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Remarks on the U.S. Economy

by

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The Fed's dual mandate aims for maximum sustainable employment and an inflation rate of 2 percent, as measured by the price index for personal consumption expenditures (PCE). Employment has increased impressively over the past six years since its low point in early 2010, and the unemployment rate has hovered near 5 percent since August of last year, close to most estimates of the full-employment rate of unemployment. The economy has done less well in reaching the 2 percent inflation rate. Although total PCE inflation was less than 1 percent over the 12 months ending in June, core PCE inflation, at 1.6 percent, is within hailing distance of 2 percent--and the core consumer price index inflation rate is currently above 2 percent.¹

So we are close to our targets. Not only that, the behavior of employment has been remarkably resilient. During the past two years we have been concerned at various stages by the possible negative effects on the U.S. economy of the Greek debt crisis, by the 20 percent appreciation of the trade-weighted dollar, by the Chinese growth slowdown and accompanying exchange rate uncertainties, by the financial market turbulence during the first six weeks of this year, by the dismaying pothole in job growth this May, and by Brexit--among other shocks. Yet, even amid these shocks, the labor market continued to improve: Employment has continued to increase, and the unemployment rate is currently close to most estimates of the natural rate.

During that period, the decline in the price of oil changed from being regarded as a simple reduction in the cost of living of almost all households--and thus an unmitigated blessing--to also being a source of concern, as it was understood that the decline in

¹ I am grateful to Christopher Nekarda, Joseph Gruber, David Lebow, and Stacey Tevlin of the Federal Reserve Board staff for their assistance. Views expressed are mine and are not necessarily those of the Federal Reserve Board or the Federal Open Market Committee.

investment in the production and installation of drilling equipment mitigated the blessing, as did the decline in U.S. oil production.

And there have been other issues of concern to those particularly interested in monetary and macroeconomic policy, though probably of less explicit concern to the public: The decline in estimates of r^* --the neutral interest rate that neither boosts nor slows the economy--which is related to the fear that we are facing a prolonged period of secular stagnation; the associated concerns that (a) the short-term interest rate will be constrained by its effective lower bound a greater percentage of time in the future than in the past, and (b) that the U.S. economy could find itself having to contend at some point with negative interest rates--something that the Fed has no plans to introduce; the fear that very low interest rates present a threat to financial stability; and concerns that low rates of real wage growth are increasing inequality in the distribution of income.

Primarily, I believe it is a remarkable, and perhaps underappreciated, achievement that the economy has returned to near-full employment in a relatively short time after the Great Recession, given the historical experience following a financial crisis.² To be sure, it was a slow and difficult time for many, in part because growth in real gross domestic product (GDP) has been slow by historical standards. As can be seen in table 1, part of the slower output growth was due to smaller increases in aggregate hours worked, primarily reflecting demographic factors such as the aging of the baby-boom generation. But, as shown in table 2, there was also a major decline in the rate of productivity growth--to which I will return shortly.

² See Carmen M. Reinhart and Kenneth S. Rogoff (2009), *This Time Is Different: Eight Centuries of Financial Folly* (Princeton, N.J.: Princeton University Press).

Turning briefly to recent developments, the pattern of high employment growth and low productivity growth that we have seen in recent years has continued this year. So far in 2016, nonfarm payroll gains have averaged about 185,000 per month--down from last year's pace of 230,000, but still more than enough to represent a continued improvement in labor market conditions. Estimates of monthly job gains needed to keep the unemployment rate steady range widely, from around 75,000 per month to 150,000 per month, depending on what happens to labor force participation among other things.

Output growth has been much less impressive. Over the four quarters ending this spring, real GDP is now estimated to have increased only 1-1/4 percent. This pace likely understates the underlying momentum in aggregate demand, in part because of a sizable inventory correction that began early last year; even so, GDP growth has been mediocre at best.

The combination of strong job gains and mediocre GDP growth has resulted in exceptionally slow labor productivity growth. Most recently, business-sector productivity is reported to have *declined* for the past three quarters, its worst performance since 1979. Granted, productivity growth is often quite volatile from quarter to quarter, both because of difficulties in measuring output and hours and because other transitory factors may affect productivity. But looking at the past decade, productivity growth has been lackluster by post-World War II standards. Output per hour increased only 1-1/4 percent per year on average from 2006 to 2015, compared with its long-run average of 2-1/2 percent from 1949 to 2005. A 1-1/4 percentage point slowdown in productivity growth is a massive change, one that, if it were to persist, would have wide-ranging consequences for employment, wage growth, and economic policy more broadly. For

example, the frustratingly slow pace of real wage gains seen during the recent expansion likely partly reflects the slow growth in productivity.³

