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Dimensions of the Economic Outlook, 2011-15

American Economic
Association Meetings
Denver, Colorado

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Federal Reserve Bank of St. Louis
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Not an official document

Disclaimer

The views I will express are my own and do not necessarily reflect the positions of the Federal Reserve Bank of St. Louis or the Federal Reserve System.

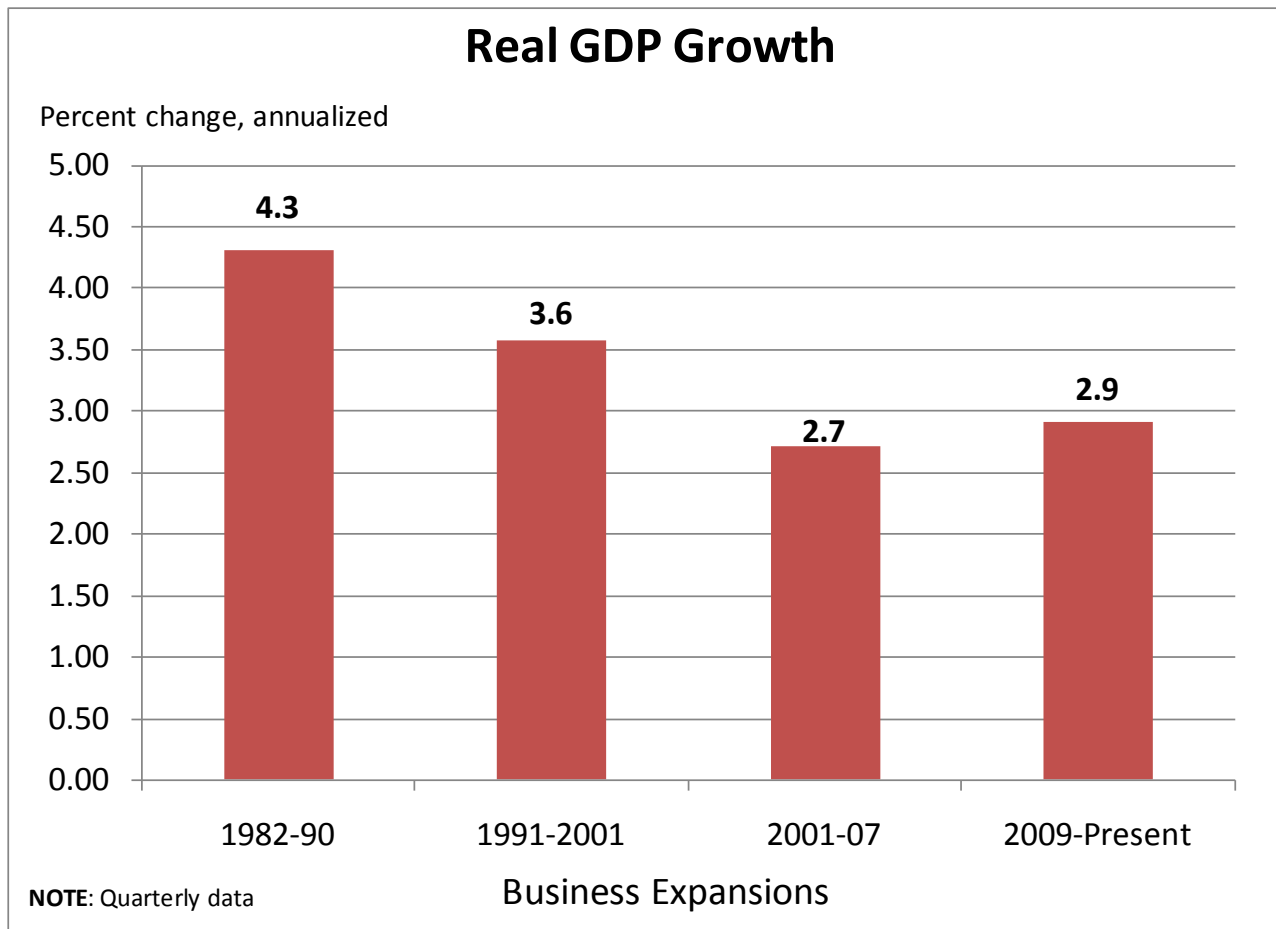
Growth Accounting Framework

- Start with a simplified version of a standard growth accounting framework that links labor inputs with productivity to produce output (real GDP):

$$\begin{aligned} \text{GDP} &= (\text{GDP/Worker}) \\ &+ (\text{Workers/Population}) \\ &+ \text{Population} \end{aligned}$$

NOTE: The above series are expressed in terms of annualized growth rates.

