

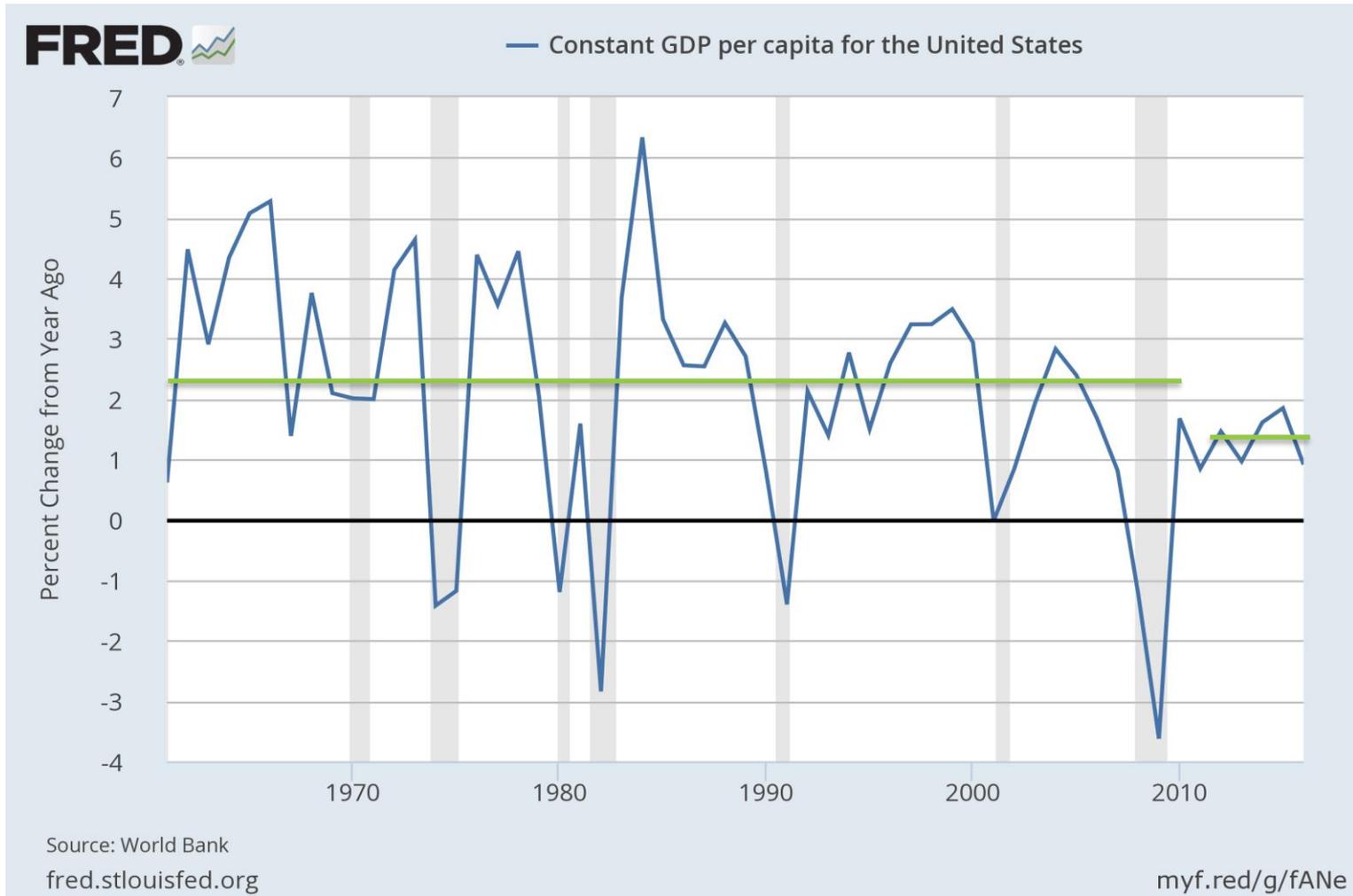


The Future of Economic Growth

Kartik Athreya
November 8, 2017

The view expressed today are mine alone. They do not necessarily reflect those of the Federal Reserve Bank of Richmond or the Federal Reserve System.

