Secular Drivers of the Natural Rate of Interest: Looking ahead

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Disclaimer: The views expressed herein are those of the author and should not be attributed to the IMF, their Executive Board, or their management.

Motivation

This talk: Give outlook on r^* using structural model

- Peruffo and Platzer (2023): Secular Drivers of the Natural Rate of Interest in the United States: A Quantitative Evaluation
- International Monetary Fund (2023): Spring WEO, Chapter 2
  - 5 largest AEs and 3 largest EMs (ca. 70% of world GDP)

Peruffo & Platzer 2023 (PP 2023)

Comprehensive assessment of main drivers of r^*

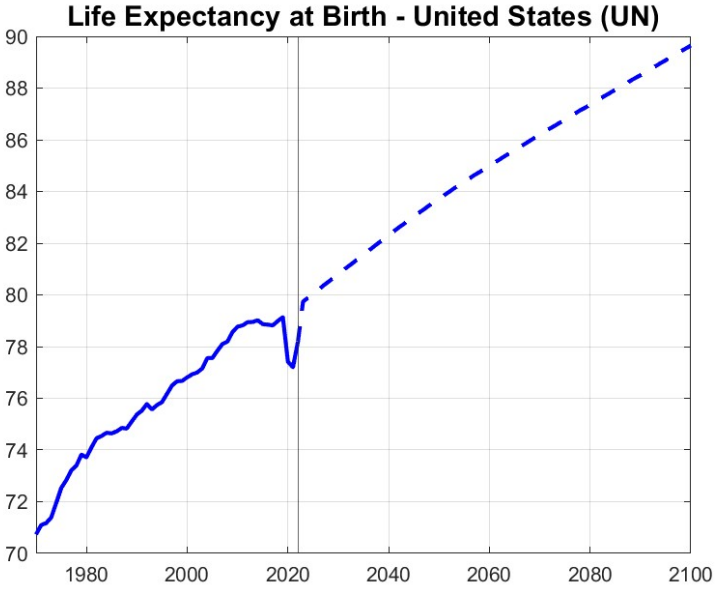
- r^* as endogenous outcome in quantitative model
  - $\equiv$ rate that balances market for savings (demand $=$ supply)
  - "long-run r^*" as in Platzer, Tietz and Linde (2022):
    - "long-run r^*": long-run equilibrium with no price rigidities
    - "short-run r^*": r such that output gap closed no inflationary or deflationary pressure

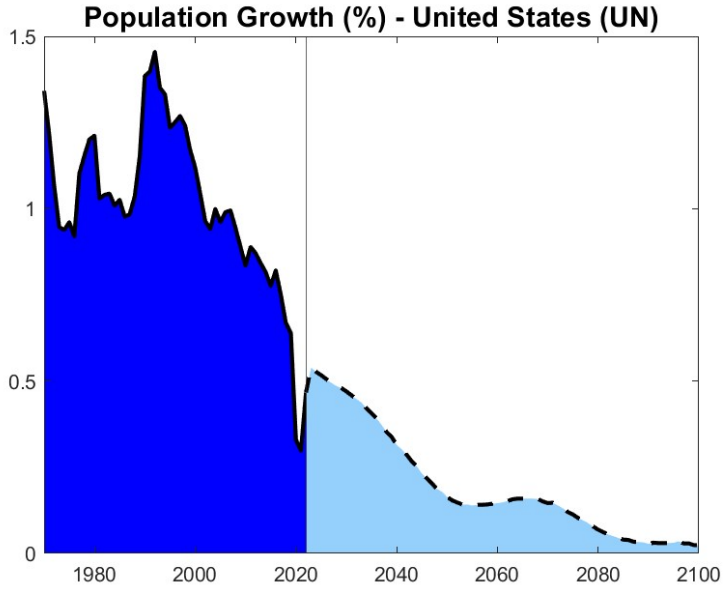
Peruffo & Platzer 2023 (PP 2023)

1. Households
    - 74 overlapping generations
    - Heterogenous agents
    - Nonhomothetic utility
2. Firms
    - exogenous productivity growth
    - monpolistic competition $\rightarrow$ *markups*
3. Government
    - Public debt
    - Tax and transfer system, including social security
4. Exogenous capital flows

