Government Debt and Capital Accumulation in an Era of Low Interest Rates

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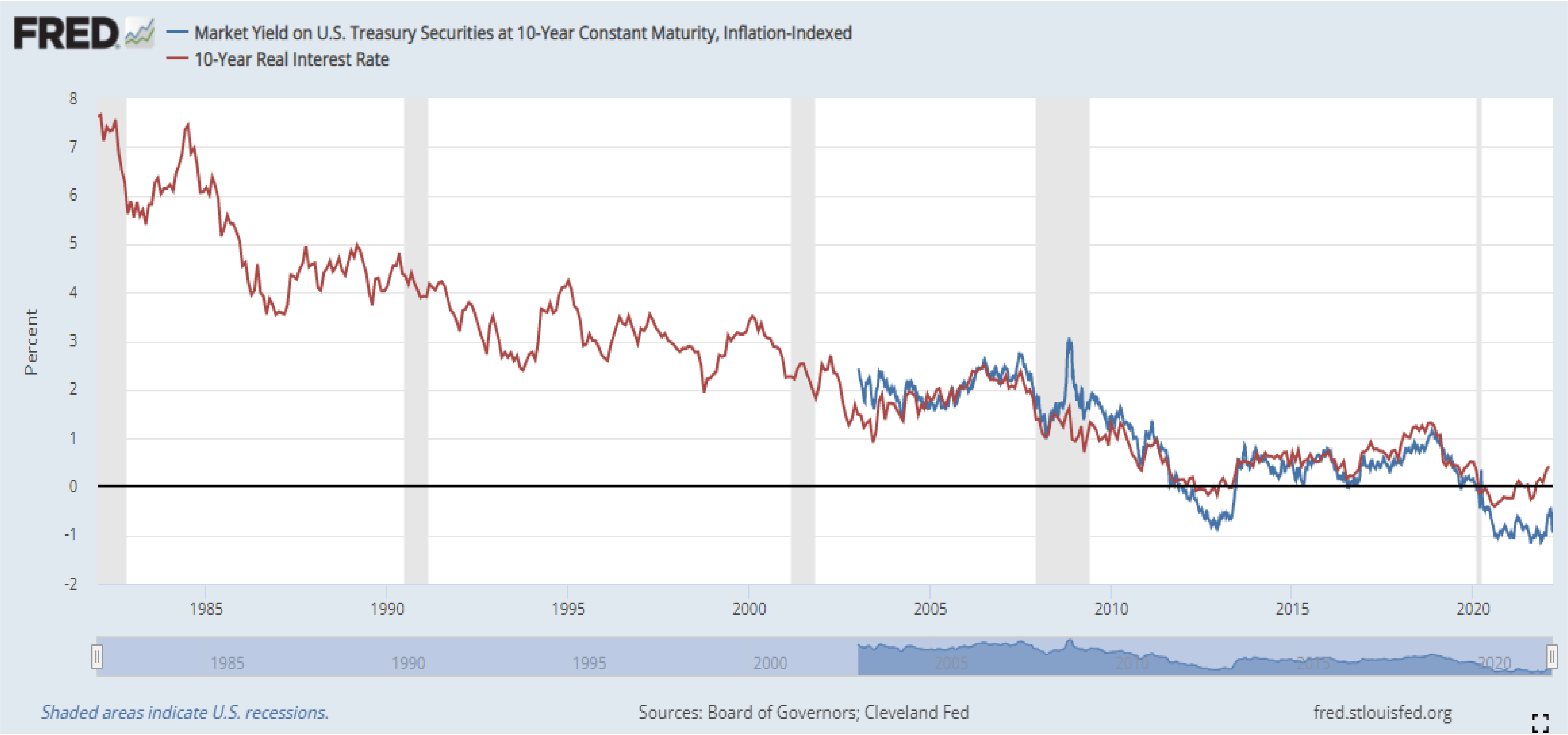
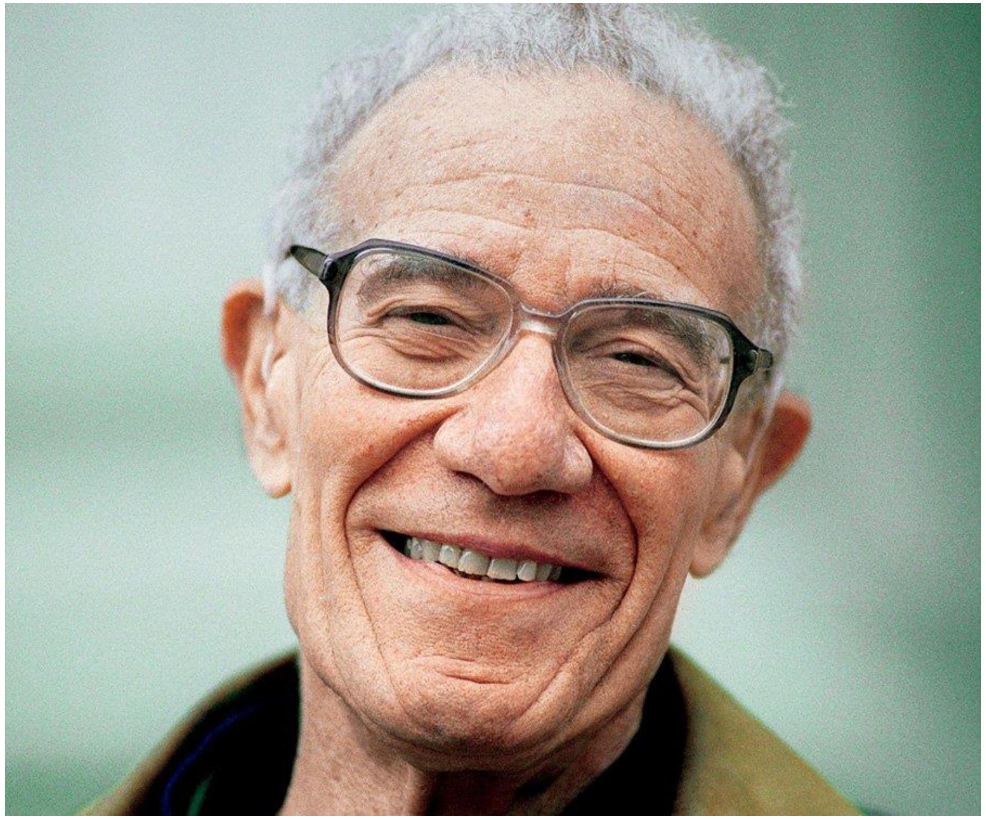
The Incredible Shrinking Interest Rate





