

# WHITE

# PAPER

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## Population Bust-Productivity Boom?

**Do you want the good news or the bad news on economic growth first?**

Many people view economic growth as an arcane statistic that is only of concern to politicians, financial types, and economists. While it is a source of constant political and media chatter, much of it is not very productive. Of course economic growth does play a major role in driving the level of employment, personal income, net worth, the quality of life, capital markets, and even our psychological well-being; and deservedly, it is the most closely-watched economic metric. The sources of economic growth are not well-understood by most people, in part because politicians have a propensity to throw out unrealistic forecasts consistent with their policy agendas, but not rooted in fundamentals.



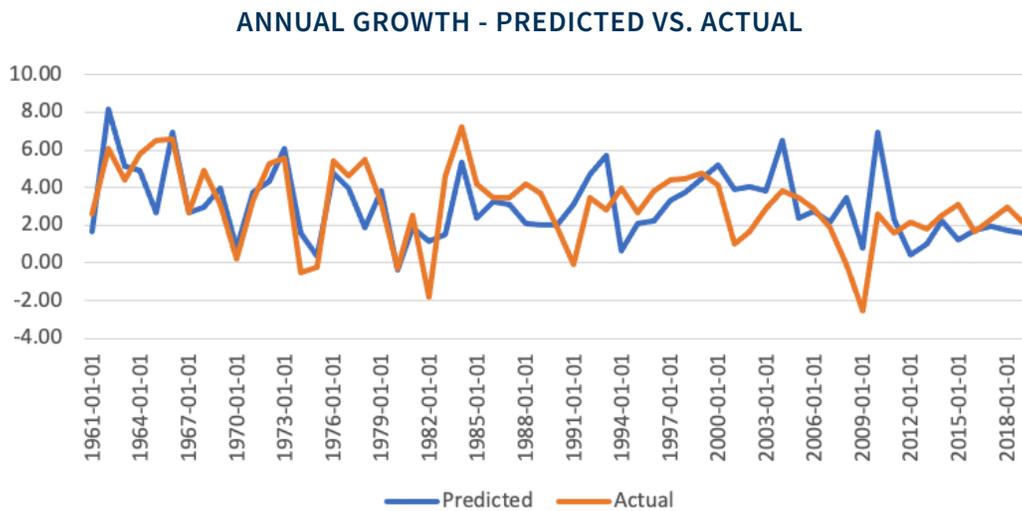
BY BILL SPITZ, PRINCIPAL

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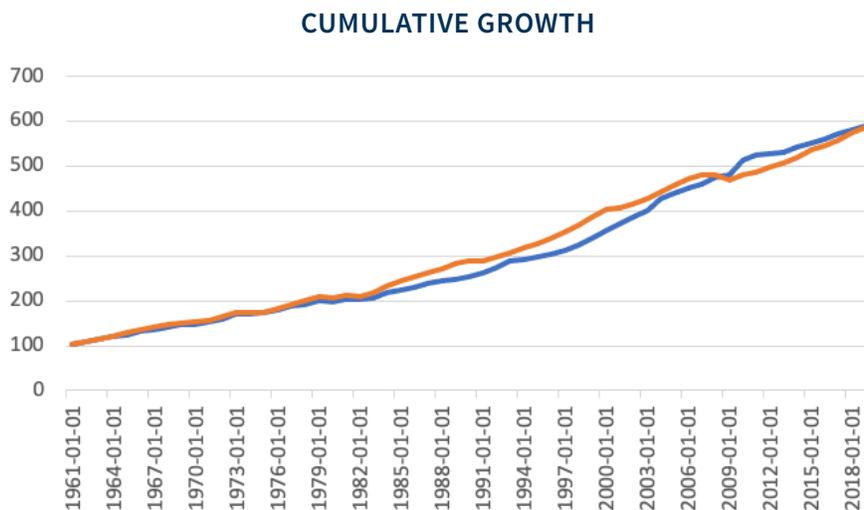
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As has been demonstrated by the pandemic, short-term economic growth is influenced by a variety of factors and can therefore be fairly volatile. But economic output is actually very straightforward; it is equal to the number of people working multiplied by the amount that each worker produces. Therefore, it follows that economic growth is equal to growth in the number of people working plus growth in the amount that each worker produces (also known as productivity growth). The following chart depicts the sum of population and productivity growth (predicted growth) as compared to actual economic growth.