PP 2023: Drivers and Model Ingredients

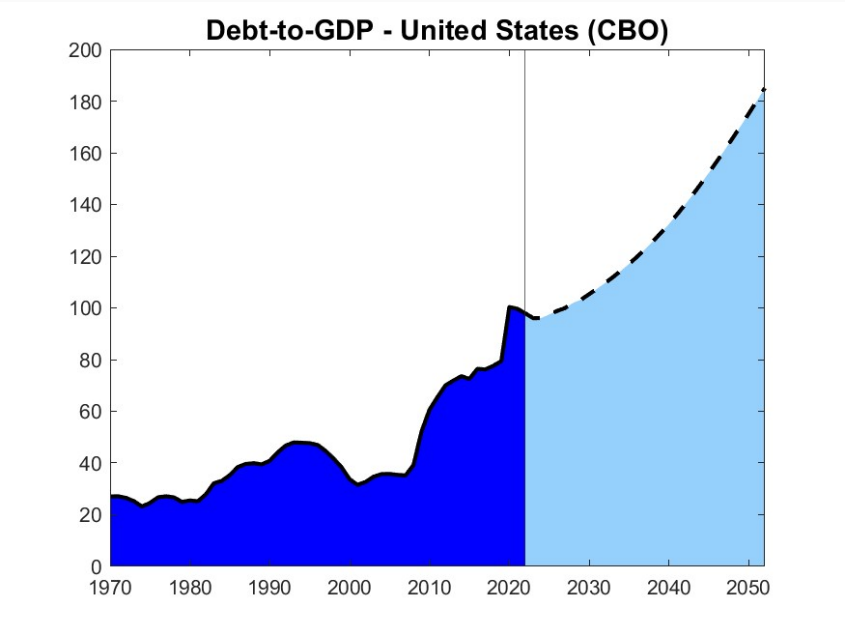
Demographic change





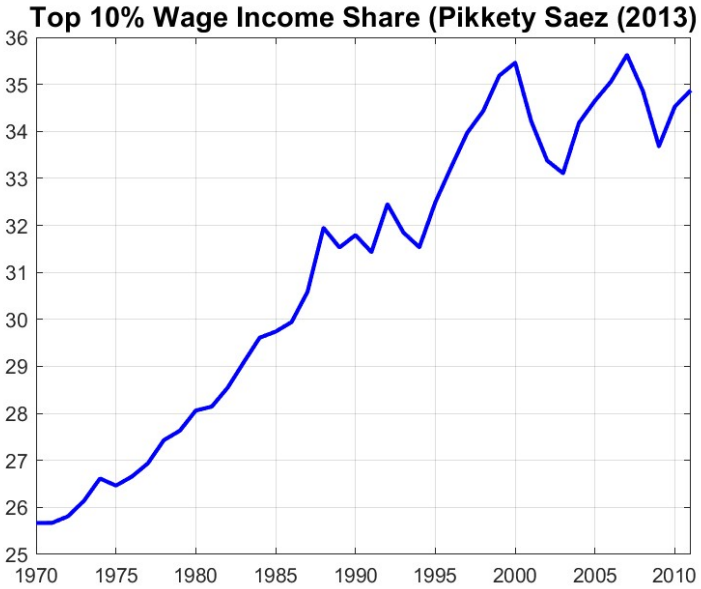
PP 2023: Drivers and Model Ingredients

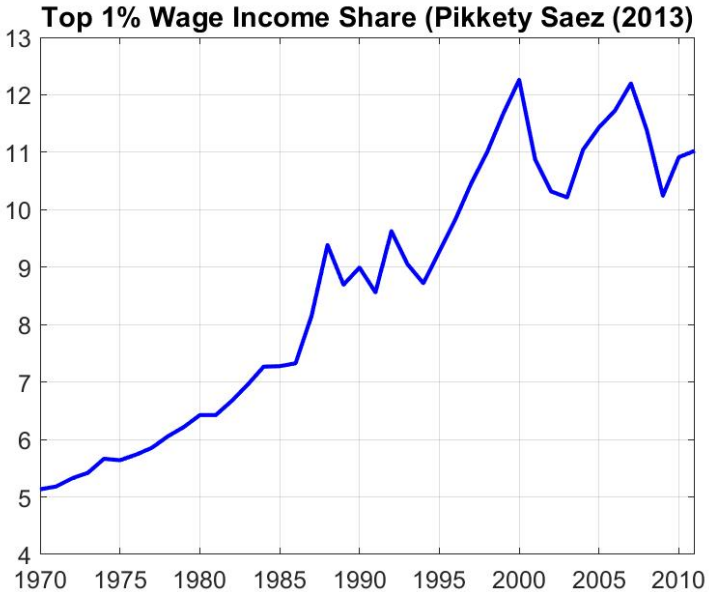
Public policy: Government debt and Consumption



