An Uncertain Economic Future for the United States

Robert L. Olson

Abstract: There is extraordinary uncertainty about how the U.S. economy will perform over the next two decades because so many of the variables that affect the economy are in flux. As a result, 20-year forecasts are highly problematic and a more responsible approach is to consider alternative forecasts of how economic conditions could evolve. This essay sets out scenarios that represent some of the main views held by economists and other informed professionals and leaders. Each view is plausible and there is no “right” view on which to base decisions. The better approach is to be prepared to make the best of whatever circumstances emerge by thinking in advance about what actions would be appropriate in each of them—and what actions would make sense no matter what the future holds.

KEY WORDS: economy, growth, technology, scenarios


Robert L. Olson is senior fellow, recently retired, at the Institute for Alternative Futures; director of research at the institute for 15 years. To contact, email at bobolson2020@gmail.com.
Introduction

This essay sets out alternative views, expressed as scenarios, of how the U.S. economy may perform over the next 20 years and gives examples of implications that these different economic conditions could have for the forest products sector and forest management in the United States. Scenarios “contain the stories of multiple futures, from the expected to the wildcard, in forms that are analytically coherent and imaginatively engaging” (Bishop et al. 2007: 5). The measure most widely used for assessing a Nation’s economic performance is growth in the gross domestic product (GDP). GDP is a measure of the market value of all the goods and services produced in a period of time, typically quarterly and yearly. The views explored here differ primarily in their expectations regarding GDP growth.

Past Trends

Gross domestic product has grown steadily in the United States over the entire past century despite periodic recessions and one major depression (U.S. Bureau of Economic Analysis 2019). The rate of the economy’s growth has varied considerably over this time, going on average from very rapid (above 4 percent per year) between World War II and the 1960s to somewhat slower from 1970 to 2000 (around 3 percent) and still slower since the beginning of the 21st century (nearer 2 percent) (Fig. 1).

Figure 1.—Rolling 10-year averages of annual growth in real gross domestic product in the United States. Periods between official start and end dates for recessions are shaded. Source: Martin (2017a).
A Look Ahead

Twenty-year forecasts of U.S. economic performance are highly problematic because of considerable uncertainty about how technological change, productivity growth, public policy, debt, inflation, interest rates, international trade rules, and many other factors will play out over the years ahead. Rather than 20-year predictions, a more responsible approach is to consider scenarios that set out alternative views held by economists, corporate leaders, public officials, and technology visionaries.

Two scenarios that capture the most widely held views about how economic conditions could evolve are labeled Higher Growth and Slow Growth (see, for example, Bengston et al. 2016, Laitner et al. 2016, Panayotou 2016, Wilkinson 2016). Higher Growth reflects the view that it is possible to return to the higher growth rates more typical of the 1960s or at least the period from 1970 to 2000. Slow Growth represents the view that the recent uptick in growth is temporary and we are likely to return soon to the slower post-2000 rate of growth.

Two other scenarios labeled Techno-Economic Acceleration and Hard Times represent views that are less widely held but deserve consideration (Laitner et al. 2016). Techno-Economic Acceleration explores the ideas of visionaries who believe emerging technologies could trigger an unprecedented surge of U.S. and global growth (Brown 2011, Perez 2010). Hard Times examines the risks that some experts believe could seriously undermine economic performance. The following descriptions make the case for the plausibility of each of these viewpoints.

Scenario 1: Higher Growth

The economy will grow rapidly over the next few years and there are major forces likely to drive continuing strong growth, with only minor interruptions, over the next 20 years. Goldman Sachs’ “Macroeconomic Outlook 2018” states that the current global economic outlook is “as good as it gets,” buoyed by a synchronized expansion across both developed and developing markets with every major economy on Earth expanding at the same time (Goldman Sachs 2017). The World Bank report “Global Economic Prospects” is nearly as optimistic (World Bank 2018).

As of the time of writing, unemployment is low, consumer confidence is robust, and business investment is expanding in the United States. Tax cuts and regulatory reforms are expected to stimulate further investment and, despite inevitable corrections, the stock market is at near-record levels. The International Monetary Fund has lifted expectations for U.S. expansion in 2018 to 2.7 percent from 2.3 percent because of the tax cuts (Goodman 2018). The current administration’s stated goal for the years ahead is a growth rate of 4 percent or higher (Bach 2017).

