

The Economic Outlook and Some Longer-Run Issues



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Introduction

I thank the Economic Club of Minnesota for the opportunity to speak today. In looking at your website, I noticed a long list of distinguished speakers, including many from the Federal Reserve and other central banks around the world. I also discovered that John Surma, former chairman and CEO of U.S. Steel and current chair of the Cleveland Fed's Board of Directors, has addressed your group. And with my current colleague Neel Kashkari and former colleague, friend, and fellow opera lover Chris Cumming here, I feel a connection and I am honored to participate. Today, I will discuss my current outlook for the economy and my views on monetary policy. I will also talk about some longer-run issues facing the economy. Of course, these are my own views and not necessarily those of the Federal Reserve System or my colleagues on the Federal Open Market Committee.

The Economic Outlook

The economic expansion will celebrate its eighth birthday next month – that's 56 in dog years – which is long by historical standards. Of course, expansions don't die from old age and there is no reason to think that this one cannot continue. In fact, one of my focuses as a monetary policymaker is to set policy to meet and maintain our dual mandate goals of price stability and maximum employment. Doing so will help promote continued expansion.

The expansion got off to a slow start from a very weak place in the aftermath of the Great Recession. But the fact that the expansion has endured through a variety of economic shocks is a testament to the U.S. economy's resiliency. First quarter readings on real activity were soft, but it is not unusual to see variability in the monthly and even the quarterly data. To get a reading on where the economy is headed, it is important to smooth through the volatility and focus on underlying fundamentals. I believe the fundamentals supporting continued expansion are sound. These fundamentals include accommodative monetary policy and financial conditions, improved household balance sheets, and increases in personal

income that have come from the continued strength in labor markets. In addition, although geopolitical risks remain, economic conditions in our global trading partners have improved.

Of course, we always need to view things with humility: economics is not an exact science, nothing is certain, and there are upside and downside risks to my forecast. With that in mind, my modal outlook is that over the next year, the U.S. economy will expand at a pace at or slightly above its longer-run trend, which I estimate to be about 2 percent, and the unemployment rate will remain below its longer-run level, which I estimate to be about 5 percent. With appropriate adjustments in monetary policy, I believe the conditions are in place for a sustained return over the next year or so to our symmetric goal of 2 percent inflation. Let me expand a bit on growth, employment, and inflation, before turning to monetary policy.

Economic growth

Despite the strong fundamentals, output growth in the first quarter was weak. I am not taking much of a signal about future growth from that reading. Some of the weakness reflects transitory factors like reduced spending on energy because of unseasonably warm weather early in the year. There is also likely what economists call residual seasonality in the data, meaning that even though the data are adjusted for seasonal effects, we've seen a pattern over the past several years of weak growth in the first quarter followed by stronger growth in subsequent quarters.¹ I anticipate we'll see stronger consumer spending, which makes up about two-thirds of output, over the rest of the year. Readings on consumer sentiment and confidence remain high, but more important for spending, personal incomes are growing. Moreover, household balance sheets have improved over time. As a result of the Great Recession, households in the aggregate lost \$13 trillion in net worth, made up of financial and housing equity. The deleveraging that households undertook and their increased savings, coupled with the cumulative increase in stock and

¹ See Kurt G. Lunsford, "[Lingering Residual Seasonality in GDP Growth](#)," *Economic Commentary*, Federal Reserve Bank of Cleveland, Number 2017-06, March 28, 2017, and Glenn D. Rudebusch, Daniel Wilson, and Tim Mahedy, "[The Puzzle of Weak First-Quarter GDP Growth](#)," *Economic Letter*, Federal Reserve Bank of San Francisco, 2015-16, May 18, 2015.

house prices over the expansion, mean that households as a group have recovered that loss and have added another \$25 trillion in net worth to their balance sheets. In the aggregate, households' housing equity is now back to what it was at the peak, as the housing sector continues to gradually improve.

