

Class II FOMC – Restricted (FR)

Report to the FOMC on Economic Conditions and Monetary Policy



Book A

Economic and Financial Conditions:
Outlook, Risks, and Policy Strategies

March 8, 2019

Prepared for the Federal Open Market Committee
by the staff of the Board of Governors of the Federal Reserve System

Authorized for Public Release

(This page is intentionally blank.)

Domestic Economic Developments and Outlook

In the December and January Tealbooks, we were confronted with a deterioration in financial markets and business sentiment, while the domestic economic data were generally quite positive. To a degree, the situation is now reversed: Conditions in financial markets have improved, but much of the incoming spending and production data has softened materially, suggesting a more marked deceleration in output at the beginning of 2019 than we had been projecting. Most striking was the sizable reported drop in retail sales in December, but data on motor vehicle sales, new orders of capital goods, construction activity, and manufacturing production also disappointed—as did the February payroll figures, even after considering possible weather effects.

While those softer data led to a notable weakening in our current-quarter GDP growth projection—to an annual rate of 1 percent from the 2.3 percent pace we had expected in the January Tealbook—we also judge that figure to exaggerate the slowing of economic activity. In our assessment, labor market readings have remained solid, on balance, in recent months. And, with consumer sentiment also remaining at favorable levels, we project GDP growth to bounce back to 2.6 percent in the second quarter. Even so, we now project growth to be 1.8 percent for the year as a whole, nearly $\frac{1}{2}$ percentage point less than in the January Tealbook. Of course, we could be underestimating the extent of the weakness, and we have explored this possibility in the scenario “Momentum Weakens Further” in the Risks and Uncertainty section.

Meanwhile, higher equity prices and lower interest rates in this projection should provide a little more support for aggregate demand over the medium term relative to the January Tealbook. As a result, we nudged up our forecast of real GDP growth to 2 percent in 2020 and to 1.5 percent in 2021. As before, the slowing in the pace of growth relative to the past couple of years is driven by the ongoing tightening of monetary policy and waning fiscal stimulus.

The weaker near-term GDP forecast implies that the output gap this quarter is less tight than in our earlier assessment. In addition, we revised up our estimate of the level of potential output—thereby further lowering the output gap—because of an upward revision to our estimate of the sustainable trend in labor force participation. That lower output gap persists through the medium term, and, accordingly, the unemployment rate is a little higher, bottoming out at 3.6 percent by late this year.

Comparing the Staff Projection with Other Forecasts

The Blue Chip consensus expects GDP growth this year that is $\frac{1}{4}$ percentage point stronger than the staff's projection, while both the staff and Blue Chip project an unemployment rate of 3.6 percent by year-end. In 2020, the Blue Chip projects GDP growth to be $\frac{1}{4}$ percentage point lower than in the staff forecast, and they expect the unemployment rate to edge up to 3.8 percent. The Blue Chip and staff projections for CPI inflation are similar in both 2019 and 2020. As before, the staff's projections for short-term interest rates are above the range of Blue Chip forecasters, and our projection for longer-term rates are relatively high as well. (Note that we do not include the Survey of Professional Forecasters in this comparison because the most recent SPF projection is from November. The SPF ordinarily released in February was postponed because of the government shutdown and is now scheduled for March 22.)

Please note that the Blue Chip data are embargoed until March 10.