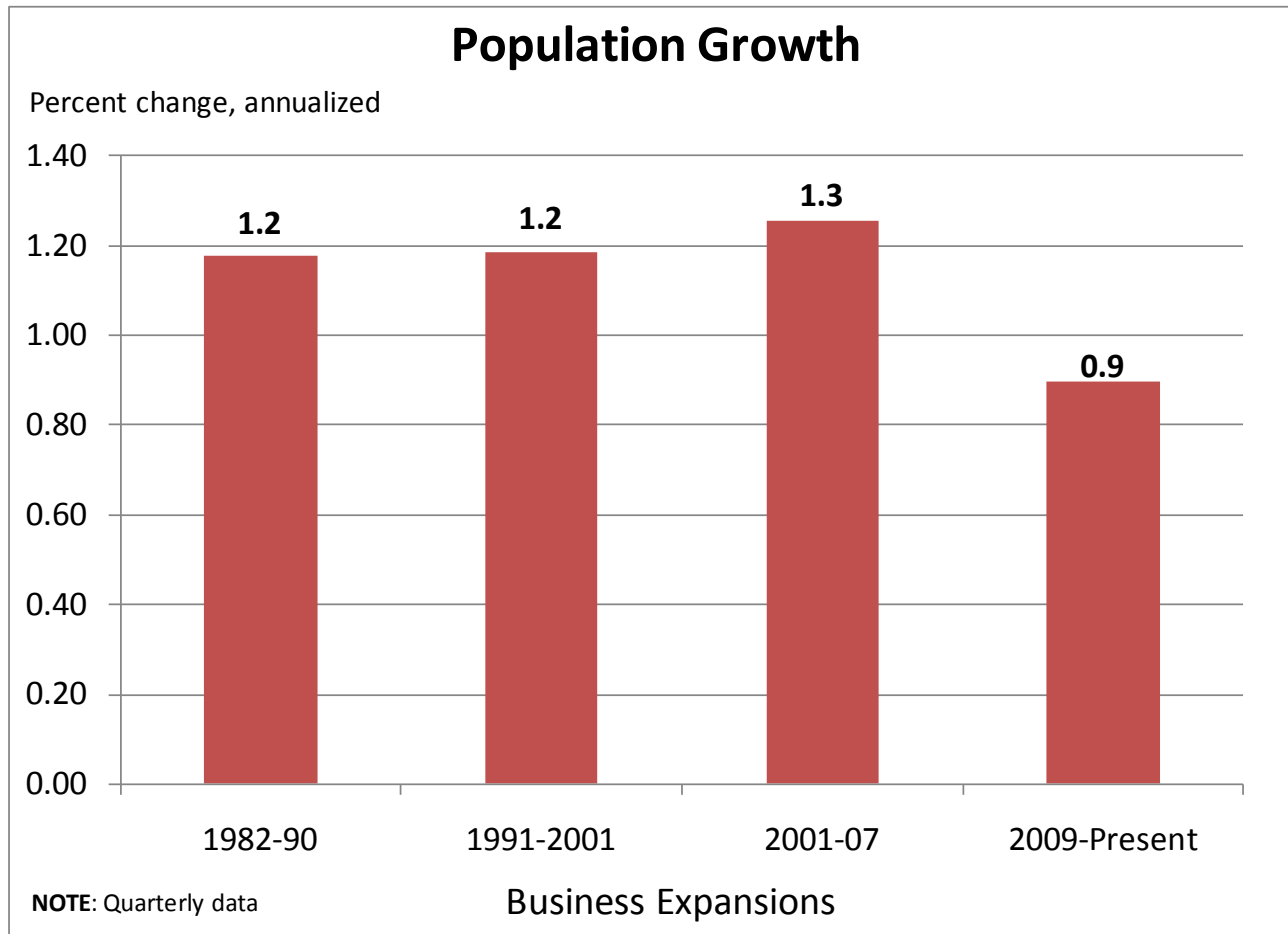
Growth Accounting Framework



Relatively weak growth of real GDP during the 2001-07 expansion.