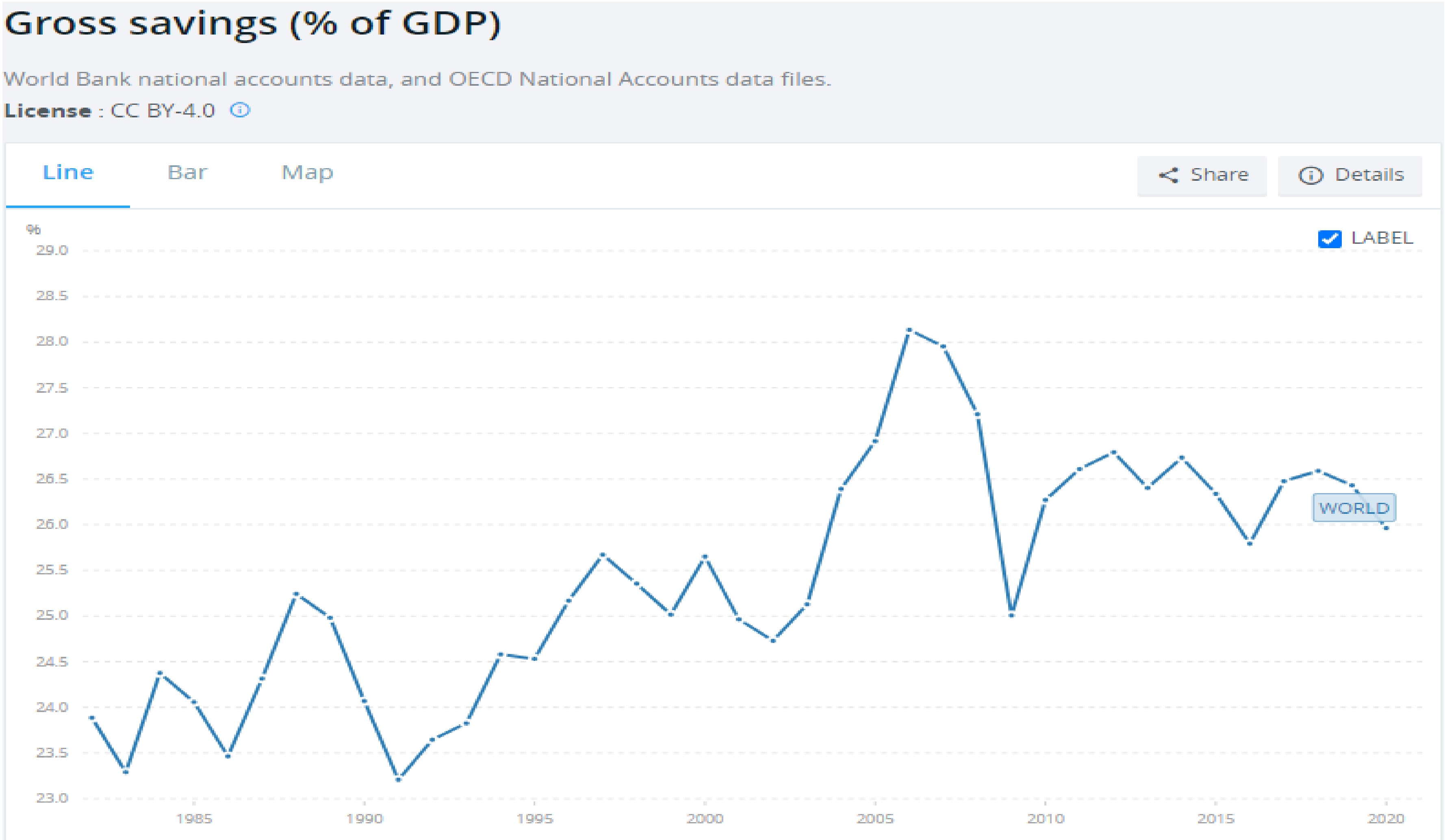
Steady-state interest rate in the Solow Model

