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**National Economic Education Delegation**

**US Economy Narrative**

Date: 12/21/20

Instructions to Presenter:

You should feel free to alter this as you see fit. This is a place where the views of economists will differ significantly and we are not so worried about the politics of it.

In particular, the content of the following slides is up to you:

1. Things to be worried about
2. Positive Outlook
3. Overall Summary
4. And, of course, the local material at the end

See the note from Jeff Frankel:

“Regarding Positive Outlook, I think that we could well have already seen the highpoint for growth, in the first half of the year, and that most likely growth will be less than 3% from here on out.  Also, I don't see inflation and interest rates necessarily remaining favorable.

Regarding overall summary, My personal view is that there is little room left for the economy to grow.  More precisely, any further increase in demand will mostly spill over into the trade deficit rather than raise GDP growth much.  It will probably also put upward pressure on inflation and interest rates.  Most importantly, the fiscal expansion of December (tax cuts) and spring (spending increase) is driving up the national debt, with the likely result that when the next recession hits (whenever that is), there will be no fiscal space to use in responding.  As a result, the recession will be worse than it would otherwise be.

The views you express here are perfectly legitimate.  When it comes to forecasting, nobody knows.  But my outlook would be different.  This is an example of the difficulty of a plan in which one economist is supposed to present the slides prepared by another economist.”

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Note: it is not intended that this presentation is to be used in its entirety. Presentation lengths vary significantly. This presentation is intended to provide the delegate with a menu of slides and a summary of overall economic activity and prospects.

It is also often the case that presentations will be made to specific industry groups (manufacturing, construction, etc.) or regions (states, counties, etc.). It is expected that these slides will be augmented with slides pertaining to the industry or region and that conclusions or summaries about the industry or region will be based on the presentation author’s own perspective. When expressing summaries, please be mindful of partisan interpretations of your conclusions.

It is also anticipated that this presentation may well be the beginning of a presentation on some other policy issue.

Slides:

1. How to Use this Slide Deck

This slide is to be removed prior to the actual presentation.

1. U.S. Economic Update

What is the future direction of the U.S. economy? Currently, there are a number of economic events unfolding, with potentially conflicting outcomes. For example, there has been a significant amount of fiscal stimulus—the government has both reduced taxes and increased spending in the last year. At the same time, there are also some policy decisions ahead that have the potential to slow economic growth, such as changes in immigration policy and trade policy.

1. DO NOT DELETE: National Economic Education Delegation
   1. Give a brief discussion of what NEED is and what NEED does.
      1. 363 delegates, one in each state
      2. 44 honorary board members, including two Nobel Prize winners and three former chairs of the Council of Economic Advisers
   2. Use your judgment for what should be said about NEED.
2. Who We Are?

Some advertising of NEED’s assets. I’d like to encourage its inclusion, but delete if you prefer.

1. Where are we?

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1. DO NOT DELETE: Credits and Disclaimer
2. Outline: U.S. Economic Outlook

In this presentation, we will go through various elements of economic activity that affect GDP growth. GDP is growth domestic product, a common measure of how well the economy is performing. We will talk about employment and unemployment, interest rates, inflation, and other important aspects of the economy.

First, we will take a look at trends in economic growth and GDP.

1. **U.S. Economy in Global Perspective**
2. **Behavior of GDP**

There are a number of influences on U.S. GDP. While some of these influences may be growing, others may be contracting. We will talk about how these components have been changing in recent years.

1. GDP During the Recovery

Gross domestic product is defined as the value of all final goods and services produced in an economy within a given time period. It is a measure of production and income (may want to state why). We use two measures of gross domestic product: *Nominal* GDP, which includes price changes, and *real* GDP, which does not. Real GDP is the measure commonly reported as an indication of how the economy is performing. “Real” is not intended to mean that there are fake measures out there, but simply that our measurements are adjusted for inflation (i.e., they are adjusted for increasing price levels).

This is important because it wouldn’t be accurate to look at growth in economic activity if we included inflation. To understand this, think about the value of GDP in an economy; “value” is simply a price times a quantity produced. “Price” is a unit of measurement, like inches or grams. In order to compare the value of GDP over time, we need to ensure the unit of measurement (i.e., the price) is constant.

However, we know that [prices rise over time](https://fred.stlouisfed.org/graph/?g=klIw). Nominal GDP doesn’t account for rising prices, so GDP rises because prices are rising, production is rising, or both prices and production are rising. This means that increases in nominal GDP does not necessarily mean that the economy is producing anything more, just that the things being produced are more expensive. By controlling for inflation using constant prices, real GDP enables us to observe how much production is changing over time.

Imagine trying to compare how fast you ran a mile in minutes yesterday and in hours today. It doesn’t make sense without converting both measures to either minutes or hours. What we’ve done with real GDP is analogous to converting your running time to minutes or hours.

Another useful measure of production is *potential* GDP.[[1]](#footnote-1) This is an estimate by the Congressional Budget Office (CBO) of how much the economy could produce if it were producing at full capacity. That is, it is the GDP if the economy is at full employment and capital is being used to its fullest extent. This gives us an indication of what GDP *should* be. It should be noted that the potential GDP can vary over time and that the CBO has forecasted lower growth in potential GDP.

It is also important to note that real GDP can be measured as greater than potential GDP. This is unsustainable and is a sign that the economy is “heating up”. When employment exceeds full employment, there will be upward pressure on wages and prices that generally corrects things, bringing real GDP back down to appropriate levels.

Note that the US economy is currently in a situation where real GDP exceeds Potential GDP. The economy may well be in an overheated position, but as we will see, there hasn’t been much response by wages and prices.

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Note: The following is more for the benefit of the presenter rather than to be discussed when presenting.

What is “potential output” and how is it estimated?

Potential output is a measure of the maximum sustainable output in the economy; in other words, it is the level of output consistent with steady growth and stable inflation. One should think of potential output as a “useful benchmark for determining the position of the economy in the business cycle” (Shackleton, 2018, 3).

The CBO estimates potential output in the U.S. economy using a Solow growth model framework and Okun’s law (i.e. negative correlation of unemployment and output). This framework assumes that economic growth is the result of supply side growth traceable to growth in inputs, namely labor and capital. In the CBO model, potential output of the economy is the sum of output across six sectors, the largest of which is the nonfarm business sector (75% of potential output). Each sector's production function is Cobb-Douglas (CD) with inputs potential capital and potential labor except the nonfarm business sector, which includes potential total factor productivity (TFP) as an input. Potential input values are estimated using historical data from the BLS and BEA. These estimates remove fluctuations in labor and capital attributable to business cycles.[[2]](#footnote-2)

Potential TFP is residual growth not attributable to labor or capital growth. TFP is commonly referred to as "technological progress” and also includes capital utilization, institutional changes, investment spillovers, etc. Due to modelling assumptions regarding labor and capital, TFP growth in the CBO model contributes to potential output growth through improvements in labor force education/skills and changes in capital intensity in production.

The CBO's *Budget and Economic Outlook: 2018 to 2028* states that recent behavior of potential output estimates is due to potential TFP growth. In the last several years, potential output growth is not attributable to growth in potential labor or potential capital and thus must be the result of growth in potential TFP. According to the CBO, potential TFP is increasing to its long-term (25 year) average. This drives current estimates and projections of potential output.

For further reading, see

Shackleton, Robert. *Estimating and Projecting Potential Output Using CBO’s Forecasting*

*Growth Model:* [*Working Paper 2018-03*. No. 53558](https://www.cbo.gov/system/files?file=115th-congress-2017-2018/workingpaper/53558-cbosforecastinggrowthmodel-workingpaper.pdf). 2018.

Congressional Budget Office. [*Budget and Economic Outlook: 2018 to 2028*](https://www.cbo.gov/system/files?file=115th-congress-2017-2018/reports/53651-outlook.pdf)*.* April 2018.

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1. GDP Trajectory During Economic Recovery

This graph shows the trajectory of actual GDP relative to estimated potential GDP. They do tend to track each other quite closely, outside of recessionary periods. In the graph, there are at least four obvious points during which real GDP fell significantly below potential GDP, and these are all following recessions. There is generally a lag following the end of a recession and the return to potential GDP.

The most recent gap was after the Great Recession. At the height of the recession, real GDP fell short of potential GDP by $936 billion, nearly $1 trillion. The gap narrowed subsequently, but persisted until the third quarter of 2017 and is the longest duration of this gap on record. At this time, real GDP has returned to roughly match potential GDP. In fact, since Q3-2017, real GDP has exceeded potential GDP. Currently, real GDP exceeds potential GDP by $159.0 billion, or about 0.85%. A small gap, but meaningful nonetheless.

GDP has been above potential GDP for the last three quarters both in terms of its rate of growth and in terms of its overall level. Although growth in the 3rd quarter of 2018 was reported to be 3.5%, it is unlikely that a pace such as that can be maintained. This is an advanced estimate and may well change.

That high growth rate is likely the effect of the lower taxes and increased spending – the fiscal stimulus that was mentioned earlier. The 2nd quarter was higher, but included a significant boost, as much as 0.6 percentage points, from an acceleration of soybean exports to China in advance of tariffs taking effect. That effect was not present in the 3rd quarter and trade in the 3rd quarter was a significant drag on growth.

The other two influences are also likely to wane in the coming quarters, making growth in excess of 4% unlikely to happen again soon.

1. GDP Growth During Economic Recovery

This graph shows quarterly growth of real GDP relative to potential GDP. The growth rates are measured at an annual rate, which means that it presents the annual rate of change that would be observed if the quarterly rate of change persisted for a full year. So, in the most recent quarter, it was really just under 1% growth from the previous quarter, but if the economy continued to grow at that rate, it would increase by 3.2% over the course of a year.

This is more growth than was expected by most economists. At the same time, if government and inventories are taken out, growth was just 2.14%, slightly below the average during the recovery.

Throughout the recovery periods, actual growth in GDP has frequently been faster than growth in potential GDP, though not always. At the recession’s height, the gap between quarterly GDP growth and potential growth was a staggering 10 percentage points.

There are two observations worth noting in regard to this graph. It is reasonably clear that growth prior to 2000 was faster than it was after the dot-com recession. Further, it was faster during the entire period between 1990 and 2007 at 3% annual growth, than it has been in the wake of the great recession, 2.29%. That’s 0.71 percentage points, or 24% lower.

