Do We Have Potential?: An Analysis of U.S. Potential Economic Growth

Part V - Conclusions

Summary

• In this final installment of our five-report series, we bring our expectations for the labor force, net capital stock and total factor productivity (TFP) together in an estimate for U.S. potential economic growth by the end of this decade.

• Robust immigration, strong labor force participation among foreign-born workers and remote work could strengthen labor force growth. Stronger growth in the labor force could boost potential GDP growth by 0.1-0.3 percentage points per annum in the next decade relative to the growth rates of the last decade.

• The hardware and software investment required to fully develop automation and artificial intelligence (AI) capabilities in the business sector will boost capital stock growth. We estimate the net capital stock to grow between 2.5%-3.0% per year by the end of the decade. Under this assumption, net capital stock’s contribution to labor productivity growth should ramp up from roughly 1 percentage point at present to 1.5 percentage points or more by 2029.

• Remote work and AI could also lift TFP growth. Working from home gives individuals “relative quiet” and periods of “intense focus” that can make them more productive. Studies of labor-intensive service industries have found that the use of AI significantly reduced the amount of time needed to complete a task and/or raised the “quality” of the output.

• Technological advances generally affect productivity with a long lag because it takes time for the new technology to become widely adopted. To account for these lags, we allow the 5-year moving average of TFP growth to slowly ramp up to 1.9% per annum—a high-water mark from the past productivity boom—over the next twelve years. This scenario translates to TFP growth reaching 1.2%, its long-run average, by 2029.

• Thus, labor productivity could be growing 2.50%-2.75% per annum by the end of the decade in the business sector, which is considerably stronger than the rates registered during the past decade but comparable to 1992-2007. Adding in our forecast for labor force growth shows that the business sector’s potential output could be growing as strongly as 3.5% per annum by 2029.

• Yet, analysts typically consider the total economy, which also includes the government and non-profit organizations, not just the business sector, when thinking about growth in potential output. We estimate the potential growth rate of the total U.S. economy could rise to about 3% by the end of the decade rather than the 3.5% we expect for the business sector.

• By 2029, the total U.S. economy would be 1.7% larger than today under our estimate for potential growth, versus 1.3% larger under the current consensus estimate of 2.2% potential growth.

• When considering downside risks, the potential economic growth rate could run closer to 2.5% per annum by the end of the decade, although 3% could be achievable. While 2.5% is lower than what was experienced in the 1990s and the early years of the 21st century, it is stronger than the potential growth rates of the post-financial crisis period (~1.8%).
**Potential Economic Growth: An Important Concept**

We began this five-part series by showing in Part I that the potential economic growth rate of the United States has trended lower since the mid-20th century. Growth in the labor force, which is one of the primary determinants of an economy's potential growth rate, downshifted from its apex of roughly 3% per annum in the early 1970s to an annual average rate of only 0.5% during the last decade. Growth in labor productivity, which is the other primary determinant of potential economic growth, has waxed and waned over the years, but it too is slower today than it was in the 1950s and 1960s, which were halcyon years for the U.S. economy.

Unlike actual GDP growth, which is reported on a quarterly basis in many countries, an economy's potential growth rate is unobservable and must be estimated. To many readers, the concept of potential economic growth may appear to be largely an academic exercise. But there are some important real world consequences associated with potential economic growth. An economy that can grow at a robust rate for a sustained period, without generating ever-higher rates of inflation, will be better able to project economic and geopolitical power. For example, China was essentially an agrarian economy in 1990. But real GDP in China grew at an average annual rate in excess of 9% between 1990 and 2019 with an average inflation rate of only 4% during that period. China today is the world’s second largest economy with the ability to project military power, at least within the Asian region. Similarly, if there are factors at work that can raise the potential economic growth rate of the United States in coming years, then the U.S. economy can grow at a stronger rate than it has in recent years without leading to higher inflation.

**The Determinants of Potential Economic Growth**

**Growth in the Labor Force**

We started our investigation of the potential U.S. economic growth rate in coming years by analyzing labor force growth in Part II. As noted above, labor force growth in the United States was lackluster during the last decade. However, the American labor force grew 1.9% in 2022 and 1.7% in 2023, the strongest growth rates since 2000, due largely to two factors. First, immigration flows were robust. Second, the labor force participation rate (LFPR) rebounded from its pandemic-related nosedive, although it currently remains half-a-percentage-point below its February 2020 level of 63.3%.

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**Figure 1**

**U.S. Potential GDP Growth**

<table>
<thead>
<tr>
<th>Year</th>
<th>2023</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Growth</td>
<td>1.4%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

Source: Congressional Budget Office and Wells Fargo Economics

We concluded that stronger labor force growth could boost potential GDP growth by 0.1–0.3 percentage points per annum in the next decade relative to the growth rates of the last decade. Researchers at the Congressional Budget Office (CBO) expect immigration will remain elevated in the next few years, and the LFPR of foreign-born workers has been considerably higher than the participation rate among native-born workers for the past two decades. Additionally, the flexibility associated with remote work could lift the female LFPR, especially among women with young children.