Demand for housing is rising and is outpacing supply in some places. This mismatch between supply and demand is putting upward pressure on home prices, which are rising at about a 6 percent pace, on average, nationally, and are driving the increase in homeowners' housing equity. It shouldn't be too surprising that the housing recovery has been a moderate one. The housing boom and crash are not something anyone wants repeated. Households have been careful not to take on more mortgage debt than they can handle, and lenders are extending credit, but to those with good credit quality. Overall, I expect activity in the sector to continue to expand at a sustainable pace.

Business activity and investment are starting to strengthen after being quite subdued last year and through much of the expansion. Part of the weakness reflected the sizable drop in oil prices from mid-2014 through early 2016, which led to a sharp pullback in the drilling and mining sectors and their suppliers. At the same time, the 20 percent appreciation of the dollar hurt manufacturers and other firms dependent on exports. Since then, conditions supporting business spending have improved. Over the past year, oil prices have been roughly stable near \$50 a barrel and the dollar has appreciated only modestly. In addition, the firming in global economic growth has increased demand for U.S. exports. We've seen a pickup in the mining sector and in manufacturing, and the data on new orders suggest investment in equipment will expand further. Contacts in the Cleveland Fed District tell us that even if some of the proposals for tax reform, health insurance, infrastructure spending, and regulatory changes are delayed, they expect the business environment to remain positive and that this will translate into further increases in business spending and hiring.

Labor markets

In fact, labor markets have been strengthening for some time and I expect that to continue. In 2016, the economy added over 2.2 million jobs, an average of about 187,000 jobs per month. Over the first four months of this year, firms sustained that pace, with an average monthly gain of 185,000 jobs. This is a slower pace than in the two expansions in the 1980s and 1990s.² But it's important to remember that because trend labor force participation is lower, trend employment growth is also lower. Indeed, estimates of trend employment growth range from around 75,000 to 120,000 per month, depending on the precise assumptions one makes about the participation rate. So the recent employment growth numbers are well above trend.

As the economy has added jobs, the unemployment rate has moved down. It stood at 4.4 percent in April, less than half its peak of 10 percent in late 2009 and at the lowest reading achieved in the previous expansion. Given the progress that has been made in the labor market, payroll job growth is likely to slow from its current pace, but I expect it will be sufficient to keep the unemployment rate below my estimate of its longer-run rate of 5 percent over the next two years.

Other gauges of the under-utilization of labor have also improved significantly. For example, the broader U6 measure of unemployment, which includes the number of part-time workers who would rather work full time and the number of people who have been discouraged from looking for a job, has fallen to 8.6 percent, its lowest level since late 2007. The labor force participation rate has been essentially stable for the past three years. This is another sign of labor market strength because, based on demographics, the trend in the participation rate is downward.

² Payroll job gains averaged nearly 230,000 per month over the December 1982-July 1990 expansion and about 200,000 per month over the April 1991-March 2001 expansion.

The strengthening in the labor market has led to a gradual acceleration in wages from earlier in the recovery. For some time we have heard from our labor and business contacts across a broad set of industries that firms are having trouble finding qualified workers, both in high-skill occupations and in lower-skill jobs. More and more of these firms report they are responding by raising wages and offering other benefits to attract and retain workers. Contacts in the Cleveland Fed District expect wage increases to average about 3 percent this year, with significantly higher increases expected for highly skilled workers.

On balance, there has been a sustained cyclical recovery in labor markets since the Great Recession. There are some longer-run structural issues that the country must tackle, such as making sure people have access to the training and development needed for the jobs in the modern economy. But from the standpoint of the cyclical conditions that monetary policy can address, I believe we have achieved the maximum employment part of the Fed's monetary policy mandate.

Inflation

The other part of the Fed's dual mandate is price stability. Consistent with meeting this part of the mandate over the longer run, the FOMC has set a goal of 2 percent inflation, as measured by the year-over-year change in the price index for personal consumption expenditures, that is, PCE inflation. Most people understand why high inflation is a problem: it erodes the purchasing power of their money. But inflation that is too low is also a problem: it can lead consumers and businesses to delay purchases, thereby slowing the economy, and it increases debt burdens.

