuring the share of articles containing the keywords on human existential risks, normalized with 1989 being 1. The ratio in 2023 is 350 times the ratio in 1989.

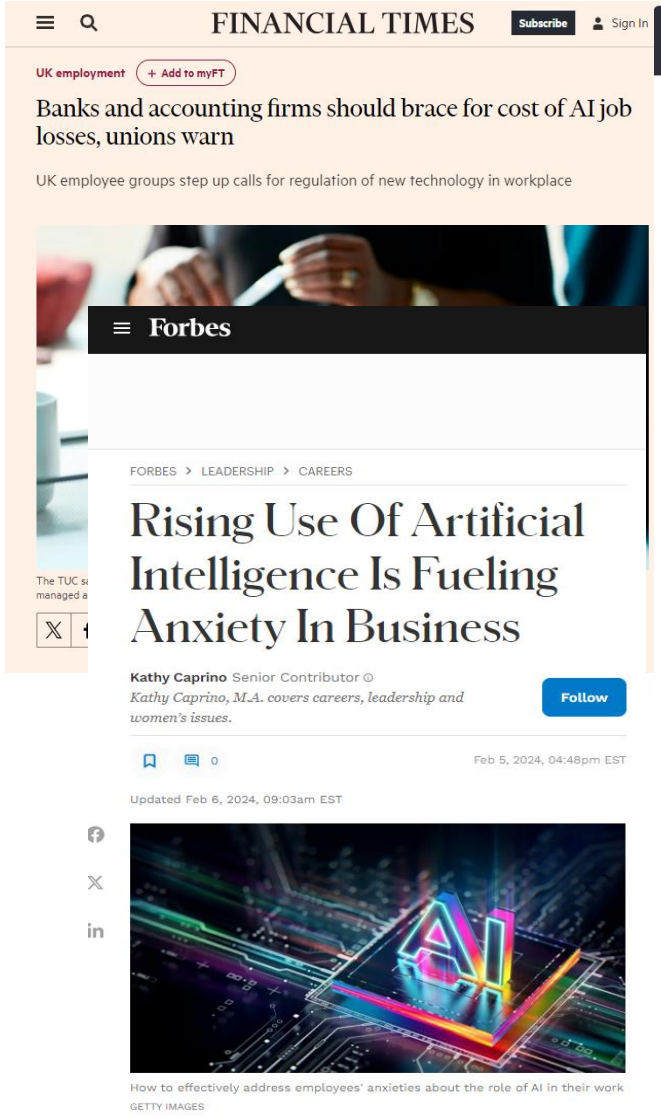
… largely associated with AI development

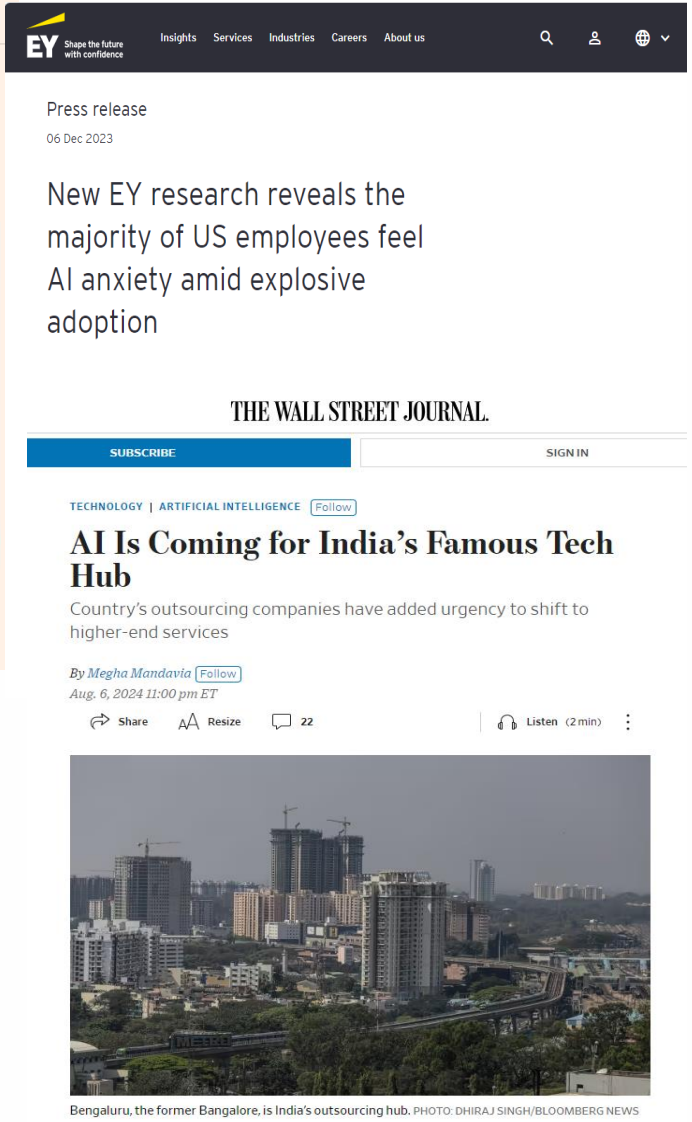
Most Mentioned Industries
(number of articles)