Growth of real GDP in the current expansion has picked up modestly but it is comparatively weak.

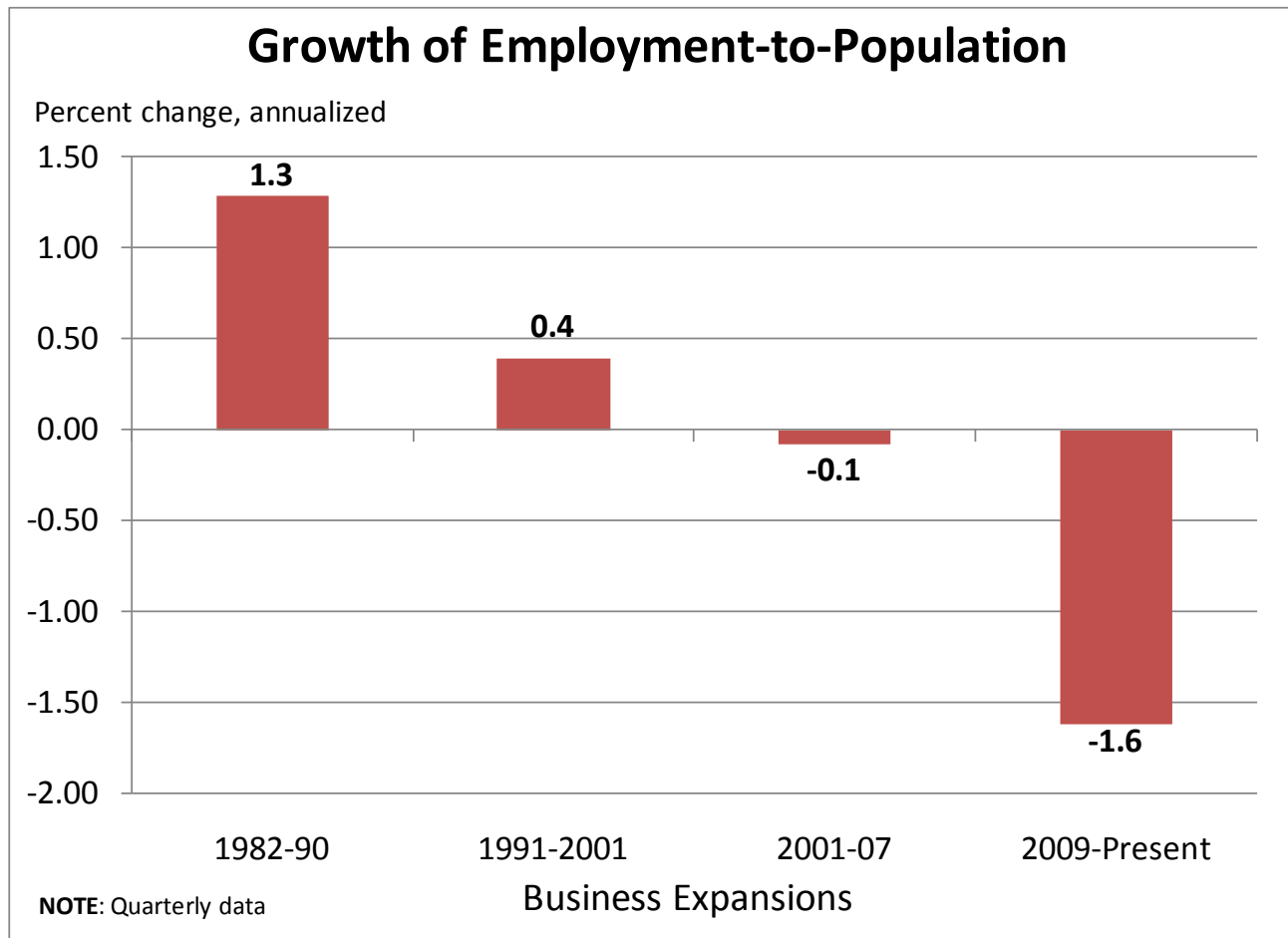
Growth Accounting Framework



Population growth in the current expansion has slowed significantly compared with the previous three expansions.

Growth of working-age population is projected to begin slowing sharply this year.

Growth Accounting Framework



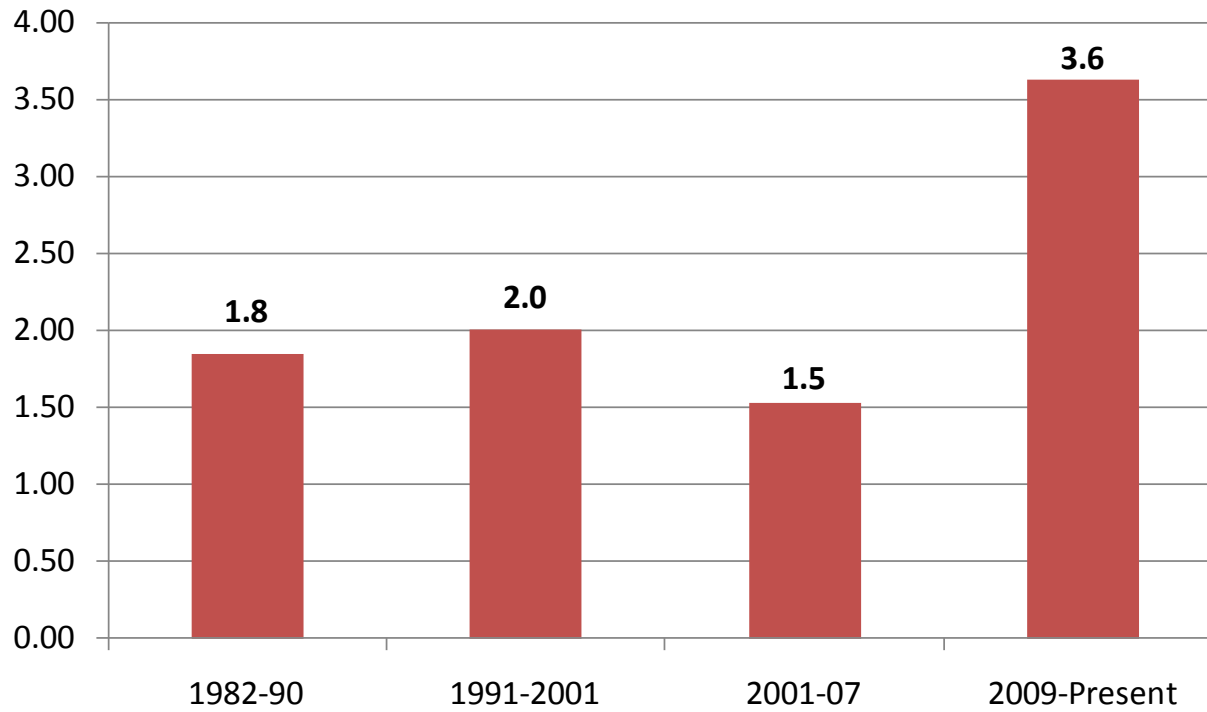
Growth of the employment-to-population ratio has declined sharply since the 1980s expansion.

In the current expansion its growth has turned significantly negative.

Growth Accounting Framework

Labor Productivity Growth

Percent change, annualized



NOTE: Quarterly data

However, productivity growth in the current expansion has accelerated sharply compared with the previous three expansions.

December employment report consistent with this development.