PP 2023: Drivers and Model Ingredients

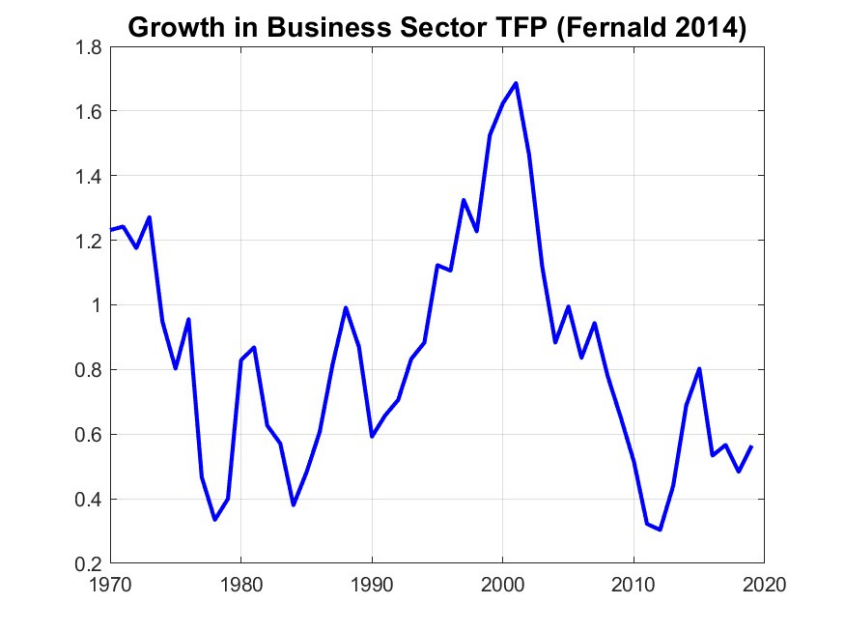
Rising income inequality





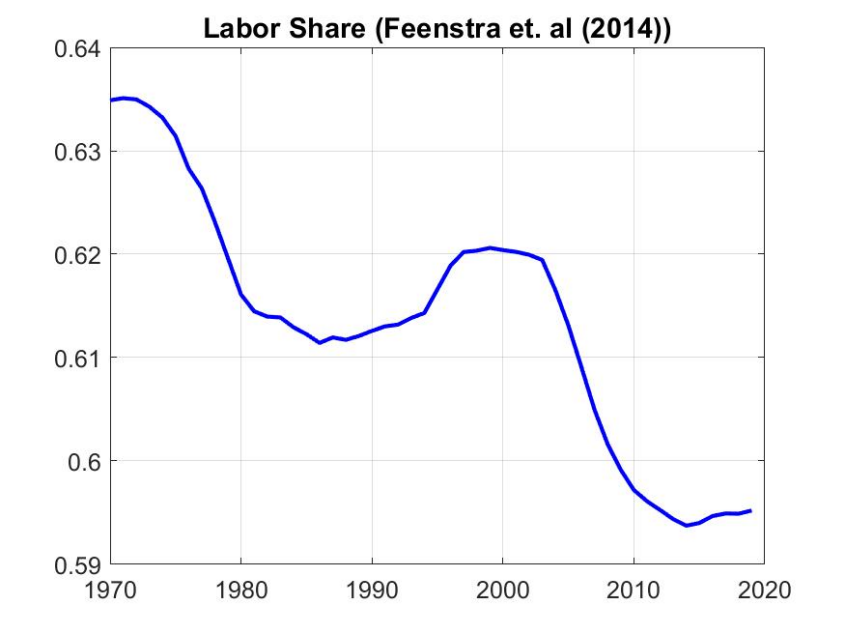
PP 2023: Drivers and Model Ingredients

Slowdown in productivity growth



PP 2023: Drivers and Model Ingredients

Decline in the labor share



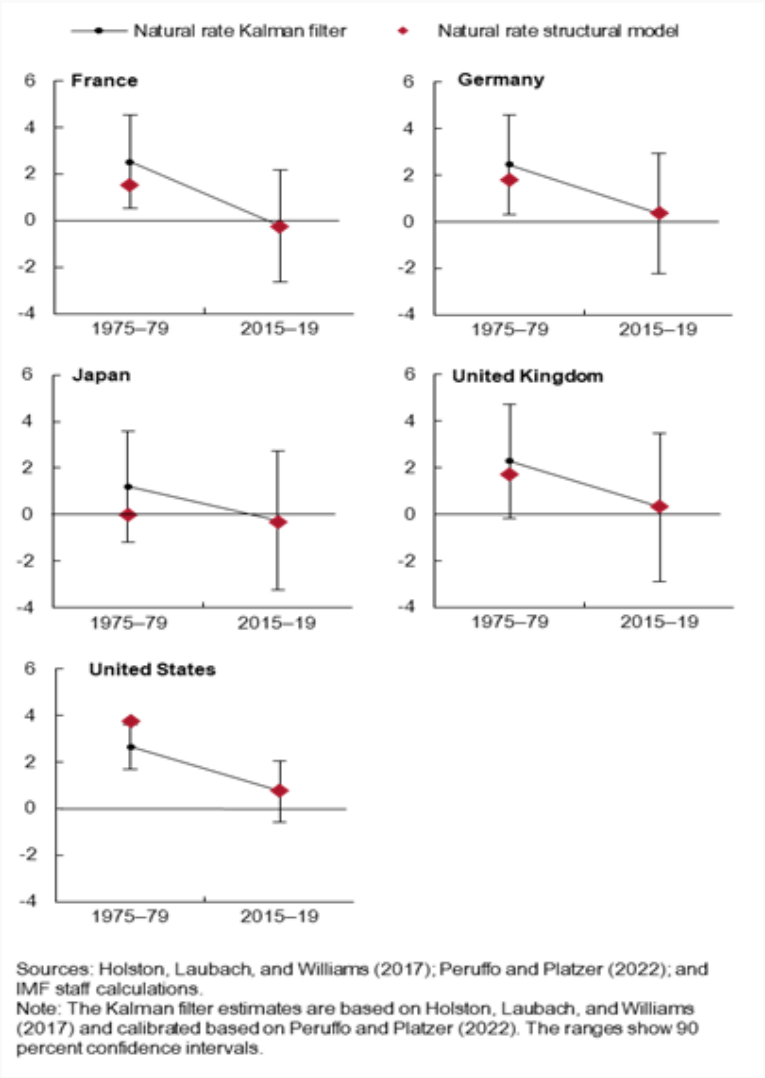
PP 2023: Drivers and Model Ingredients

Not in PP 2023: endogenous capital flows

Not in PP 2023: safe vs risky asset

Spring WEO: climate change, deglobalization

PP 2023: Model fit?