There are fundamental forces that could sustain strong growth over the next two decades. For example, information technology may be able to do much more to support growth. A recent report by the Technology CEO Council argues that roughly 70 percent of U.S. business sectors, including some of the largest, such as manufacturing, health care, and transportation, have underinvested in digital technologies, but the level of commitment is changing rapidly (Mandell and Swanson 2017). Dramatic improvements in business operations are anticipated as artificial intelligence applications are developed and implemented (Brynjolfsson and McAfee 2017).

Energy is another area that could help to sustain U.S. economic growth. The United States is on the verge of dethroning Saudi Arabia as the world’s largest oil producer due to the success of hydraulic fracturing (fracking) technology. Plans to open vast ocean areas to offshore exploration and open the Arctic National Wildlife Refuge (ANWR) for drilling could
assure that the United States remains an energy superpower for years to come (Blas 2018). People who hold this view do not expect the economy to be trouble-free for the next generation. But they believe that an overall growth rate of 3 percent or higher is both desirable and likely.

Scenario 2: Slow Growth

The projection by the Congressional Budget Office (2017) that growth will be near 2 percent per year over the decade ahead is more plausible than the growth rates of 3 to 4 percent—or better—that the current administration is promising. There are also major forces likely to prevent growth from accelerating into the 2030s (Congressional Budget Office 2017).

Consumer spending is the primary driver of growth in the United States, but the middle class is becoming too weak to support historical levels of spending. While the top 1 percent of income earners has been taking home well over 90 percent of the growth in income, households in the middle have lower incomes, adjusted for inflation, than they did 20 years ago (Stiglitz 2013). Middle-income households have been attempting to sustain their buying power through the use of credit, but average household credit card debt has reached $5,700 and average balance-carrying credit card debt is $16,048 (ValuePenguin 2017). This debt burden makes it difficult over the long term to continue spending at past rates (ValuePenguin 2017). Age is another factor affecting spending. A 40-percent decline in consumer spending occurs from age 45 to 74, so the aging baby boom generation will be spending less over time (Alkin 2018).

More people working and contributing to the economy also drives growth. But as former chair of the Federal Reserve Alan Greenspan points out, with unemployment down to nearly 4 percent, the economy cannot continue creating as many jobs as it has in recent years (Summers 2017). The retirement of baby boomers is also causing the labor force to expand more slowly, and immigration restrictions would do the same (Samuelson 2016).

In light of the constraints on consumer spending and labor force expansion, the rate of growth depends mainly on improvements in productivity (output per unit of labor input). But productivity gains have significantly declined since 1970 (Samuelson 2016). Many reasons have been suggested for this phenomenon, including rising energy prices and a structural shift in the economy from high to low productivity sectors (e.g., from manufacturing to services). Developments like these are not easily or quickly reversible.

Technological progress has been the largest contributor to productivity over generations past, but its influence is also declining. Economic historian Robert Gordon demonstrates in statistical detail that productivity and living standards increased during the “special century” from 1870 to 1970 more rapidly than at any time before or after. He argues that we have exhausted a broad range of “can only happen once” inventions and have little prospect of soon finding another set of inventions of such breadth and impact. Going from no aircraft to global jet travel can only happen once, for example, and further progress to supersonic or hypersonic transportation will have small impacts by comparison. The same is true for electric motors in manufacturing, automobiles, television, central heating and air conditioning, lighting, and many other areas. Despite the hype about information technology, Gordon shows it has had very little impact on productivity to date (Gordon 2016, Nordhaus 2016).

People who hold the Slow Growth view admit there are developments that could lead to faster growth. Among these forces are technical progress that lowers energy costs, policies that
boost the buying power of middle-income families, or possible productivity increases from the utilization of artificial intelligence.

