

SPECIAL REPORT

TD Economics



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ECONOMIC GROWTH AFTER RECOVERY: QUANTIFYING THE NEW NORMAL

Highlights

- The U.S. economy is likely to grow by around 3.0% over the next several years, roughly in line with the average pace of growth over the last century.
- Once the economy has eliminated its excess capacity, the pace of economic growth will be determined by supply factors – growth in the labor force and labor force productivity.
- As the population ages, labor force growth is likely to slow to around 0.5% a year. Labor force productivity is likely to grow by around 1.5%, implying overall potential real GDP growth of around 2.0%.
- A slower rate of economic growth relative to history will have wide reaching implications. In combination with relatively low inflation, it will imply lower interest rates, slower growth in revenues for governments, profits for businesses and incomes for households.
- Raising the rate of potential economic growth will require raising labor force growth and/or labor productivity. Immigration reform could help to do both, increasing the labor force through higher immigration and, over the longer-term, labor productivity through the skills of new immigrants.

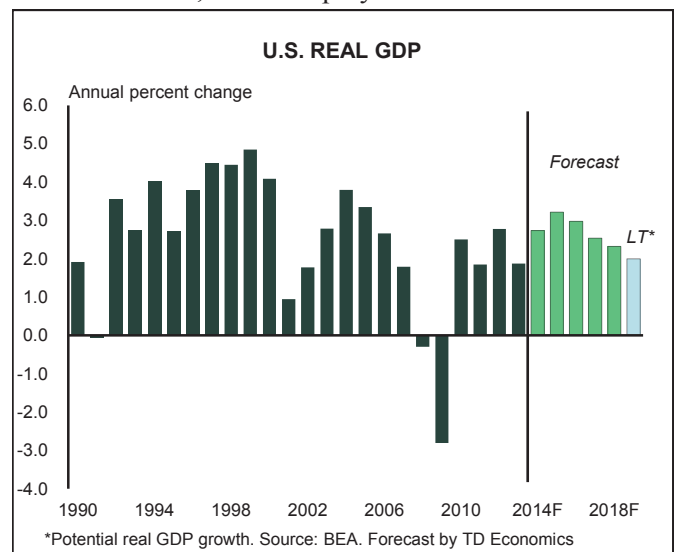
Over the last century, the U.S. economy has grown by slightly over 3.0%. Economic growth is likely to accelerate to close this historical average over the next three years, supported by pent-up consumer demand, rising housing construction, and faster business investment growth amidst low borrowing costs and diminishing fiscal drag.

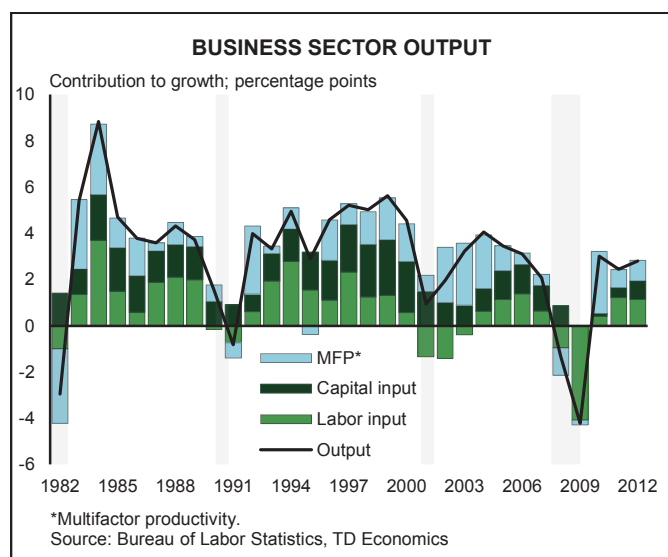
However, 3% growth is unlikely to be sustained indefinitely. As the recovery moves into higher gear, economic slack will dissipate. The unemployment rate, which currently sits at 6.7%, is expected to fall to 5.8% by the end of 2015 and further to 5.5% by the end of 2016. At this level, the unemployment rate will be near its long-run structural level, no longer reflecting a cyclical shortfall in employment.

Thereafter, economic growth will be determined by supply factors – growth in the labor force and labor productivity. By 2018, the labor force is likely to expand by just 0.5% a year. At the same time, labor productivity, which has averaged over 2.5% over the past 65 years, is also likely to underperform its historical trend. Slower investment growth relative to depreciation is likely to temper the pace of labor productivity to around 1.5% a year.