Sources: Holston, Laubach, and Williams (2017); Peruffo and Platzer (2022); and IMF staff calculations.
Note: The Kalman filter estimates are based on Holston, Laubach, and Williams (2017) and calibrated based on Peruffo and Platzer (2022). The ranges show 90 percent confidence intervals.

Source: International Monetary Fund (2023)

PP 2023: Model fit?

$\Rightarrow$ Match **composition effect** of inequality - Auclert et al. (2021)

Dynamics of the Natural Rate of Interest

Evolution of r^* from 1950 and into the future

1. Initial steady state in 1950
2. Realized path of drivers until today
3. Estimates of drivers towards the future
    - Scenarios
    - Probabilistic

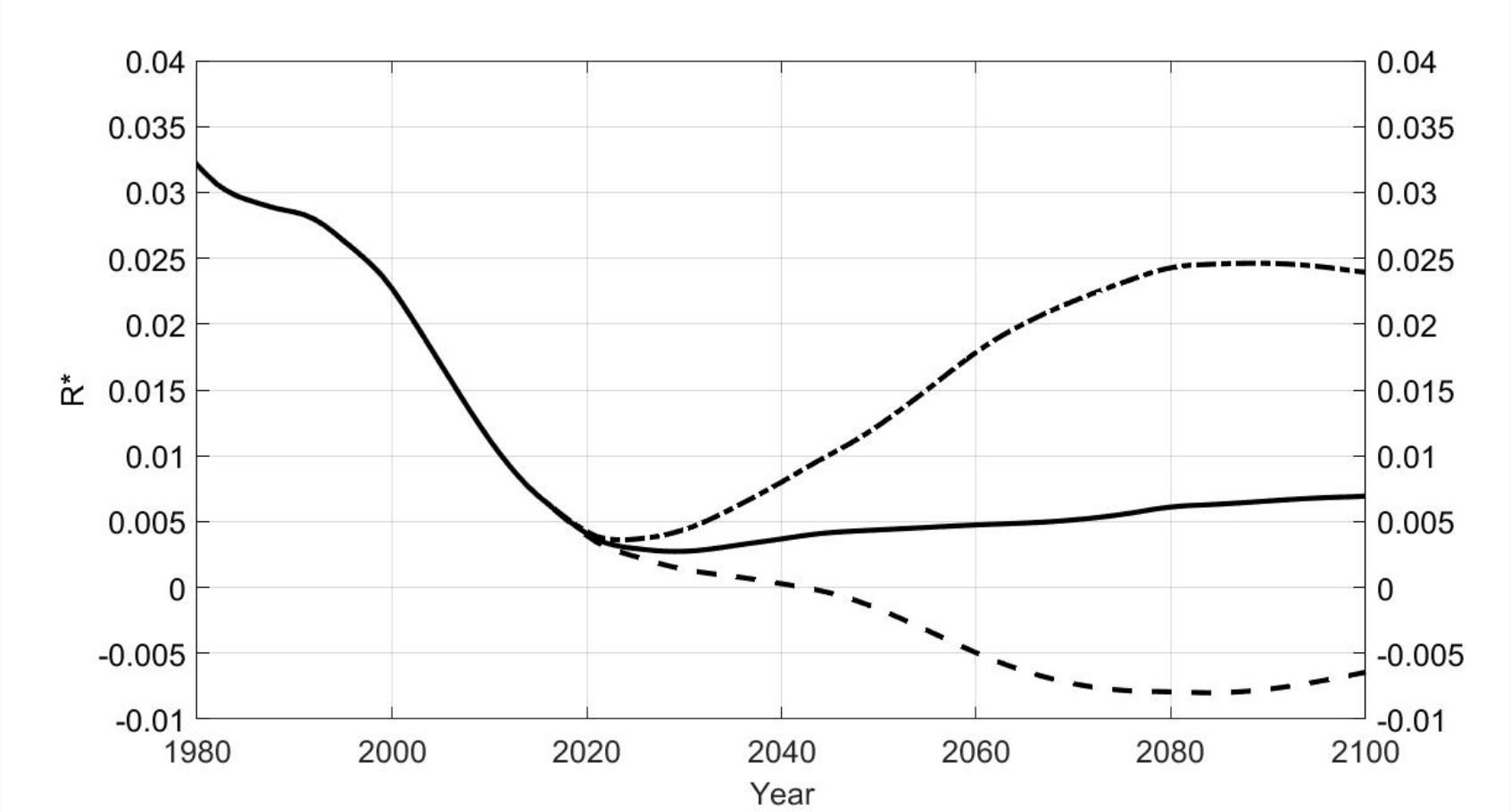
Scenario Analysis

Assumptions Regarding Future Path of Drivers

Scenarios: central, high, low

1. Demographics - estimates from the United Nations
    - **central** prediction from UN
    - high and low fertility scenarios
2. Permanent Inequality, Productivity, Labor Share
    - **central**: stabilize at current levels
    - revert (high)/continue (low) trend for another 20 years
3. Debt to GDP = up to 200% at 2080, then stabilize