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**Figure 2**

**Labor Force Growth**

<table>
<thead>
<tr>
<th>Year</th>
<th>2023</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFPR Growth</td>
<td>1.5%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Source: Bloomberg Finance L.P. and Wells Fargo Economics

Immigration and a rising labor force participation rate could lift growth in the labor force.

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children. The LFPR of older individuals, who tend to have lower participation rates than their younger counterparts, also has scope to increase further due in part to rising longevity.

**Growth in Labor Productivity**

Growth in labor productivity, the other primary determinant of potential economic growth, is itself determined by three factors: growth in the net capital stock, growth in total factor productivity (TFP) and changes in labor “composition” (i.e., shifts in the workforce’s age, education or gender). Labor composition has essentially had no effect, on net, on the fivefold increase in the level of labor productivity since the end of the Second World War. We therefore eschewed discussion of this component in earlier installments, and we make the simplifying assumption in this report that labor composition will have a neutral effect on labor productivity growth in coming years.

We showed in Part III that growth in the net capital stock downsized after the tech build-out of the 1990s (Figure 3). While there has been a surge in the construction of manufacturing facilities recently, the factory sector is a small slice of the economy. In our view, the spending on hardware and software that will be required to more fully develop automation and artificial intelligence (AI) capabilities in the business sector is what will enable capital stock growth to rival the tech build-out of the 1990s. Under reasonable assumptions about business spending on hardware and software in coming years, we estimate that the net capital stock could be growing between 2.5% and 3.0% per year by the end of the current decade (Figure 3). Under this assumption, the contribution that growth in the net capital stock makes to the annual growth rate of labor productivity should ramp up from roughly 1 percentage point at present to 1.5 percentage points or more by the end of the decade (Figure 4).

We next turned to an analysis of TFP growth in Part IV. The Bureau of Labor Statistics (BLS) defines TFP as “the portion of output growth that is not accounted for by the growth of capital and labor inputs and is due to contributions of other inputs, such as technological advances in production, the introduction of a more streamlined industrial organization, relative shifts of inputs from low to high productivity industries, increased efforts of the workforce, and improvements in managerial efficiency.” As shown in Figure 5, TFP growth slumped in the wake of the global financial crisis, and it has subsequently remained lackluster.

Looking forward, however, there are some reasons for optimism regarding TFP growth. Recent research suggests that productivity (i.e., output per hour worked) can be enhanced via remote work and AI. Working from home gives individuals “relative quiet” and periods of “intense focus” that can make them more productive. Experiments that were conducted among workers in labor-intensive industries such as software development, professional services and administrative & support services found that the use of AI significantly reduced the amount of time needed to complete a task and/or raised the “quality” of the output. The time savings and the quality improvement were especially marked among less experienced workers. In short, AI raised productivity significantly.
As we discussed in the series we published in 2023 on artificial intelligence, major technological advances generally affect productivity with a long lag because it takes time for the new technology to become widely adopted. For example, mobile phones, personal computers and the internet protocol were developed in the 1970s but these inventions really did not begin to have a meaningful effect on productivity growth until the mid-to-late-1990s. To account for these lags in our forward-looking analysis, we allow the 5-year moving average of TFP growth to slowly ramp up to 1.9% per annum—its high-water mark during the tech build-out—over the next twelve years (Figure 5). This scenario translates to the 5-year moving average of TFP growth gradually ramping up to 1.2%, its long-run average, by the end of this decade (2029). Under this assumption, the level of TFP would be about 20% higher in the mid-2030s than it is today. This rise is roughly equivalent to the increase in TFP that occurred between 1992 and 2007 (Figure 6).

Adding It All Up

What does our analysis imply for the potential economic growth rate of the United States in coming years? As shown in Figure 7, our rough estimate suggests that labor productivity in the business sector could be growing 2.50% to 2.75% per annum by the end of the decade, which is considerably stronger than the rates that were registered during the past decade but comparable to the rates of 1992-2007. Adding in our forecast for labor force growth shows that potential GDP in the business sector could be growing as strongly as 3.5% per annum by the end of the current decade (Figure 8).

We would note the following caveats to skeptical readers. First, our estimates for labor productivity are based on the narrowly defined business sector. Analysts typically consider the total economy, which includes the government and non-profit organizations as well as the private business sector, when thinking about the potential output of an economy. CBO's estimates of the annual potential growth rate of the total U.S. economy are, on average, 0.5 percentage points below estimates of the potential growth rate of the business sector (Figure 9). If that residual is used as a guide, then the potential growth rate of the total U.S. economy would rise to about 3% by the end of the decade rather than the 3.5% we estimate for the business sector.

