

# TFP, Prosperity, and the FOMC

BY KARTIK ATHREYA

We have seen positive news over the past year or so for a variety of economic variables, including employment, consumption, investment, and overall GDP growth. But one lesser-known economic number of great significance has remained stubbornly weak: namely, total factor productivity, or TFP. It represents, in effect, the efficiency with which we're able to convert inputs — capital, labor — into outputs. Thus, it reflects the state of the art of our technology and the capabilities of our labor force at a given moment in time. TFP growth rarely makes headlines, but its slowdown since before the Great Recession is worthy of attention — both for what it means for our future standard of living and what it may mean for monetary policy.

Productivity growth in this country has gone through distinct high and low periods during the post-World War II era. According to research from the San Francisco Fed, TFP grew an average of 2.0 percent annually from 1960 to 1973. Then its growth declined on average to a quarter of that, 0.5 percent, from 1974 to 1994. A partial rebound in productivity growth to 1.6 percent followed from 1995 to 2004, probably driven by information technology (including the Web) and the movement of factory work overseas. But since then, productivity growth has been back in the doldrums, again averaging just 0.5 percent through 2017.

One reason why this trend is troubling is that economists very broadly agree that improvements in TFP are the only boosters of long-run economic growth. To put it differently, sustained (or long-run) growth in per capita economic output, the usual measure of our material well-being, is exclusively determined by TFP growth. These improvements may come, of course, from advances in technology, ranging from the steam engine to the moving assembly line to semiconductors.

It's important to distinguish TFP from its similar-sounding relative, labor productivity. Labor productivity is defined as the value of output produced per hour of work. It depends on all the forces that affect a worker's ability to produce output. Thus, growth in labor productivity can come from increases in the equipment that workers have or from TFP growth. In contrast, TFP growth means a worker with the same level of equipment as before can produce more than before. Thus, while individual firms have relatively straightforward ways to influence labor productivity by changing their use of inputs, increases in TFP reflect more fundamental changes in the economy's ability to turn inputs into output.

Whatever its underlying origins, the new normal of lowered TFP growth has implications for monetary policy that are less than obvious. It turns out that in the long run,

“real” interest rates — that is, inflation-adjusted interest rates — are greatly influenced by TFP growth. To understand why, remember what real interest rates represent: the extent of our preference for spending today versus spending later. The more we prefer spending today, the more we're willing to pay (through a higher interest rate) to borrow for today, and conversely, the more we need to be rewarded for postponing spending until a year from now, or whatever the term of the bond or savings account that we're thinking of buying or using.

Here's where TFP comes into the picture: One influence on our desire for present spending is our belief about our future standard of living. We tend to want to maintain a stable lifestyle over time. So if we believe we're going to be richer in the future, we'll commonly opt for a little more spending today (via borrowing) and leave it to our well-to-do future selves to pay it back. When TFP growth is high, we are indeed going to be richer in the future — on average, of course. But if we all try to spend more now in anticipation of this rosy future, the price of current spending — the interest rate — will rise.

Today, we're in the opposite situation: Low TFP growth implies low real interest rates, all other things equal. TFP growth matters directly for monetary policy because the Fed aims to track the underlying real interest rate in the economy. Given a determination on the part of the Fed to target inflation at a long-term average of 2 percent — the target that the Federal Open Market Committee announced in January 2012 — low real rates in turn imply low policy rates, such as those we've seen for some years. (Keep in mind that the policy rate is a nominal rate and is set to track the underlying real rate plus the targeted rate of inflation.)

The possibility that real rates will remain low in the future by virtue of low TFP growth increases the chance that the short-term nominal interest rates we set will hover near the “zero lower bound” on interest-rate policy — and hence that the Fed will once again need to rely on unconventional monetary policy, such as quantitative easing, to respond to a future downturn in the economy. Additionally, prolonged periods of low interest rates are a potential cause for concern given their elevation of asset prices and incentives for risk-taking by financial institutions seeking to reach for returns for their owners and clients. These risks are another example of how developments in the real economy shape the policy choices available to central bankers. **EF**

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