$$r = \alpha\left(\frac{n+g+\delta}{s}\right) - \delta$$

Higher saving reduces the interest rate

$$\frac{\partial r}{\partial s} = -\,\alpha\left(\frac{n + g + \delta}{s^2}\right) \approx \ -(1/3)\left(\frac{.01 + .02 + .05}{.24^2}\right) \ = \ 0.46$$

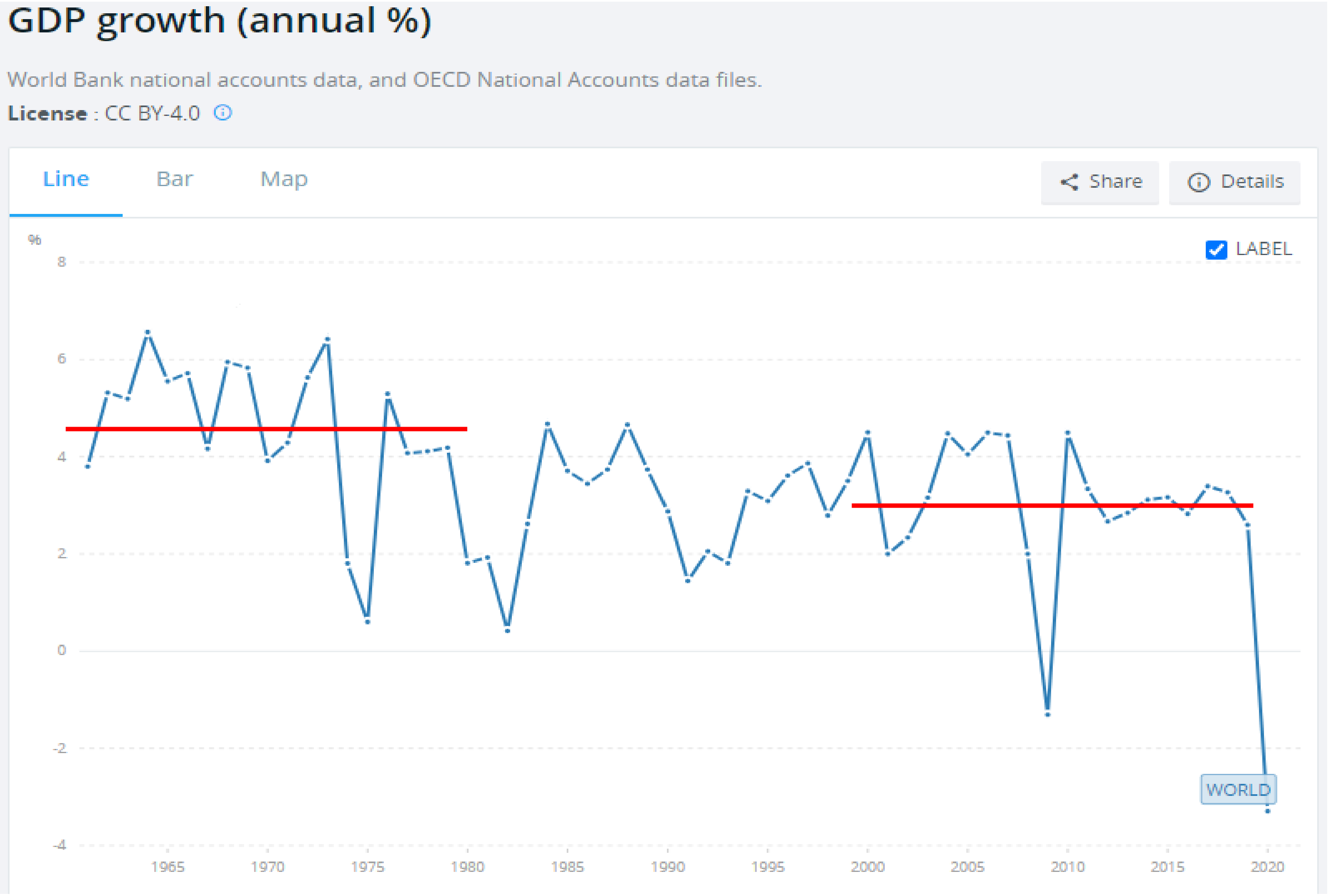
The Rising World Saving Rate



Lower growth reduces the interest rate

$$\frac{\partial r}{\partial(n+g)} = \frac{\alpha}{s} \approx \frac{1/3}{0.24} = 1.39$$

The Declining World Growth Rate



The Diamond Model

- $r < n+g$ is possible.
- It implies that we have too much capital.
- Government debt can solve the problem.

Back to the Interest Rate

$$r = \alpha\left(\frac{n+g+\delta}{s}\right) - \delta \approx \left(\frac{1}{3}\right)\left(\frac{.01+.02+.05}{.24}\right) - .05 = .061$$

Adding risk

- Don’t compare the safe rate on bonds with the risky growth rate.
- ASMZ: We have not overaccumulated capital.
- Rolling over debt is a gamble.
- Intergenerational risk sharing.