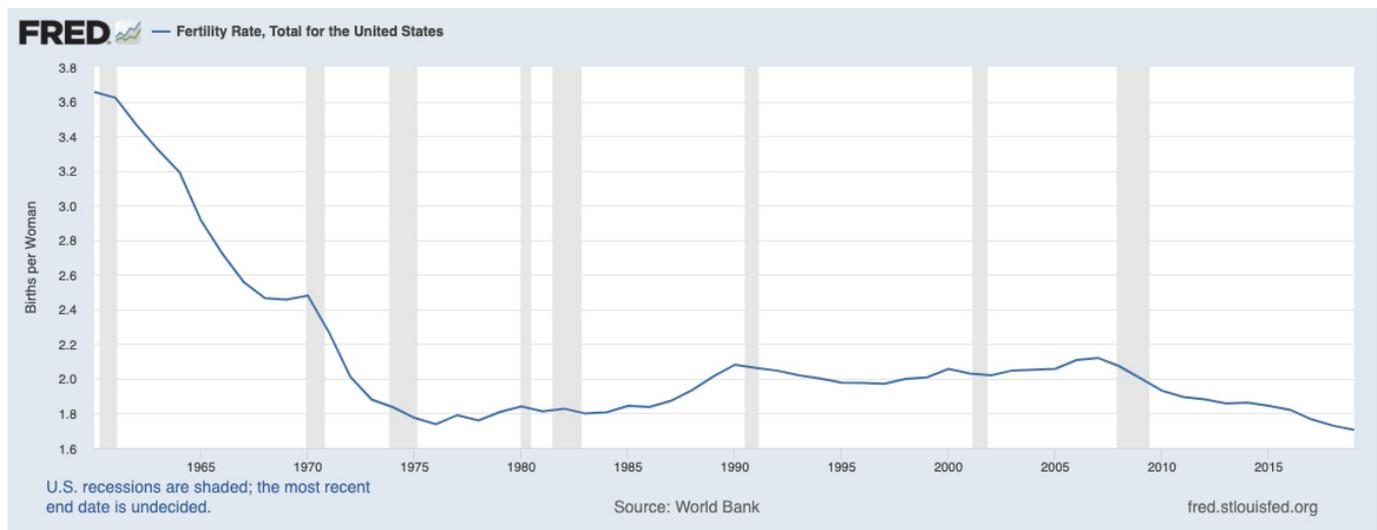
Note that the two lines tend to move in tandem, although there are certainly some wiggles and divergences over interim periods. Despite this short-term variability, the next chart shows that cumulative growth in the two measures over longer periods is virtually identical. Consequently, all other factors that impact economic growth are short term in nature and meaningless over the long haul despite the fact that they attract so much media coverage.



The key point is that we should examine likely trends in the population of working individuals and the level of their output if we want to have some inkling of future growth in the economy. As the title of this paper indicates, there is both good and bad news, so I will bite the bullet and discuss the bad news first.

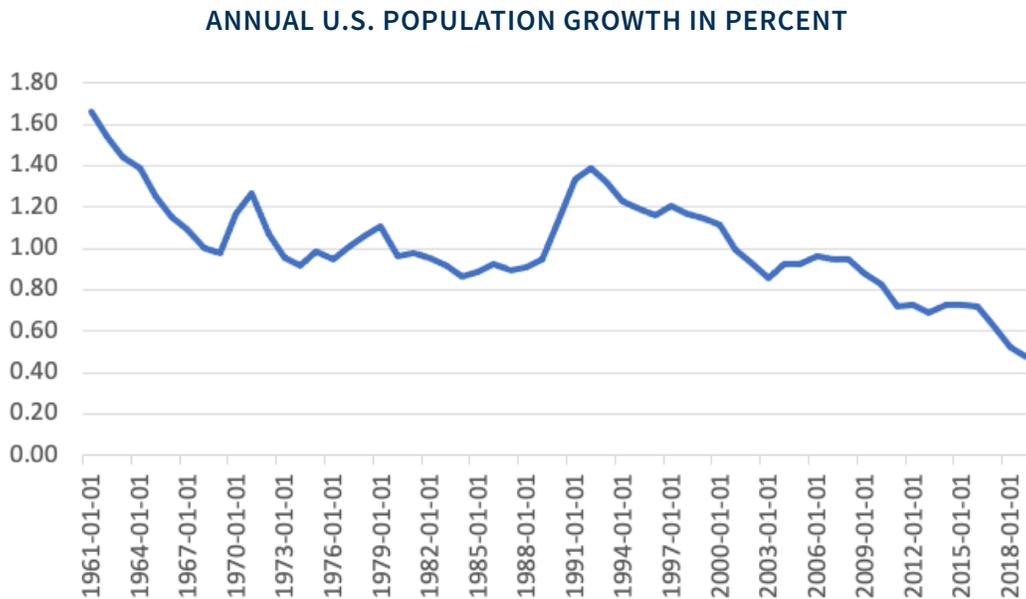
## Working Population

Growth in the number of people working is actually a function of three variables: birth rates, immigration, and what is called the labor-force-participation rate. The unfortunate reality is that all three variables are currently headed in the wrong direction. The following chart depicts the fertility rate, which is defined as the average number of births per woman:



Note that the U.S. birth rate fell from about 3.6 in 1960 to 1.7 in 2019. Then in early May of 2021, it was widely reported that it had fallen to 1.6 in 2020, the sixth straight year of decline. For the year, actual births fell by 4%. By way of comparison, Germany and Japan have fertility rates of 1.6 and 1.4, respectively. All three countries have major demographic challenges because a fertility rate less than 2 means that each couple is not replacing itself.