Why has the recovery been so sluggish? To answer this question, we will dig into the components of GDP growth. But first, we’ll have a look at another way of evaluating growth since the Great Recession.

1. GDP Relative to Long-Term Trends

It is useful to compare real GDP growth in the wake of the recession to long term trends and to ask the question: where is GDP relative to where it might have been had we not experienced the Great Recession?

This graph answers that question. Looking back through the 1940s, GDP has been growing very closely along a fixed trend. Sometimes it was a little above and sometimes a little below, but it tracked this trend very closely.

The Great Recession marked a dramatic deviation from that trend – bigger than any experienced since the graph starts. Since the end of the recession, GPD has grown, but it has not made up the ground that it lost. GDP is currently about $1.5 trillion (7.5%) below the long-term trend. The Great Recession appears to have brought about a dramatic deviation of GDP from trend. It fell significantly, and has not grown at a pace that facilitates catching up. Exactly why is not yet clear.

This is in contrast to the relationship between GDP and “potential” GDP in the previous graph. If you look closely at the previous graph, it is “potential” that changes more significantly to bring the two into alignment.

1. What Is Accounting for the Slow Recovery?

When economists think about what is driving GDP growth, we think about four categories.

* Consumption—Consumption refers to spending by consumers on goods and services; are consumers primarily responsible for pushing GDP higher?
* Investment—Investment includes both the building of housing (residential) and other structures, as well as the purchase of equipment, robots, and other machines (nonresidential) that make production cheaper and labor more productive.
* Government spending—Government spending is just like consumption. It is separate from consumption because it is driven by different forces than consumers like you and me. It is an indication of the effect of conscious policy choices by our federal or state governments.
* Net exports—Net exports refers to the amount by which exports exceed imports. The more the U.S. exports relative to imports, the higher will be GDP. GDP measures production, which includes goods and services produced in the United States and sold in foreign countries. We subtract imports from GDP because domestic consumption of foreign goods may exist in any of the above three categories, which means to get a measure of how much the U.S. economy produces, we need to eliminate the goods and services that are consumed but not produced in the United States. The measure is Gross *Domestic* Product; it is trying to measure economic production in the U.S. economy.

There are other things that matter for GDP growth. In particular, employment and productivity. In general, the greater the number of people working, the higher the GDP. Also, the more productive those workers are (the more they can produce in an hour of work), the higher the GDP.

An analysis of the components of GDP, as well as an analysis of the production side of the economy, should provide a comprehensive picture of the U.S. economic landscape.

1. A Note on Imports and GDP

It is important to note that imports are included in the usual equation as though they are a detriment to GDP growth. The truth is that imports are merely included in the equation to offset imports that are included in consumption, investment, and government.

It is merely an accounting identity.

1. Composition of GDP

This slide gives an indication of the composition of GDP and the relative importance of each component. The components collectively sum to real U.S. GDP.

Historically, consumption spending is the largest contributor to GDP, followed by government spending and investment. In the last quarter, consumption contributed 67%, investment accounted for 18%, exports 12%, and government added 17%. In contrast, imports contributed a negative -14%. Net exports were a factor reducing GDP – by -2% (with exports at 12% and imports at 14%). This is not always the case. At times, the U.S. runs a trade surplus, where exports contribute more to GDP than imports subtract.

Net exports as a percentage of GDP has increased over the sample period, but its contribution to GDP is relatively small.

1. Composition of GDP – Inflation Adjusted

This is just a real version of the previous slide. Generally use one or the other, depending on preference. Adjusted by gross domestic product: Implicit price deflator.

1. Composition of GDP

As these individual components of GDP grow or contract, they influence GDP growth. Slowing consumption, for instance, will slow GDP growth.

In the next few slides we will discuss how each of these categories has influenced GDP growth during times of economic recovery. In each case, post-recession growth will be contrasted with GDP growth in the 17 years before the recession, and we will discuss why the post-recession growth of each might be faster or slower than what it was before the recession.

1. Understanding Contributions to GDP Growth

This slide explains what it means for something to contribute to GDP growth.

1. Contributions to GDP Growth

I’m not sure that this slide should be included unless the audience is likely to be able to understand a graph with a significant amount of technical detail, in which case it is fine to brief it. The target audience for slides are juniors and seniors in high school. On average, they might not be equipped to evaluate this without a LOT of explanation, and I’m not sure that’s time well used.

1. Contribution to GDP Growth: Consumption

This graph illustrates the rate of growth of consumption spending in each quarter between January of 1990 and the last quarter of available data. In the first quarter of 2019, GDP growth was 3.2%. This was lower than the 4.2% recorded in the 2nd quarter and the 3.5% recorded in the third quarter, but was still slightly higher than the average in the previous three years. Fourth quarter growth was largely due to significant consumption growth, which has been reported as 0.82% on an annualized basis, identical to the post-recession average of 1.64%.

At the same time, post-recession growth in consumption has been disappointing, at 1.64% relative to the pre-recession growth average of 2.15%. GDP growth was 3.0% before the recession and 2.25% afterward, a decline of more than .7 percentage points. So, declines in consumption account for about three-quarters of the overall decline in GDP. Consumption’s contribution to GDP is down 25%.

The growth in consumption before the recession was partly driven by spending based on rapidly appreciating home values. That said, growth in consumption during the housing bubble was not particularly fast in historical context.

This suggests that economic growth might well have been tepid during the first decade of this century were it not for the housing bubble.

Exactly why consumption in the first quarter of 2018 was so slow is unclear. The average of the fourth quarter of 2017 and the first quarter of 2018 is about at the post-recession average. Growth in the second quarter was likely high because of tax cuts and increased spending on social programs. Consumers simply had more cash in their pockets than in the first quarter.

There are a variety of reasons consumption growth might be slow. Among these are:[[3]](#footnote-3)

1. Wealth effects: Home prices plummeted during the recession, which could have put the brakes on consumption.
2. Debt overhang: During the recession, household debt levels went to very high levels. More on this in a minute.
3. Weak income growth: Less income means less spending.
4. Consumer confidence: Less confident consumers tend to spend less, worrying about tomorrow.
5. Uncertainty: Uncertainty reduces consumer confidence. There is quite a lot of policy uncertainty these days. What happens if we have a reduced number of workers owing to declines in immigration and baby boomer retirements? What happens if the tariffs currently being threatened are imposed?
6. Real Disposable Personal Income

Real disposable income took a hit during and in the years following the Great Recession. Unlike many statistics, it has been approaching its long term trend. That said, it is still about 4.2% or $635 billion below trend.

This is down from a peak gap between actual and forecast of $960 billion, or 7.2%. The march back to long term trend is happening, but at a very slow pace.

1. Real Disposable Personal Income YoY Changes

In March of 2019, disposable income grew at 2.3%, a bit off the pace from December (3.9%), but a pretty good pace for the recovery.

1. Personal Consumption Expenditures

Since 1960, spending in the United States has followed a predictable trend. The more or less straight but very slightly upward curving line represents that trend. There was a significant break from trend with the Great Recession and the gap remains. Not only has consumption been growing relatively slowly in the post-recession period, but it has made up little, if any, ground in returning to the trend.[[4]](#footnote-4)

Currently, consumer spending is just over $1.1 trillion less than it would have been without the recession and if spending had continued along its trend. The trend slopes up because of population growth, and it trends upward (it is curved upward) because our society has over time become richer, enabling higher levels of consumption.

This gap suggests that consumption has fallen off trend. This is not necessarily a direct result of the recession, though a large part of it is. As we will see, there is a big gap in employment as well. Less employment means less earned income and likely less consumption.

1. Personal Consumption Expenditures

It is worth reiterating the major findings expressed when the previous slide was presented.

In summary, consumption has been very slow to recover. Its growth rate is below historical rates, and its overall contribution to GDP growth is down 22%.

Slower consumption growth is responsible for about one-third of the decline in GDP growth since the end of the recession.

1. Explaining Consumption Expenditures

Just why consumption is lower can be understood by looking at a combination of several forces. Data on retail sales, household debt, and personal savings rates can help us to understand what is happening with consumption.

Lower retail sales, lower household debt, and higher rates of savings are consistent with lower levels of consumption spending.

1. Retail Sales

Retail sales reflect spending in the United States on goods. This includes cars, TVs, toasters, furniture, and other durable and nondurable goods. Nondurable goods include fuel, food, and clothing.

Retail sales have just recovered from the declines observed during the recession. Current levels of retail spending are very close to the trend from prior to the recession. Over the past five years, retail sales have been growing significantly faster than over the past 20 years, at 2.4% rather than just 1.8%. Likewise, retail sales grew much more quickly in the years running up to the bursting of the housing bubble.

The rest of consumption spending is spending on services, such as legal services, accounting, restaurant spending, and a wide variety of other services. Services spending is a much larger category of spending than retail spending.

1. Household Debt as a Share of GDP

Aggregate household debt balances declined slightly in the second quarter of 2018, for the sixteenth consecutive quarter, and are now $618 billion higher than the previous peak of $12.68 trillion in the third quarter of 2008. As of June 30, 2018, total household indebtedness was $13.29 trillion, a $82 billion (0.6 percent) increase from the third quarter of 2017. Overall household debt is now 18.5 percent above the trough in the second quarter of 2013.[[5]](#footnote-5)

Although debt levels are at their highest level in history, they are not at their highest levels as a share of GDP. As a percentage of GDP, debt levels peaked in the first quarter of 2009, at the height of the recession, at 92.7% of GDP. Current debt levels, relative to GDP are much lower, 83.3%, but have been rising since the fourth quarter of 2015.

The vast majority of household debt is in the form of mortgage debt (67%). The next largest category is student loans (11%).[[6]](#footnote-6) Both of these categories have been increasing recently, though for student loans the increase continues a more than decade-long trend.

Mortgage debt declined following the Great Recession, but it started increasing again in 2013. Mortgage debt started growing in earnest in 2015; this growth in mortgage debt is largely responsible for the uptick in household debt since 2015.

Auto loans, though just 9% of total debt, have also been increasing since 2015.

It appears that either consumer confidence (which we will talk about later) increased at around this time, or that lending became more liberal. It is also true that home prices increased rapidly during this period, increasing the mortgage debt necessary to buy the same house.