Initial Impressions

- The deceleration in real GDP growth largely reflects slower growth of labor input.
- Labor market dynamics may be changing in ways not yet clearly understood.
- Current growth rates of labor productivity seem unsustainably high.
- Productivity growth going forward is key—but measurement issues/revisions are huge.

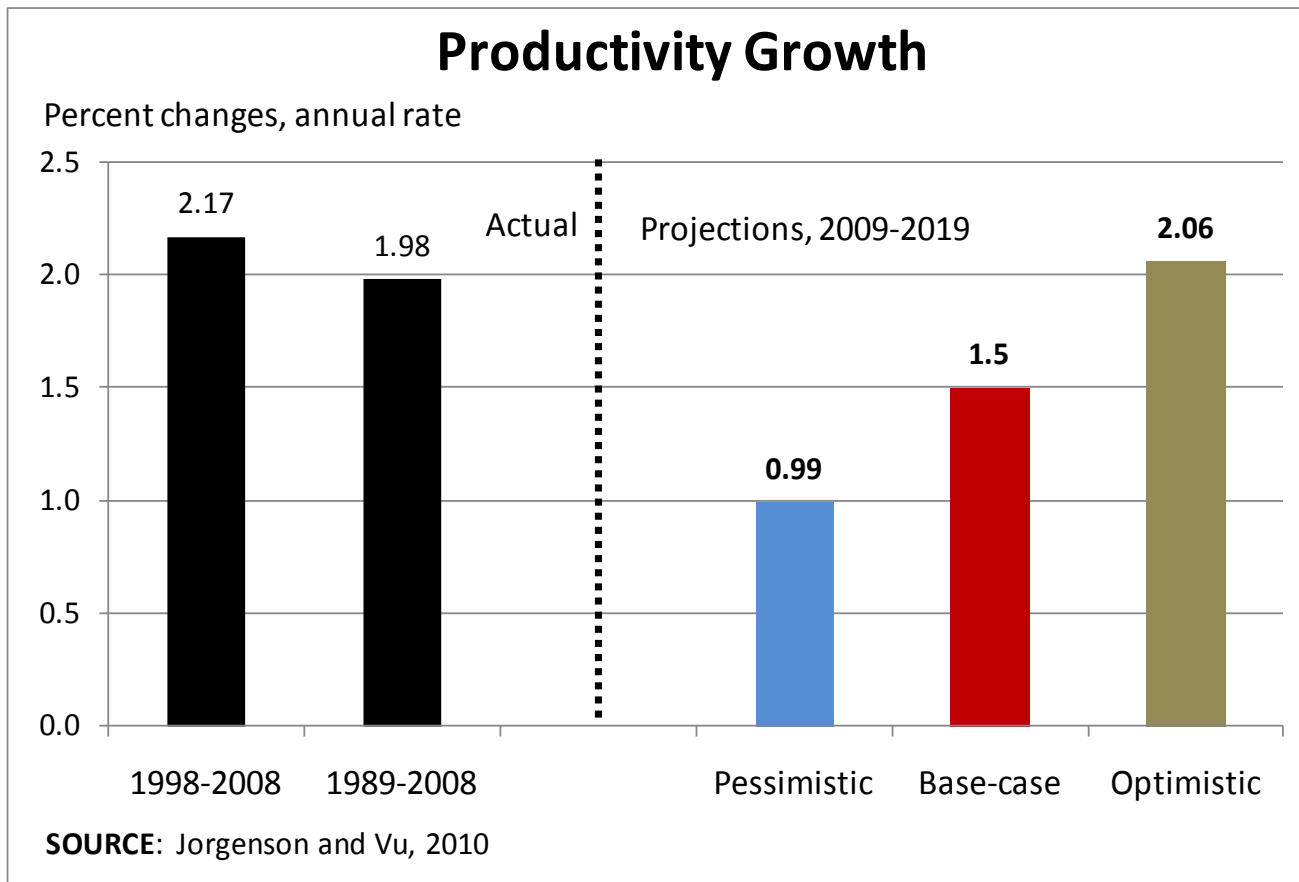
The Productivity Outlook: Three Scenarios