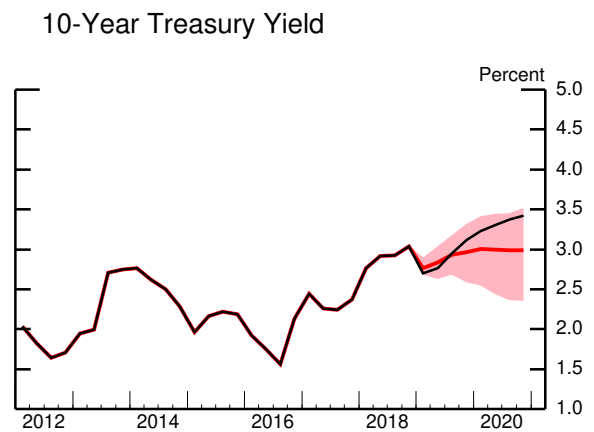
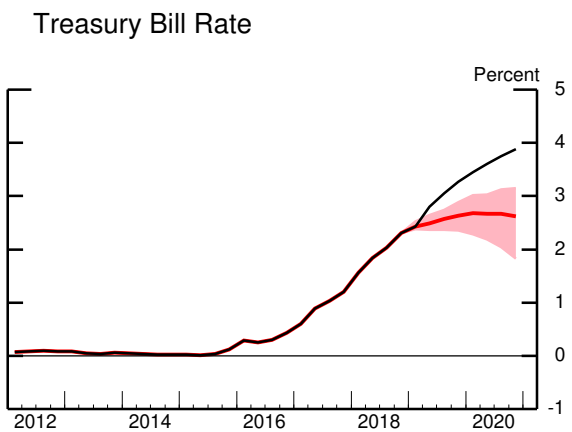
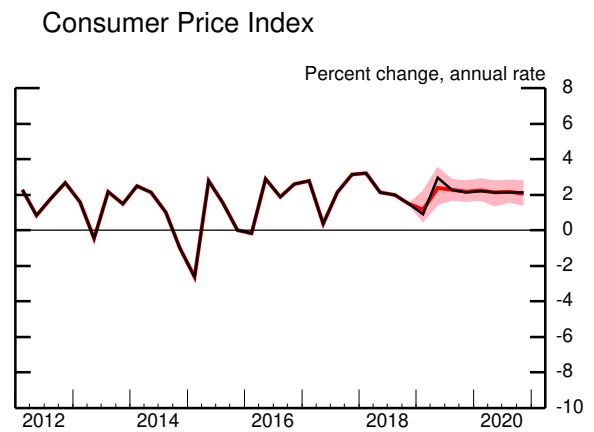
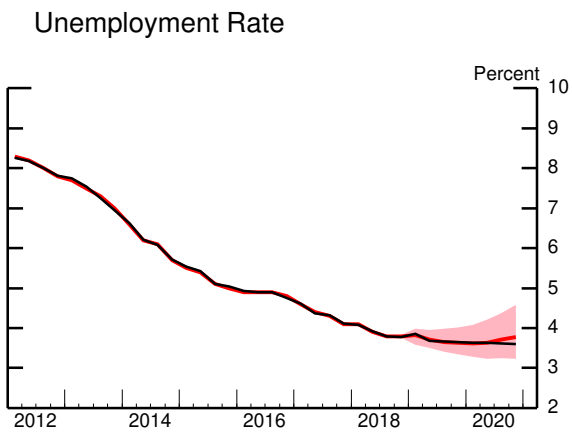
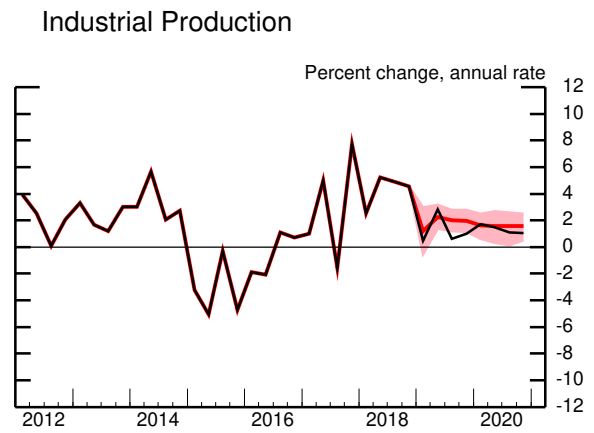
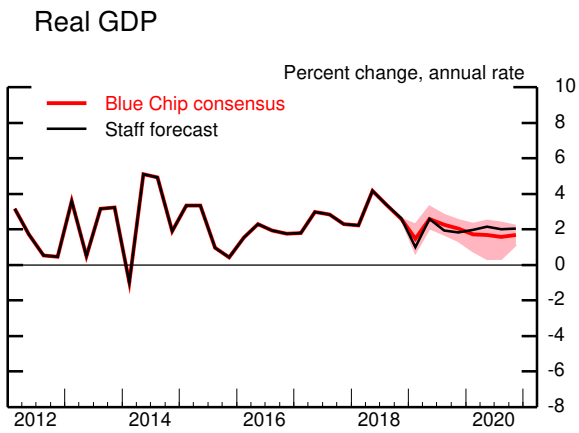
Comparison of Tealbook and Outside Forecasts

	2018	2019	2020
GDP (Q4/Q4 percent change)			
Staff Forecast (03/08/19)	3.1	1.8	2.0
Blue Chip (03/10/19)	3.1	2.1	1.7
Unemployment rate (Q4 level)			
Staff Forecast (03/08/19)	3.8	3.6	3.6
Blue Chip (03/10/19)	3.8	3.6	3.8
CPI inflation (Q4/Q4 percent change)			
Staff Forecast (03/08/19)	2.2	2.1	2.2
Blue Chip (03/10/19)	2.2	2.0	2.2

Note: CPI is the consumer price index. The Blue Chip consensus forecast includes input from about 50 panelists.