For some time, inflation has been running below the Fed's 2 percent goal, but over the past two years, inflation has been moving up. Measured year-over-year, headline PCE inflation stood at 1.8 percent in March, up from under 1 percent a year ago.

I expect there will be some variability in the monthly data, but in determining where inflation is relative to our goal, we need to look through transitory movements in the numbers, both those below and those above our goal, and focus on where inflation is headed and where it will be maintained on a sustained basis. The inflation rate over the longer run is primarily determined by monetary policy, but we know that we can't keep actual inflation at 2 percent at each point in time; inevitably shocks hit the economy and the inflation numbers move, sometimes below our goal and sometimes above. Still, we want to take actions to keep inflation from running either persistently below or persistently above 2 percent. In other words, our goal is symmetric – it isn't a ceiling – and we aim to keep inflation at 2 percent on a sustainable basis.

With appropriate adjustments in monetary policy, I believe the conditions are in place for a sustained return over the next year or so to our symmetric goal of 2 percent inflation. These conditions include the firming in inflation that we've seen over time, reasonably stable inflation expectations, continued strength in the labor market, and growth expected to be at or slightly above trend.

Monetary Policy

When I say "appropriate adjustments in monetary policy" I mean those that will sustain the expansion so that our longer-run goals of price stability and maximum employment are met and maintained. As I mentioned, in my view, we have met the maximum employment part of our mandate and inflation is nearing our 2 percent goal.

If economic conditions evolve as anticipated, I believe further removal of accommodation via increases in the federal funds rate will be needed. In March, the FOMC raised the target range for the fed funds rate by one-quarter percentage point to 3/4 to 1 percent, and two weeks ago, the FOMC decided to maintain this range. Both decisions are consistent with the gradual upward path of interest rates that the Committee has indicated for some time is likely to be appropriate. This upward policy path will help

prolong the expansion, not curtail it. It will help avoid a build-up of risks to macroeconomic stability that could arise if the economy is allowed to overheat. It will help avoid a build-up of risks to financial stability should overly low interest rates encourage investors to take on excessively risky investments in a search for yield. It will put monetary policy in a better position to address whichever risks, whether to the upside or to the downside, are ultimately realized.

Given my outlook, I don't believe that removing accommodation calls for an increase in the fed funds rate at each meeting, but I do anticipate more than the one-increase-per-year seen in the past two years. In addition, as we continue to make progress on our goals, I think that it's important for the FOMC to remain very vigilant against falling behind, especially given the low level of interest rates and the large size of our balance sheet. We know that monetary policy affects the economy with long and variable lags, so policy actions have to be taken before our policy goals are fully met. If we delay taking further normalization steps for too long and then find ourselves in a situation where the labor market becomes unsustainably tight, price pressures become excessive, and we have to move rates up steeply, we could risk a recession. This is a bad outcome that disproportionately harms the more vulnerable parts of our society.

In addition to removing accommodation by raising interest rates, we also have to consider the Fed's balance sheet. To address the financial crisis and Great Recession, the FOMC undertook several programs to purchase longer-maturity assets. These purchases aimed at putting downward pressure on longer-term interest rates once the FOMC's traditional policy tool, the fed funds rate, had been reduced to effectively zero. As a result of the purchases, the Fed's balance sheet has grown from nearly \$900 billion in assets in 2007 to about \$4.5 trillion today, and its composition has changed from mainly short-term Treasury securities to agency mortgage-backed securities and longer-maturity Treasuries.