- Projections from Jorgenson and Vu (2010).
 - Use a neoclassical production function model, but model the IT and non-IT sectors separately:
 - $Y (Y_n, I_{IT}) = AX(K_n, K_{IT}, L)$

The Productivity Outlook: Three Scenarios

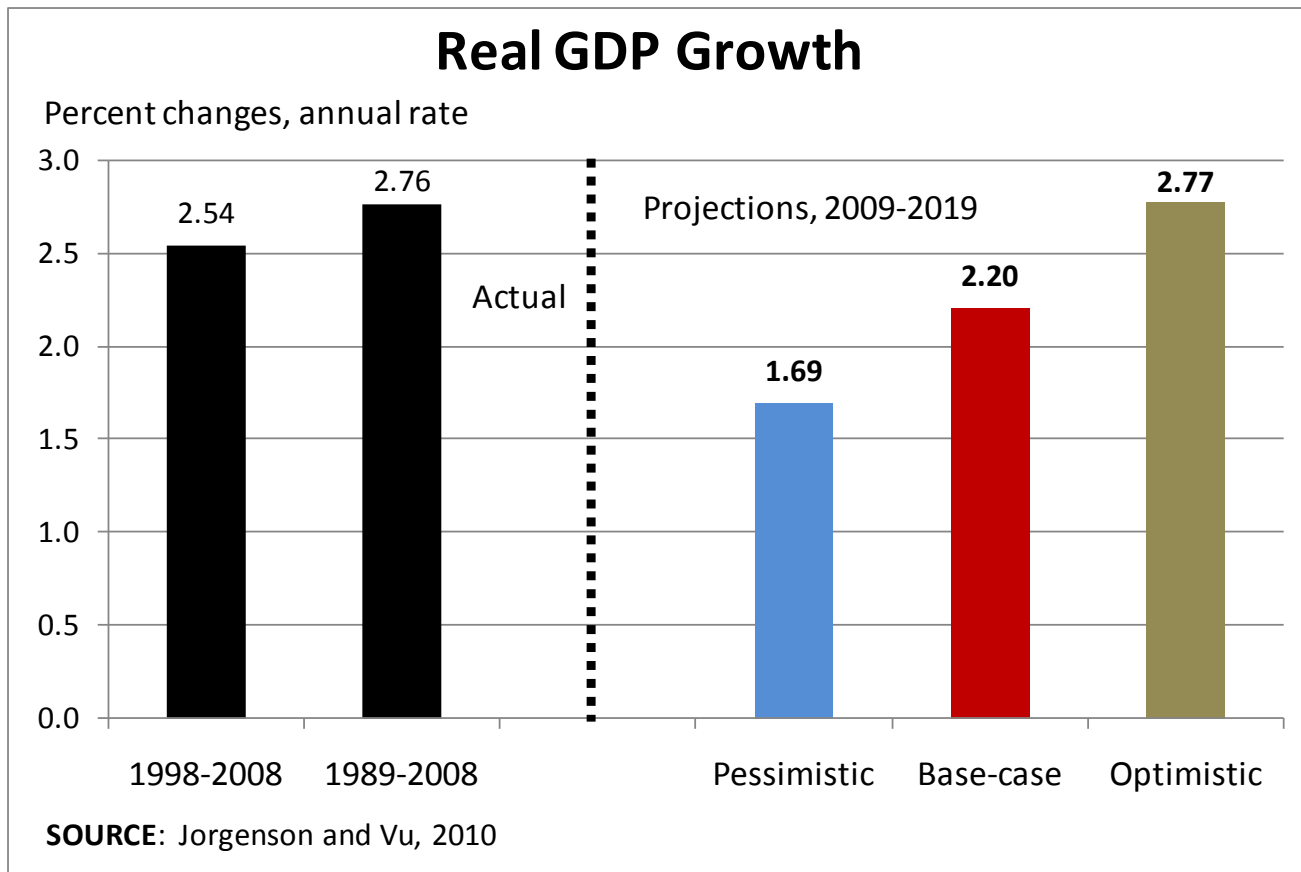
- Projections from Jorgenson and Vu (2010).
 - Use a neoclassical production function model, but model the IT and non-IT sectors separately:
 - $Y(Y_n, I_{IT}) = AX(K_n, K_{IT}, L)$
- Key uncertainties are growth of capital quality, capital-output ratio, and growth of TFP (A).
 - Base case: 1989-2008 trend holds for key variables.
 - Optimistic: 1995-2004 trend holds.
 - Pessimistic: 1989-95 and 2004-2008 trend holds.