Sources: Factiva and IMF's staffs estimates

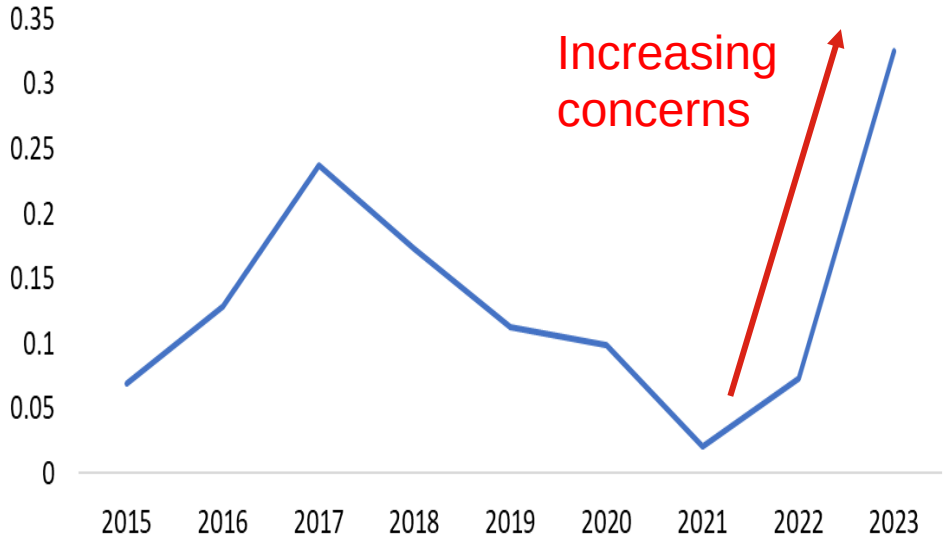
...centered around job loss concerns across countries and sectors





News on AI-related job loss concerns

(*as a share of news on AI, percent*)



Source: Factiva and IMF's staffs estimates
Note: Text-based index measuring the share of articles containing the keywords on job concerns (such as "unemployment" or "unemployed" or "job loss*" or "job replacement*" and related terms in the proximity of "risks" or "uncertain*" or "threat*") among articles on AI (including "AI" or "Artificial Intelligence" or "Gen AI" or "Generative AI or generative artificial intelligence" in the title, the snippet, or the main section).

Model: automation, unemployment, and fiscal policy

Extend a tractable HANK-DGSE model with labor market frictions (Ravn and Sterk 2021):