**Scenario 3: Techno-Economic Acceleration**

A recent McKinsey & Company report highlights the beginning of what the authors call a “new era” of major industry disruption by emerging technologies: “We’re not just being invaded by a few technologies … but rather are experiencing a *combinatorial technology explosion*” (Greenberg et al. 2017: 2). Even some environmentalists concerned about the environmental impacts of emerging technologies believe that we are at a “critical point in history, where technical changes even larger than those that produced the industrial revolution are converging” (Olson and Rejeski 2005: 2).

Some analysts are highly optimistic about what a convergence of major technical developments could make possible. Peter Diamandis, the founder of the X Prize Foundation, believes it can lift the whole world. He argues that “new transformational technologies—computational systems, networks and sensors, artificial intelligence, biotechnology, bioinformatics, 3-D printing, nanotechnology, human-machine interfaces, and biomedical engineering—will soon enable the vast majority of humanity to experience what only the affluent have access to today” (Diamandis and Kotler 2012).

This forecast is tame compared to those of computer scientist, inventor, and futurist Ray Kurzweil, who argues that because technological progress is increasing at an exponential rate we seriously underestimate what will soon be possible. In “The Singularity Is Near,” Kurzweil (2005) forecasts that by the 2030s nanotechnology-based molecular manufacturing will be in widespread use. Molecular manufacturing would manipulate materials at the atomic level, allowing products of all kinds to be produced quickly at a miniscule fraction of the cost of traditional manufacturing and with no atoms wasted or out of place (i.e., perfect efficiency, zero pollution). He believes this will lead very quickly to a world of high-level universal affluence (Kurzweil 2005).

Forecasts like this strike many people as optimistic to the point of being out of touch with reality, but Kurzweil is, in fact, the director of engineering at Google. One does not have to give credence to views this extreme, however, to appreciate the possibility that accelerating technological change could have substantial economic impacts.

**Scenario 4: Hard Times**

Some economic analysts are concerned about potential risks that could bring hard times or even an economic collapse. The largest risk for the global economy is probably the high level of private and public sector debt in major economies. The United States has unprecedented and unsustainable debt—projected at 144 percent of GDP or higher by 2050 (up from 78 percent; Congressional Budget Office 2019), driven upward rapidly by both tax cuts and spending increases. But economists are even more concerned about China. A recent report by the International Monetary Fund warned that the current trajectory of China’s debt is “unsustainable” and therefore “dangerous” (Martin 2017c). Research published in December 2017 by analysts at Deutsche Bank estimate the probability of a crisis in the Chinese economy at as high as 13 percent (Martin 2017b).

Conflict and instability are another source of risk. The World Economic Forum’s 2018 annual assessment of risk factors based on a survey of 1,000 experts found that 93 percent of respondents worry there is an increasing likelihood of political or economic confrontations. Some 79 percent are concerned about a heightened likelihood of military conflict and 73 percent see rising risks of
an erosion of world trading rules (World Economic Forum 2018). Developments like a major conflict in the Middle East, a military engagement with North Korea, or a trade war with China might deal serious blows to the global economy.

Much larger risks than we commonly appreciate may also come from things we are not even aware of or do not understand. Such events are what Nassim Taleb has called black swans, events that are highly improbable (Taleb 2010). As the Great Recession got underway in 2007, some honest economists admitted that they knew hardly anything about credit-default swaps, auction-rate securities, collateralized debt obligations, and other high-risk new financial instruments being invented for valid or disreputable purposes. Risky unknowns and black swans may emerge from practices such as China’s “shadow banking” system and the decrease in regulation of the U.S. financial system (Shen 2019, Sun 2019, Zhang 2017).

**Implications for the Forest Products Sector and Forest Management in the United States**

These four scenarios have multiple implications for forest, forest products, and natural resource management institutions. The following examples illustrate how strongly the forest products sector of the economy and forest resources themselves could be influenced—positively and negatively—by these alternative economic conditions.

The Slow Growth scenario could continue the current situation of lost economic capacity with declines in research and innovation. Slow growth, combined with a steady increase in entitlement costs, would put continuing pressure on Federal agency budgets. Combined with ecosystem change and increased wildfire, the USDA Forest Service could increasingly become the “Fire Service.” Forest Service funding priorities could shift almost entirely to fire management (see North et al. 2015). On the other hand, although slower economic growth would probably put continuing downward pressure on Federal budgets, it would also be likely to reduce the pressure of housing development and result in less fragmented forests in the long run.