U.S. Growth Rate Has Slowed

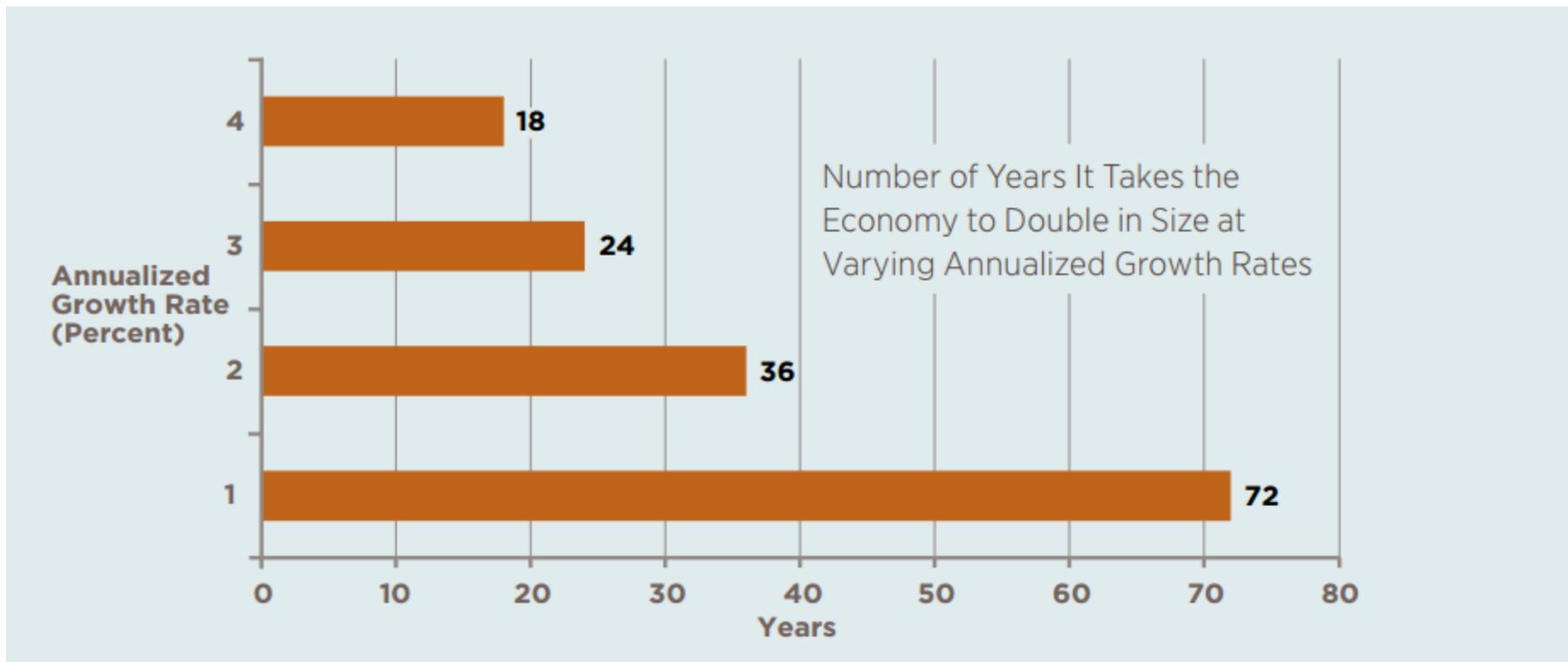


Agenda

- Why does the growth rate matter?
- What determines economic growth?
- How does long-run growth affect monetary policy?

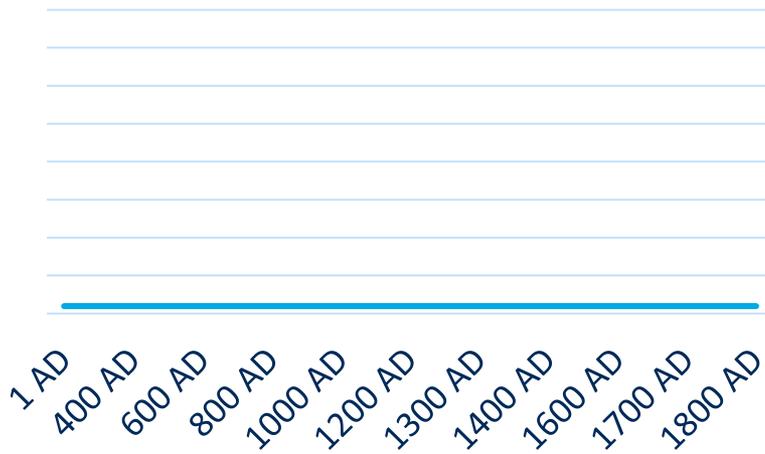
Will Someone Please Think of the Children?