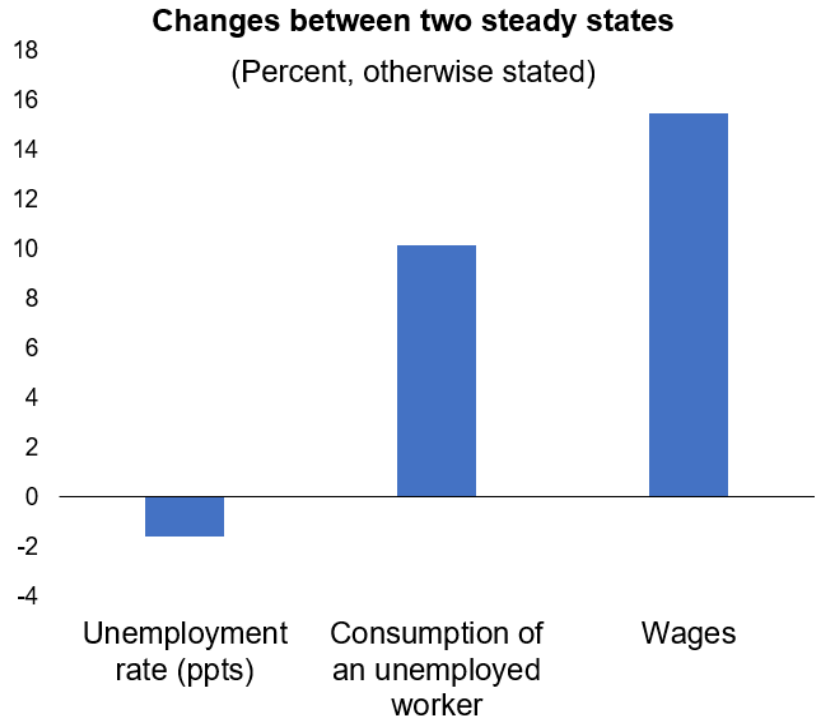
- **Two sectors, with potential for automation**:
  - each uses traditional capital, automated capital, and labor
  - automated capital can substitute for labor (Berg, Buffie, and Zanna 2018)
  - the two sectors are used as inputs in final good production
- **Labor market frictions**: endogenous employment via job search and matching frictions
- **Household heterogeneity**: 1) firm owners, 2) employed workers, and 3) unemployed workers
  - Workers face unemployment risk and are not fully insured, leading to precautionary saving
- Nominal rigidities and a Taylor-rule based interest rate
- **Different fiscal instruments**
- **Adds to recent literature** by focusing on policies to manage the unemployment response

Guerreiro, Rebelo, and Teles (2022), Beraja and Zorzi (2023), Costinot and Werning (2023).

Scenario: sizeable automation in one sector over time

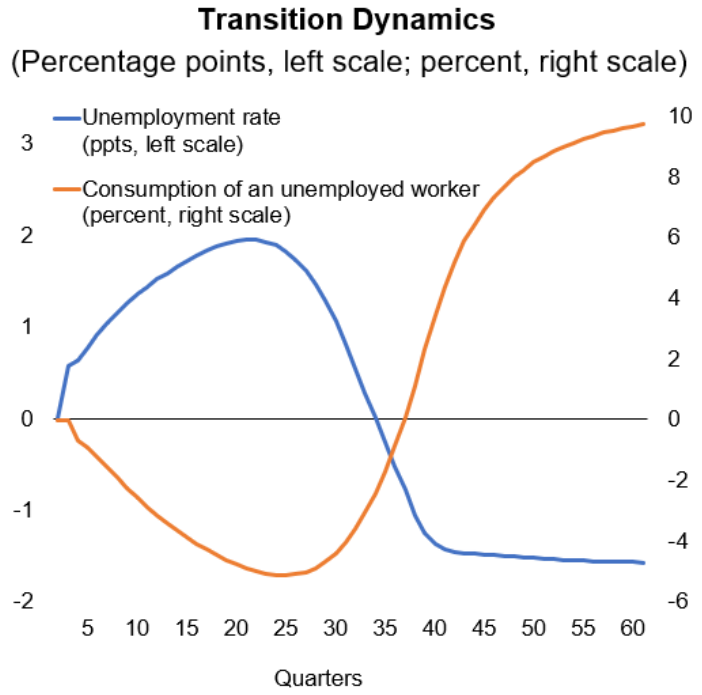
Resulting in a 20 percent fall in labor in affected sector in the new steady state (McKinsey, 2023)

Automation can move economy to a better steady state…



Source: IMF staff simulations.

…but unemployment rises in the transition due to skill mismatch, while consumption of poorest falls



Source: IMF staff simulations.
Notes: deviation from the initial steady state.

Should AI be taxed?

How to finance social spending to address AI-associated labor market disruption?