Source: Blue Chip Economic Indicators.

Tealbook Forecast Compared with Blue Chip



Note: The yield is for on-the-run Treasury securities. Over the forecast period, the staff's projected yield is assumed to be 15 basis points below the off-the-run yield.

Note: The shaded area represents the area between the Blue Chip top 10 and bottom 10 averages.

Revisions to the Staff Projection since the Previous SEP

The FOMC most recently published its Summary of Economic Projections, or SEP, following the December FOMC meeting. The following table compares the staff's current economic projection with the one we presented in the December Tealbook.

Recent data for real GDP growth have been below our expectations in the December Tealbook, while readings on labor market conditions have been close, on balance, to what we had expected. Our projection for real GDP growth this year has been revised down, mostly reflecting the soft incoming spending data, along with a downward revision to our projection for foreign economic growth, which have been only partially offset by somewhat more favorable trajectories for equity prices and interest rates. The downward revision to GDP, along with an upward revision to our estimate of the sustainable labor force participation rate, imply that our forecast for resource utilization is less tight than in the December Tealbook. The unemployment rate is a little higher, and the output gap is smaller.

Our forecast for core inflation in 2019 and over the medium term is unchanged from our projection in the December Tealbook, and we continue to expect core inflation to run at 2 percent over the next few years. Total inflation is projected to be a bit below 2 percent over the medium term—slightly lower than in the December forecast—reflecting projected declines in crude oil prices.

The path for the federal funds rate derived from the inertial version of the Taylor (1999) rule used in our baseline forecast is notably lower than its trajectory in December, reflecting the narrower output gap in this projection.

Staff Economic Projections Compared with the December Tealbook

Variable	2018	2019		2019	2020	2021	Longer run
		H1	H2				
Real GDP ¹	3.1	1.8	1.9	1.8	2.0	1.5	1.7
December Tealbook	3.0	2.5	2.2	2.4	2.0	1.4	1.7
Unemployment rate ²	3.8	3.7	3.6	3.6	3.6	3.7	4.6
December Tealbook	3.7	3.5	3.4	3.4	3.4	3.5	4.6
PCE inflation ¹	1.9	1.8	1.9	1.8	1.9	1.9	2.0
December Tealbook	1.8	1.8	1.9	1.8	2.0	2.0	2.0
Core PCE inflation ¹	1.9	2.1	1.9	2.0	2.0	2.0	n.a.
December Tealbook	1.8	2.2	1.9	2.0	2.0	2.0	n.a.
Federal funds rate ²	2.22	2.71	3.20	3.20	3.84	4.12	2.50
December Tealbook	2.22	2.88	3.49	3.49	4.30	4.66	2.50
Memo:							
Federal funds rate, end of period	2.38	2.73	3.22	3.22	3.85	4.13	2.50
December Tealbook	2.24	2.91	3.51	3.51	4.31	4.66	2.50
Output gap ^{2,3}	1.9	2.1	2.1	2.1	2.3	1.9	n.a.
December Tealbook	2.2	2.5	2.8	2.8	2.9	2.4	n.a.

1. Percent change from final quarter of preceding period to final quarter of period indicated.

2. Percent, final quarter of period indicated.

3. Percent difference between actual and potential. A negative number indicates that the economy is operating below potential.

n.a. Not available.

The data on inflation have come in largely as expected, with core PCE prices rising 1.9 percent over the 12 months ending in December. We continue to project that the four-quarter change in core PCE prices will edge up to 2 percent by the second half of 2019 and will remain at that level over the medium term. This slight step-up in core inflation reflects both a small further tightening of resource utilization and our assumption of a gradual small increase in underlying trend inflation. Given the assumed trajectory of oil prices, total PCE inflation is projected to run slightly below core inflation throughout the medium term.

KEY BACKGROUND FACTORS

During the period since the January Tealbook, financial market volatility has decreased while stock prices and credit conditions for nonfinancial firms have improved. In addition, the projected trajectories for the federal funds rate and for long-term rates have been revised down to reflect our revised path for the output gap. Thus, relative to the January Tealbook projection, our financial assumptions are now more supportive of economic activity.