1. Household Debt: Mortgages

Mortgages make up the preponderance of household debt. Currently, it amounts to about $9.12 trillion dollars, or about two-thirds of all household debt. It’s share of debt reached a peak at the height of the housing bubble just prior to the Great Recession in the first quarter of 2008 at 73.7. As data are only available for the last 20 years, we cannot say that this is an all-time high. It is also true that it doesn’t make sense to make comparisons between today and 30 years ago because the use of credit cards and debt related to higher education have both increased significantly.

1. Household Debt: Other Sources

Since the great recession, most of the growth in debt has been as a result of student loans and automobile loans. Student loans look to continue increasing while there appears to be a slowdown in the growth of automobile loans. Credit card borrowing is also increasing, though much more slowly than the other two categories. Home equity loans continue to decline, though they are still significantly higher than they were prior to the housing bubble.

1. Personal Savings

Of the money that a household has left over after taxes, what share of that money is saved? Toward the end of 2005, the rate of personal savings turned around after a long decline that began in the mid-1970s. In the 1970s, savings rates were about 13%. It was less than 2% when it reached bottom in the third quarter of 2005. This was roughly five months before housing markets peaked.[[7]](#footnote-7)

Once housing markets peaked, either the appetite to borrow or the ability to borrow was curtailed, and savings rates slowly increased, ranging from 5% to 6%. They have since declined to levels not seen since before the recession. Most recently, the personal savings rate was 7.9% in January, bucking a slight downward trend. The savings rate was similar for much of 2017, but it is unlikely to increase in the foreseeable future.

Increased debt levels and lower savings rates are part and parcel of what has permitted consumption to grow as quickly as it has.

1. Investment Expenditures

Investment expenditure is the second major category of the expenditures that drive GDP growth. It accounts for 15% of overall demand in the economy. Investment is made up of two primary categories:

* **Nonresidential investment**: Expenditures by firms on capital, such as commercial real estate, tools, machinery, and factories. **Change in inventories**: The change of firm inventories in a given period – also a part of nonresidential investment.
* **Residential investment**: Residential expenditures (averaging roughly 3%-5% of GDP) include construction of new single-family and multifamily structures, residential remodeling, production of manufactured homes, and brokers’ fees.

1. Contributions to GDP: Private Investment

During the recession, private investment stopped practically in its tracks. That said, although it was a bigger drag on GDP during the past recession than in either of the previous two recessions, the decline is not an anomaly. Looking back in time, there are only a small number of recessions where private investment does not fall significantly.

Investment has been a positive contributor to GDP throughout most of the recovery, and it has averaged a larger contribution than in the 17 years before the recession. There seems to have been greater enthusiasm on the part of businesses to invest in capital than to increase employment, as nonresidential investment is responsible for approximately 18% of investment’s contribution to GDP post-recession (up from 8% pre-recession).

Although it appeared as though this investment spree is starting to wane, with two of the last three quarters contributing essentially nothing to GDP, the third quarter was strong, with nonresidential investment contributing more than 2 percentage points of GDP growth.

At the same time, almost all of this 2% is a result of accumulating inventories. If firms increase their inventories, this shows up as an increase in GDP. However, inventories have a tendency to increase when consumption decreases. Therefore, although looking like good news, it may in fact signal a slowdown in consumption spending.

It is also worth considering that if all of this 2% contribution to GDP growth is from inventories, then the rest of private investment was flat. Both residential and nonresidential were flat. Just one quarter is just one quarter, but it is possible that the trade war and the uncertainty that it brings with it is having an effect.

In the most recent quarter, levels of investment have fallen significantly below either their pre or post recession averages.. At 0.92%, it is above the pre-recession average of 0.78 and approximately equal to post-recession average of 0.96.

1. Contributions to GDP: Change in Private Inventories

Q3-2018 was an outlier, with a dramatic change in inventories, more than has been seen since 2011. The most recent quarter, at 0.65%, is well above the post-recession average of 0.14.

This high level of inventories has served to raise GDP growth to a higher level than it would otherwise be. It does reflect economic activity, but it is to some extent superfluous activity as it not a result of actual demand, but rather of anticipated demand.

1. Contributions to GDP: Residential Investment

Residential investment is a relatively small part of GDP, ranging from 3% to 5%. Housing can, however, have an outsized effect on the economy. Housing was the proximate cause of the Great Recession. There were two mechanisms through which the housing market dramatically affected the economy. First, it had an effect owing to the declines in home prices and the inability to borrow (which erased wealth). Second, the changes in the housing market affected the financial markets when the collateralized loan packages that were constructed blew up as the housing bubble burst.

Residential investment is actually performing relatively well in the post-recession period. It has grown at an average of 0.13% per year, while the same number for the pre-recessionary period was just .07%.

If you look at just the first half of 2000s, you see a different picture. Residential investment grew relatively quickly during that time, averaging 0.29% from 2000 to 2005 (nearly two times faster than the 1990-2007 average). This is likely the result of falling mortgage rates and rapidly growing home values. Mortgage rates fell from 8% in 2000 to 5.9% in 2005. Home values grew 8% in 2000 and 14% in 2005. By 2006, we start to see indicators of problems in the housing market, namely dramatic changes in home value growth. From 2006-2007, mortgage rates averaged 6.35%. In 2006, home value growth slowed to 7%, and in 2007 home values declined 2%.[[8]](#footnote-8)

At the same time, in 9 of the last 12 quarters, residential investment has contributed negatively to GDP growth, showing significant weakening. In fact, the 2018 saw 4 consecutive quarters of residential investment being a drag on GDP, suggesting significant weakness in housing markets.

1. Home prices and housing starts

That said, home prices are significantly above their housing bubble peak. At 188.9, the home price index is about 14.3% above its peak and shows no signs of falling. This has led some to question whether or not this is another housing bubble that is waiting to burst. That seems unlikely, although possible. If it is, it will not cause anywhere near the damage that the bursting of the last bubble caused.

Housing starts are strong, but at 1.1 million units remain below their historical average of 1.4 million units per month and their growth trajectory appears to be slowing. Starts are below traditional norms, and keep hinting that they may slow.

<click to get small inset graph>

Although not necessarily indicating a decline, there is no suggestion in the recent data that there is an upward trend, returning things to their historical average of 1.4 million units.

That housing starts are below historical average is probably responsible in part for rising home prices. Home prices are generally quicker to respond to a rebounding economy than are housing starts. There is an inevitable lag between the desire of builders to start new projects until home prices suggest that they should.

Housing starts are cyclical. The 2008-09 recession resulted in the largest fall in new home production of any recession since 1960. Unlike previous recessions, the most recent also resulted in the bursting of the housing bubble (home prices fell during 08-09 recession, but not 90-91 or 2001 recessions), which has contributed to the slow growth in housing starts.

In terms of contribution to GDP growth, residential investment is higher post 2008-09 recession (previous slide). However, residential investment as a share of Investment contribution to GDP growth has fallen (from slide 21):

1. On average in 1990-2007, residential investment composes approximately 84% of the Investment contribution to GDP growth. Non-residential composes approximately 8% and Inventories compose approximately 6%;
2. On average in 2010+, residential investment composes approximately 71% of the Investment contribution to GDP growth. Non-residential composes approximately 18% and Inventories compose approximately 10%
3. **Home Prices: Inflation Adjusted**

This slide is primarily to offset claims that home prices are above pre-recession levels. When adjusted by inflation, neither the FHA nor the Case Shiller indices are within 5% (10% for CS) of pre-recession levels.

Not necessary to include this slide, but perhaps replace the home price graph in the previous slide if so inclined.

1. **Recent Housing Growth Has Been Slow**

Compared to the last 50 years, housing starts have been slow during the recovery. Note that this is not to make up for fast growth during the housing bubble. Starts throughout the last decade were at roughly their 50 year decadal average.

Slow housing starts is almost surely a contributor the recent runup in home prices.

1. **Contributions to GDP: Government**

Government spending is another area of contraction for the economy. Despite the stimulus package, government spending has had a fairly consistently contractionary impact on GDP since early 2011. Relative to the 2000s, the 2010s have been a remarkable period of austerity.

Although some believe that austerity was the right policy in the wake of the recession, it is also possible that this austerity has helped to maintain anemic growth throughout this period.

The spending bill passed in March of 2018 is likely to change this picture. It includes significant increases in defense and domestic program spending.

Government’s contribution to GDP is expected to be higher in the coming quarters than it has been in the recent past. The last five quarters have added positively to GDP, in part because of a significant increase in spending early in 2018.[[9]](#footnote-9)

1. Contributions to GDP: Net Exports

For most of the last 30 years, the United States has been running a trade deficit. That is, it has been importing more goods and services from other countries than it has been exporting, bringing more stuff in than it has been shipping out.

Nonetheless, net exports can still contribute positively to GDP growth. It is the relative growth of imports versus exports that determines the impact on GDP. If exports grow faster than imports, then net exports, although still negative, can result in growth in GDP.

As a general principle, increased exports add to GDP, while increased imports subtract from GDP. Imports are subtracted because they are included in the consumption figures, but they don’t actually contribute to GDP as they are foreign-produced goods.

In 2017, the total U.S. trade deficit was $566 billion. The country imported $2.895 trillion of goods and services while exporting $2.329 trillion.

And for most of the recession, the contribution of net exports to GDP has been negative, and at about the same level as prior to the recession. In the 2nd quarter of 2018, however, in a quirk of the President’s trade policy, the imposition of tariffs has, because of the anticipation of the tariffs resulted in a significant increase in exports relative to imports. Largely soybeans to China.

The 3rd quarter has seen a return to normal, with net exports contributing negatively to GDP growth, in fact more than it has in the last 30 years. The decline is a result of both declining exports and increasing imports.

1. Contributions to GDP: Exports

Growing exports lead to an increase in GDP. Declining exports lead to a decline in GDP. For most of the last 30 years, other than in times of recession, exports have generally been growing and contributing positively to GDP. Before that time, their record was spotty. U.S. interactions with other countries in terms of trade were much less significant than they are today.

Exports here consist of both goods and services. Goods contribute about two-thirds of U.S. exports. One-third of those goods are capital goods: commercial aircraft, industrial machines, semiconductors, and telecommunications equipment.