Currently, the FOMC is continuing to reinvest the proceeds of maturing Treasuries and principal payments from agency securities, essentially maintaining the balance sheet at its very large size. But normalizing the stance of policy also means taking steps to normalize the balance sheet. As indicated in the minutes of our March meeting, the FOMC is discussing its reinvestment policy, including when and how best to implement a change in reinvestments.³ Such a change should be done in a way that allows for a gradual and predictable reduction in the Fed's asset holdings so that over time the balance sheet is reduced to the smallest size needed to implement monetary policy efficiently and effectively.⁴

In my view, if economic conditions evolve as I anticipate, I would be comfortable changing our reinvestment policy this year, with clear communication in advance about how we plan to implement the change. My preference is that once we decide on a plan, we stay with it; the fed funds rate should be our main tool for responding to changes in the outlook during normal times, with purchases of longer-term assets reserved for nontraditional times, times when we have lowered our policy rate to near zero and we need to add more monetary policy stimulus because of a deterioration in economic and financial conditions. Ending reinvestments and beginning the journey toward a smaller balance sheet composed mainly of Treasury securities will be a welcome acknowledgment that the economy has entered normal times and policy is transitioning back to normal, too.

It's important to remind everyone that there are risks around the economic outlook, and because of that, monetary policy is not pre-set. In March, the FOMC began providing confidence bands around its economic and policy path projections.⁵ These are visual reminders to both the public and policymakers that there is always a lot of uncertainty around economic forecasts. Policy needs to remain systematic in

³ [The Minutes of the Federal Open Market Committee](#), March 14-15, 2017, pp. 2-3.

⁴ See "[Policy Normalization Principles and Plans](#)," FOMC, September 17, 2014.

⁵ See the confidence band charts in the Summary of Economic Projections portion of the [Minutes of the Federal Open Market Committee](#), March 14-15, 2017.

how it reacts to incoming information relevant to the outlook, but not be dogmatic should the outlook indeed materially change.

Longer-Run Issues

Astute listeners will have noticed that I didn't tell you how large the balance sheet will be or how high the fed funds rate will be once we complete normalization. That is, I haven't told you the end points. To answer those questions, we need to consider some longer-run issues.

Monetary policy implementation framework

Regarding the ultimate size of the balance sheet, we do know it will be larger than it was prior to the financial crisis for the simple reason that the public's demand for currency is rising over time. But the balance sheet will also likely be considerably smaller than it is today. Just how much smaller depends on how the FOMC implements monetary policy in the future.⁶ Before the crisis, the FOMC kept the supply of bank reserves scarce. Making small changes in that supply by buying or selling short-term Treasuries, allowed the FOMC to ensure that the market-clearing interest rate at which banks lend reserves to each other overnight, the fed funds rate, was maintained at the FOMC's target.

But now, as a result of the Fed's large-scale asset purchases, reserves are very abundant: indeed, banks are holding around \$2.3 trillion in reserves, and more than \$2.1 trillion of this amount is in excess of what is required by regulation. At these levels, small changes in the supply of reserves have little effect on the fed funds rate, and the FOMC brings the fed funds rate into its target range by adjusting the rate it pays on excess reserves.

⁶ For an accessible description of monetary policy implementation frameworks, see Jane E. Ihrig, Ellen E. Meade, and Gretchen C. Weinbach, "[Rewriting Monetary Policy 101: What's the Fed's Preferred Post-Crisis Approach to Raising Interest Rates?](#)" *Journal of Economic Perspectives* 29 (Fall 2015), pp. 177-198.

Each of these systems has its strengths, and the FOMC has not yet decided which framework it will use in the long run and, therefore, what the size of the balance sheet will be at the end of the normalization process.⁷ However, because it will take several years to reduce the size of the balance sheet through asset run-off, the FOMC can end reinvestments before we have decided on the balance sheet's ultimate size.

Equilibrium fed funds rate

In terms of where the fed funds rate will be in the longer run, one needs to consider what policy rate is consistent with maximum employment and stable inflation over the longer run. There is reason to believe that this equilibrium rate is lower now than it used to be. In fact, FOMC participants have been lowering their estimates of the longer-run fed funds rate over time. For example, in March 2014, the median estimate was 4 percent. Now it is 3 percent. The equilibrium rate is determined by the long-run rate of the growth of consumption and, therefore, of output. So where the fed funds rate will be after normalization depends on the longer-run potential growth rate of the economy.