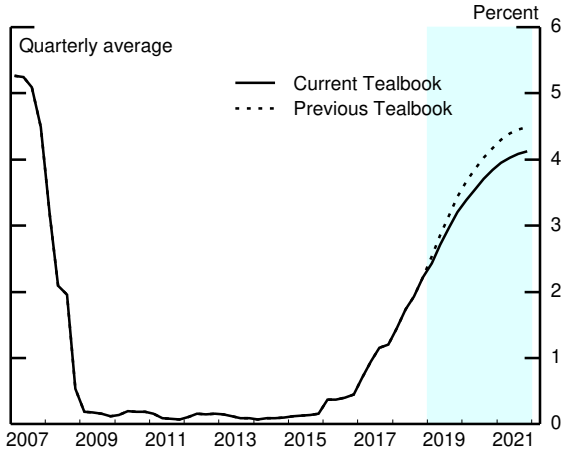
Monetary Policy

- The inertial version of the Taylor (1999) rule that we currently use to mechanically set our assumed path for the federal funds rate continues to project a substantial increase over the next three years—one that we recognize is out of line with the expectations of most private forecasters.¹ However, the current trajectory is notably lower than in the January Tealbook due to the narrower output gap. We now assume the federal funds rate will rise to around 4 percent in 2021, about ½ percentage point lower than in January.
- We assume that the size of the SOMA portfolio continues a gradual and predictable decline until early 2020, at which point reserve balances are projected to have fallen to \$1 trillion. Thereafter, both reserve balances and the SOMA portfolio are assumed to grow roughly in line with nominal GDP. These projections are consistent with the SOMA portfolio exerting less downward pressure over time on the term premium embedded in long-term Treasury yields.

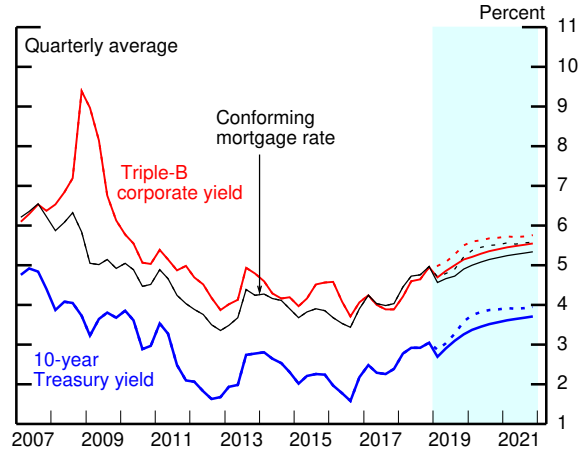
¹ We are reevaluating the policy rule that we currently use and will likely make adjustments in the April Tealbook.