All told, as the recovery runs its course, the U.S. economy is likely to grow by around 2.0% a year. Slower economic growth will have wide reaching implications, impacting monetary and fiscal policy, investment returns and income inequality.

The good news is that there are ways of lifting the potential rate





of growth. Most promising, immigration reform could raise both potential labor force growth and labor productivity.

The arithmetic of growth

The economy is a bit like a factory. How much it produces depends on the number of people it employs (and the hours they work), the machines and raw materials it uses, and how efficiently it turns these inputs into output. Broadly speaking, there are three ways to grow an economy: increase the number (or hours) of people working, add more machines, or make workers and machines more efficient. America has relied on a combination of all three. Over the last 70 years, increases in labor hours have explained just under 25% of growth, greater capital inputs (machinery, equipment and buildings) has explained just over 40%, and improved efficiency has explained 35%.

Another perhaps simpler way to think about economic growth is to think about it in terms of labor hours and labor productivity. Increases in labor productivity have been the more important factor in explaining American economic growth. The Bureau of Labor Statistics (BLS) estimates data for the business sector (excluding government and households where productivity is harder to ascertain) going back to 1947. Over that period, labor productivity growth, as measured by real output per labor hour worked, has averaged 2.5%, while growth in labor hours have averaged 1.0%. As such, increases in labor productivity have explained over 70% of the 3.5% annual average growth in real business sector GDP over this period.

While labor productivity has grown by 2.5% on average, it has not done so consistently. Labor productivity growth

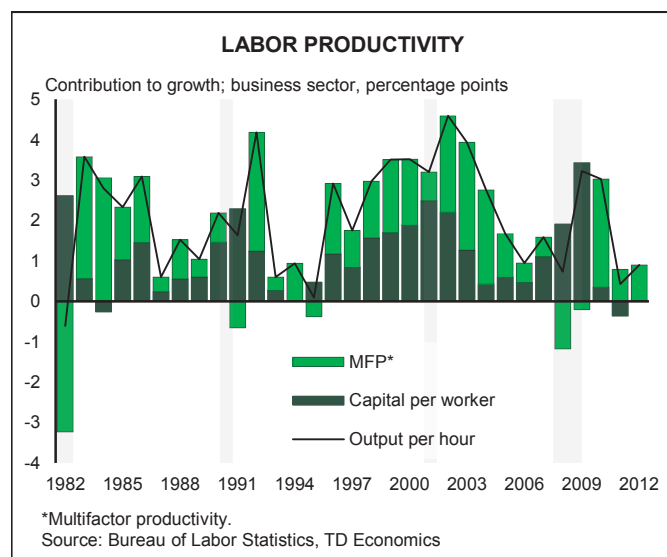
was especially strong in the immediate post-war period from the 1950s and 1960s when it averaged over 3.0% a year. It then slowed fairly dramatically from the mid-1970s through the mid-1990s to just over 1.5%. The tech boom of the late 1990s raised productivity over the next decade back towards 3.0% annually, but it has slowed again to under 2.0% over the past five years.

In the next section we consider the determinants of labor productivity and lay out a base case assumption for its growth over the longer-term.

Slower investment likely to weigh on labor productivity

Giving workers more and better machines to work with tends to make them more productive. So too do improvements in management practices and other technological innovations that make work more efficient. Higher investment relative to depreciation raises the amount of physical capital (or more importantly, the services provided by capital) that is available to workers. Using data from the BLS, we can break down the contribution to labor productivity from additional capital services per worker and from changes in technology/efficiency. Over the last 70 years, additional capital per worker has been responsible for around 45% of the growth in labor productivity.

Estimating the level of capital is no easy task and there are large uncertainties around the rate of depreciation of various types of capital (which range from computer software to factory buildings). Nonetheless, there is little doubt that investment spending has slowed considerably over the past several years. Investment in equipment fell 31% during the recession and investment in non-residential structures fell



38%. The weakness was masked by a steep fall in employment and therefore hours worked that led to an increase in capital per worker during the recession. However, over the past two years, as a result of the decline in investment, capital services per labor hour are estimated to have fallen in both 2011 and 2012, the largest two-year decline in over 34 years. The important point is that reduced investment in the past implies slower productivity growth in the future. It would take a much stronger rebound in investment in order to get back to historical rates of growth in capital per worker.