Second, our rough estimate of productivity growth between now and the end of the decade that is shown in Figure 8 is made under the simplifying assumption that changes in labor composition will have no effect on labor productivity in coming years. If instead, the contribution from labor composition remains modestly negative, as it has been in recent years (Figure 7), then growth in labor productivity would be slightly less robust in coming years than our estimates suggest.
Third, there is considerable uncertainty regarding forecasts of labor force growth and growth in labor productivity, and hence potential economic growth, in coming years. The robust inflows of immigrants that have characterized recent years may not continue, and the rebound in the labor force participation rate may peter out. Growth in TFP, which is unobservable and must be estimated, is a real wild card. Although a return of TFP growth to its long-run trend seems reasonable, we acknowledge that it could take longer than the end of the decade to reach that growth rate due to the lags that historically have been associated with adoption of new technologies. If the actual growth rates of the labor force and labor productivity end up weaker than our estimates, then the potential economic growth rate of the U.S. economy in coming years likely will fall well short of 3% per annum.

That said, the incipient build-out of AI and automation capabilities gives us a reasonable degree of confidence that growth in the net capital stock will strengthen in coming years. CBO estimates that the potential growth rate of the U.S. economy is currently 2.2% per annum at present. In our view, an annual rate of potential economic growth of 2.5% for the total economy by the end of the decade seems reasonable with a rate as high as 3% potentially achievable, especially if AI boosts total factor productivity to the degree that some recent studies suggest.

Implications of Stronger Potential Economic Growth

There are a number of meaningful implications of potential economic growth, starting with an economy’s size. As noted above, CBO estimates that the potential growth rate of the U.S. economy is 2.2% at present. The level of U.S. real GDP stood at $22.4 trillion at the end of 2023, and if real GDP grows at 2.2% per annum through 2029, then the size of the U.S. economy will grow to $25.3 trillion at the end of the decade. If, however, the potential growth rate of the U.S. economy ramps up as we show in Figure 9, then real GDP will rise to $26.2 trillion. In short, the U.S. economy at the end of the 2020s would be 17% larger than today under the stronger growth scenario, versus 13% larger under the current consensus estimate of potential growth (Figure 10).

Furthermore, an economy’s potential growth rate has implications for interest rates. We noted in the series on artificial intelligence that an economy with a higher rate of potential growth would have higher equilibrium real interest rates, everything else equal. If the potential rate of economic growth in the United States strengthens in coming years, then interest rates likely will be higher throughout future business cycles than they were during the last economic expansion. Short-term interest rates, as measured by 1-month LIBOR, averaged about 70 bps between 2010 and 2019, while the yield on the benchmark 10-year Treasury note averaged roughly 2.40% during that period.

A potential growth rate of 2.5% by the end of the decade seems reasonable, with 3% potentially achievable.
Finally, we have noted the positive effect that artificial intelligence can have on productivity growth throughout this series. There is common perception that AI could lead to mass unemployment in coming years, but we think this concern is overblown. As we discussed in our series on AI, technological revolutions can lift employment rather than destroy it. Technology can complement existing jobs by allowing workers to focus on higher value-added tasks, new industries can be created, and the higher levels of aggregate real income that are associated with productivity acceleration can raise demand for all goods and services, thereby bolstering total employment.

Bessen (2019) also argues that new technologies do not necessarily lead to job losses. Bessen explains that new technology reduces prices through labor productivity enhancements, which leads to higher demand for an industry’s good or service and stronger job growth, at least for a period of time. For example, prices of “personal computers and peripheral equipment,” as measured in the Consumer Price Index, have dropped by more than 75% since 2005. But when demand for that good or service eventually becomes satiated, employment in related industries can decline. Consequently, individuals may need to learn new skills to facilitate their transition to other industries and occupations.

We closed our AI series by acknowledging that “new technologies can be disruptive, which can cause detrimental microeconomic effects to individuals that in turn can have social and political consequences.” Therefore, we concluded that “supportive public policy may be needed in coming years if generative AI has disruptive microeconomic effects that lead to social and political pathologies.” But we also stated that “we generally are AI optimists, at least in terms of its macroeconomic effects.” We remain AI optimists today.

Ultimately, we suspect the economy’s potential growth rate is higher than what it averaged over the past expansion (~1.8%). Potential growth rates are challenging to estimate, but we feel reasonably confident that the potential growth rate of the U.S. economy could ramp up to 2.5 per annum by the end of the decade. A potential growth rate as high as 3% could be within reach if labor force growth does not sink back to rates of the past decade and AI adoption speedily diffuses throughout the economy.

**Endnote**

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