- Rule of 72

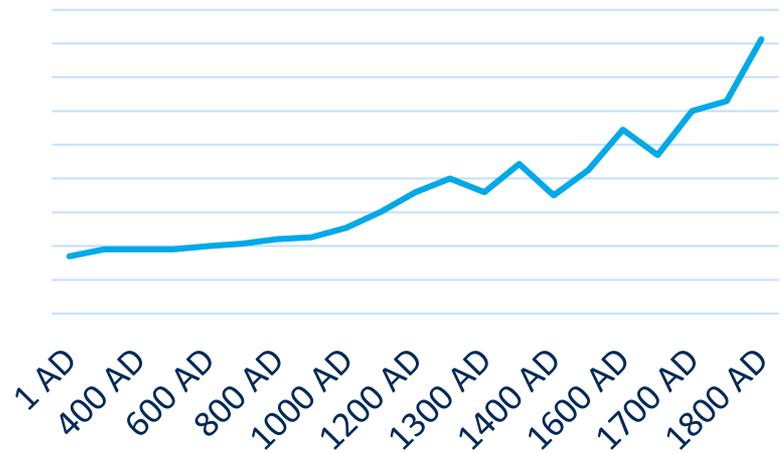


The Dismal Science: Misery Loves Company

World GDP Per Person



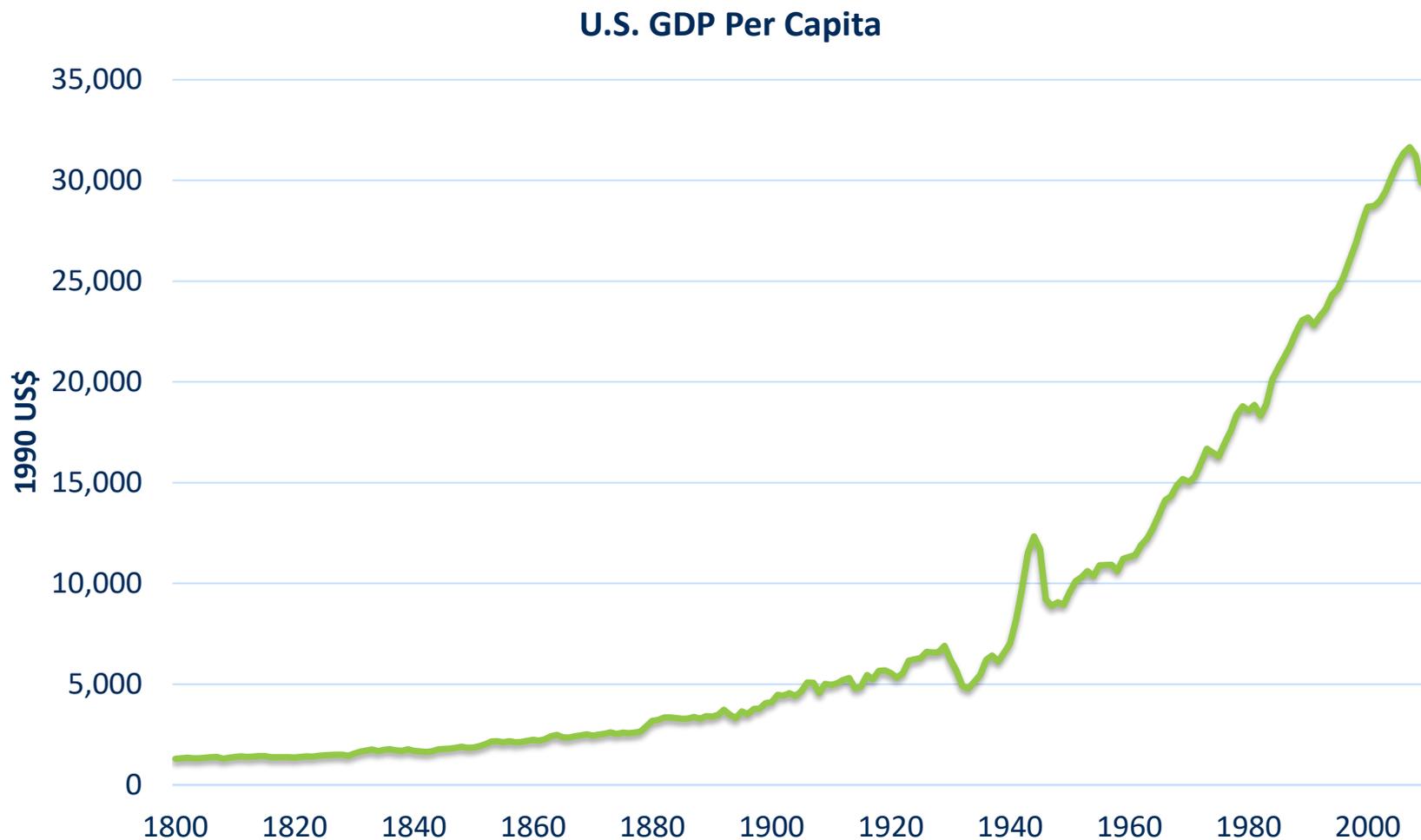
World Population



Forecasting is Tough, Especially about the Future

In 1798, my forecast for growth would have been:
“Sunny with a perfect chance of **zero** growth!”