Evolution of r^* - Scenarios

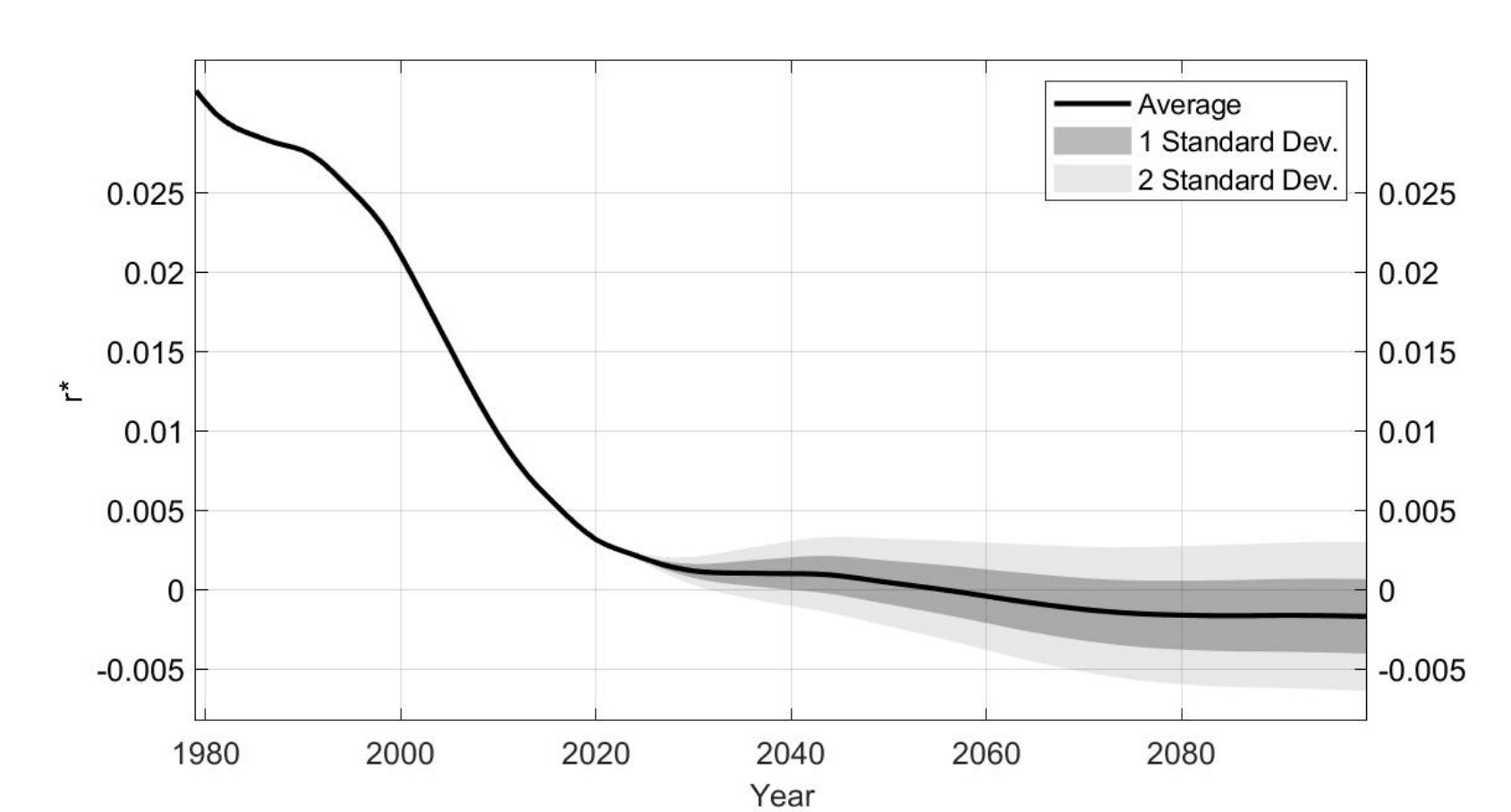


Probabilistic Analysis

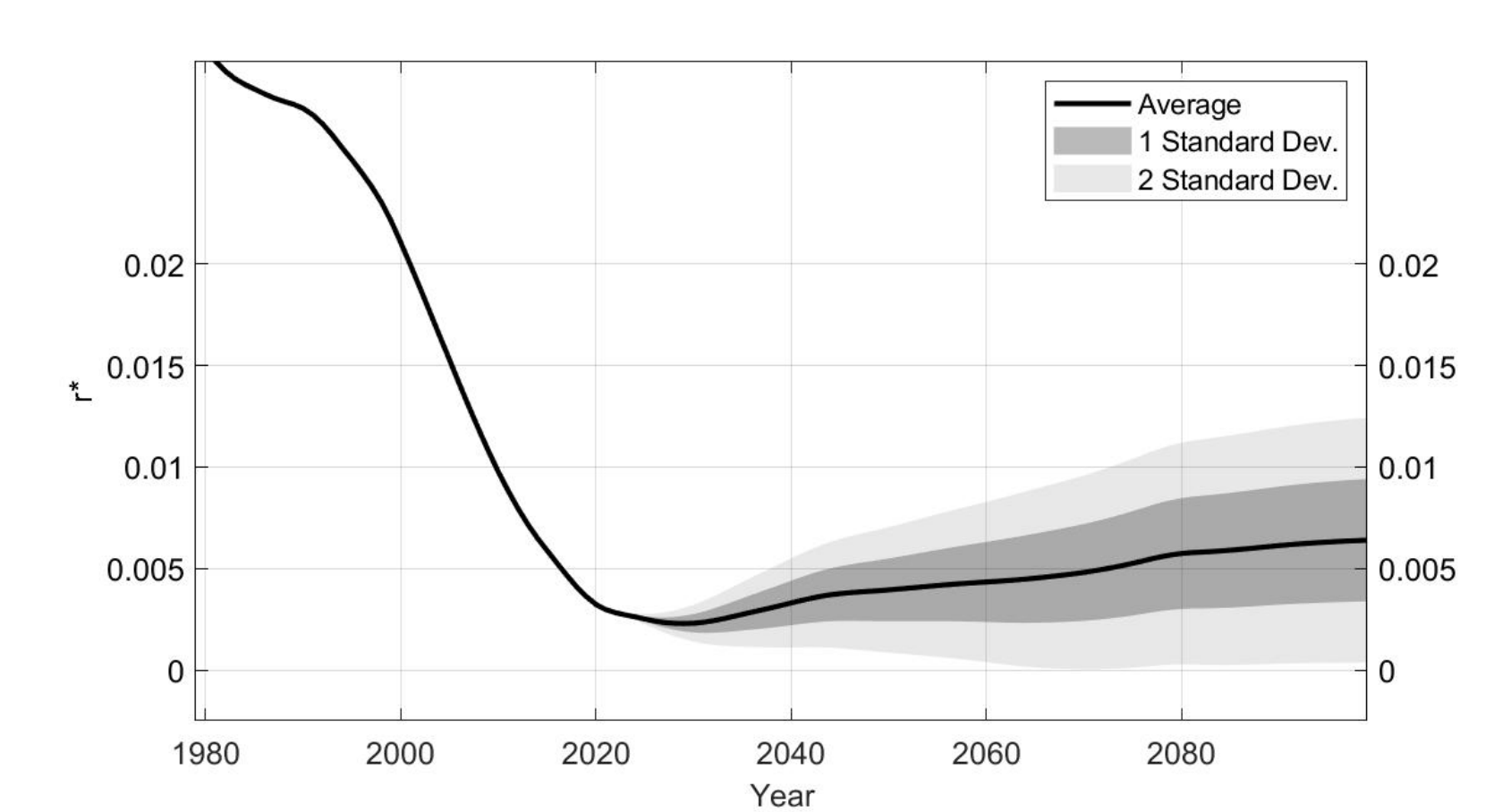
Probabilistic Projections - Demographics

- Mortality, Age Shares, and Fertility
  - combination of models (United Nations 2022)
  - from today to 2100
- Provided us with 2000 trajectories
  - ϕ_{gt} and p_{gt}
  - back out n_t
  - sample 400 trajectories
- Assumption: $B/Y = 1$