The Hard Times scenario could cause a further decline in employment and natural resource management, possibly even a sharp decline, with some capacity returning to local control. This would be a scenario where Federal budgets are cut back sharply, hindering land management and possibly undermining the capacity to deal with worsening wildfires. Tighter Federal budgets could lead to different organizational models, such as greater State-level support for firefighting operations and the kind of public-private research and development partnership that is currently used in New Zealand (Hall et al. 2017). In a different vein, the Hard Times scenario might create high demand for public land as a focal point for creating jobs, spurring economic growth, and restoring natural resources, as was done in Great Depression programs like the Civilian Conservation Corps (Alexander 2018). A severe and long-term economic decline could also significantly increase the demand for wood as fuel, as homeowners in many areas turn to wood as a low-cost means to heat their homes and cook. This would in turn have implications for air quality and human health, and would also result in increased release of carbon dioxide (CO₂) into the atmosphere.

The Higher Growth scenario could increase consumer demand and put pressure on forest ecosystems. This could drive sprawling development patterns in the future, resulting in increased forest fragmentation and loss of biodiversity. Radeloff and co-authors (2010) estimate that another 17 million housing units will be built within 30 miles (48 km) of protected areas (national parks, national forests, and Federally designated wilderness
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areas) by 2030 if long-term trends continue. This construction would greatly diminish the conservation value of these lands and make land management more complex. The Higher Growth scenario could also increase economic resources that would enable the Forest Service and other forest managers to restore or even expand their full range of operations. The Forest Service might be able to take on a major role in removing built-up fuel in fire-prone areas.

A Techno-Economic Acceleration scenario with very high innovation might generate a huge range of new wood-based products. Research is already underway on innovations such as wood-based nanomaterials, cellulosic material from wood pulp for 3-D printing (additive manufacturing), fabrics made of wood, transparent wood substitutes for glass, electronics using graphene conductors made from wood, and densified “superwood” so strong and durable it might compete with steel or even titanium for many uses (Bengston 2017). Accelerated development of technologies such as artificial intelligence and advanced robotics could also have profound implications for future employment in forestry, forest products, and Federal agencies such as the Forest Service. Experts are deeply divided about the net employment effects of automation (Winick 2018), but it is possible that the number of forestry-related jobs, from arborists to wildland fire fighters, could decrease significantly. Additionally, advances in wood material science could figuratively turn every twig into an electronic device, creating an urgent need to learn how to handle the soaring demand sustainably (Bengston et al. 2016). Alternatively, technical innovation might lead to new processes and materials that make wood obsolete for many functions. For land management institutions, a Techno-Economic Acceleration scenario might provide major new capabilities in areas ranging from forest condition monitoring and invasive species control to precision fire management.

Conclusions

Annual planning and conventional strategic planning require making assumptions about the most likely ecological, social, technological, and economic conditions over the next few years. Even in these short timeframes there is more uncertainty about these conditions than planners typically acknowledge. Over still longer periods the level of uncertainty becomes much higher. Each of the very different 20-year scenarios presented here is plausible and there is no clear “most likely” or “right” scenario for the Forest Service and others in the natural resource management arena to use exclusively as a basis for decision making. Rather than put all their eggs into the basket of a single set of assumptions about the future, institutions can adopt a futures approach to help them prepare for whatever circumstances emerge.

One of the ways to develop this flexibility is to think in advance about what actions would be appropriate in different future circumstances—and what actions would make sense no matter what the future holds. One way for futures methods to stimulate that thinking is through periodic strategic conversations about alternative futures focused through scenario planning (Peterson et al. 2003, Schoemaker 1995). Scenarios can create a framework and a vocabulary for continuing conversations about assumptions, emerging developments, potential surprises, alternative perspectives, and long-term goals and strategies. Holding these conversations at different levels within the organization as well as with stakeholders makes it possible to gather and combine the best ideas from people with different backgrounds and perspectives. As appropriate, these ideas can be used in decision making and planning.
Literature Cited


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