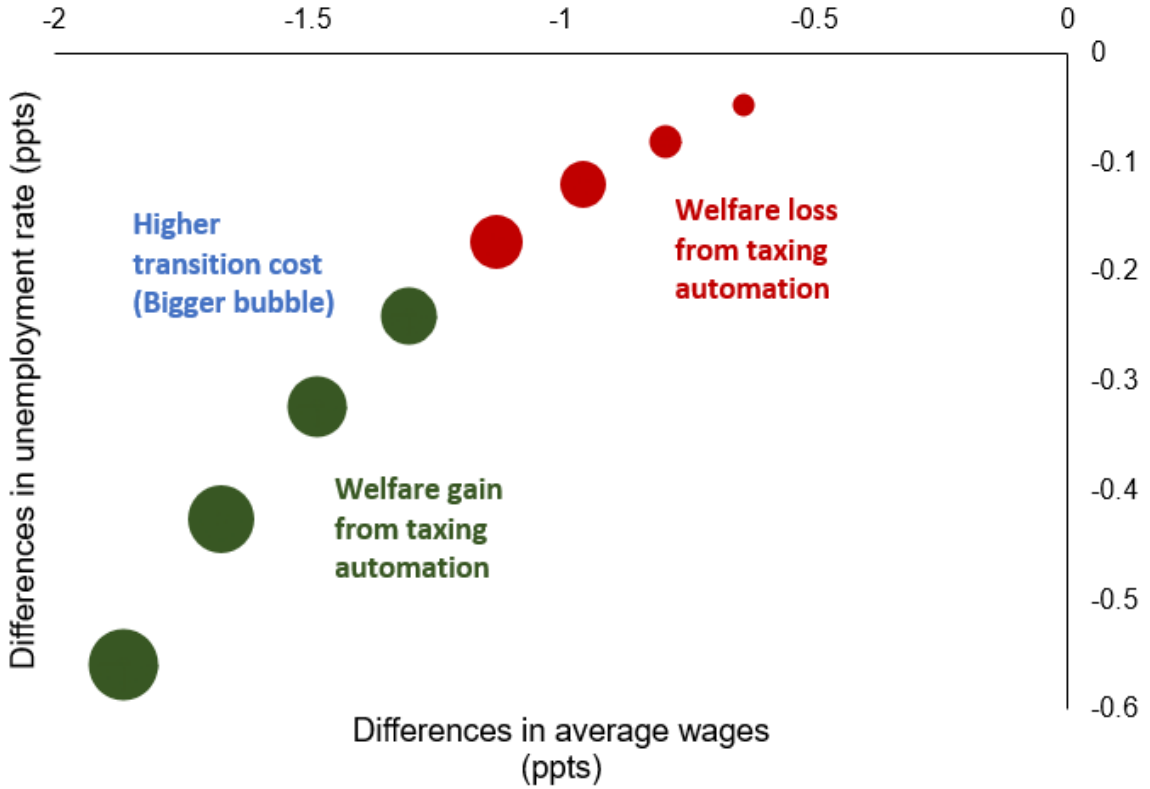
1. Taxing labor income
2. Taxing automation

→ Taxing automation raises welfare when labor adjustment costs high:

- *Efficiency* motive: firms do not internalize labor market and credit frictions.
- *Equity* motive: redistributes income from capital owners to workers.