Modern Growth

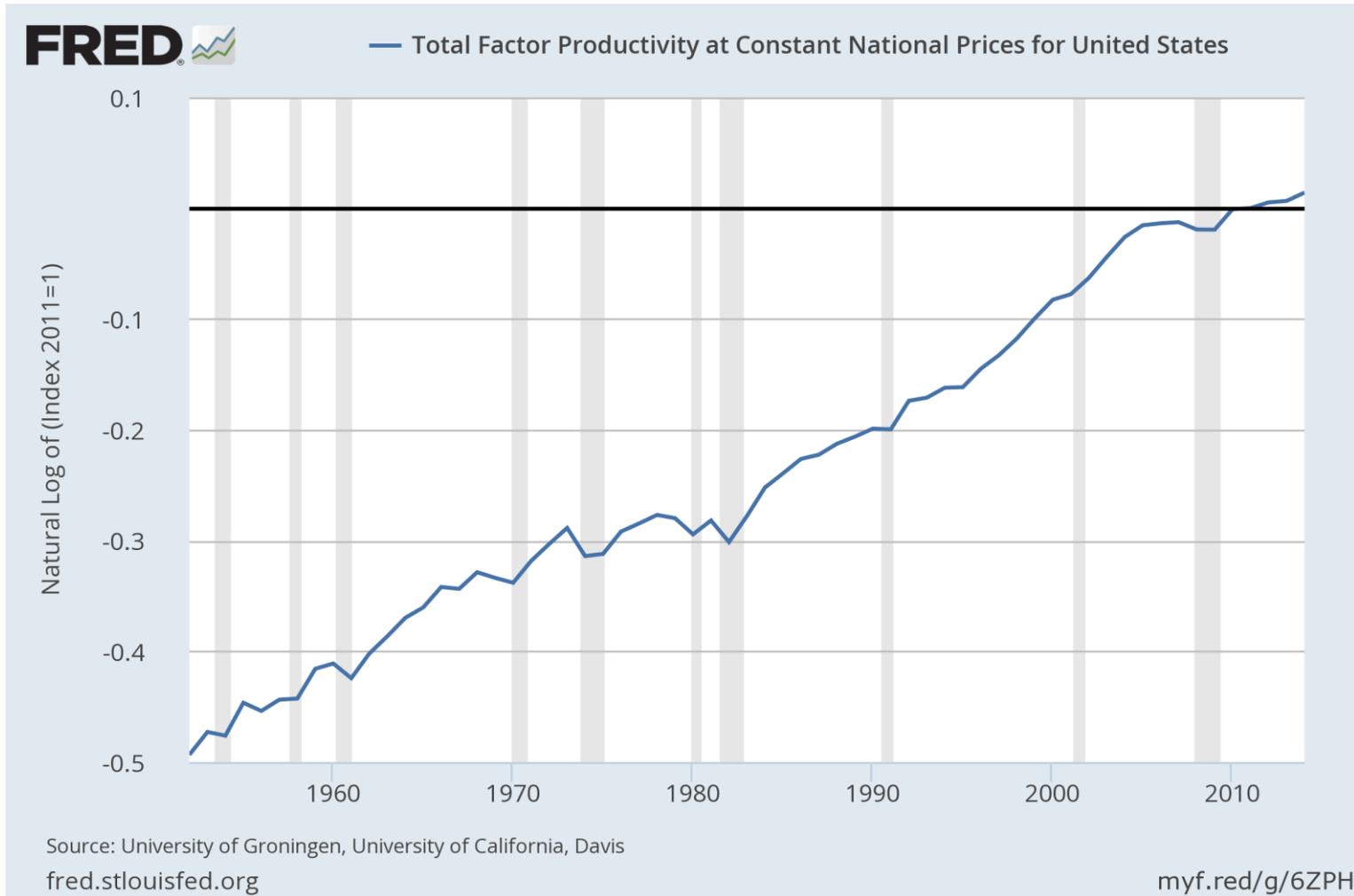


Source: The Maddison-Project, <http://www.ggdc.net/maddison/maddison-project/home.htm>, 2013 version.

How to Explain the “Escape”?! ---

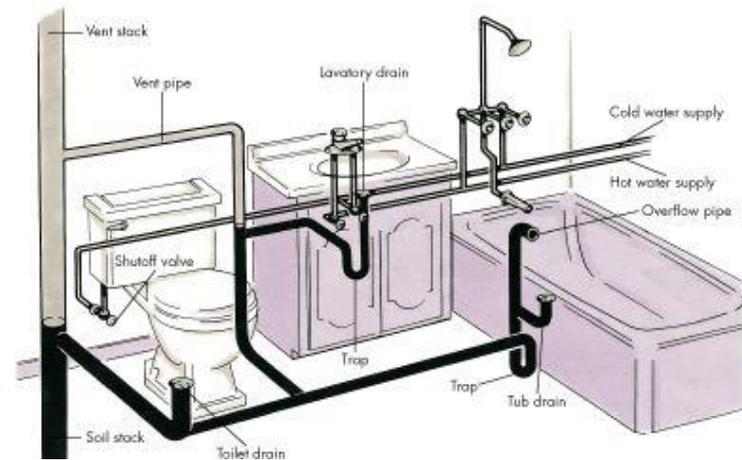
- Robert Solow, who won the Nobel Prize in Economics in 1987, proposed a new growth model in the 1950s
- Living standards determined by three things: **capital**, labor, productivity
- Both capital and labor can permanently raise living standards but **not** growth