Evolution of r^* - holding debt/Y = 1



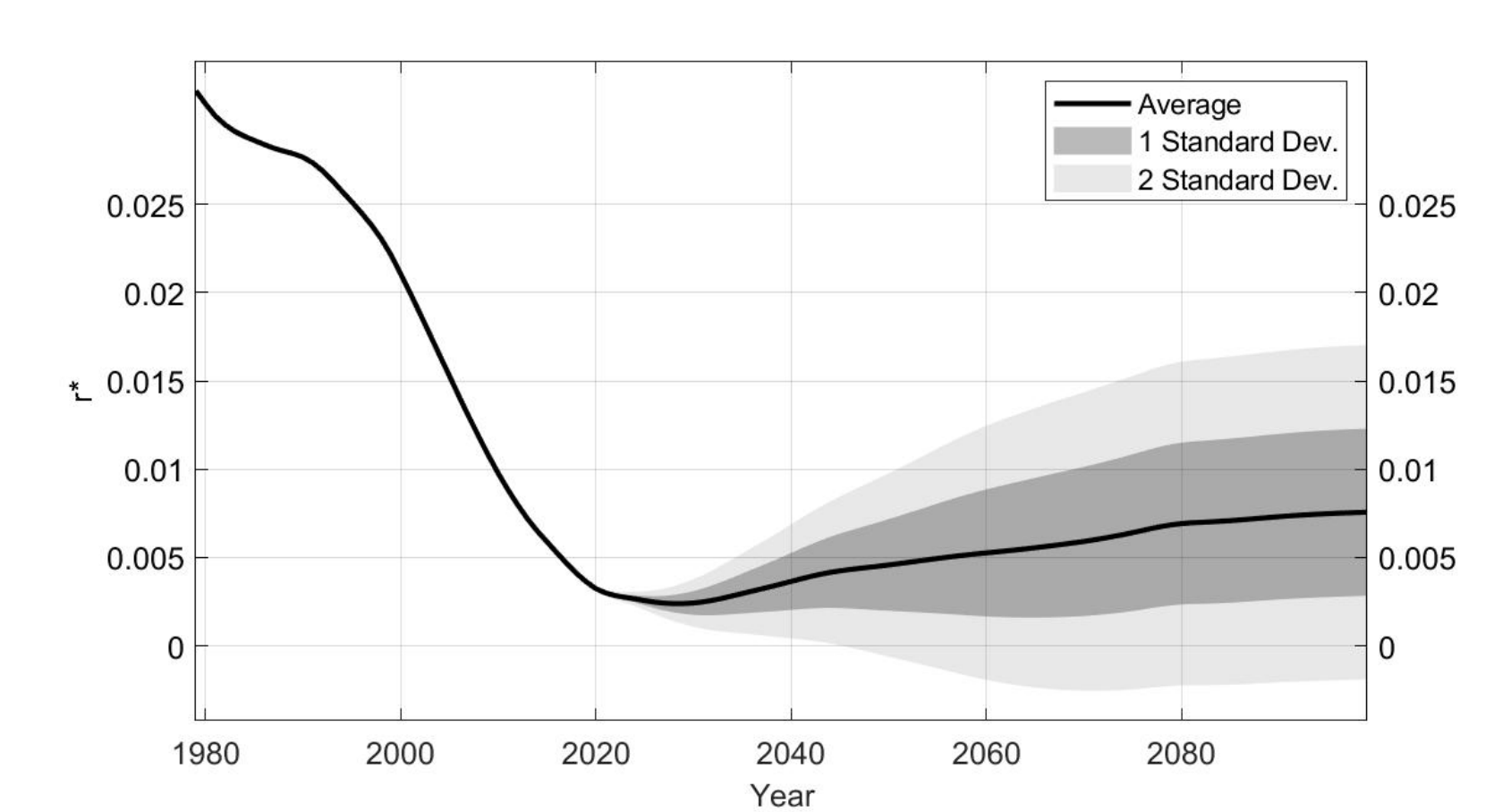
Evolution of r^* - Demographics Uncertainty



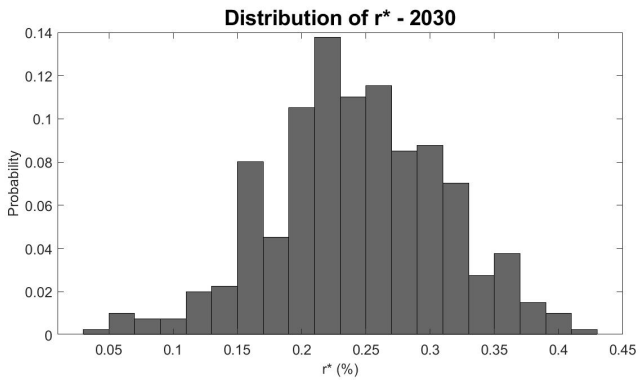
Uncertainty - All Drivers?

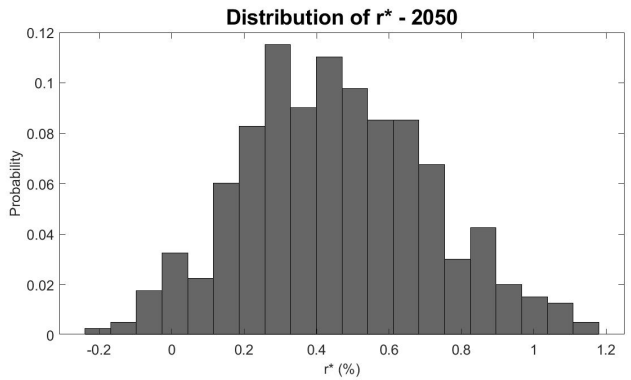
1. Demographics: UN
2. Others: probabilistic
    - Permanent Inequality
    - Productivity Growth
    - Labor Share
- assume $\sim \mathcal{N}(x_{2015}, \sigma_x^2)$, $\sigma = \frac{|x_{1995} - x_{2015}|}{2}$
3. Assumption **throughout:** $B/Y \uparrow 200\%$