Industrial supplies account for another third of exported goods. These are chemicals, petroleum products, fuel oil, plastic, and non-monetary gold.

Only about 13% of U.S. exported goods are consumer goods. The biggest categories of consumer exports are pharmaceuticals, cell phones, and gem diamonds.

Automobiles contribute about 10 percent of all exported goods, $158 billion in 2017.

Another 9% of exported goods are foods, feeds, and beverages. The big three are: soybeans, meat and poultry, and corn.

Services contribute to one-third of U.S. exports. The biggest category is travel services—basically, money spent by tourists in the United States. There are also significant computer and business services exports, financial exports, and royalties and license fees. Government and military contracts add about $20 billion.

As mentioned previously, there was a dramatic increase in exports in the 2nd quarter of 2018 in anticipation of tariffs being imposed by China, which resulted in a significant positive contribution of exports to GDP.

As expected that result has reverse itself in the 3rd quarter as the tariffs begin to show their effect. Also, much of the increased exports in the 2nd quarter likely would have happened later in the year, so that happened early and will likely force down exports and their contribution to GDP for the rest of the year.

1. Trade’s Contribution to GDP: Imports

Imports of goods and services more or less mirror exports. That is, they have been increasing reasonably consistently for the last 30 years, with a spotty record before that. They also tend to decrease during recessions.

These increases in imports count as a reduction in GDP because they are included as a part of consumption, but they do not actually add to gross *domestic* product.

Imports in the 1st quarter of 2019 had a significant positive influence on GDP. At 0.58 its effect was very different than during rest of the post-recession period. Imports declined during the period.

A larger proportion of imports are goods, accounting for about 80% of imports. Of those, 27% are capital goods, such as computers and telecommunications equipment (including semiconductors).

Consumer goods represent another 23%. Cell phones and TVs are the largest category. Next is apparel and footwear. Pharmaceuticals are also important, at $110 billion.

Industrial machinery and equipment amount to $508 billion, with oil and petroleum products being the largest subcategory ($183 billion).

Automotive vehicles, parts, and engines are the fourth largest import category ($359 billion).

Food, feeds, and beverages is also significant at about $138 billion.

Services make up about 18% of imports ($534 billion). These services include travel and transportation ($236 billion), business and computer services ($141 billion), banking and insurance ($76 billion), and government services ($21 billion).

1. Expenditure Summary (words)
2. Expenditure Summary (graph)

This graph illustrates the differences in components of GDP before and after the recession as well as over the last 4 quarters:

1. Consumption is down significantly; the blue section of the chart is smaller (with an average of 2.26 percentage points from 1990-2007, and an average of 1.64 percentage points in 2010+).
2. The reddish portion is a little bit bigger, indicating that investment is contributing more (with an average of 0.78 percentage points from 1990-2007, and an average of 0.96 percentage points in 2010+).
3. The government contribution is now positive, but is not a significant contributor to GDP growth.

Slack in consumption is the leading cause of slower GDP in the years following the recession relative to the years leading up to it.

Over the last year, government spending has increased significantly, thanks to the $300 billion increase in spending in early 2018. Consumption, likely as a result of tax cuts, has also increased, and the trade deficit has grown so as to reduce GDP more than it typically has.

Average annual growth after the recession was about 2.31%, while it was 2.76% before. The vast majority of that difference is because of slower growth in consumer spending. Over the last year, growth has increased to 2.88% in an average quarter, largely because of increased consumption and government spending.

1. Labor Markets

GDP is but one barometer by which the health of the economy is measured. Others include:

* Labor markets
* Interest rates
* Inflation
* Consumer confidence
* Stock market

We will address labor markets here and other indicators later in the presentation.

1. GDP Growth and Employment Changes

Over the years, we can see a very strong correlation between GDP growth and employment changes. In periods when employment growth is less than 150,000 jobs per month, GDP growth is relatively slow. Historically, employment growth between 150,000 and 250,000 jobs has resulted in very solid GDP growth of around 3.5%, while extraordinary GDP growth is generally accompanied by very fast employment growth.

It should be noted that this relationship is primarily one of strong demand driving employment changes. Simply hiring more workers will not necessarily result in increased GDP in the event that there is no demand for the output produced.

This increase in demand will not only increase employment, but will generally also have a positive impact on wages.

Note: The colors simply help to delineate the different ranges of values between the lines.

1. Production and Employment

Labor contributes to GDP both through how many people are employed and how productive they are. The composition of workers also matters, of course. Whether they are high skilled or low skilled, but this is more of a long-term consideration. It is seldom an important part of short-term changes in GDP.

1. Labor Market Conditions

Turning first to indicators of the numbers of people that are employed, we will discuss both employment and unemployment. Employment is the number of people employed, while unemployment provides some background on how likely that number is to go higher.

The unemployment rate is the percentage of people who don’t currently have a job, but who want a job, i.e., those in the labor force. That rate is currently extremely low, at 3.6%. It has risen slightly from a low of 3.7%. This increase is largely because of new entrants into the labor force rather than necessarily indicating a slowing of the economy.

Unemployment remains at a level that many consider below “full employment.” Economists estimate a benchmark unemployment rate, coined the “natural rate of unemployment,” that communicates the level of unemployment if all labor resources are being used efficiently. In other words, the natural rate of unemployment is characterized by frictional and structural unemployment.

Frictional unemployment is unemployment attributable to workers searching for jobs, such as a recent college graduate looking for work. Structural unemployment occurs when the labor skills firms are seeking to employ aren’t the skills possessed by workers looking for work. At full employment, potential employers have a harder time finding workers who have the right skills, which slows down employment growth.

Employment can continue to grow because the labor force (those wanting jobs) tends to grow with the population. At the same time, it can shrink, despite population growth, as it did in 2010 and much of 2011. These declines were because of the retirements of the baby boomers and because of discouraged workers exiting the labor force. Discouraged workers are individuals who want to work but have given up looking for work because they feel that they cannot find the right job.

In terms of employment growth, the economy has been growing at a healthy clip of 207,000 jobs per month over the course of the last six months. This is relatively low.

We are going to look carefully at several recent labor market concerns: (1) the low, but slowly increasing, employment-to-population ratio, (2) falling labor force growth, and (3) slow wage growth – although wage growth picked up significantly in the 3rd quarter. It remains to be seen whether this growth is sustained, or a one off increase.

1. Unemployment Rate

<click through – from last couple of years to long term> The short term graph is under the long term graph.

Recently, unemployment has remained quite low. At 3.6%, it is currently at a level not seen since the 1960s.

1. How is the unemployment rate calculated?
2. Unemployment Rate

In this figure we see two measures of the unemployment rate, the traditionally reported unemployment rate (blue) and the U6 unemployment rate (red). U6 unemployment counts not only those who don’t have a job but also those who have a job that is just part-time, as well as those who are marginally attached to the labor force.[[10]](#footnote-10)

The current unemployment rate is 3.6%. This is a very low rate, historically, and it is lower than the unemployment rate just prior to the Great Recession. During the recession, the unemployment rate was in excess of 10%. This is historically high—the unemployment rate has only been higher once, during a recession in the early 1980s.

Unemployment tends to rise during recessions. This is primarily because people are laid off and firms are not hiring. It then tends to fall during recoveries as those laid off return to the labor force and find work.

Unemployment is currently below the natural rate of unemployment, which is estimated to be between 4.5% and 5.5%.[[11]](#footnote-11) This scenario is traditionally accompanied by economic growth and rising price levels. It’s also a major reason for FOMC’s decision to increase the federal funds rate. But more on that in just a little bit.

Although it is 7.3%, the alternative, U6, unemployment rate is also low by historical standards. It is not uncommon to see a gap of between 3 and 4 percentage points between the two. However, the gap increases dramatically during times of recession. At their peaks, U6 was just over 7 percentage points above the conventional measure.

1. UR Driven by Labor Force Participation?

A fundamental problem with the unemployment rate as an indicator of the state of the economy is that it is influenced in both directions, up and down, by both positive and negative developments.

In particular, if nothing else changes, a decline in labor force participation can result in a lowering of the unemployment rate, an ostensibly positive indication for the economy.

This past month is a case in point. The unemployment rate has declined to a level not seen since the late 1960s. At the same time, the labor force shrank by 0.5 million workers. This decline resulted in a decline in the labor force participation rate equivalent to the decline in the unemployment rate: 0.2 percentage points.

Strikingly, this is the 4th consecutive month of declines in the labor force. That is something that has not happened during the recovery. This is a trend that bears watching.

1. New Unemployment Insurance Claims

History back to 60s.

1. New Unemployment Insurance Claims

Back through the end of the Great Recession

1. New Unemployment Insurance Claims

Last 24 weeks.

1. Labor Force Participation – Below Trend

More generally, since 1980, the labor force has been growing at a reasonably consistent rate. Its increase followed a linear trend very closely until the onset of the great recession.

There was a dramatic decline during the great recession that lingered for several years. There has recently been an increase in the size of the labor force, nearly matching trend growth, but the U.S. economy currently has nearly 21 million fewer people in the labor force than had it continued to grow along its previous trend.

As we will see shortly, the U.S. economy is short roughly that many jobs.

1. Monthly Changes in Nonfarm Employment

When talking about employment growth, nearly all sources refer to nonfarm employment, which does not include farm workers, private household employees, or non-profit organization employees.

Recently, employment has been growing robustly, adding around 207,000 jobs per month. This can vary significantly from month to month, as it did in late 2017. Employment growth in September of 2017 was just 14,000 jobs, while it reached 271,000 in October last year. Sometimes the fluctuations stem from measurement issues and sometimes they reflect real changes.

In April of 2019, it is estimated that just 263 thousand jobs were created. In February, this number was just 20 thousand, the lowest level since Sep/17, but not unprecedented during the recovery. March was much closer to, but below normal during the last year.

January and February were outliers, likely resulting from the shutdown of the federal government. Many furloughed workers found part time work in January, which inflated the January number, but left those jobs in February, pushing down the February number. The average of the two is more likely the correct view of the economy

A better way to look at employment growth is to consider the changes over an extended period of time, say 6 months or 12 months. Both the 6- and 12-month averages have been a little over 207,000 and 211,000, jobs, respectively. This is slightly higher than it has been for the last several years.