Potential growth and productivity growth

The key determinants of the economy's longer-run growth rate are structural productivity growth – how effectively the economy combines its labor and capital inputs to create output – and labor force growth. Over the past five years, labor productivity, measured by output per hour worked in the nonfarm business sector, has grown at an annual rate of only about a half of a percent; over the entire expansion it has averaged 1 percent. This is a step down from the 2-1/4 to 2-1/2 percent pace seen over the prior two expansions. Some of the slowdown in productivity growth likely reflects the difficulty in measuring productivity in the service sector. Some of the slowdown is likely cyclical, reflecting persistent effects of

⁷ For discussions of the pros and cons of different monetary policy implementation frameworks, see George A. Kahn, "[Monetary Policy Under a Corridor Operating Framework](#)," *Economic Review*, Federal Reserve Bank of Kansas City, Fourth Quarter 2010; Todd Keister, "[Corridors and Floors in Monetary Policy](#)," *Liberty Street Economics*, Federal Reserve Bank of New York, April 4, 2012; and Ben S. Bernanke, "[Should the Fed Keep its Balance Sheet Large?](#)" Brookings Institution Blog, September 2, 2016.

the Great Recession, which has retarded investment spending. As the expansion continues and investment expands, it is reasonable to assume that the cyclical impediments will abate and we'll see somewhat stronger productivity growth. But structural factors are likely weighing on productivity growth, as well.

One such factor is a reduced level of economic dynamism. An enviable aspect of the U.S. economy around the globe is our spirit of innovation, entrepreneurship, ease of business entry and exit, and labor market flexibility. This dynamism has contributed to economic growth and well-being in the U.S. by allowing resources to be reallocated from less-productive to more-productive businesses and allowing workers to move up the career ladder.

But the degree of dynamism in the U.S. economy has been declining for some time. On average, over the 1990s and until the Great Recession, business start-ups accounted for about 3 percent of total employment per year.⁸ Since then, this share has fallen to around 2 percent.⁹ Since 2000, key innovative sectors like high-tech have seen a sharp slowing in the rate of start-ups.¹⁰ The decline in business and labor market dynamism is a structural factor that may be contributing to the slowdown we've seen in productivity growth.¹¹

Labor force growth, the other key determinant of long-run economic growth, is projected to be considerably slower than it has been in recent decades. In the 1970s, the labor force grew about 2-1/2

⁸ See John Haltiwanger, Ron S. Jarmin, and Javier Miranda, "Who Creates Jobs? Small Versus Large Versus Young," *Review of Economics and Statistics* 95 (May 2013), pp. 347-361.

⁹ My calculations are based on the firm age table from the U.S. Census Bureau's Business Dynamics Statistics, Firm Characteristics Data Tables (http://www.census.gov/ces/dataproducts/bds/data_firm.html).

¹⁰ See John Haltiwanger, "Top Ten Signs of Declining Business Dynamism and Entrepreneurship in the U.S.," paper written for the Kauffman Foundation New Entrepreneurial Growth conference, August 2015.

¹¹ Haltiwanger (2015), p. 9.

percent per year, on average, as baby boomers and women entered the work force. Labor force growth has slowed since then, rising at slightly more than 1/2 percent per year over 2010-2016. Demographic factors, including the aging of the population and a lower birth rate, suggest slow growth at about that pace will continue.¹² So, longer-run output growth will likely remain below the 3 to 3-1/2 percent rate seen over the 1980s and 1990s.¹³

My own estimate is that longer-run growth will be about 2 percent, but I acknowledge that such estimates have wide confidence bands around them and economists hold different views about the future growth prospects of the U.S. economy.^{14,15} The difference in views largely stems from different assessments of the prospects for investments in technology and human capital.

New technologies

Those pessimistic about the future don't expect to get large productivity gains from today's innovations such as robotics, artificial intelligence, and computers, and believe that technological advances have been slowing since the 1970s. Other observers note that it is very difficult to predict where future technology is going, and they are much more optimistic that computerization, nanotechnology, genome mapping, and

¹² According to the latest available projections, the U.S. Bureau of Labor Statistics estimates that, as baby boomers retire, annual growth in the labor force over 2014-2024 will average 1/2 percent. See U.S. Bureau of Labor Statistics, *Economic Projections – 2014-24*, December 8, 2015, Table 1.