The second factor is immigration. From 1960 to 2019, legal immigration in the U.S. grew at an average annual rate of 2.7%, but annual growth during the 2014-2019 period was a mere .3%. Combining a declining birth rate with reduced immigration, below is how overall growth in U.S. population looks:



From the 1970s through roughly 2000, U.S. population grew by a little more than 1% per annum, whereas it has averaged .7% for the past ten years, the lowest decade of growth since the 1930s. The actual figure for 2019 was a mere .46%. Data for 2020 will not be available for some time, but preliminary estimates are that overall population growth could have been as low as .35%. The U.S. Census Bureau forecasts annual growth of about .5% per annum for the next forty years, although that figure is subject to some degree of error due to changes in behavior and government policy on immigration. To place this figure in perspective vis-à-vis the rest of the world, it is interesting to look at the extremes. At one end of the spectrum, both low birth and immigration rates have reduced population growth in mature economies, such as Germany and Japan, to .3% and negative .2%, respectively. Yes, the population of Japan is actually shrinking, which makes it very difficult to finance social programs. On the other hand, population in sub-Saharan Africa is expected to grow at a 2.7% annual rate for an extended period. In total, about 99% of future growth in the world’s population is expected to occur in emerging economies. To the surprise of many, China announced in mid-May that its population had grown at only a .56% annual rate over the past decade and that its labor force could drop 5% over the next decade. Here is the bottom line: other than some emerging countries, the world’s population is aging rapidly.

The last piece of the working population puzzle is what is called the labor-force-participation rate or the percentage of the population that is either working or looking for employment.



Ignore the plunge and subsequent partial rebound during 2020 and focus on the longer term trend. From the mid 1960s through around 2000, the participation rate grew from 59% to 67%, primarily as a result of women entering the labor force. However, it has declined to roughly 63% since then. Interestingly, the participation rate for women remains at an all-time high. The decrease, then, is attributable to men, who have opted out of the labor force - in particular men between 25 and 54, who should be in their prime working years. Explanations for this phenomenon are varied and complex, but include retirement of male Baby Boomers, stay-at-home dads, the impact of globalization, the fact that men with felony convictions find it difficult to enter the labor force, poor job skills, educational shortfalls, and opioid addiction. In fact, 48% of the men in the 25-to-54-age group leaving the labor force apply for disability payments. They have simply given up and are using any means available to support themselves.

Many labor economists are concerned that a portion of the significant decline in labor force participation during the pandemic may never be recovered, in part because Covid-19 accelerated the implementation of a variety of labor-saving technologies. Additionally, some workers may permanently abandon industries, such as restaurants and hospitality, realizing the fragile nature of these occupations. Absent retraining opportunities, many of the men displaced by technology may never return to full-time employment.

If the labor-force-participation rate stays low or declines further, the growth in the number of workers will actually be less than the predicted population growth of .5%. What does this all mean? Given that historical growth in the number of workers exceeded 1%, growth in the labor pool of .5%, or even less, implies at least a .5% annual headwind for economic growth going forward. To place that number in perspective, Real GDP growth has averaged a little over 3% from 1960 until 2020. This potential headwind is even more significant in comparison to recent growth, which has averaged 2% in the last twenty years.

## Productivity - The Good News

The other part of the economic growth equation is productivity growth, which is defined as the increase in output per each hour worked. Productivity growth is generally attributable to improved education, skills enhancement, better training, improved health, employment of labor saving devices, and other forms of capital spending.



Productivity growth can be quite volatile from year to year as this chart depicts average growth over five-year periods from 1965 to 2019. (I have excluded 2020 data due to the extreme distortion caused by the pandemic lockdown.) The average is shown by the red line at 2.2%. The discouraging point is that annual productivity growth declined from a peak of 3.7% for the five years ending in 2004 to .8% for the period ending in 2017 before improving slightly and leveling off at 1.3% in the years leading up to Covid-19.