→ But AI taxes difficult to implement in practice

Taxing Automation Versus Taxing Labor Income to Finance Social Spending

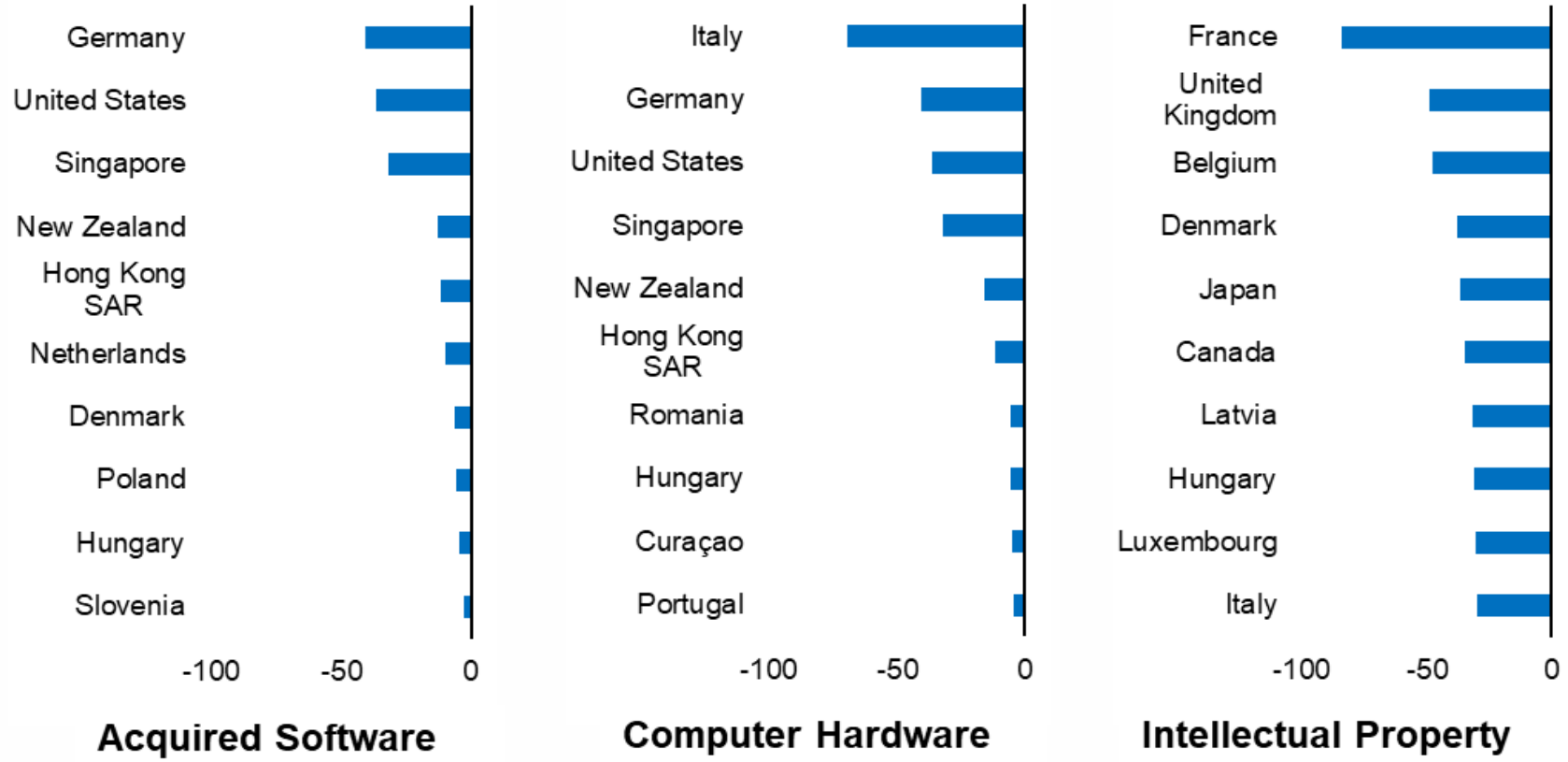


Source: IMF staff simulations.
Note: Figure compares the effects of financing social policies with a temporary automation tax relative to doing so with a temporary labor income tax. Each bubble shows how shifting to an automation tax changes the response of average wages and the unemployment rate. Red/green bubbles indicate that taxing automation implies a welfare loss/gain relative to taxing labor.

Avoid excessive tax incentives for labor-displacing automation

Corporate Tax Biases for Labor-Saving Assets by Country: Top 10

(in percent)

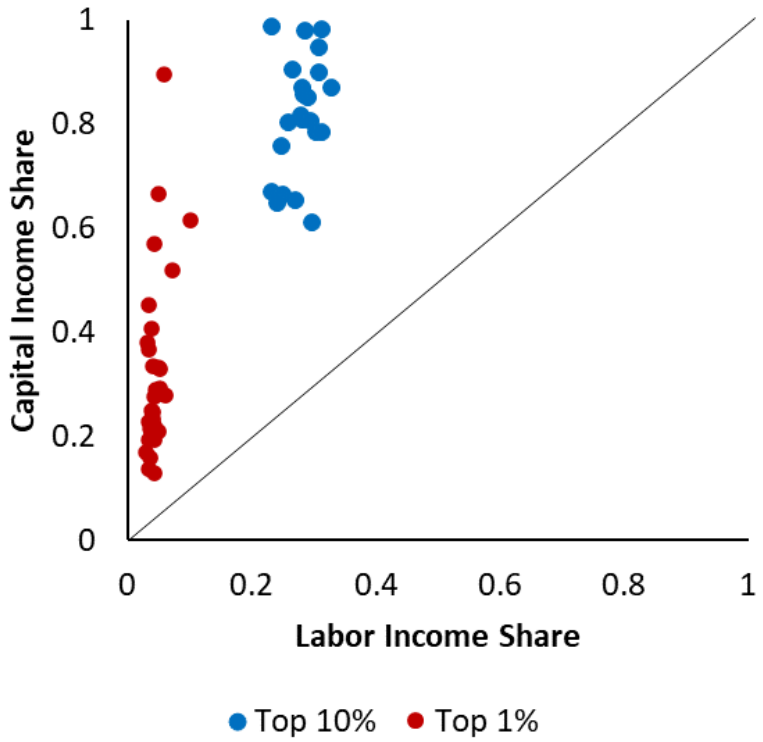


Sources: IMF staff estimates, OECD, and ZEW.