Key Background Factors underlying the Baseline Staff Projection

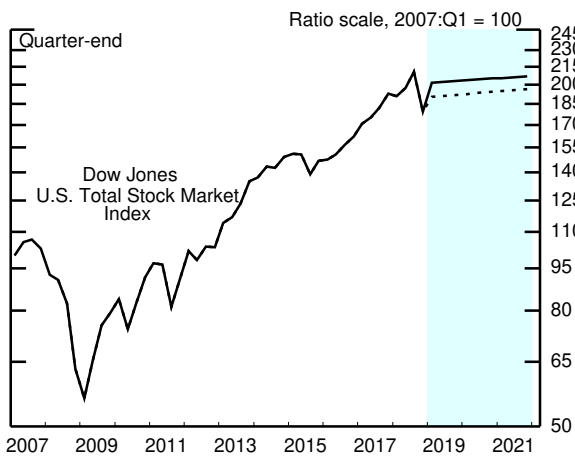
Federal Funds Rate



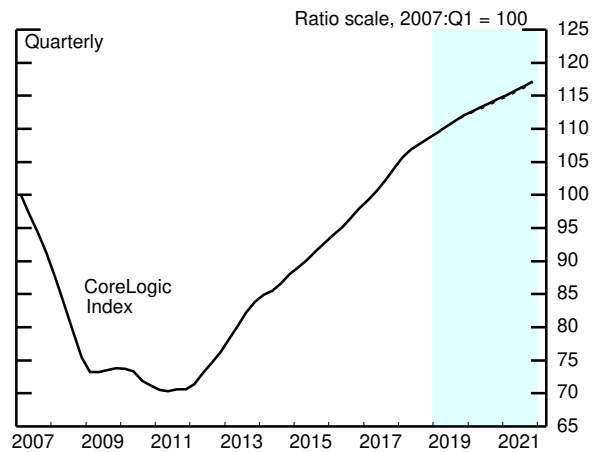
Long-Term Interest Rates



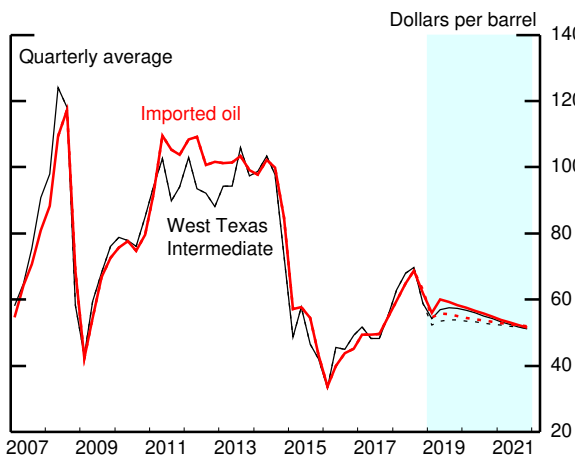
Equity Prices



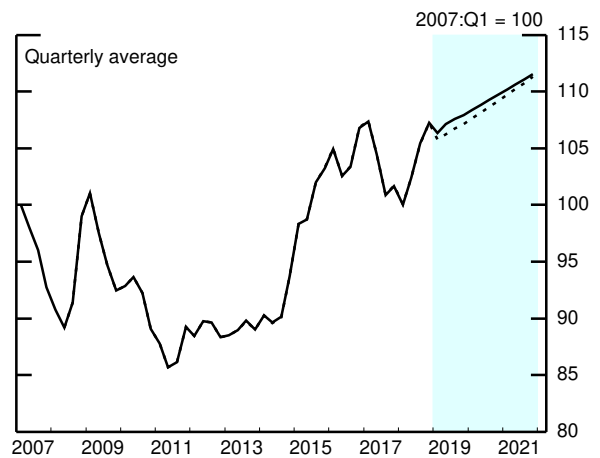
House Prices



Crude Oil Prices



Broad Real Dollar



Other Interest Rates

- The 10-year Treasury yield is projected to rise from an average of 2.7 percent in the current quarter to 3.7 percent by the end of 2021. Most of the projected increase is due to our assumption that downward pressures on the term premium, including from the effects of the SOMA portfolio, will gradually wane, letting it return to levels closer to its long-run value by the end of the medium term. To a smaller extent, the increase reflects our assumption that market participants will revise up their expectation of the path of the federal funds rate to that of the Tealbook. Relative to the January Tealbook, the path for the 10-year Treasury yield is revised down an average of about $\frac{1}{4}$ percentage point, mostly because of lower expected short rates over the valuation window.
 - We still project the federal funds rate to rise above the 10-year Treasury rate in 2020, but the magnitude of the inversion by 2021 is now a little smaller than in the January Tealbook.
- In the near term, our projection for triple-B corporate yields has been revised down somewhat more than that for 10-year Treasury yields, as spreads have narrowed faster than we had previously anticipated. Further out over the medium term, triple-B yields have been revised roughly the same as Treasury yields, as we expect currently elevated corporate leverage—and the credit risk it implies—to limit the scope for further declines in corporate spreads.
- In contrast, spreads on mortgage rates are essentially unchanged, and the 30-year fixed mortgage rate is revised lower in line with the 10-year Treasury yield.

Equity Prices and Home Prices

- Equity prices have risen 6 percent since the January Tealbook, and valuation pressures appear to have increased, even given the lower projected path for 10-year Treasury yields. Accordingly, we have nudged down our assumed stock price appreciation going forward to 1 percent per year, compared with 1.2 percent per year in the previous Tealbook.
- Growth in house prices slowed from 6 percent in 2017 to $4\frac{1}{2}$ percent last year, and we project a further slowing to about $2\frac{1}{2}$ percent per year over the next

three years. The slowdown reflects both the weakness in housing demand and our assessment that house prices are, at present, modestly elevated relative to rents.

Fiscal Policy

- We assume that the expansionary fiscal policies enacted over the past year and a half will continue through the medium term. In particular, our forecast assumes that the current level of discretionary spending will be maintained in real terms in fiscal years 2020 and 2021; realization of that forecast will require lawmakers to lift the discretionary spending caps for those years, which would be consistent with fiscal policymaker actions in recent years.²
- Given these policy assumptions, we continue to project that discretionary fiscal policy actions across all levels of government (exclusive of any multiplier effects and financial offsets) contributed 0.6 percentage point to the rate of growth in aggregate demand last year and will contribute the same amount this year before tapering to 0.5 percentage point in 2020 and 0.2 percentage point in 2021.
- We expect the federal budget deficit, which was 3¾ percent of GDP in fiscal 2018, to widen to 4¾ percent by fiscal 2021, reflecting upward pressure from recent fiscal policy actions, the effects of higher interest rates on debt service costs, and growth in mandatory spending.