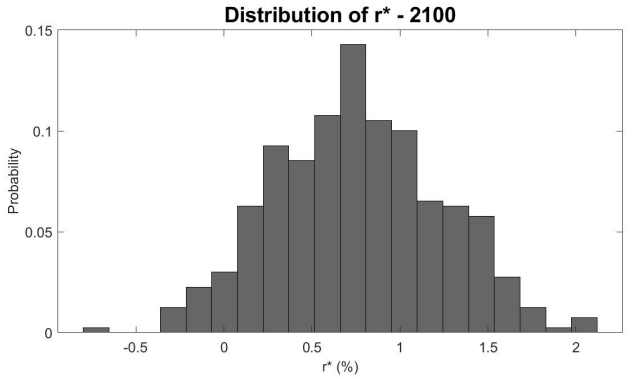
Evolution of r^* - Uncertainty

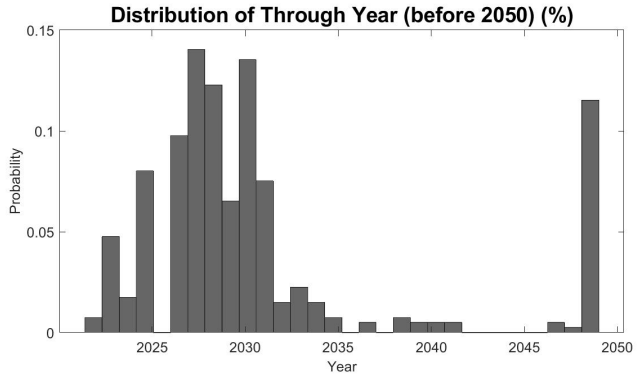


Evolution of r^* - Uncertainty

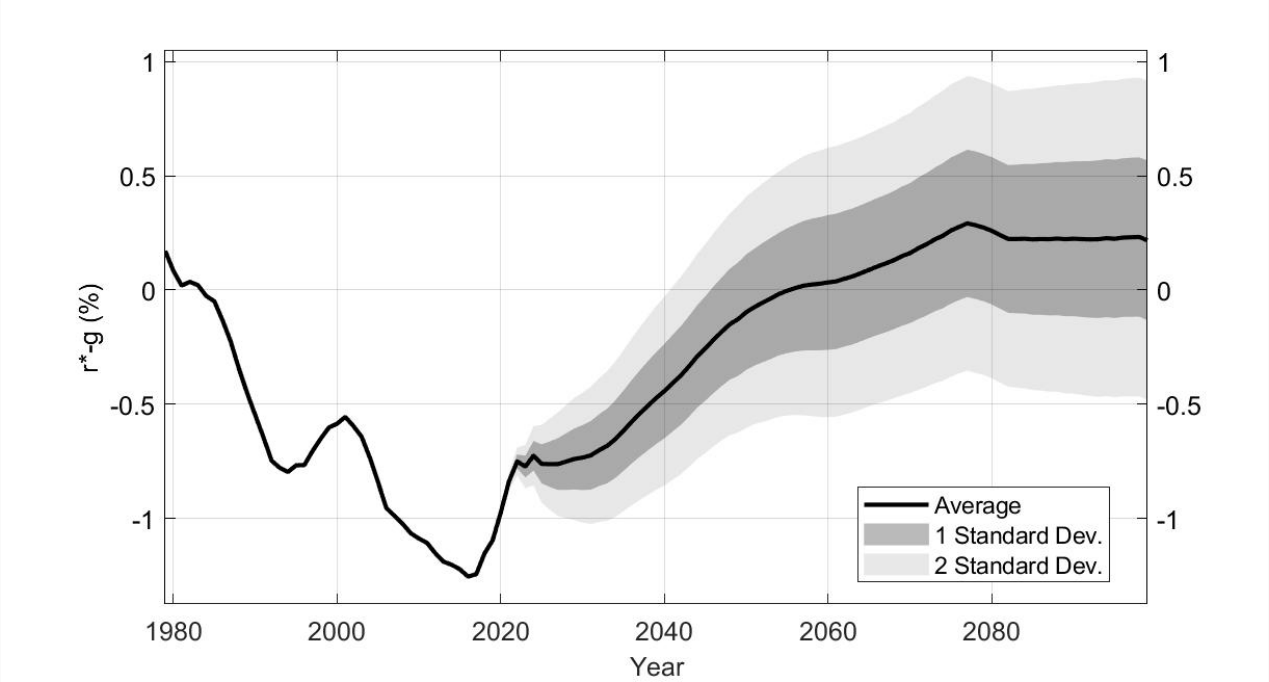








Evolution of $r^* - g$ - Uncertainty



THANKS

Appendix: IMF 2023: Spring WEO

- Use PP 2023 for
  - 5 largest AE (US, DE, FR, UK, JP)
  - 3 largest EM (Brazil, China, India)
- non-US AEs: similar as US, but not as steep debt trajectory?
- EMs: $r^* \downarrow$ convergence to AEs, assuming...
  - ...demographic dynamics as per UN
  - ...productivity growth: convergence $\downarrow$ to AE

References

Auclert, Adrien, Hannes Malmberg, Frederic Martenet, and Matthew Rognlie. 2021. "Demographics, Wealth, and Global Imbalances in the Twenty-First Century." National Bureau of Economic Research Working Paper 29161.

International Monetary Fund. 2023. "The Natural Rate of Interest: Drivers and Implications for Policy." World Economic Outlook, April 2023.

Peruffo, Marcel, and Josef Platzer. 2023. "Secular Drivers of the Natural Rate of Interest in the United States: A Quantitative Evaluation." mimeo.

Platzer, Josef, Robin Tietz, and Jesper Linde. 2022. "Natural versus Neutral Rate of Interest: Parsing Disagreement about Future Short-Term Interest Rates." VoxEU, July 26, 2022.