Using our forecast for investment spending and assumptions on depreciation, we can build out a forecast for capital's contribution to labor productivity. We expect growth in capital per worker to add 0.6 percentage points to labor productivity growth, slightly over half its historical pace.

The other half of labor productivity growth is from improvements in efficiency or technological changes. In economic lingo this is referred to as multifactor productivity (MFP) because it captures changes in output unrelated to additional labor or capital.

The tech boom of the late 1990s was the main factor behind strong MFP growth in the early 2000s. It is admittedly difficult to predict future changes in technology, however, there is evidence that it is slowing. Prices for computers and other information technology fell sharply during the late 1990s relative to overall prices, but this "deflation" in technology prices has slowed considerably since then. This suggests a slower growth in the technology embodied in newer vintages of information technology and could signal a slowdown in technological innovation more broadly. Perhaps just as important, investment in software and research



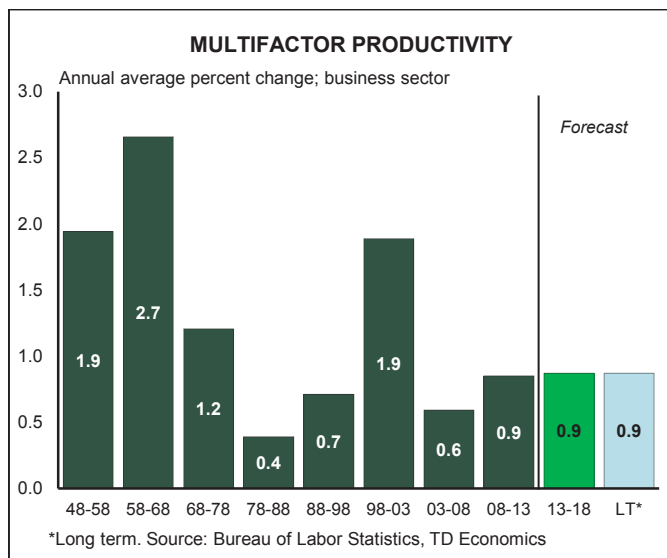
and development (R&D) has slowed over the last decade. In addition to the reduction in capital per worker that this implies, less R&D investment implies a slower rate of future technological change.

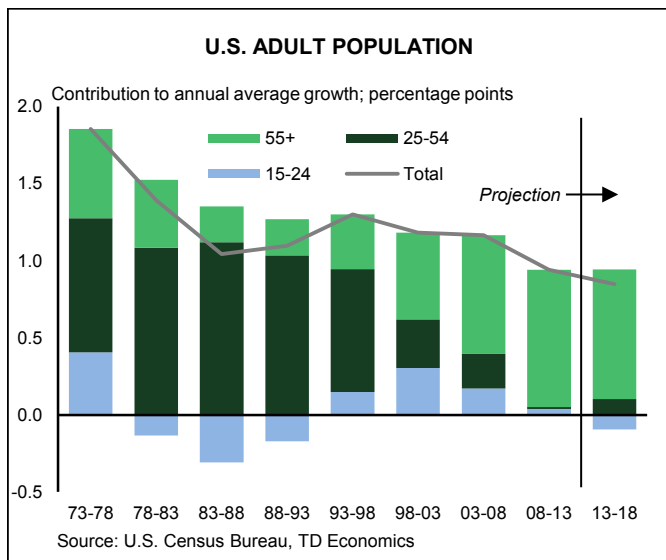
Another factor that could potentially slow MFP is population aging. Productivity gains are positively correlated with age and experience up until a point, but then begin to slow. The ability to acquire new skills and therefore increase productivity likely diminishes in a population whose growth depends on older workers. Still, it is uncertain how aging will effect labor productivity overall. Increased labor scarcity will increase the incentive for businesses to invest in capital equipment and raise the return on human capital investment and labor saving technological change. This could offset the negative impact of population aging on productivity.

All told, predictions about future labor productivity are inherently uncertain; but, given the slowdown in investment spending, it is reasonable to expect a slowdown relative the historical average of 2.5%. Labor productivity growth of 1.5% follows from a contribution of 0.6 percentage points from additional capital per worker and from MFP growth of 0.9%. This is slower than the historical rate for MFP growth of 1.4% over the past 70 years, but it is consistent with the rate over the past 40 years.