- The **only** way to sustain long-run economic growth is through improvements to **productivity**
- Solow estimated 80% of long-term growth in first half of the 20th century was explained by productivity

So What's Productivity Been Doing Anyway?



Why is Productivity Slowing Down?

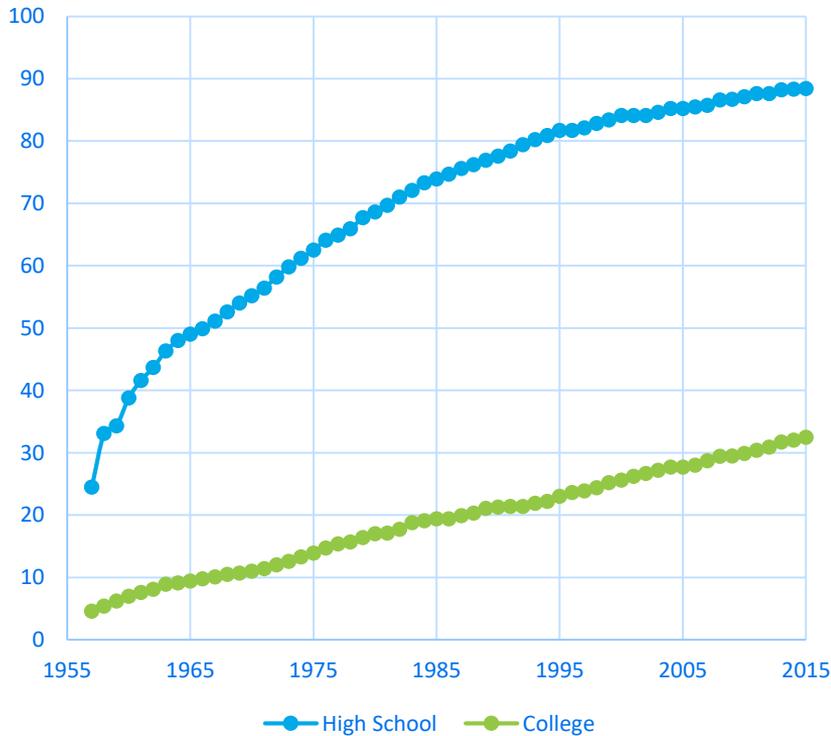
- Are today's innovations less “game changing” than in the past?
 - Robert Gordon: “What would you rather have: your iPhone or indoor plumbing?”