Adding market power

$$P = \mu\, MC$$

$$MC = \frac{(r+\delta)P}{f'(k)}$$

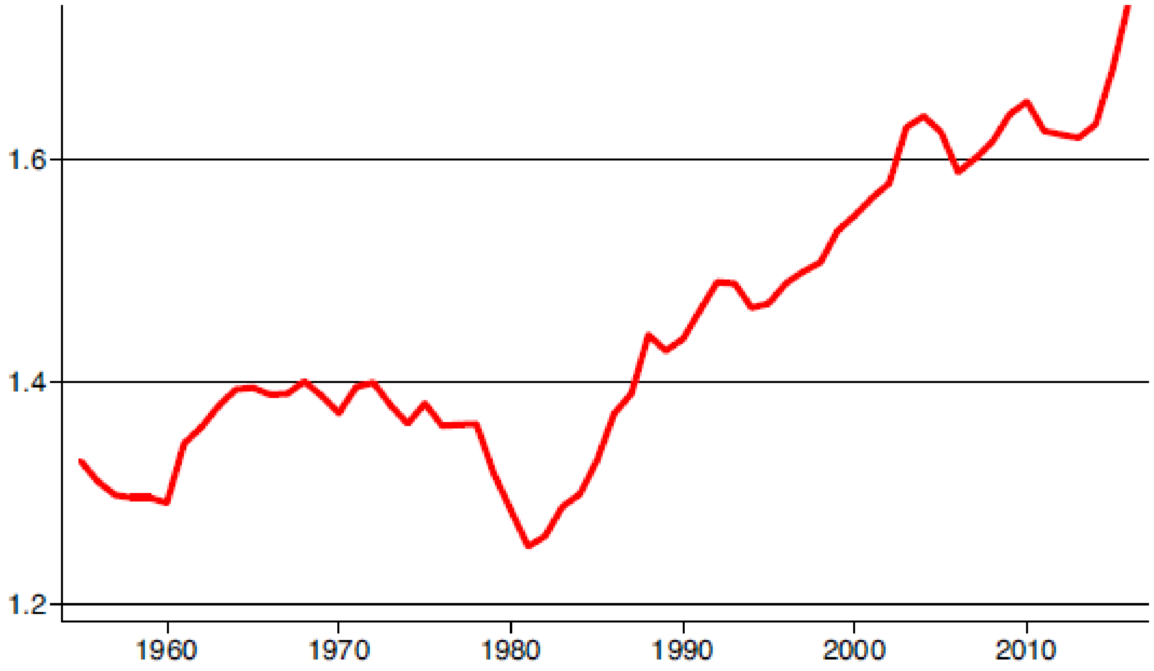
$$\Longrightarrow \quad r = \frac{f'(k)}{\mu} - \delta$$

The Solow model with market power

$$r = \alpha\left(\frac{n+g+\delta}{\mu s}\right) - \delta$$

Markups may be rising

Source: Jan De Loecker, Jan Eeckhout, and Gabriel Unger, 2020. "The Rise of Market Power and the Macroeconomic Implications," *QJE* 135 (2): 561-644.



(A) Aggregate markup (CS)

A higher markup lowers the interest rate

$$\frac{\partial r}{\partial \mu} = -\,\alpha\left(\frac{n+g+\delta}{\mu^2 s}\right) \approx\; -\left(\frac{1}{3}\right)\left(\frac{.01+.02+.05}{1.2^2(.24)}\right) =\; .08$$

Four Takeaways

- The decline in real interest rates seems explicable.
- The government can *probably* grow out of its debts.
- The possible (but unlikely) Ponzi failure is a dire outcome.
- Even when greater government debt is a budgetary free lunch, crowding out capital can still reduce welfare.