Let me highlight a few topics from the growing volume of research on this topic. The first is that the productivity slowdown reflects mismeasurement, because the official statistics have failed to capture new and better products or properly account for changes in prices over time.⁴ Given how often we meet new technologies in our daily activities, even in classes of products that have been in operation for many years--from driving an automobile, to flying, to medicines and medical equipment, to our communications, and far more--it is easy to persuade ourselves that technological advances play a major part in improving our lives. However, some of these gains are conceptually outside the scope of GDP, and most recent research suggests that mismeasurement of output cannot account for much of the productivity slowdown.⁵

Another explanation is that business investment has been relatively modest during the current expansion, and so increases in capital per worker have been smaller than in previous decades. Part of the modest pace of investment is likely because the effective

³ An alternative explanation is that productivity growth has been slow *because* wage growth has been slow; that is, faced with only tepid rises in labor costs, firms have had less incentive to invest in labor-saving technologies.

⁴ See, for example, David Byrne and Carol Corrado (2016), "ICT Prices and ICT Services: What Do They Tell Us about Productivity and Technology?" Economics Program Working Paper Series 16-05 (New York: Conference Board, May; revised July 2016), https://www.conference-board.org/pdf_free/workingpapers/EPWP1605.pdf; and David Byrne and Eugenio Pinto (2015), "The Recent Slowdown in High-Tech Equipment Price Declines and Some Implications for Business Investment and Labor Productivity," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, March 26), www.federalreserve.gov/econresdata/notes/feds-notes/2015/recent-slowdown-in-high-tech-equipment-price-declines-some-implications-for-business-investment-labor-productivity-20150326.html.

⁵ See, for example, Chad Syverson (2016), "Challenges to Mismeasurement Explanations for the U.S. Productivity Slowdown," NBER Working Paper Series 21974 (Cambridge, Mass.: National Bureau of Economic Research, February), www.nber.org/papers/w21974; and David M. Byrne, John G. Fernald, and Marshall B. Reinsdorf (2016), "Does the United States Have a Productivity Slowdown or a Measurement Problem?" *Brookings Papers on Economic Activity*, Spring, pp. 109-82, <https://www.brookings.edu/wp-content/uploads/2016/03/byrnetextspring16bpea.pdf>.

labor force that will use this new capital has been expanding much less rapidly than in previous decades, but it is also possible that investment has been restrained by the subdued outlook for growth and profits, thereby generating less demand for expanding productive capacity.⁶

However the slow growth in capital per worker has been quantitatively less important--accounting for only one-fourth of the slowdown in productivity compared with its long-run average--than the decline in the growth rate of total factor productivity (TFP), the portion of productivity that is not accounted for by measurable inputs to production. Indeed, TFP growth has averaged less than 1/2 percent per year in the past 10 years, well below its long-run average of 1-1/4 percent. Pinning down the exact causes of *this* slowdown is difficult, and there are many possibilities. For instance, it may reflect a slowdown in technological innovations, which may be persistent, as some have argued, or may be a temporary phenomenon, as I am inclined to believe.⁷

Low-to-middling TFP growth might also reflect the downward trend in business dynamism, as evidenced by a notable slowdown in gross job creation and destruction. Diminished dynamism has been linked to a marked slowdown in the reallocation of labor and capital from low-productivity establishments and firms to high-productivity ones,

⁶ Eugenio Pinto and Stacey Tevlin (2014), "Perspectives on the Recent Weakness in Investment," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, May 21), www.federalreserve.gov/econresdata/notes/feds-notes/2014/perspectives-on-the-recent-weakness-in-investments-20140521.html.

⁷ For example, Robert Gordon (2016) argues forcefully in his recent book, *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War* (Princeton, N.J.: Princeton University Press), that slow productivity growth is likely to persist.

especially in innovative sectors like high tech.⁸ Both phenomena are closely related to the declining trend in new business creation.⁹

Are we doomed to slow productivity growth for the foreseeable future? We don't know.¹⁰ On the encouraging side, the technological frontier appears to be advancing rapidly in some sectors, and there are hints that the firm start-up rate is improving.¹¹ On the more discouraging side, investment continues to disappoint--and so the current capital stock is smaller and embodies fewer frontier technologies than might otherwise be the case--and the productivity slowdown is a global phenomenon, suggesting that it may not be easily or quickly remedied.