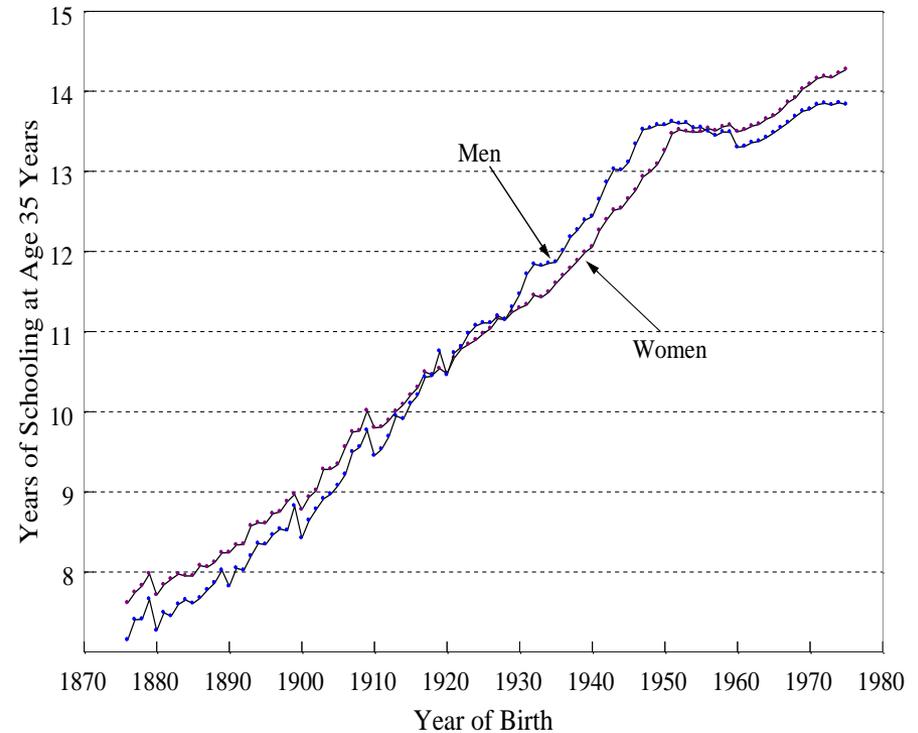
Why is Productivity Slowing Down?

- Maybe we can't absorb "skill-biased" tech change as fast?

Percent of People 25 and Older Who Have Completed High School and College



Years of Schooling at Age 35 by Year of Birth



Why is Productivity Slowing Down?

- Or could it be a measurement issue?
 - Price indexes don't do a good job of accounting for improvements in the same products
 - Ex: You could buy a much better TV in 2015 than you could in 1975 for the same nominal price