1. Nonfarm Employment Growth after the Great Recession

During the recovery, employment growth has been a little bit uneven. The Great Recession was declared over before employment began growing. The recession ended in July of 2009, while employment growth did not really begin in earnest until January of 2010. It has grown reasonably consistently at 200,000 jobs per month (with ups and downs) since 2012. The annual job growth actually peaked in January of 2015 and has been trending down since then.

Over most of the last year, since September, 2017, the 12 month average gains have been increasing, particularly during the last 6-8 months, which incorporate the effects of spending increases and tax cuts. It started trending down in November.

1. Part-Time Nonfarm Employment

Those employed part-time for economic reasons jumped up in Jan/2019 as govt contractors and furloughed workers found part time work to pay bills. Up 499k when the trend has been generally downward. This explains the big jump up in employment in January.

Indeed, the # of people working part time fell significantly from 5.1 million to 4.2 in February and was 4.6 million in April. This is consistent with the small number of jobs being created in February.

<click to get insert>

The insert shows more dramatically the increase with the onset of the government shutdown and then the reversal of the number of part time jobs.

1. Nonfarm Employment Growth since 1940

Looking over the long term, it becomes clear that employment declines during the Great Recession are unprecedented. This holds true except for the period during the Great *Depression*, where employment losses were significantly greater.

The recent stability of job growth is actually relatively rare in the U.S. economy. There have been similar periods of stability, but they are not the norm.

1. Separations: Quits and Layoffs

Understanding the health of the economy is significantly more complicated than just looking at whether firms are employing more or fewer workers. The overall employment number is the difference between separations and hiring. Separations can be the result of either quits or layoffs.[[12]](#footnote-12) Retirements are not included in quits.

What do these statistics tell us about employer and employee confidence in the U.S. economy? Quits tend to rise during an economic expansion and fall during an economic contraction. Therefore, quits can serve as a measure of workers’ willingness or ability to leave their jobs. Conversely, layoffs and discharges tend to fall during an economic expansion and rise during an economic contraction.[[13]](#footnote-13)

Quits fell precipitously during the Great Recession, from about 3 million per month to less than 2 million. At the same time, layoffs and discharges increased by about .5 million per month.

In the aftermath of the recession, quits have climbed to the highest levels since these data have been collected, since early 2000. Layoffs are at their lowest levels. There has been a downward trend in layoffs throughout the data series. It is possible that this reflects a tightening labor market generally and a difficulty among firms in finding the right matched workers for jobs. When their confidence in their ability to hire falls, firms are less inclined to lay off existing workers.

The high level of quits can be interpreted as a sign of growing confidence among employees— they believe that they will find better jobs once they have left their existing jobs.

Economists like quitters! It is a sign that people feel comfortable enough to leave their jobs.

1. Job Separations

Quitting is a part of the job separation equation. There are other reasons for job separations, including layoffs. Sometimes these are because a different person is need on a job and sometimes it is because the job is no longer needed.

The US economy is really good at creating job separations. It is not uncommon for 5 million workers to be separated from their jobs IN ANY GIVEN MONTH! Out of 149 million jobs, that’s more than 3% that are involved in a separation each month.

These separations happen for a variety of reasons, but are in particular reflective of a dynamic economy. As new goods and services are created and old goods and services are obsoleted, the jobs in the old industries necessarily go away.

The economy typically increases the number of jobs each month, meaning that despite the large number of separations, people leaving jobs, there are more people hired, arriving at a new job.

1. Job Separations and Hires

As good as the US economy is at separating people from their jobs, it is even better at creating new ones for them.

Consistent with a growing level of employment, hires have exceeded separations throughout most of the recovery. What is surprising from this graph is how dynamic the overall economy is. In any given month, more than 5 million people are hired and over 5 million people are separated from their jobs. This point cannot be stressed enough – there is a lot of churning in our labor market. The US does a great job of destroying jobs – 5.56 million in January.

It is also worth point out that during recessions “hiring” slowdowns – more so than separations is what is associated with the increased unemployment rates. This aspect of the economy is often overlooked with the focus on primarily on total employment.

1. Job Openings: Share of Total Employment

It was mentioned earlier that layoffs can be an indication of how tight the labor market is. A tighter labor market means that it is harder for employers to find the right workers.

The number of job openings is similarly an indication of how tight the labor market is. The graph shows the number of job openings as a share of overall employment. (Just the raw number of openings is much less informative, as that will naturally grow with the size of the economy.)

At the present time, the number of job openings relative to the overall level of employment is just below its highest level since these statistics began being published back in 2000. The labor market is very tight, and employers are having to work harder than normal to find the right workers.

1. Employment-to-Population Ratios

There are a variety of reasons for the tight labor market. Growing retirements is one factor (baby boomers started turning 65 and retiring en masse in 2012), but another factor is the declining participation in the labor force among working-aged individuals.

At the same time that the unemployment rate is so low, employment as a share of the population is low relative to the levels experienced over the last 30 years.

Women’s labor force participation rates have been trending downward for much of the last 20 years, after rising dramatically from less than 35% in 1950 to nearly 60% in 2000.[[14]](#footnote-14)

The labor force participation rate among white men has been declining since 1960, a decline that has accelerated in the wake of the Great Recession.

Finally, the share of employment that is full time relative to the population is low but growing, after taking a significant hit during the recession.

All of these statistics are suggestive of a tight labor market. Labor force participation is lower than it was previously, women are not participating in the labor force at rates seen in previous years, and full-time employment is less common.

1. Recent Trends in Employment-to-Population Ratios

This graph focuses on recent trends in the statistics presented on the previous slide. All of the series have declined significantly since the onset of the Great Recession. Perhaps the most prominent decline is in the labor force participation of white men, which has fallen by 5.0 percentage points since the recession. This is in part a result of baby boomers retiring, but we will explore that in more detail later.

All of the series are lower than prior to the recession. The labor market has been disrupted in ways that may take some time to repair.

Nearly 10 years into the recovery and none of these measures have recovered their pre-recession levels. Though, to be fair, the white male labor force participation rate has been in decline since 1960.

1. Slow Employment Recovery

Although the employment to population ratio has been increasing, it was pretty stubborn in the years immediately following the end of the recession. Employment was increasing, but it was doing little more than keeping up with population growth.

This can be seen from the graph as the green line stayed relatively constant between early 2010 and early late 2013. Since early 2014, the employment to population ratio has begun to increase. It is still significantly below the prerecession levels, but employment growth has been exceeding population growth, increasing the share of the population that is employed.

The unemployment rate fell from around 10% to just over 5% before the employment to population ratio started to increase. This was possible because workers were dropping out of the labor force in the wage of the recession, believing that they would have a hard time finding work.

1. Labor Force Dropouts

The red line is the labor force participation rate, the share of the working age population that is either working or actively looking for work.[[15]](#footnote-15)

Labor force participation declined throughout the same period that the employment to population ratio remained relatively flat. In 2014, the labor force participation rate ceased its decline, more workers relative to population were available and finding work and the employment to population ratio started to increase.

At the same time, employment as a percent of population remains well below where history suggests it should be.

1. Trends in Labor Force Participation
2. There is a Persistent Labor Force Gap
3. Labor Force Growth Has Been Uneven
4. Baby Boomers Are Retiring

To some extent, this reflects the retirement of baby boomers, which began in earnest in 2012. The baby boom retirements have reduced the labor force by as much as 6 million workers between 2006 and 2017.

Note: The figures in this graph indicates essentially the excess of workers leaving the labor force on the older end above those entering the labor force at the younger end.

1. Employment Growth

One outcome of the tight labor market and the decreased labor force participation is that despite the promising job creation numbers each month, the U.S. economy is running nearly 21 million jobs short of where it would be if it had continued to grow as it has in the past.

Using job growth trends between 1960 and 2008, it would be expected that overall employment would be in the neighborhood of 171.8 million jobs. Instead, employment is just 151.1 million. This is 21.7 million, or 12%, below trend.

A big chunk of this is due to declines in labor force participation rates. These rates are down, again, because of retirements and because potential workers have decided that their time is better spent out of the labor force. It’s possible that increasing automation has also contributed to the declines.

The recession provided many companies with the opportunity to shed jobs that were no longer vital to their overall performance. In some instances, this is because of outsourcing; in others, it is because automation made the positions obsolete.

1. Employment Gap: Up Close

The recession provided a negative shock to overall employment in the United States. It appears as though the labor force turmoil of the recession may have set the economy on a permanently lower employment trajectory.

1. Wage Growth

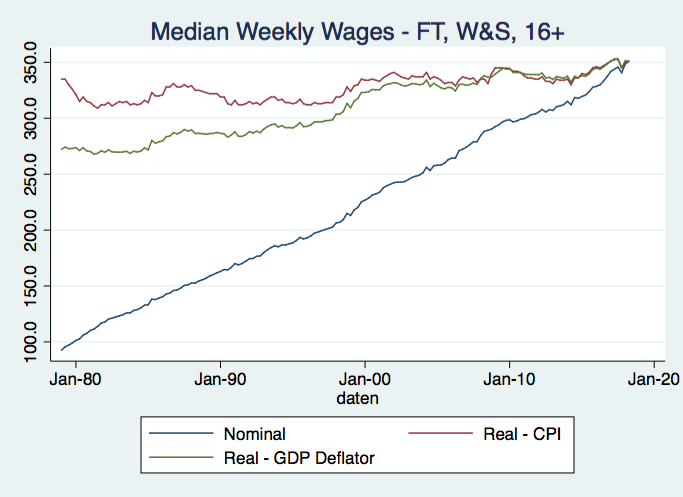
Wage growth is also an indicator of labor market tightness.

Despite the other evidence of labor market tightness, wage growth has been tepid. On the graph, the green line represents real, or inflation-adjusted, wages of full-time workers over the age of 16. These wages have been growing relatively slowly, their year-over-year levels have declined. Over the last 10 years, they have grown at just 0.4% each year.

Granted, they are at their highest levels in the last 40 years, but they are not significantly higher than they were in 1979, 2000, or 2008. This lack of wage growth in the face of a tight labor market remains a puzzle to be sorted out.

