

Longer-term Considerations for Growth and Monetary Policy

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The views expressed by the author are his own and do not necessarily reflect those of the Federal Reserve System, its governors, officers or representatives.

Thank you for participating in the ninth annual Energy Conference, jointly hosted by the Dallas and Kansas City Federal Reserve Banks. This is one of my favorite events of the year. It is always a pleasure to work closely with our Dallas colleagues, and the insights gained from this event are extremely valuable.

The energy industry is part of the Kansas City Fed District's economic DNA. The District accounts for roughly 9% of U.S. crude oil production, 14% of natural gas production, and 43% of coal production. Like Texas, the Tenth District also outpaces the United States in renewable energy. Kansas, Nebraska, and Oklahoma are some of the windiest states in the country, and Colorado, New Mexico, and Wyoming are some of the sunniest. Pipelines and oil storage in Cushing, Oklahoma, are vital infrastructure, and many District manufacturers support oil and gas firms, as well as the renewable energy sector. Furthermore, the region's important agricultural sector is interwoven with the energy economy, supplying feedstocks to regional biofuel plants and producing renewable ethanol and biodiesel.

In my remarks, I want to take a step back to focus on a few longer-term trends that will shape the environment for monetary policy in the coming years:

- First, technology and productivity growth, and the role that energy can play as either an enabler or constraint;
- Second, demographics and projections for the size of the workforce;
- And third, the growth of government debt, both in the United States and abroad.

All three of these factors leave an imprint on monetary policy, not so much for the meeting-to-meeting interest rate decisions of the Federal Open Market Committee, but more for where interest rates will settle over time.

But before gazing into the crystal ball, let's look back at the FOMC's decision last week. On Thursday, the FOMC cut its policy rate by a $\frac{1}{4}$ percentage point, following a $\frac{1}{2}$ point cut in September. These cuts came after a year of holding rates flat and, before that, a rapid increase in rates as the Fed moved to address the spike in inflation that followed the pandemic. The decision to lower rates is an acknowledgement of the Committee's growing confidence that inflation is on a path to reach the Fed's 2% objective—a confidence based in part on signs that both labor and product markets have come into better balance in recent months. While now is the time to begin

dialing back the restrictiveness of monetary policy, it remains to be seen how much further interest rates will decline or where they might eventually settle.

Productivity, Technology, and Energy

The first long-run factor I will review is productivity. Productivity determines how efficient an economy is at producing goods and services with a given quantity of materials and labor. A more productive economy allows for both strong growth and moderate inflation—a winning combination—and is the key determinant of sustained increases in living standards. Strong productivity growth can also lead to relatively high equilibrium interest rates by strengthening investment demand and supporting consumption.

Recent productivity growth has been solid. Labor productivity, or the amount of output produced with one hour of work, has increased at an average 2.5% pace for the past year-and-a-half, more than twice as fast as in the decade prior to the pandemic. In part, this pick up could be a temporary boost as some factors that have depressed productivity fade. The historically tight labor market of 2022 and 2023, and the high number of open positions, led to a record number of workers quitting their current job for something new. While in the long run, having workers in jobs that are a better match to their abilities and desires can boost productivity, in the short-run, turnover decreases the skills of the workforce and results in higher training costs.¹ With the labor market cooling this year, workers are no longer quitting at an elevated pace, and labor market churn has fallen off dramatically, leading to at least a temporary increase in productivity.

But perhaps the most important and persistent changes in productivity typically arise from technological advancements. Of course, there is much excitement about artificial intelligence, or AI, and I will get to that. But first, I want to acknowledge the tremendous productivity gains arising within the energy sector itself.

A recent news article that featured Kansas City Fed research highlighted that the energy sector has had the fastest productivity growth of any industry over the past decade.² We have been following these developments closely and have contributed to the research and discussion around the astounding growth of the U.S. energy sector. The numbers are clear, especially with

¹Sly, Nicholas. [“Is Remote Work Turning the Screw on Labor Market Tightness?”](#) Federal Reserve Bank of Kansas City Rocky Mountain Economist, Sept. 22, 2022.

² See [“Oil Was Written Off. Now It’s the Most Productive US Industry.”](#) Bloomberg News. Oct. 31, 2024.

oil, where the United States has increased production 5% so far this decade with 27% fewer rigs and 17% fewer workers.

Turning to AI. The excitement around AI is high, and the massive investments being made suggest that the expected productivity gains from the technology must be enormous. While the full potential remains uncertain, AI appears set to change the way people work and interact. The rise of AI will also have implications for the energy economy. AI is an energy-intensive technology, and will likely influence and reshape energy markets, especially for electricity.