Labor force growth will continue to slow as population ages

Advances in labor productivity have explained most of the increase in economic output over the post-war period, but demographics have also been an important factor. Faster labor force growth through the 1970s and 1980s offset much





of the slowdown in labor productivity, allowing overall economic growth to remain relatively stable. Unfortunately, this will not be the case going forward. Instead, from an average of 1.0% a year, labor force growth is likely to slow to around 0.5% by 2018.

The impact of population aging on labor productivity is not cut and dry, but its impact on growth in the labor force and therefore economic growth is more direct. Participation in the labor force follows a fairly predictable life-cycle, rising in early adulthood, peaking around middle-age (40-44) and then declining fairly swiftly after 60. In 2013, 82.3% of the population aged 40 to 44 was working or looking for work. The labor force participation rate was only modestly lower for 45 to 49 year-olds, at 81.2%. For 50 to 55 year-olds, participation falls to 78.3%, and for 60 to 64 year-olds even further to just 55%. While labor force participation rates have been moving up among older age groups, the general life cycle has remained in place.

The aging of the baby-boom generation means that 96% of the population growth over the next five years will be people aged 55 or more. By five-year age groupings, the fastest growing segment of the population will be 70 to 74 year-olds, followed by 65 to 69 year-olds, and 60 to 64 year-olds. This implies that the vast majority of population growth will be in age groups with relatively lower labor force participation rates.

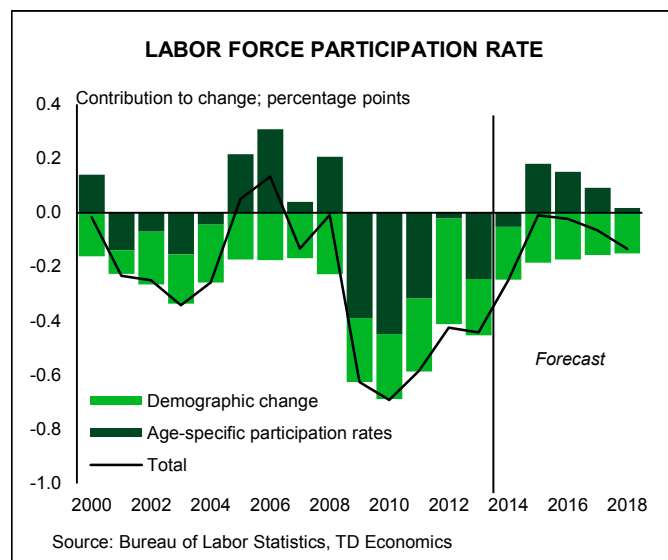
Without any change in age-specific participation rates, the overall participation rate will decline by a little over 0.2 percentage points a year due to the movement of people into older age cohorts. Over the next few years, we expect a cyclical rebound in the participation rates of all age groups,

but especially prime-working age cohorts. However, once the cyclical rebound has run its course, the participation rate will be determined by demographics. This will lead to labor force growth to underperform growth in the adult population, slowing to around 0.5% a year by 2018. Assuming no major changes in the average work week, this implies the same growth in total labor hours.

Implications of slower economic growth

The slowdown in economic growth will have wide reaching implications. Slower economic growth implies lower interest rates relative to history. With real economic growth of 2.0% and inflation of 2.0%, a federal funds rate around 4.00% should be sufficient to prevent the economy from overheating. As the Federal Reserve has recently noted, the fed funds rate may stay even lower than this over the next several years as federal fiscal policy and other headwinds continue to blow against economic growth. Importantly, a lower equilibrium fed funds rate – 3.5% to 4.0% versus 4.5% to 5.0% – also means a smaller buffer for interest rates before reaching the 0% lower bound if recessionary conditions were to redevelop.

Slower economic growth also implies a lower rate of profit growth and therefore investment returns more generally. Corporate profits are already at an all-time high relative to U.S. national income. Maintaining this high share would represent a break with history. In all likelihood, as the labor market tightens, profit margins are likely to narrow. Over the longer term, profits are likely to grow in line with nominal GDP, that is to say, slower than many investors have become accustomed to.