There are several theories circulating as to why wage growth is tepid. [[16]](#footnote-16)

* The relationship between unemployment and wage growth has changed due to shifts in the labor market that affect worker bargaining power, namely unionization rates. Falling unionization rates imply that 5% unemployment no longer elicits the same response from wages today as it did 20 years ago.[[17]](#footnote-17)
* CPI inflation was low (sometimes negative) throughout 2015 and 2016. As a result, firms face increased pressure to reduce or maintain nominal costs, including labor costs.[[18]](#footnote-18) ,[[19]](#footnote-19)
* Stagnant wage growth is the result of compositional changes in the labor market. As higher-wage baby boomers retire, lower-wage workers replace them as full-time workers. The combined effect is downward pressure on wage growth.[[20]](#footnote-20)



1. Wage Growth

Nominal wage growth on a quarterly basis has been strong in recent quarters, but not outside of the normal range. This is the statistic that is referenced when an economy starts to heat up as evidence of heating up.

Real wages, having been declining in recent months, have started to increase. In the 1st quarter, they were 1.4% above their 2018 level, substantially lower growth than in the 4th quarter of 2018.

1. GDP Growth, Productivity, and Employment

Productivity is also an important determinant of GDP growth. The demand forces in the economy (consumption, investment, government spending, and net exports) can pull GDP along, but the ability of GDP to keep up is determined by available labor and the productivity of that labor.

In slack labor markets, hiring is relatively easy and more demand for output can be readily met. In a tight labor market, hiring and expanding output is more difficult, and increased demand is more likely to be met with higher prices. We will talk about inflation shortly.

Increased productivity of labor can also facilitate the expansion of output to meet demand without resulting in higher prices.[[21]](#footnote-21)

The last three decades have exhibited very different trends in growth and the drivers of that growth. In particular, the 1990s was a period of rapid GDP growth and reasonable productivity and employment growth.

The “aughts,” were a different story. Productivity growth picked up a little bit to 2.7%, while GDP growth lagged and employment actually declined. This isn’t surprising given that this decade hosted the worst recession in nearly 80 years.

The current decade presents more of a quandary. GDP growth remains tepid, averaging just 2.2% annualized growth over the first seven years. Employment growth has been solid, but still slow by historical norms; outside of the last decade, employment growth in the current decade is the slowest since the 1940s. The truly puzzling element of GDP growth in this decade is the very slow pace of productivity growth.

Productivity growth this decade has averaged just 0.9% per year. That is a slower rate of growth than has been experienced in the last 70 years. Accordingly, most of GDP growth, slow though it was, has been driven by employment levels rather than productivity.

1. History of Productivity Growth

Productivity growth in this decade is truly surprisingly slow. At just 0.64%, it is growing more slowly than in any decade on record, even though recorded statistics for productivity go back to the 1940s.

In fact, the rate of growth is less than one-half of and nearly a full percentage point less than the previous low of 1.51% experienced in the 1980s. Productivity growth has commonly been in excess of 2% per year over the past 70 years.

Explanations for this slow productivity growth are elusive. There is some evidence that for some reason the fastest-growing firms are experiencing solid productivity growth, but that these gains are not permeating throughout the industry. It is not immediately clear why this might be so, but a lack of overall competition in the economy has been suggested.[[22]](#footnote-22)

Competition promotes productivity growth through increased incentives for innovation and through selection. If firms have strong incentives to innovate, many productivity-boosting innovations will come to market. Also, when only the firms with the highest productivity survive while the least productive firms are forced to exit the market, the average productivity will go up.[[23]](#footnote-23)

Several options are available for increasing productivity:

1. Increase competition.
   1. Increase antitrust enforcement.
   2. Reform the patent system.
   3. Reduce occupational licensing.
2. Avoid policies that stifle productivity.
   1. Avoid anti-trade and anti-immigration policies.
3. Promote better skills training for the workforce.
   1. Make labor inherently more productive.
4. Encourage smarter funding of R&D.
   1. Current funding is skewed toward life sciences.
   2. It is better to have funding that is more diversified and balanced.
5. Focus on low-hanging fruit.
   1. Health care exhibits low productivity and slow productivity growth.
      1. Too much effort devoted to unproductive activity (claim denial)?
         1. May want to steer clear of this one. There seems to be debate over how to measure productivity in health care. The primary argument appears to be that prices are mismeasured and quality improvements are not properly incorporated. For a brief review of some of the literature, see Louise Sheiner and Anna Malinovskaya, “[Measuring Productivity in Healthcare: Analysis of the Literature](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0ahUKEwjn1Z-ioIvcAhWm6YMKHRWFDUEQFghJMAM&url=https%3A%2F%2Fwww.brookings.edu%2Fwp-content%2Fuploads%2F2016%2F08%2Fhp-lit-review_final.pdf&usg=AOvVaw117Rgo_qrNFFGE8Gp7kGt_),”*Brookings*, May 2016.
6. Summary
7. Monetary Policy

Interest rates are another important driver of growth. When interest rates are low, both households and businesses are more inclined to borrow money to cover purchases and investments. As we have learned, this spending drives current growth in GDP. It also, in the case of business investment, has the potential to increase productivity and hence to increase GDP going forward.

One of the key interest rates is the Federal Funds Rate, controlled by the Federal Reserve Board.[[24]](#footnote-24)

1. Federal Funds Rate

In the United States, the federal funds rate is the interest rate at which depository institutions (banks and credit unions) lend to each other overnight in order to meet their cash reserve requirements.

The federal funds rate is important because it generally influences short-term interest rates on everything from home mortgages and car loans to credit cards.

Historically, the federal funds rate has fluctuated widely, from near zero to near 20% in the early 1980s. During that time, inflation was very high and the high federal funds rate was intended to solve that problem, but that’s a story for another day.

Typically, the Federal Reserve keeps an eye on a wide variety of economic indicators, of which inflation is one. Overall GDP and employment growth are others. When inflation appears to be rising too high, the Fed will often increase rates to slow down the rate of growth in demand. At the same time, as the economy enters a period of slow growth, perhaps a recession, the Federal Reserve may reduce interest rates in an effort to increase demand and hence GDP and employment.

1. Federal Funds Rate from 2013-2018

During the Great Recession of a decade ago, the Federal Reserve reduced the federal funds rate to near zero in an attempt to stimulate demand or to reduce the extent of its decline. The federal funds rate remained near zero until late 2015, at which point the federal funds rate began a slow incremental increase to its current level of 2.4%, where it has been for several months.

Given the relatively strong jobs performance in recent months, it would be reasonable to expect this and other interest rates to continue to rise. However, the Federal Reserve has announced that it will not raise rates again in 2019, which has caused other related interest rates (mortgages and treasuries) to decline significantly.

1. Treasuries

Other important interest rates are those on publicly issued debt: Treasuries. A Treasury security is an IOU from the U.S. government. It is a way in which the government borrows money to fund government spending when tax revenues are insufficient. More about the debt later.

Government debt is most commonly issued as “bills,” “notes,” and “bonds”:

1. *Bills* have a maturity of a year or less.
2. *Notes* have a maturity of between 2 and 10 years.
3. *Bonds* have a maturity of between 20 and 30 years.

The interest rates on these different types of government debt vary, typically, by the period to maturity. Lower interest rates are generally paid on bills than notes, and lower rates are typically paid on notes than bonds. It is generally more expensive to get investors to give up their money for a longer period of time, which is part of why bonds have the highest interest rates.

These interest rates are also affected by future expectations of interest rates. If there is an expectation that short-term interest rates will be lower, it is possible that the interest rate on a 10-year note could be less than on a 2-year note, though this seldom happens.

The figure illustrates the historical relationship between interest rates on 1-year Treasury bills to 10-year Treasury notes. The interest rate varies according to duration, but the difference in interest rates is determined by what people expect in the future.

At the onset of the recession in 2008, short-term interest rates fell dramatically, from more than 2.0% to less than 0.5%. They remained quite low until the federal funds rate began increasing in late 2015. Along with increases in the federal funds rate, short-term rates increased.

The last year or so has seen an increase in rates at all maturities, but the gap between bills and notes has shrunk considerably. Long term and short term rates are converging, which can often be a sing of pending trouble.

1. Yield Curve

This gap between bills and notes, or more precisely, the gap between interest rates on a 10-year note and a 2-year note, is called the yield curve.

Currently, the gap between 10-year notes and 2-year note is just 0.21%, just over two-tenths of a percent. This is its lowest level since before the Great Recession. The yield curve grew to over 2% during the recession and has, with fits and starts, declined to its current level.

Such a low level of the yield curve is a source of consternation among many. In the past, when the yield curve has turned negative (become inverted), it has tended to be followed by a recession. This is true of every recession since the early 1980s.

However, the time between the yield curve turning negative and the onset of recession varies considerably. Just because the yield curve turns negative does not mean that we are on the verge of a recession. It has been 18 months or more before the inversion is followed by a recession.

This is not to make a forecast of a recession, but the current yield curve has many thinking that one is in the offing.

1. Yield Curve 10 year vs 3 month

Recently inverted – and then uninverted.

1. Inflation

Inflation is the rate at which overall prices in the economy are growing. Inflation can be measured in several ways. In particular, it can be from a consumer’s perspective or from a producer’s perspective. It is most commonly discussed in terms of the consumer price index, or from the consumer’s perspective. Generally, inflation has been between 2% and 3% over the course of the last 60 to 70 years.

There have, of course, been significant departures from this range. Most prominently, inflation touched 15% in the late 1970s. It has also gone negative from time to time. This happened most recently toward the end of the Great Recession in 2009.

Inflation is carefully watched by the Federal Reserve. Higher inflation might be a sign that the economy is overheating. The Fed would be unlikely to raise interest rates in the face of rising inflation.

1. Inflation – Recent Stability

For much of the recovery, inflation has been held in check. It did rise briefly in 2011-2012, but then settled back into a range below 3%. At 1.9%, it is not at a level that might be a cause for concern.

Among the goods and services sold in the United States, the inflation rates for food and for fuel are among the more volatile. Accordingly, there is a second series that is published that removes these items from the calculation of inflation. Removing those items results in a pretty stable inflation rate of right around 2%. It is currently at 2%, just a little more than the inflation rate that is calculated for all items.