Let me conclude by mentioning briefly one aspect of the low interest rate and low productivity growth problems--the fact that the Fed has been close to being "the only game in town," as Mohamed El-Erian and others have described it.¹² At least one part of

⁸ See Ryan A. Decker, John Haltiwanger, Ron S. Jarmin, and Javier Miranda (2016), "Changing Business Dynamism: Volatility of Shocks vs. Responsiveness to Shocks?" unpublished paper, April, available at https://bfi.uchicago.edu/sites/default/files/research/DHJM_4_14_2016.pdf.

⁹ See Ryan A. Decker, John Haltiwanger, Ron S. Jarmin, and Javier Miranda (2016), "Declining Business Dynamism: Implications for Productivity?" unpublished paper, August; and Francois Gourio, Todd Messer, and Michael Siemer (2016), "Firm Entry and Macroeconomic Dynamics: A State-Level Analysis," Finance and Economics Discussion Series 2016-043 (Washington: Board of Governors of the Federal Reserve System, February), <http://dx.doi.org/10.17016/FEDS.2016.043>.

¹⁰ There is no shortage of views on this issue among economists, but the views to some extent appear to depend on whether the economist making the prediction is an optimist or a pessimist. For the record, I note (a) that looking ahead, I expect GDP growth to pick up in coming quarters, as investment recovers from a surprisingly weak patch and the drag from past dollar appreciation diminishes, and (b) that I am an optimist.

¹¹ See Dan Andrews, Chiara Criscuolo, and Peter N. Gal (2015), "Frontier Firms, Technology Diffusion and Public Policy: Micro Evidence from OECD Countries," OECD Productivity Working Papers Series 2015-02 (Paris: Organisation for Economic Co-operation and Development, November), www.oecd.org/eco/growth/Frontier-firms-technology-diffusion-and-public-policy-OECD-productivity-working-papers.pdf.

¹² See Mohamed El-Erian (2016), *The Only Game in Town: Central Banks, Instability, and Avoiding the Next Collapse* (New York: Random House).

David Mericle and Avisha Thakkar (2016) recently noted that, in the seven years since the Great Recession and Global Financial Crisis, U.S. monetary policy was somewhat more supportive--and fiscal policy less supportive--compared with the average policy response in previous large advanced-economy financial crises (see "The Crisis and Its Aftermath: Back to the Future," Goldman Sachs, Economics Research, U.S. Economics Analyst, August 12).

the solution can be found in the observation that overall macroeconomic policy does not have to be confined solely to monetary policy. In particular, monetary policy is not well equipped to address long-term issues like the slowdown in productivity growth. Rather, the key to boosting productivity growth, and the long-run potential of the economy, is more likely to be found in effective fiscal and regulatory policies.¹³ While there is disagreement about what the most effective policies would be, some combination of improved public infrastructure, better education, more encouragement for private investment, and more-effective regulation all likely have a role to play in promoting faster growth of productivity and living standards--and also in reducing the probability that the economy and particularly the central bank will in the future have to contend more than is necessary with the zero lower bound.

¹³ One related hypothesis, identified with Mancur Olson, is that, absent major shakeups of the institutional structure of the economy, the gradual accretion of the barnacles produced by the political process slows the vitality of the economy until eventually the public is willing to face the difficulties attending the structural reforms needed to restore that vitality.

Supplementary materials for
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Table 1: GDP and Aggregate Hours
(average annualized percent change*)

	1949–2005	2006–2015	<i>Memo:</i> 1996–2003
GDP	3.4	1.4	3.4
Aggregate hours	1.4	0.4	1.1
Population	1.4	1.0	1.4
Labor force participation	0.2	-0.5	-0.1
Employment rate	0.0	0.0	0.0
Hours per person	-0.2	-0.1	-0.1

* Percent change from fourth quarter of preceding period to fourth quarter of period indicated. GDP is gross domestic product.

Source: U.S. Department of Commerce, Bureau of Economic Analysis; U.S. Department of Labor, Bureau of Labor Statistics.

Table 2: Growth of Output, Hours, and Productivity in the Private Business Sector
(average annualized percent change*)

	1949–2005	2006–2015	<i>Memo:</i> 1996–2003
Output	3.6	1.6	3.9
Labor input	1.1	0.4	0.6
Productivity	2.5	1.2	3.3
Labor composition	0.2	0.3	0.3
Capital deepening	0.9	0.6	1.3
Total factor productivity	1.3	0.3	1.7

* Percent change from fourth quarter of preceding period to fourth quarter of period indicated.

Source: U.S. Department of Labor, Bureau of Labor Statistics, and John Fernald (2012), "A Quarterly, Utilization-Adjusted Series on Total Factor Productivity," Working Paper Series 2012-19 (San Francisco: Federal Reserve Bank of San Francisco, revised April 2014), www.frbsf.org/economic-research/files/wp12-19bk.pdf.