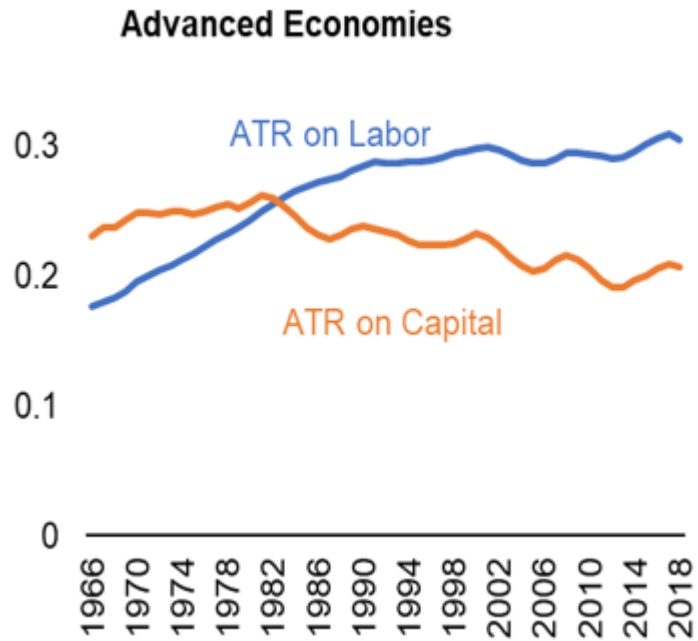
Note: The top 10 countries with the largest corporate tax bias favoring labor-saving assets, measured as the METR for each asset type relative to the METR for buildings, for 85 countries in 2022 for acquired software and computer hardware; for intellectual property, the sample covers the EU-27 for 2020. A negative value denotes a lower METR on the asset relative to buildings.

Enhance taxation of capital income for equity and revenue

Concentration of Capital Income Among Top Earners: Cross-Country Evidence



Average Tax Rates (ATR) on Labor and Capital Income, 5-year Moving Average

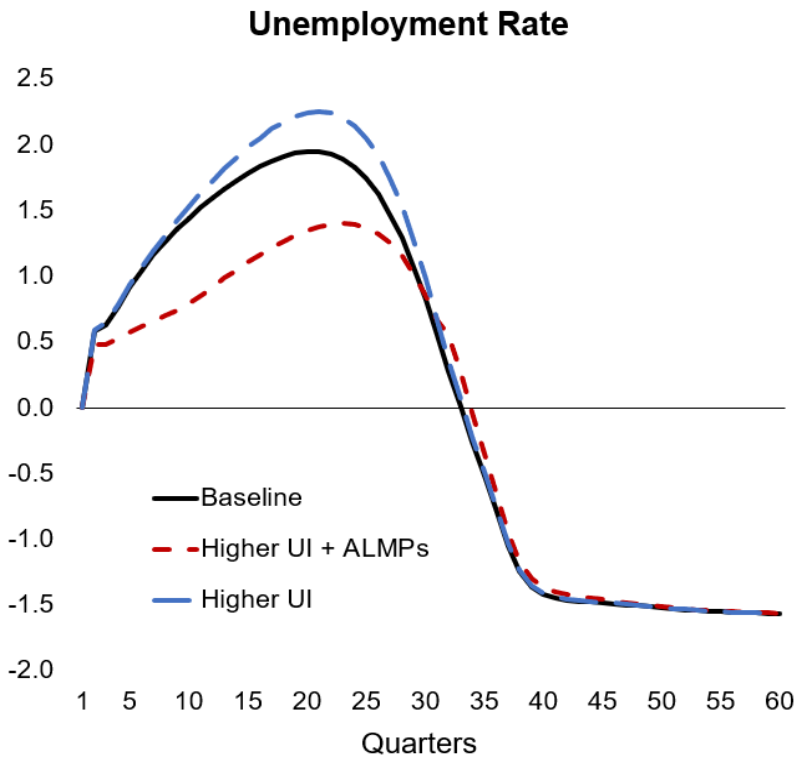


Sources: Left: Luxembourg Income Survey and IMF staff calculations; Right: Bachas and others (2022) and IMF staff estimates
Note: Left: the income share held by the top 1 percent and the top 10 percent in labor and capital income in European countries. Right: ATRs are constructed by relating historical data on taxes paid to a measure of the tax base, based on a global macroeconomic data covering 1965-2018