The inflation rate that is calculated using all items has occasionally fallen below zero (deflation), which poses a host of problems for the economy.

As prices fall, production slows and inventories are liquidated. Demand drops and unemployment increases. People choose to hoard money rather than spend because they expect prices to drop even more in the future. Defaults on debt increase, and depositors withdraw cash en masse, causing a financial meltdown characterized by a lack of liquidity and credit. Central banks and governments react to stabilize the economy and incentivize demand through expansionary fiscal and monetary policy, including the implementation of unconventional methods, such as quantitative easing.

All in all, deflation can be a dangerous phenomenon for an economy. It can be readily cured by printing more money, but this approach is also not without its risks.

Increasing the money supply increases people’s willingness to spend. It does this by reducing interest rates and reducing the benefit of holding on to your money until prices fall.

1. Mortgage Rates

Mortgage rates have been increasing for much of the last four years. They are still at historically low levels. Other than over the course of the last 10 years, mortgage rates have not been this low since well before 1970.

The 30-year fixed mortgage rate averages 4.1%. It has been as low as 3.31 in November of 2012, and indeed has been below 4% for most of the recovery.

The most common forms of mortgage, the 30-year mortgage, the 15-year mortgage, and the 5-year adjustable closely track each other. Their correlation coefficients are in excess of .9.

The levels of all three are influenced by the federal funds rate. They are influenced by a great many other things as well, as there was much variation in their levels while the federal funds rate was close to zero.

As the federal funds rate has trended up over the last two and a half years, so too have mortgage rates. Expect their upward trend to continue as long as the Fed continues to raise interest rates.

1. TED Spread—July 2015 to July 2018

TED is an acronym for Treasury-EuroDollar rate.

This series is calculated as the spread between the 3-month LIBOR based on U.S. dollars and 3-month Treasury bill. The TED spread is an indicator of perceived credit risk in the general economy, since T-bills are considered risk-free while LIBOR reflects the credit risk of lending to commercial banks. An increase in the TED spread is a sign that lenders believe the risk of default on interbank loans (also known as counterparty risk) is increasing.

LIBOR is a benchmark rate that some of the world's leading banks charge each other for short-term loans. It stands for Intercontinental Exchange London Interbank Offered Rate and serves as the first step to calculating interest rates on various loans throughout the world.

At 0.2, the TED spread is currently lower than it has been through much of the recovery. It has peaked twice during the recovery, once at just under .7 and once recently at just over .6.

As it is relatively low, the current perceived risk of commercial bank default remains quite low.

1. TED Spread—January 1985 to Current

Looking back as far as 1985, the TED spread has spent more time above 0.2 than it has below it. It has averaged .58 between 1985 and June of 2018.

During the past recession, the risk of commercial bank default reached an all-time high as the TED spread reached 4.58 in October of 1985. There were jitters in the year prior to that time. When Lehman Brothers closed its doors, there was significant fear that other commercial banks would do the same. That did not happen, and the federal government stepped in to stop the bleeding. The TED spread quickly fell back to very low levels.

The TED spread is worth watching, but is unlikely to be the primary barometer for economic wellness prior to a recession setting in.

1. Other Indicators

We have discussed GDP, employment, and interest rates. There are a variety of other indicators of the health of an economy, and we will discuss a small set of the most important indicators next.

1. Consumer Confidence: Crashing?

Consumer confidence measures the degree of optimism that consumers feel about the overall state of the economy and their personal financial situation.

Currently, at 96.9, consumer confidence has rebounded from a plunge in January and is just off of a recent high. It was just off of a 14 year high of 98.8. It last sustained a prolonged period above this level at the height of the dot-com bubble, during the second half of the 1990s. Confidence fell nearly 7 points in the month of January. The stock market has stabilized. It will be interesting to see if this restores general consumer confidence.

Consumer confidence generally plummets at the onset of a recession, but it tends to be more of a lagging indicator than a leading indicator; it starts to fall once a recession is underway, rather than falling before a recession happens. The yield curve, by comparison, tends to be a leading indicator, as it falls well in advance of a recession.

1. Producer Confidence: Not what it used to be!

Another common indicator is the purchasing managers’ index. A survey is made of these managers; they are asked about production and employment and whether or not they are likely to experience growth. The index is the proportion of those asked that reported yes.

Until December, the index was near its highest levels since 1990. In December, the index fell nearly 5 points relative to its November level. The index waxes and wanes and does not necessarily portend a recession, but current levels and changes do not reflect optimism or a sense of security about the economy. Past recessions have been preceded by relatively long periods of decline in this index. The next couple of months will provide more insight into the sentiment among these managers.

1. Corporate profits

Corporate profits are another indicator of how well the economy is functioning. In general, it is neither a leading nor a lagging indicator.

Having remained reasonably constant in inflation-adjusted terms, corporate profits do not offer any particular lesson about changes in the economy.

Corporate profits have only been higher on three occasions. Each of those occasions were during the recovery.

Historically, corporate profits have grown relatively slowly, with average year-over-year growth of just 2.8% between 1947 and the middle of 2001.

Between the middle of 2001 and the middle of 2009, the average annual increase in inflation-adjusted corporate profits was in excess of 8%. Corporate profits are one of the few economic indicators to grow more quickly during the 2001-2007 expansion than during previous postwar expansions.[[25]](#footnote-25) It is difficult to say exactly what caused this dramatic increase in corporate profits, but reduced competition and regulation that raised barriers to entry are surely two significant candidates.[[26]](#footnote-26)

During the recovery, average annual growth has been just 2.8%. It remains an open question as to why corporate profits increased so dramatically during the 2000s but have not continued to increase in the wake of the Great Recession.

Worthy of note is that after tax corporate profits have increased significantly in the first two quarters of 2018. This may well be the result of the Tax Cuts and Jobs Act of 2017, which significantly cut the corporate tax rate from 35% to 21%.

1. Capacity Utilization

Another important statistic describing economic activity is the rate of capacity utilization. It is essentially a measure of the extent of slack in the economy.

At 78.8%, the nation’s productive capacity is significantly underutilized. Prior to the recession, and more historically, the rate of capacity utilization has been in excess of 80% and closer to 85% through most expansionary periods.

Back in the 1970s, capacity utilization was often close to 90%.

With significant slack in the economy, two things are likely true. First, inflation fears are unwarranted. Businesses can expand capacity relatively easily. Second, investment spending may well be lower than it would otherwise be. There is relatively little incentive to invest in additional productive capacity when existing capacity is being underutilized.

1. E-Commerce Inroads

More for general interest than for anything concrete that it says about the U.S. economy, we can take a look at the share of retail sales that occur through the internet. This share has been rising rapidly since 2006. At that time, the share was just above 3%. In the intervening 12 years, the share has increased by threefold and is now 9.9%.

The trend is on a solid upward trajectory that is likely to continue. What this means is a continued erosion of the profitability of local brick-and-mortar stores and a continued softness in retail employment in the United States.

1. Employment in Retail Trade

At the same time that internet sales are increasing, employment in the retail sector has been declining. It is currently just 10.4% of total nonfarm employment in the United States, down from a peak of over 12% in the mid-1980s.

If you believe that internet sales started to eat into brick-and-mortar sales in or around January of 2000, it is possible that retail employment’s share has fallen by about 2.3 percentage points of total nonfarm employment. That is as much as 3.4 million jobs lost in the retail sector.

1. Automobile and Light Truck Sales

Sales of automobiles and light trucks are often an indicator of the direction of the economy. New car sales are currently declining, but this could be an indication of recovery from the Great Recession. This recovery notion is a reflection of the fact that there were a number of years following the Great Recession when car and light truck purchases were slow.

It is also possible that this slowdown in purchases reflects a change in the economy, as it has prior to the last four recessions. Sales have declined in advance of each of those recessions.

That automobile purchases were as high as they were at their recent peak, at a level comparable to at the peak of the housing market, suggests that there was something about car purchases that was driving them particularly high that may not be related to a slowdown in the broader economy. Levels of purchases could continue to decline as they approach a more steady state level, without indicating a recession is coming.

It is a statistic that bears watching, however, as a downward trend is beginning to reveal itself.

1. Stock Markets

Although it is not clear whether it is because they are so frequently discussed, or because the intuitive connection between them and the rest of the economy is so strong, stock markets are another important indicator of the U.S. economy.

There is evidence that declines in the stock market have been correlated with subsequent recessions or economic downturns, but the reverse is not necessarily the case. That is, bear markets precede recessions and not the other way around. Whether this is a case of the stock market predicting the economic future of declines in the market and causing the downturn through wealth effects is not immediately clear.[[27]](#footnote-27)

Nonetheless, let’s have a look at what’s happening in markets today.

1. Dow Jones

The Dow Jones is the primary stock market index—it is the one that most people think of when they think of the stock market.

It has exhibited some interesting patterns over the last several years. In particular, after it grew reasonably steadily through the first half of the recovery:

1. It was flat through the presidential election cycle.
   1. From the middle of 2015 through the election, it took a couple of quick dips, but it was largely the same on election day as it was in the middle of 2015.
2. It accelerated rapidly in the months following the election.
   1. The increase likely reflected the hopes of promised cuts in corporate taxes, further deregulation, and relaxed labor standards.
3. It has slowed considerably since it reached a peak in January of this year.
   1. At the end of June, the index was nearly 9% below its peak.
   2. It lost most of this value over the span of about a week. It has recovered most of what was lost and is approaching its late 2017 peak.

Much of the turmoil in stocks is due to the uncertainty surrounding global international affairs, whether it be uncertainty on a geopolitical level (think North Korea) or uncertainty with regard to trade policy.

1. Dow Jones—Volatility in the Last Three Years

With these declines has come the return of significant volatility. Throughout the post-election period and the first year of the Trump presidency, volatility was at some of its lowest levels in the 20 years of data that are available—back through July of 1997. For much of 2018 and now into 2019, however, volatility has been back.

1. Dow Jones—Volatility from July 1997 to June 2018

Even the current levels of volatility, however, are quite low, historically. Throughout the latter part of the 1990s and the first few years of the 2000s, volatility was significantly more prevalent.

1. NASDAQ—January 1970 to May 2018

The NASDAQ, which fundamentally measures a different set of equities, has exhibited some behaviors that are similar to those in the DJIA, but to a lesser extreme. Recent weeks have seen a tremendous decline in this index as well.