Samsung 50" Class 4K Smart UHD TV - UN50KU6300

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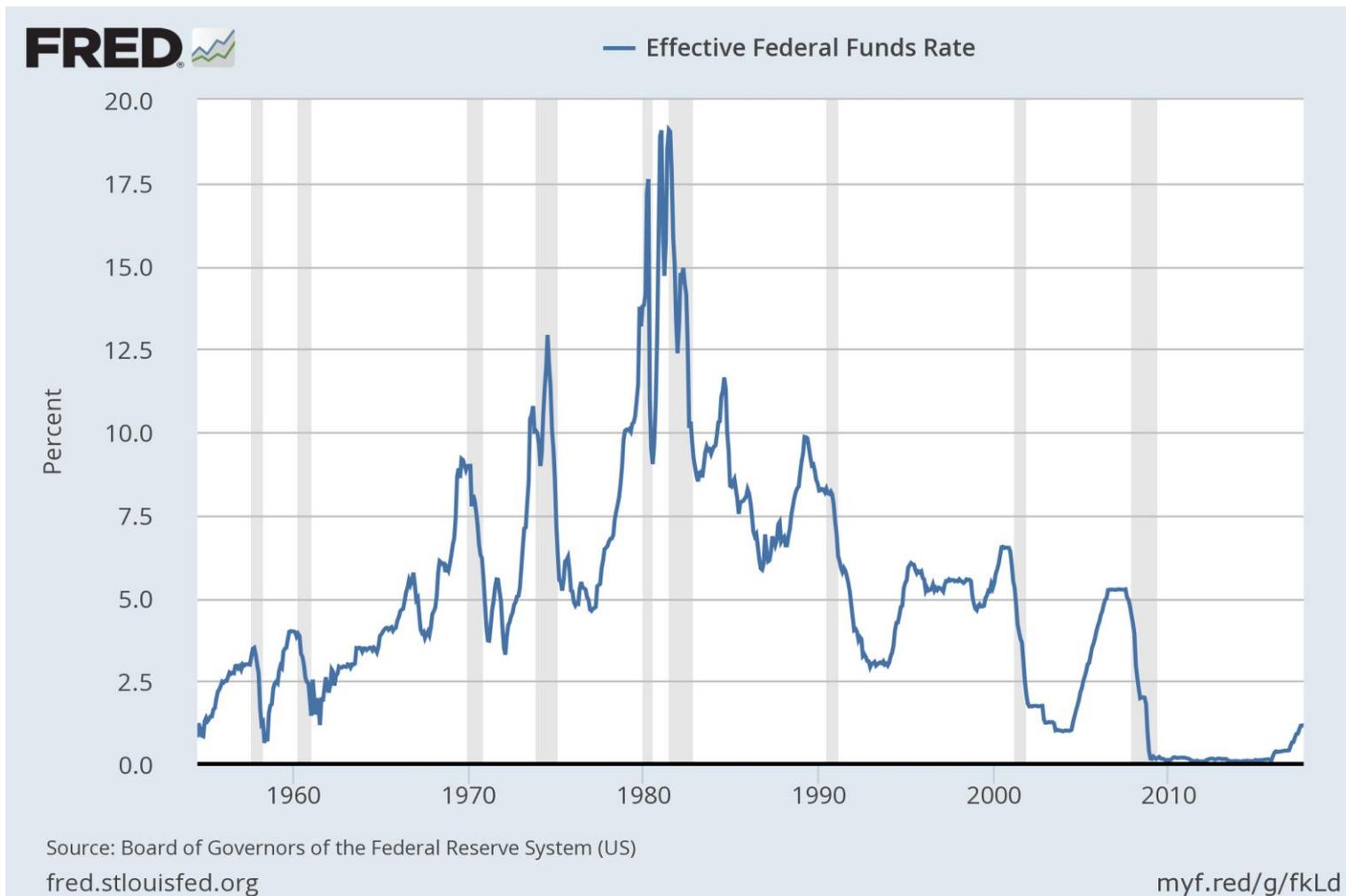
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Everything is Amazing



Why Does the Fed Care? Because Low Growth Means We Need to Set Rates Low...