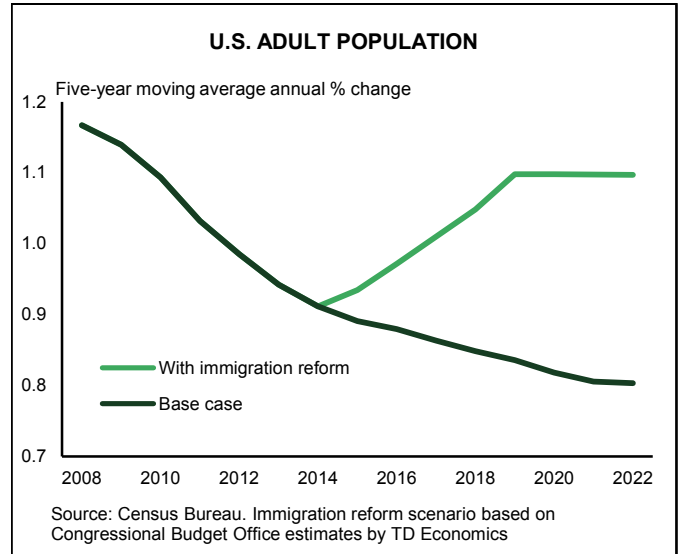
For fiscal policy, slower economic growth means slower revenue growth amidst increasing age-related expenditures. Without changes in policy, revenues are likely to remain a relatively constant share of GDP over the long-term. In growth terms, this means revenue growth will slow to the pace of nominal GDP growth. At the same time, spending will be impacted by the increased healthcare consumption of an aging population. This implies that even if healthcare inflation is contained, healthcare expenditures will grow faster than GDP. The slowing in the growth of the rest of the economy outside of healthcare will only increase this challenge, putting more pressure on cost containment and reform.

Finally, with slower economic growth, other worrying trends such as a higher level of income inequality may worsen. In a recent book, *Capital in the 21st Century*, Thomas Piketty argues that as economic growth slows, inherited wealth plays a more important role in perpetuating inequality. Perhaps just as important, with slower revenue growth and commitments to age-based entitlements, governments' ability to invest in programs that would reverse inequality, such as education or redistributive policy is weakened.

What can be done?

A major source of uncertainty for the growth outlook is the pace of technological change as measured by multifactor productivity (MFP). If MFP moves back towards its rate in the 1960s or early 2000s, economic growth would be as much as a percentage point higher than our base case scenario. There are no easy policy levers that can be pulled to immediately raise MFP, but raising educational attainment and increasing investment in R&D are likely to yield positive results over the medium to long term.

A more immediate way to raise potential growth is to boost labor force growth by increasing immigration. Our projections for population growth are based on the Census Bureau's medium population growth projections, which call for annual population growth of 0.8%. Net migration explains 35% of the expected growth in population. Raising the growth rate of the population by 0.1 percentage point annually would require annual net migration to rise by about 40%, from 700k annually to 1.1 million. This is not impossible. Rates of net migration to the United States were this high in 2001. Maintaining it consistently would require a change in federal policy.



There is a model for such change. The Congressional Budget Office (CBO) estimates that the immigration reform bill passed by the Senate in 2013 would increase the population by 3% over the next decade, raising population growth by around 0.3 percentage points per year. The vast majority of these immigrants would be younger adults in their prime working years, and, according to the CBO, “would participate in the labor force at a higher rate, on average, than other people in that age range.”¹ The rise in the population would therefore lead to a greater than one-to-one increase in labor hours and potential economic growth.

However, immigration reform may very well do even more than this to raise potential GDP growth. In the near-term the increase in the labor hours would reduce the amount of capital per worker, but over the longer-term, this likely would adjust back upward². Moreover, higher rates of innovation and entrepreneurship among immigrants are likely to raise multifactor productivity. The CBO estimates that immigration reform could raise MFP by 0.7% by 2023 and 1.0% by 2033.

All told, the trend is not written in stone, but given slowing demographics and the reduction in investment over the last decade, a slower pace of potential economic growth is likely in store. Policy changes could go a long way to remedying this and will increase in urgency as time passes.

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Endnotes

- 1 Congressional Budget Office, “The Economic Impact of S. 744, the Border Security, Economic Opportunity, and Immigration Modernization Act,” June 2013. Available at: <http://www.cbo.gov/sites/default/files/cbofiles/attachments/44346-Immigration.pdf>
- 2 As the CBO notes, as capital is more scarce relative to labor, its return increases, leading to greater capital investment.

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