Trade Policy

- The additional tariff increase of 15 percentage points on many imports from China that was scheduled for March 2 has been indefinitely postponed. Trade talks between the United States and China have reportedly been productive, and the Administration has suggested some form of agreement could be reached by late March. We continue to assume tariff rates on Chinese imports will remain at current levels through the medium term. However, given the substantial issues that remain unresolved in the U.S.–China negotiations, as

² The federal government entered a debt issuance suspension period on March 4, 2019, during which the government will use extraordinary measures to issue additional debt to the public. The anticipated breach date, when the federal government will no longer be able to meet its financial obligations, is expected to occur between late August and the end of November. We anticipate that policymakers will reach a resolution on the debt ceiling before this breach date.

well as the uncertainty related to possible auto tariffs and the still uncertain prospects for congressional ratification of the USMCA trade pact, trade developments will likely remain a focus of market attention and continue to pose a risk to the economic outlook.

Foreign Economic Activity and the Dollar

- Foreign GDP growth is projected to be 1.7 percent in the current quarter, about 0.5 percentage point lower than our January Tealbook forecast and the fourth consecutive quarter of growth below its estimated potential rate of 2.5 percent. However, the slowdown in foreign growth this quarter appears to reflect, in part, temporary factors. Accordingly, we expect growth to move up to 2.4 percent in the second quarter and to continue to run close to potential through 2021, supported by accommodative monetary policies in the advanced foreign economies and stimulus measures in China.
- The broad nominal dollar is little changed, on net, since the January Tealbook. The dollar initially depreciated following the January FOMC meeting, but it retraced this move as major foreign central banks signaled increased accommodation amid growth concerns. We expect the broad real dollar to appreciate at an annual rate of 1.7 percent through 2021, as market expectations for the federal funds rate move up toward the staff forecast. The broad real dollar at the end of the forecast horizon is little changed from the January Tealbook.

Oil Prices

- The spot price of Brent crude oil is up about \$5 per barrel from the January Tealbook, at \$66 per barrel. Farther-dated futures prices are also up, but less than spot prices, resulting in a slightly downward-sloping futures curve. Prices were supported by reductions in OPEC supply, particularly in Saudi Arabia; but the increase in oil prices also coincided with more accommodative monetary policy communications from central banks and market optimism regarding trade negotiations between the United States and China. At the end of January, the Administration imposed sanctions on the Venezuelan state-owned oil company, sequestering revenues earned in the United States; however, these sanctions do not appear to have had much effect on oil prices.

THE OUTLOOK FOR REAL GDP

Taken at face value, the incoming data indicate that growth of aggregate demand has weakened materially. Top-line GDP was reported to have increased at an annual rate of 2.6 percent in the fourth quarter of 2018, just a bit below our estimate in the January Tealbook. However, private domestic final purchases, which we find to be more indicative of underlying momentum, were a good deal weaker than expected, while inventory investment was larger. Moreover, the softening in the available spending indicators led us to forecast GDP growth of just 1 percent this quarter.³ Nonetheless, given the generally solid labor market indicators and other fundamentals for spending, we assume that a fair bit of the softening will prove to be transient, and thus we expect growth to move back up to 2.6 percent in the second quarter.

- We estimate that the partial government shutdown lowered GDP growth 0.3 percentage point in the first quarter, primarily reflecting lost government production. As production in the government sector returns to baseline in the second quarter, we project that output growth will be boosted by 0.4 percentage point. If not for the effect of the shutdown, projected GDP growth would be 1.3 percent in the first quarter and 2.2 percent in the second quarter.
- Although real consumer spending rose a solid 2.8 percent in the fourth quarter, that growth rate was 1 percentage point less than we had expected in our previous projection, as retail sales were reported to have plunged in December.⁴ In addition, motor vehicle sales weakened notably in January and February, and although measures of consumer confidence remain fairly high, they have softened a little, on balance, over the past few months. In all, even assuming a solid gain in retail sales in January, we now project real PCE growth at just 1 percent in the first quarter.

³ The median prediction of first-quarter GDP growth from the Federal Reserve System's suite of nowcasting models is 1.9 percent.

⁴ Initial readings on retail spending around the turn of the year from First Data indicated a strong increase in spending—which was at odds with the Census Bureau's retail sales data for December. However, recent revisions to the First Data estimates now also show some softening in spending, though still not to the extent of the Census data. The Census Bureau will release retail sales data for January, and any revisions to earlier months, on Monday, March 11.