¹³ The Congressional Budget Office currently estimates that potential GDP growth averaged 3.4 percent per year over 1982-1990 and 3.3 percent per year over 1991-2001; it projects that potential growth will average 1.8 percent per year over 2017-2027. See Congressional Budget Office, *The Budget and Economic Outlook: 2017 to 2027*, January 2017, Table 2.3.

¹⁴ Those pessimistic about the future growth prospects of the U.S. economy include Robert Gordon. (See Robert J. Gordon, "Secular Stagnation: A Supply-Side View," *American Economic Review: Papers and Proceedings* 5, May 2015, pp. 54-59, and Robert J. Gordon, "The Demise of U.S. Economic Growth: Restatement, Rebuttal, and Reflections," National Bureau of Economic Research, Working Paper 19895, February 2014.)

¹⁵ Optimists include Joel Mokyr, Barry Eichengreen, Erik Brynjolfsson, and Andrew McAfee. (See Joel Mokyr, "The Next Age of Invention," *City Journal*, Winter 2014; Barry Eichengreen, "Secular Stagnation: The Long View," *American Economic Review: Papers and Proceedings* 5, May 2015, pp. 66-70; and Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*, New York: W.W. Norton and Company, 2014.)

other advances in biology will have impacts not yet fully harnessed.¹⁶ For example, a recent article in *The New Yorker* describes how machine learning is being used to accurately diagnose malignancies, with the potential to displace the doctor as diagnostician – a fundamental change in the practice of medicine.¹⁷

Changes in technology with widespread applicability can lead to higher levels of productivity growth and output growth, but because adapting to the changes takes time, it will take longer to see those positive effects.¹⁸ In fact, the disruption caused by technology can have negative effects at first. Workers need to retrain and some industries may be pushed out by the new technology. As the economy adapts, eventually there are gains, but not all people, industries, and communities will automatically share in the benefits.

Human capital

Human capital and technology are intricately linked. For technology to enhance productivity, workers need to have the abilities and knowledge to apply it. So, technological change can induce higher investments in human capital. But the reverse is true, too. Investment in human capital may spur investment in innovation because firms are more likely to develop and adopt a new technology if they are more certain they will be able to hire workers with the requisite skills to use it. Many studies have documented the importance of investment in human capital to a nation's economic growth and well-being.¹⁹ And at the individual level, better education is correlated with higher wages and lower levels of

¹⁶ See Mokyr (2014), and Brynjolfsson and McAfee (2014).

¹⁷ See Siddhartha Mukherjee, “A.I. Versus M.D.,” *The New Yorker*, April 3, 2017.

¹⁸ Barry Eichengreen distinguishes between two dimensions of technology: the range of applicability and the range of adaptation. A technology that has only a limited range of applicability won't have a large effect on productivity and growth because it is used only in a narrow range of sectors or activities. A technology that requires a large range of adaptation of other processes in the economy will take longer to have a positive effect on productivity and growth. See Eichengreen (2015).

¹⁹ For a discussion of educational attainment and its contributions to economic growth, see J. Bradford DeLong, Claudia Goldin, and Lawrence F. Katz, “Sustaining U.S. Economic Growth,” in Henry J. Aaron, James M. Lindsay, and Pietro S. Nivola, eds., *Agenda for the Nation* (Washington: Brookings Institution Press, 2003). The importance

unemployment. Moreover, research suggests that technological change is driving the rising skill premium and is affecting how work is organized. Medium-skill jobs that are more likely to involve routine, non-physical work are being handled by computers.²⁰ This shift in the distribution of jobs helps to explain the wider gap in wages for highly skilled vs. lower skilled workers, and the increasing return to gaining the education required to obtain those skills.