This decrease is highly puzzling to economists given the boom in technology since the late 1990s. Some believe there is something wrong with the way productivity is measured and that important components of the economy are not being captured. For example, how do you measure the impact of social media, which is such an important part of our daily lives? Others posit that it takes time for technological advances to really have a dramatic impact on production and output, so perhaps those benefits are finally just around the corner.

In fact, there is a view that we are at a major inflection point and will actually experience a boom in productivity growth. One supporting data point is that productivity grew at a 4% annual rate for the year ending January 2021. Given the economic volatility caused by the pandemic, it is risky to place too much stock in one year's results; however, there are legitimate arguments in support of the productivity boom theory.

First, the pandemic necessitated a new way of conducting business in most industries characterized by widespread implementation of productivity enhancing technologies. These technologies include artificial intelligence and other forms of automation, as well as robotics. Purchases of robots in North America increased by 64% in the fourth quarter of 2020 as compared to the same quarter in the year prior. Interestingly, the food processing, consumer goods manufacturing, and life science sectors all increased orders for robots by a greater percentage than the automobile industry which has historically been the largest purchaser. A survey by engineering company ABB Ltd. found that 8 out of 10 workplaces intend either to introduce or to increase the use of robotics in the next decade.

Second, virtually every sector is experiencing a boom in on-line activity, which is decreasing costs, and in many cases, resulting in significant revenue growth. In particular, on-line retail sales increased 44% in 2020 and now represent 21.3% of overall retail sales. While it is very difficult to predict consumer behavior in the post pandemic world, it seems likely that the most successful retailers will be those that offer some combination of physical and on-line capability.

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Third, the 2020 shift to work from home is expected to at least partially remain in place even as many workers return to the office. Some researchers estimate that work from home increases productivity by as much as 5% because of the elimination of commuting time, unnecessary travel, in-person meetings, and excess office space.

The final potential source of productivity improvement is the likely demise of what are known as *zombies*, poorly-run companies that, in many cases, do not earn enough to meet the interest obligation on their debt. While artificially low interest rates have allowed a large number of these inefficient companies to survive, many expect that a day of reckoning may be at hand. Since these companies tend to be highly inefficient, their demise should enhance productivity for the overall economy.

A March 2021 report by The McKinsey Global Institute, tying this all together, predicted the aforementioned factors will increase the annual rate of productivity growth by 1% for the next three to five years. Similarly, Goldman Sachs expects a 1.3% boost. While these do not seem like large numbers, remember that actual productivity growth for the five years ending in 2019 was 1.3%, so we are talking about a potential doubling in output per hour. One very interesting sidebar is that it appears that the largest investments in automation and resulting increases in productivity have taken place at what were already leading companies. While not surprising, it raises the question once again of whether the global dominance of a small number of powerful companies is healthy for the overall economy. However, I leave that topic to greater minds!

## Implications

Immediately prior to the onset of Covid-19, population and productivity growth were muddling along at .5% and 1.3%, respectively, suggesting a growth rate in real GDP of about 1.8%, which is even lower than the disappointing 2% growth rate that has prevailed since 2000. And it is materially lower than the 4-6% growth rates that were predicted by the last administration (I'm not picking on the Trump administration because

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## IMPORTANT NOTES AND DISCLOSURES

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most of his predecessors have been guilty of overly optimistic predictions as well.). A 1.8% growth rate is hardly catastrophic, but it does present challenges in terms of corporate profits, growth in personal income, and potentially the return on capital markets.

How do we get to an economic growth rate that is closer to or even exceeds the long-term level of about 3%? Population growth is largely baked-in so it has to come from productivity growth. While the Covid-19 pandemic has been horrific in most respects, it clearly accelerated trends in automation that would have otherwise taken years to implement. The tea leaves do provide a hint that the productivity boom may finally be at hand. If so, we could enjoy a period of exciting growth that should also provide a supportive environment for the capital markets. Technological change will certainly result in losers, but I am hopeful that we can develop the necessary retraining programs in order that we all thrive. Otherwise, income inequality will continue, if not accelerate, which may well lead to a variety of social and political problems. If we deal with these issues, I am cautiously optimistic that we can collectively enjoy what has been termed the *Fourth Industrial Revolution*.

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## ATLANTA

400 Galleria Parkway, Suite 1400  
Atlanta, GA 30339  
*Phone: 770.226.5333*



## GREENSBORO

701 Green Valley Road, Suite 300  
Greensboro, NC 27408  
*Phone: 336.217.0151*



## MEMPHIS

6075 Poplar Avenue, Suite 850  
Memphis, TN 38119  
*Phone: 901.761.7979*



## NASHVILLE

3102 West End Avenue, Suite 600  
Nashville, TN 37203  
*Phone: 615.386.7302*