The growth of AI and data centers is already having a significant impact on the market for electricity. Demand for electricity in the United States has grown at a 1.3% pace over the past three years, more than twice as fast as in the decade before the pandemic. Research at the Kansas City Fed highlights that this recent surge in demand has been concentrated in a few key states, including here in Texas, where the rapid expansion of data centers has been a major contributor to rising electricity use.³ Two states in the Tenth District, Nebraska and Wyoming, have experienced a big jump in commercial electricity use since the beginning of this year, likely spurred by major projects by large tech firms. While data centers are just one piece of the puzzle, their rapid expansion illustrates the broader transformation taking place across industries that rely heavily on digital infrastructure, including AI and cloud computing. These developments highlight the critical role electricity will play in driving future economic growth, both in our districts and across the nation.

More generally, what we are seeing is an increase in U.S. electricity intensity—the amount of electricity used per unit of GDP. Historically, the U.S. economy has grown more energy-efficient, with electricity intensity declining since the early 1990s, reflecting technological advancements, energy-efficient practices, and structural shifts in the economy. However, this trend appears set to reverse as the economy becomes more electrified.

Even as these trends point to an increasing digital and electrified economy, they also present challenges. One of the key constraints we now face is ensuring that energy infrastructure can keep pace with this accelerating demand. The adoption of advanced technologies like AI, automation, and data centers—while crucial for maintaining economic competitiveness—has

³ Çakır Melek, Nida, and Gallin, Alex. "[Powering Up: The Surging Demand for Electricity](#)." *Federal Reserve Bank of Kansas City Economic Bulletin*, September 25, 2024.

created significant strains on our energy systems. Without sufficient investment in power generation, transmission, and distribution networks, the ongoing surge in electricity demand could result in supply constraints that potentially slow economic growth.

Demographics

The second long-term factor I would like to focus on is demographics. Population trends are generally slow-moving and predictable, and here the outlook is not supportive of growth. From the end of World War II until the present, the working age population of the United States increased by about 100 million potential workers. However, from this year until the end of the century, projections have only about 10 million new potential workers joining the labor force. We are transitioning from a period where the number of workers in the United States increased rapidly, to a future where there is almost no increase in the workforce. This is not a recipe for strong growth.

And it is not just the United States. The growth rate of the global population is expected to decline steadily to zero by the end of the century, and projections for some individual countries are stunning. Most notably, after increasing by close to 1 billion people from 1950 to now, the population of China is expected to shrink by almost 1 billion people by the end of the century. As the world population ages, both in the United States and globally, there will be fewer workers, which reduces demand for physical capital and investment, depressing interest rates. Older populations also save more, which can further push down interest rates. This is to say that demographic trends are likely to put downward pressure on interest rates.

Deficits and Debt

The third long-term factor I would like to discuss is the tremendous growth of government debt, both in the United States and globally. And here I would like to reiterate some points that I made in May at a speech delivered at the Kansas City Fed's Agricultural Summit in Omaha.⁴

Prior to the pandemic, one often-cited explanation for the relatively low interest rates of the period was high demand for safe assets, including government debt, relative to the supply of

⁴ Schmid, Jeff. "[The Outlook for the Economy and Monetary Policy](#)." Remarks at the Federal Reserve Bank of Kansas City's Agricultural Summit. May 14, 2024.

those assets. Increased demand from financial institutions as well as strong growth in China and emerging markets had boosted demand for such assets, bidding up their price and holding down interest rates across the yield curve.

However, now this demand has cooled, even as the supply of government debt has jumped and is expected to continue growing at a very rapid rate. As such, it is possible that the balance of demand and supply for government debt will shift from a factor holding down interest rates to a factor boosting interest rates.

Importantly, shifts in supply and demand for safe assets influence interest rates independent of the Fed's actions. Though the Fed is not a passive bystander and plays a role in setting short-term interest rates, it can't perpetually deviate rates from market forces without risking its mandates for maximum employment and price stability. In this way, the Fed takes fiscal decisions as given and steers monetary policy in the appropriate direction to achieve its dual mandate.

As I said in May, large fiscal deficits will not be inflationary because the Fed will do its job and achieve its inflation objective, though in doing so, the outcome could be persistently higher interest rates. This relationship is also at the crux of the rationale for the political independence of the central bank. Political authorities could very well prefer that deficits not lead to higher interest rates, but history has shown that following through on this impulse has often resulted in higher inflation. An independent central bank insulated from immediate political pressure and guided by a clear inflation objective has historically been an effective means for achieving and maintaining low and stable inflation.

Conclusion

I have discussed three long-term trends today: productivity, demographics, and debt. All three have implications for the long-run path of monetary policy, interest rates, and growth, but in different directions. Faster productivity growth could lead to relatively high interest rates and high growth; demographic trends point to low interest rates and slow growth; while debt dynamics suggest a combination of high interest rates and slow growth. All three factors are likely to be in effect, and the outcome for interest rates and the economy will be determined by the balance between them. As an optimist, my hope is that productivity growth can outrun both

demographics and debt. But as a central banker, I will not let my enthusiasm get ahead of the data or my commitment to the Fed's dual mandate of price stability and full employment.