- In recent Tealbooks, we projected PCE growth to slow this year, but this quarter's slowing now appears likely to be much more pronounced than we expected. Given our continued positive expectations about employment, income, household wealth, and consumer sentiment, we expect PCE growth to move back up to a solid 2¾ percent pace over the remainder of the year.
- After having increased 7 percent in 2018, business fixed investment (BFI) is expected to decelerate substantially this year as business output growth slows from an elevated pace in 2018 and interest rates rise further. The latest data provide some corroboration of this assessment. Orders of nondefense capital goods declined in the fourth quarter of 2018 and are now below the level of shipments, suggesting that shipments are likely to flatten out this quarter. Spending on structures has also been soft recently, and we expect only modest gains this year, in part because lower oil prices imply a slowdown of investment in drilling structures after the rapid growth of 2017 and 2018. Year-ahead earnings expectations have turned negative in recent months, though longer-run profits expectations have remained quite upbeat. Taking all of these factors into account, we expect sluggish BFI growth of 2½ percent this year.
- Housing activity, which weakened throughout 2018, appears to be deteriorating more this quarter than we had expected. Incoming data through January on single-family starts and permits and on existing home sales have disappointed, on balance, and we have marked down our first-quarter forecast. Still, the decline in mortgage interest rates over the past several months should help arrest the decline, and we expect residential investment to begin to grow again in the second quarter. (For more on this topic, see the box “The Current Weakness in Residential Investment.”)
- Smoothing through some wide quarter-to-quarter swings, we now estimate that net exports subtracted about 1 percentage point from GDP growth in the second half of last year, and about 0.3 percentage point for the year as a whole. The brisk pace of domestic activity led to above-trend import growth, and slowing foreign growth held down exports. As domestic demand slows in the first half of 2019, import growth is also expected to slow, and net exports are projected to reduce GDP growth by just 0.2 percentage point.

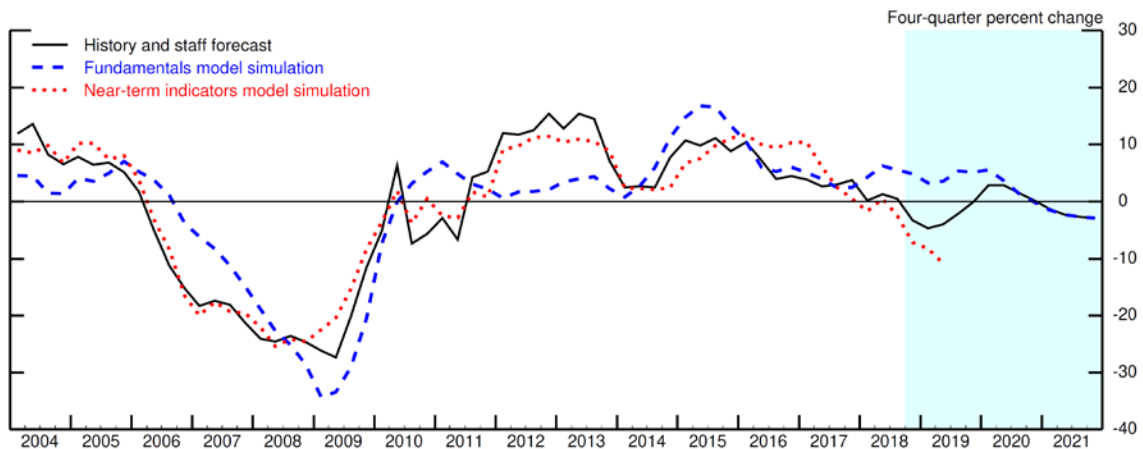
The Current Weakness in Residential Investment

Housing activity was surprisingly weak last year. Residential investment declined for the first time since the recovery began, and incoming data indicate that the weakness has extended into this year. We had expected the rise in mortgage interest rates in 2018 to be a drag on the housing market, but investment has been weaker than we projected, even though the level of mortgage rates at the end of last year was close to our projection at the beginning of the year.

Coming into 2018, the staff expected slow but steady growth in residential investment, consistent with a simulation of our fundamentals model, shown by the dashed blue line in figure 1. This model relates housing demand and investment to a set of fundamentals that includes mortgage rates. Unsurprisingly, mortgage rates—which rose about 1 percentage point from the end of 2017 through late 2018—exerted considerable downward pressure on the model’s projection of investment growth in 2018, but this pressure was offset by other factors, including strong overall economic growth and healthy gains in household income.