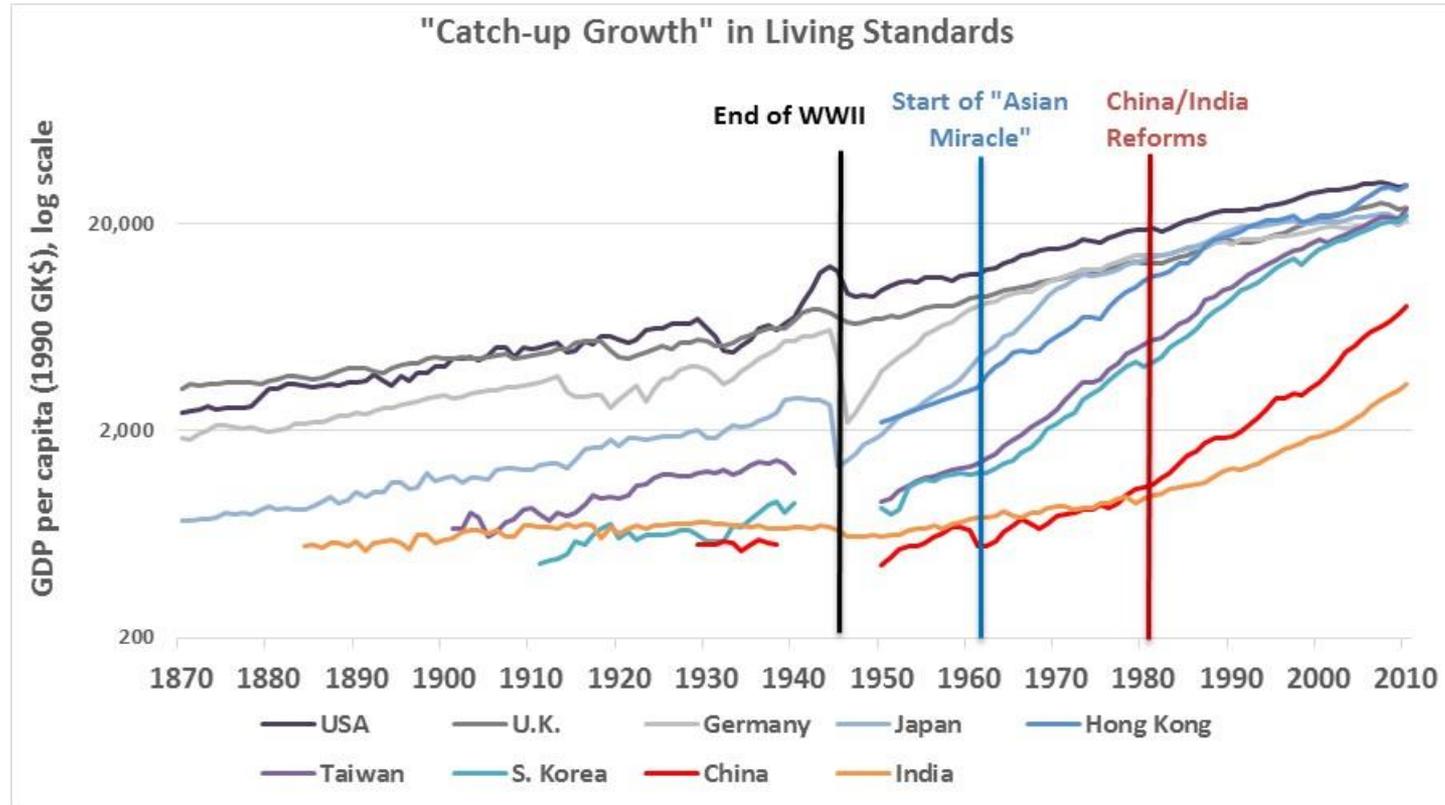
...And Low Policy Rates Create Risks

- Lower long-run interest rates push the Fed toward the zero lower bound (ZLB)
- Nominal interest rates can't go below zero because of cash (though recent experiments in Europe and Japan show there is some wiggle room with moderately negative rates)
- What are the dangers of the ZLB?
 - Less room to respond to a crisis
 - Risk of deflation
- Are we stuck?

How Can We Get More Productivity Growth?

- Cultivate institutions that promote innovation
- Improve human capital with a focus on early childhood education so we can drive and absorb innovation
- Globally, more people = more ideas = more growth
 - But U.S. and world population growth rates are slowing

Managing Expectations: Really Rapid Growth Only Transitional



Additional Resources

From Our Research Team

- Aaron Steelman and John Weinberg, “[A ‘New Normal’? The Prospects for Long-Term Growth in the United States](#),” 2015 Annual Report. For a condensed version, see [Economic Brief](#), July 2016.
- Tim Sablik, “[Crowded: The Economic Effects of Population Growth](#),” Econ Focus, Second Quarter 2014.
- Jessie Romero, “[What We Don’t Know About Innovation](#),” Region Focus, First Quarter 2012.

Books

- Angus Deaton. *The Great Escape: Health, Wealth, and the Origins of Inequality*. Princeton University Press, 2013.
- Robert J. Gordon. *The Rise and Fall of American Growth: The US Standard of Living Since The Civil War*. Princeton University Press, 2017.
- Claudia Dale Goldin and Lawrence F. Katz, *The Race Between Education and Technology*. Harvard University Press, 2009.