Globalization

Globalization in the form of lower barriers to trade is another phenomenon that influences productivity growth. Free trade enhances productivity growth by allowing countries to focus resources on their comparative advantage and by spurring competition. Globalization and technological change are linked: globalization allows new technologies to be deployed more broadly and quickly and, by increasing competition, can drive firms to create and develop new and more productive technologies.

While globalization leads to long-run improvements in the standard of living in the aggregate, similar to technological change, it can be disruptive in the short run as production shifts to the industries in which the country has a comparative advantage and workers in the contracting sectors need to retrain or relocate to find jobs.

of education to economic well-being can even be found at the state level. For example, Cleveland Fed researchers found that over a 75-year period, education levels were consistently one of the most reliable indicators for each state's per capita income growth. See Paul W. Bauer, Mark E. Schweitzer, and Scott A. Shane, "Knowledge Matters: The Long-Run Determinants of State Income Growth," *Journal of Regional Science* 52, 2011, pp. 240-255, and "[Altered States: A Perspective on 75 Years of State Income Growth](#)," Federal Reserve Bank of Cleveland 2005 Annual Report.

²⁰ The data suggest that since 2000, jobs have become "polarized," meaning that while high-skill and low-skill occupations have seen job growth, medium-skill occupations have experienced job losses. See Daron Acemoglu and David Autor, "[Skills, Tasks, and Technologies: Implications for Employment and Earnings](#)," in *Handbook of Labor Economics*, vol. 4B, Orley Ashenfelter and David Card, eds., Amsterdam: Elsevier-North Holland, 2011, pp. 1043-1171. For an accessible explanation of the polarization hypothesis, see Rob Valletta, "[Higher Education, Wages, and Polarization](#)," Federal Reserve Bank of San Francisco *Economic Letter*, 2015-02, January 12, 2015. Also see Valletta (2015) and Jason R. Abel and Richard Deitz, "[Job Polarization and Rising Inequality in the Nation and the New York-Northern New Jersey Region](#)," Federal Reserve Bank of New York *Current Issues in Economics and Finance* 18, 2012.

Economic policy

Monetary policy cannot affect the economy's long-term growth rate. But other government policies, if they are well-designed and focused on spurring productive investments in human and physical capital, R&D, and innovation, would be helpful, and could, with sufficient time, lead to a somewhat higher longer-run growth rate.²¹ Policies can also help to ensure that the aggregate longer-term gains from technological change and globalization are better distributed, and that households, industries, and communities that are negatively affected are provided with some cushion to help ease the transition. Policies and programs that enable people to gain the skills needed to be productive members of the modern workforce are part of such a cushion.

On the technology side, in addition to public-private ventures for developing technological innovations, a good case can be made for expanded government support of basic science and R&D, a building block for higher productivity growth. Basic R&D has a public good aspect to it because its benefits can be widely applied throughout various parts of the economy, while an individual firm might be deterred from such investment as it cannot fully capture the returns.

Finally, we should recognize that immigrants make up over 16 percent of the U.S. workforce today.²²

Given U.S. demographics, immigrants will become an increasingly important source of labor supply for the U.S. This suggests that a well-thought-out immigration policy that attracts labor to the U.S. is also a necessary ingredient to support longer-run growth.

It is important for the country to tackle these longer-run issues in order to improve the economic health of individuals and communities and to maintain and enhance our future standard of living.

²¹ See the discussion in Loretta J. Mester, "[A Serenity Prayer for Monetary Policymakers](#)," remarks at the Global Interdependence Center Central Banking Series, Singapore, February 20, 2017.

²² See U.S. Bureau of Labor Statistics, "[Foreign-Born Workers: Labor Force Characteristics – 2015](#)," May 19, 2016.

One of my favorite composers, Wolfgang Amadeus Mozart, was known for writing beautiful music but he was also an avid letter writer. In one letter, he quoted his great-grandfather, who said: “It is a very great art to talk eloquently and well, but an equally great one is to know the right moment to stop.” In looking at the clock, I fear I have not succeeded in either art today. So on that note, let me end here. I am happy to take your questions.