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Recently Asked Questions

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Capital Deepening and Productivity Growth

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Do you have any insight into the recent slow-down in the contribution of capital deepening to growth of labor productivity?

Based on data from the Bureau of Labor Statistics on multi-factor productivity, the contribution of capital deepening to growth of labor productivity has indeed faltered of late. It averaged less than 0% the last five years, the worst such performance recorded in this dataset (see Chart 1).

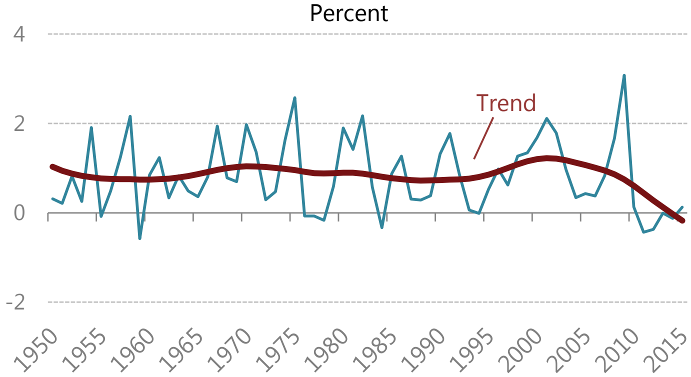
The mathematical accounting of recent productivity growth is presented in more detail in our accompanying *Macro Focus* "Accounting for Productivity Growth" (July 19, 2016). Here we summarize two main arguments pertaining to capital deepening.

First, an often unappreciated implication of growth accounting is that, indirectly through investment demand, the contribution of capital deepening to productivity growth depends on the growth of total factor productivity (TFP). Indeed, all else equal, with no TFP growth *there is no capital deepening*.

TFP growth itself has slowed dramatically of late. The BLS measure averaged just 0.3% growth annually over the past 5 years, well below the historical average of 1.2% (see Chart 2). TFP growth as measured in our macro model is currently zero. So, one reason for the slowdown in capital deepening has been the sharp deceleration of total factor productivity.

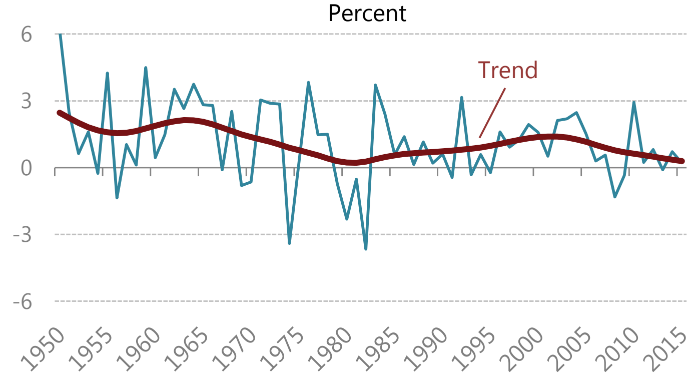
Second, investment demand, and hence capital deepening, also depends inversely on the user cost of capital. Chart 3 plots the history since 1967 of the composite cost of capital across the four types of business fixed investment tracked in our macro model. It declined unevenly but steadily from 17% in the mid-1980s to 12% through the early stages of the current recovery, tending to boost investment and hence supporting capital deepening. Since then, however, the secular decline has been arrested. The main reason is that a long decline in the relative price of investment goods that began in the early 1980s tapered off before the Great Recession. Another factor is that the gradual decline

Chart 1: Sources of Productivity Growth: Capital Deepening



Sources: Bureau of Labor Statistics, Macroeconomic Advisers, LLC.

Chart 2: Sources of Productivity Growth: TFP



Sources: Bureau of Labor Statistics, Macroeconomic Advisers, LLC.

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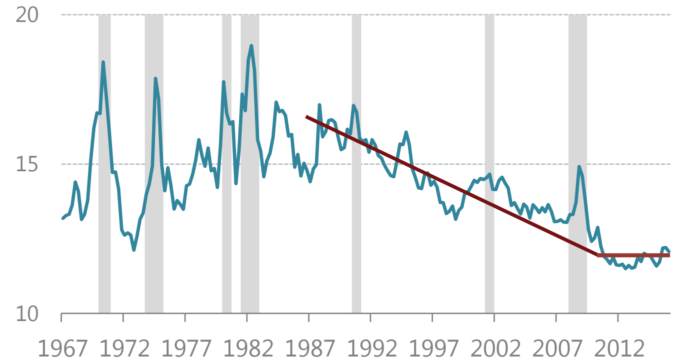
in nominal interest rates, combined with a series of changes (and extensions) to write-off schedules, have left little room for further increases in the present value of tax depreciation allowed on tangible investments.

Going forward, in our near-term forecast we show continued slow TFP growth, rising real interest rates, and the phase out of "bonus expensing" provisions. These will combine to limit the rebound in capital deepening, an important reason we project productivity growth of less than 1% annually over 2016-18.

Chart 3. User Cost of Capital

Percent



Sources: Macroeconomic Advisers, LLC.

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