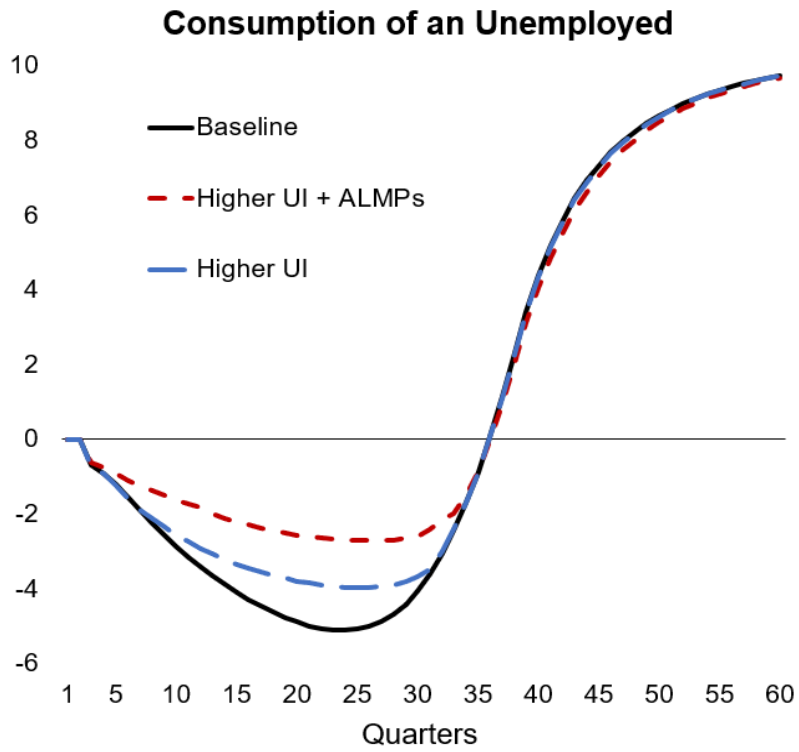
Adapting social protection systems to an AI world

- **Policy package**: temporary increase in unemployment insurance and ALMPs (worker training subsidies)

1) Lowers the surge in unemployment



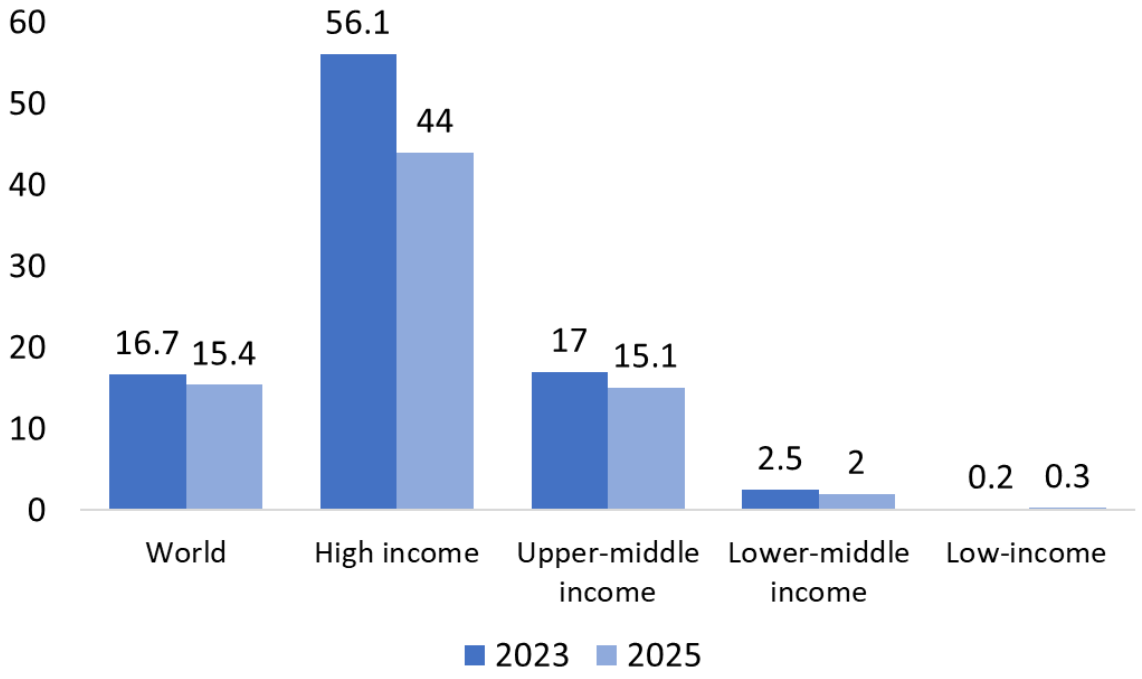
2) Provides support to vulnerable unemployed workers