The Productivity Outlook: Three Scenarios



A significant deceleration in productivity growth is projected under the base-case scenario.

The Outlook for Real GDP: Three Scenarios



With growth of labor inputs slowing (aging population) . . .

This results in a pronounced slowing in real GDP growth under the base-case scenario.

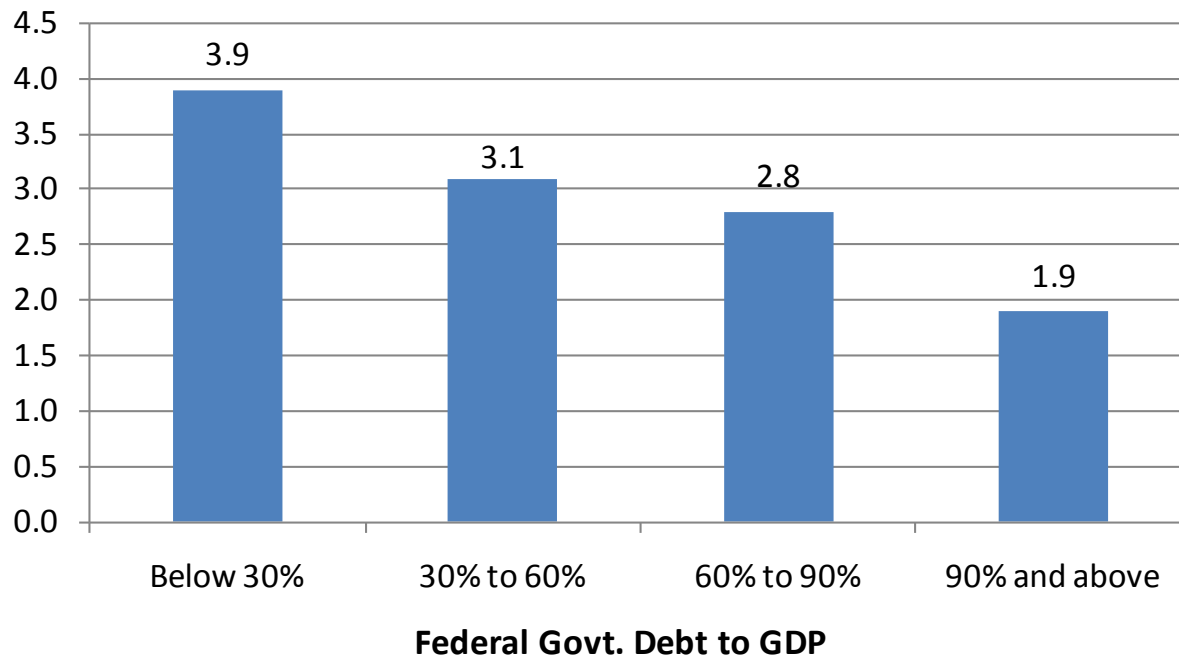
Key Risks

- Lengthy adjustment in U.S. labor markets.
 - Marginal tax rates and labor laws adjust to enhance social safety net.
 - Erosion of job skills.
 - Suggests upside risks to productivity growth projections.
- Policymakers fail to adequately address outsized federal budget deficit.
 - Key finding from Rogoff and Reinhart.

Key Risks

**Real GDP Growth (Median) at Various Levels of Govt. Debt:
20 Advanced Economies, 1790 to 2009**

Percent



Higher debt/GDP is consistent with weaker real GDP growth and thus living standards over time.

Suggests downside risks to productivity projections.

End