In particular:

1. The period of flatness before the election was not nearly as prolonged.
2. It accelerated in the wake of the recession, but was really just returning to its pre-election cycle trajectory.
3. It too has been more volatile and exhibited less overall growth in 2018, with declines continuing into 2019.
4. Summary of GDP, Labor Markets, and Monetary Policy
5. Things to Be Worried About

* Yield Curve
* Government Debt
* Declining Labor Force—Permanently reduced labor resources may also eventually lead to lower levels of economic growth.
* Income and Wealth Inequality
* Infrastructure
* Savings—Saving enables investment in capital which over time leads to economic growth. Persistently low savings rates may eventually result in lower levels of economic growth.
* Policy Uncertainty—Policy uncertainty with respect to trade, immigration, and foreign policy (e.g., with North Korea) may affect economic growth.

1. Alarming Compression of Interest Rates

An inverted yield curve has historically (since the 1980s) preceded recessions, as discussed earlier.

1. Federal Government Debt Projections

Having a high debt-to-GDP ratio is potentially problematic. When a government spends more than it generates in tax revenue, it issues bills, notes, and bonds to fund its surplus expenditures. However, high levels of debt relative to GDP (which should be thought of here as income) are problematic because the ability of the government to repay its debt obligations are called into question, both debt that matures and interest payments.

As a percentage of GDP, [U.S. debt has increased dramatically since 2007](https://fred.stlouisfed.org/series/GFDEGDQ188S). However, this is consistent with the [debt-to-GDP ratios in other wealthy economies](https://fred.stlouisfed.org/graph/?g=kms1). There is no cause for alarm as the U.S. debt credit rating remains AAA.

1. Cautious Outlook
2. Overall Summary
3. Thank you!

The rest of the slides present information about the local economies. This is intended to serve as a resource for when it makes sense to talk to the audience about the local economy. All can be included, some, or none. It depends entirely on what is appropriate for the audience.

The slides included are for California and Marin County in California and they will not be updated. They are merely included here to give an example of what is available.

The same graphs exist for all states and all counties in the country and can be accessed here:

[www.needelegation.org/LocalGraphs](http://www.needelegation.org/LocalGraphs)

1. The Local Economy
   1. This section has a host of graphs that are broadly supportive of/similar to graphs contained for the US in the earlier part of the deck, but are for the national, state, and count level
2. Employment Situation: State Level
3. Employment Situation: County Level
4. Employment Growth: State
5. Employment Growth: County
6. Unemployment: State
7. Unemployment: County
8. Labor Force: State
9. Labor Force: County
10. Gross Regional Product: State
11. Gross Regional Product: County
12. Gross Regional Product Detail: State
13. Employment Growth Detail: Nation
14. Employment Growth Detail: State
15. Employment Growth Detail: County
16. Industry employment shares in the US
17. Industry employment shares in the state
18. Industry employment shares in the county
19. Per Capita Income: State
20. Per Capital Income: County
21. Income Inequality (GINI): Nation
22. Income Inequality (GINI): State
23. Income Inequality (GINI): County 1-yr ACS
24. Income Inequality (GINI): County 5-yr ACS
25. Poverty Rate: State
26. Poverty Rate: County 1-yr ACS
27. Poverty Rate: County 5-yr ACS
28. Child Poverty Rate: State
29. Child Poverty Rate: County 1-yr ACS
30. Child Poverty Rate: County 5-yr ACS
31. Home Prices: State
32. Home Prices: County
33. Rents: State (Source: Zillow)
34. Rents: County (Source: Zillow)
35. Home Permitting: National
36. Home Permitting: State
37. Home Permitting: County
38. Population: State
39. Population: County 1-yr ACS
40. Population: County 5-yr ACS
41. Jobs-Housing Ration: County

1. Congressional Budget Office (CBO) methodology paper for potential gdp, available at https://www.cbo.gov/system/files/115th-congress-2017-2018/workingpaper/53558-cbosforecastinggrowthmodel-workingpaper.pdf. [↑](#footnote-ref-1)
2. Table 1 in Shackleton (2018) summarizes the inputs used to estimate sectoral potential output (pp. 7). [↑](#footnote-ref-2)
3. For some evidence on why post-recession spending is so low, see: <https://web.stanford.edu/~pista/slow_cons_oct23.pdf>, Luigi Pistaferri, “Why Has Consumption Remained Moderate after the Great Recession?”, Stanford University, October 2016. [↑](#footnote-ref-3)
4. It’s worth being careful here. As potential GDP falls, so too does potential consumption. This forecast is therefore perhaps a little aggressive and overstates the consumption gap. [↑](#footnote-ref-4)
5. https://www.newyorkfed.org/microeconomics/hhdc.html. [↑](#footnote-ref-5)
6. https://www.newyorkfed.org/medialibrary/interactives/householdcredit/data/pdf/HHDC\_2018Q1.pdf. [↑](#footnote-ref-6)
7. It was 1.9% in the third quarter of 2005. The housing market was slowing down, and it stopped increasing in March of 2006. [↑](#footnote-ref-7)
8. Freddie Mac, “30-Year Fixed Rate Mortgage Average in the United States,” Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org/graph/?g=klLG. [↑](#footnote-ref-8)
9. https://www.nytimes.com/2018/03/22/us/politics/house-passes-spending-bill.html [↑](#footnote-ref-9)
10. The BLS defines marginally attached workers as persons who are not in the labor force, but who want and are available for work and have looked for a job sometime in the prior 12 months. [↑](#footnote-ref-10)
11. Regis Barnichon and Christian Matthes, *FRBSF Economic Letters*, “The Natural Rate of Unemployment over the Past 100 Years,” August 2017, https://www.frbsf.org/economic-research/publications/economic-letter/2017/august/natural-rate-of-unemployment-over-past-100-years/. [↑](#footnote-ref-11)
12. JOLTS defines *quits* as separations in which employees leave a job voluntarily but do not retire from the labor force or transfer to another job. JOLTS defines *layoffs and discharges* as involuntary separations initiated by employers. [↑](#footnote-ref-12)
13. Kimberly Riley, “Measuring Employer and Employee Confidence in the Economy: the Quits-to-Layoffs-and-Discharges Ratio,” Bureau of Labor Statistics, March 2018, https://www.bls.gov/opub/btn/volume-7/measuring-employer-and-employee-confidence-in-the-economy.htm#\_edn1. [↑](#footnote-ref-13)
14. Mitra Toossi and Teresa L. Morisi, “Women in the Workforce Before, During, and After the Great Recession, Bureau of Labor Statistics, July 2017, https://www.bls.gov/spotlight/2017/women-in-the-workforce-before-during-and-after-the-great-recession/pdf/women-in-the-workforce-before-during-and-after-the-great-recession.pdf. [↑](#footnote-ref-14)
15. Krueger, Alan B. “Where Have All the Workers Gone? An Inquiry into the Decline of the U.S. Labor Force Participation Rate.” *Brookings papers on economic activity* vol. 2017,2 (2017): 1-87. [doi:10.1353/eca.2017.0012](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6364990/)

    Currie, Jin, and Schnell. "US Employment and Opioids: Is There a Connection?." *NBER Working Paper No. 24440.* Revised April 2019. <https://www.nber.org/papers/w24440> [↑](#footnote-ref-15)
16. For a summary of the theories, see Nick Bunker, “What’s the Deal with U.S. Wage Growth?”, Washington Center for Equitable Growth, https://equitablegrowth.org/whats-the-deal-with-u-s-wage-growth/. [↑](#footnote-ref-16)
17. For an explanation for a lay audience, see Nick Bunker, “A Kink in the Phillips Curve,” Washington Center for Equitable Growth,https://equitablegrowth.org/a-kink-in-the-phillips-curve/; original source: Robert Gordon, “The Phillips Curve Is Alive and Well: Inflation and the NAIRU During the Slow Recovery,” NBER Working Paper No. 19390*,* August 2013, http://www.nber.org/papers/w19390. [↑](#footnote-ref-17)
18. Adam Ozimek, “Blame Weird U.S. Wage Growth on Weird Inflation,” *Moody’s Analytics*, April 26, 2016, https://www.economy.com/dismal/analysis/datapoints/282737/Blame-Weird-US-Wage-Growth-on-Weird-Inflation/. [↑](#footnote-ref-18)
19. The figure looks much different if the GDP deflator is used. For consumers, CPI would appear to be the correct deflator for measuring cost of living. However, the GDP deflator may be more appropriate if looking at domestic production, wages, and productivity. (See BLS “Beyond the Numbers June 2017). [↑](#footnote-ref-19)
20. Mary Daly, Bart Hobijn, and Benjamin Pyle, “What’s Up with Wage Growth?” *FRBSF Economic Letter*, March 7, 2016, https://www.frbsf.org/economic-research/publications/economic-letter/2016/march/slow-wage-growth-and-the-labor-market/. [↑](#footnote-ref-20)
21. Productivity is measured as real output per hour for all persons in the nonfarm business sector, see https://fred.stlouisfed.org/series/OPHNFB. [↑](#footnote-ref-21)
22. Martin Neil Bailey and Nicholas Montalbano, “Why Is U.S. Productivity Growth So Slow? Possible Explanations and Policy Responses,” Brookings Institution, September 1, 2016, https://www.brookings.edu/research/why-is-us-productivity-growth-so-slow-possible-explanations-and-policy-responses/. [↑](#footnote-ref-22)
23. Anna Malinovskaya and Louise Sheiner, ”Four Ways to Speed Up Productivity Growth,” Brookings Institution, September 20, 2020, https://www.brookings.edu/blog/up-front/2016/09/20/four-ways-to-speed-up-productivity-growth/. [↑](#footnote-ref-23)
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27. Probably better references are available, if the above assertion is even true: http://www2.econ.iastate.edu/classes/econ302/vandewetering/grangercausality.htm

    Pressman and Scott seem to agree that the stock market fall is foreshadowing a recession: Steven Pressman and Robert H. Scott, “Recent Stock Market Sell-Off Foreshadows a New Great Recession,” The Conversation, March 19, 2018, http://theconversation.com/recent-stock-market-sell-off-foreshadows-a-new-great-recession-92471 [↑](#footnote-ref-27)