Notes: Figure presents the baseline scenario and two policy options: a temporary unemployment income support (UI) and a combination of UI and active labor market policies (ALMP). These policies are funded with labor income taxes, ensuring budget neutrality each period.

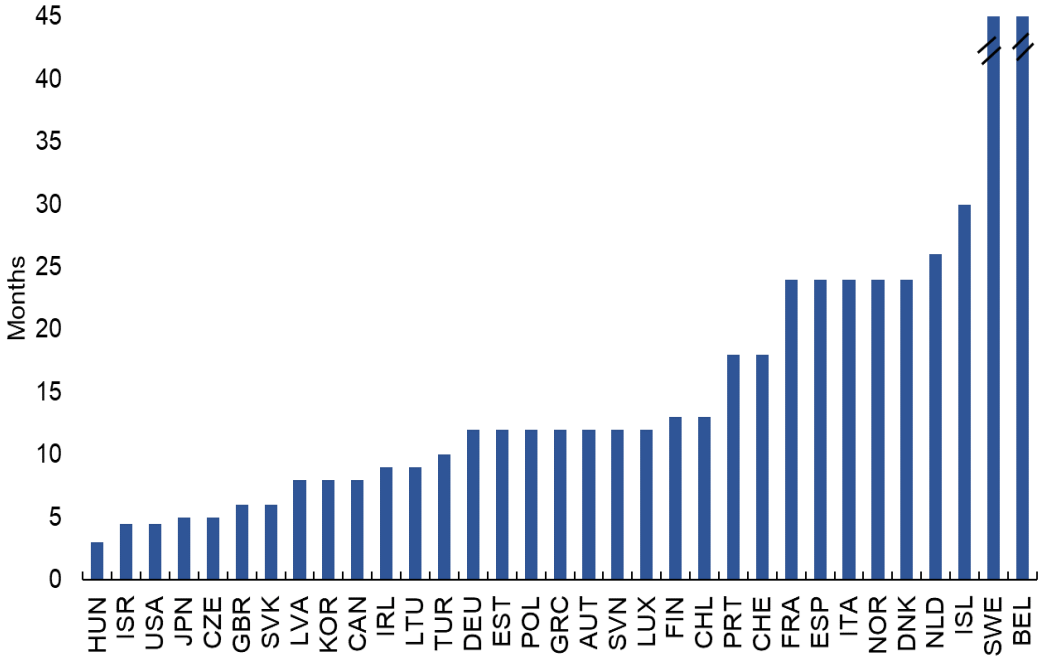
Large existing gaps in social protection systems

Share of unemployed persons receiving cash benefits (percent)



Source: ILO's World Social Protection Report 2024-26 (2024)

Maximum unemployment insurance



Source: OECD (2023). Sign "//" indicates a duration of more than 45 months.
Note: Data labels in the figure use International Organization for standardization (ISO) country codes.

Broadening the Gains from AI: Role of Fiscal Policies

- Given high uncertainty about the impact of (Gen-) AI, policymakers must adapt to changing conditions and **prepare for disruptive scenarios**.
- Policy takeaways:
  - ✓ Avoid excessive tax incentives for labor-displacing automation; strengthen capital income taxation.
  - ✓ Ensure appropriate generosity and coverage of unemployment insurance; design effective social safety nets (consider prolonged unemployment).
  - ✓ Enhance integration of unemployment insurance with ALMPs; assess necessary reforms in education and training policies.

Thank You