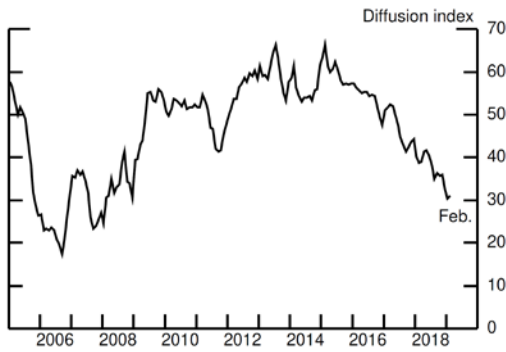
In contrast, the dotted red line shows a simulation of a different model that we use specifically to inform our near-term outlook. This model conditions on several indicators that we select from a much larger set of data using a standard machine learning technique. The indicators model also saw a considerable drag on investment growth from the rise in mortgage rates last year and by roughly the same magnitude as in the fundamentals model. But it took additional negative signal from other indicators—most notably, the low level of homebuying sentiment, shown in figure 2—yielding a forecast for growth in 2018 that tracked a bit below the staff’s current estimate of actual investment (the solid black line in figure 1).

Figure 1: Residential Investment Growth



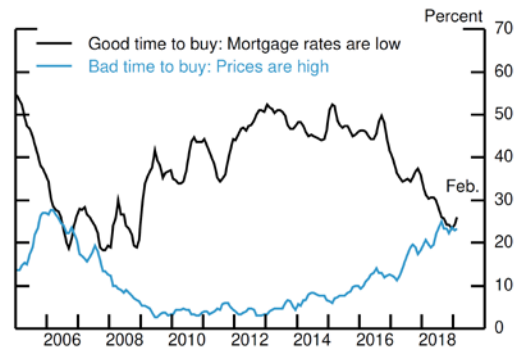
Note: Shaded area denotes projection period for staff forecast.
 Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff models.

Figure 2: Homebuying Conditions



Note: Three-month moving average of the percent responding that it is a good time to buy less the percent responding it is a bad time to buy.
Source: University of Michigan Surveys of Consumers.

Figure 3: Michigan Survey Detail



Note: Three-month moving average of the percent responding that it is a good or bad time to buy a home for the given reason.
Source: University of Michigan Surveys of Consumers.

According to the detailed questions in the University of Michigan Surveys of Consumers, the decline in homebuying sentiment in recent years is the result of households' perceptions of both higher mortgage rates and rising housing prices (figure 3). Although prices have decelerated recently, they remain much higher relative to income than several years ago, which has combined with higher mortgage rates to reduce affordability. We think that rising house prices, taken in combination with moderate levels of investment, have reflected relatively tight supply conditions, including of land, labor and materials. That said, it seems unlikely that supply conditions worsened sufficiently in 2018 to account for the swing in investment.

Another possible contributor to weak residential investment was tax policy. The Tax Cuts and Jobs Act put new caps on both the mortgage interest deduction and the deduction for state and local taxes, and it increased the number of filers who claim the standard deduction rather than itemizing. However, we have not found evidence in the data of a material drag of tax reform on housing activity or prices. Accordingly, we continue to believe that the effects of the changes in tax policy on nationwide housing demand are likely small, as the additional disposable income flowing to households from lower tax rates is estimated to roughly balance out the less favorable treatment of housing itself.

In summary, we view residential investment last year as having been weaker than our usual reading of the fundamentals would suggest, though closer to what one would expect after accounting for homebuying sentiment. Looking ahead, residential investment in our projection begins to grow again in the second quarter, consistent with the decline in mortgage rates since November. Even so, we assume that the portion of the weakness picked up by sentiment will persist for the next year or so, keeping the pace of growth below that of our fundamentals model. Thereafter, the staff forecast and the model come back into alignment, and both decelerate in response to the expected slowing in overall economic growth and projected further increases in mortgage rates.

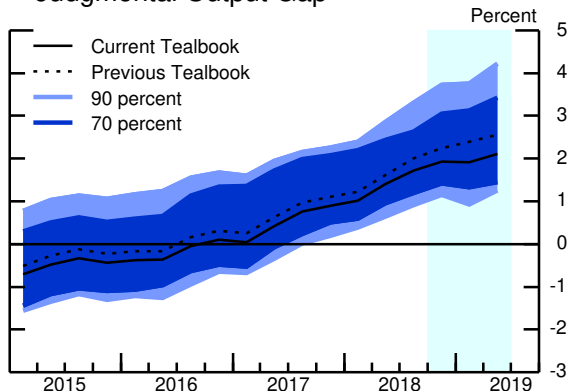
Cyclical Position of the U.S. Economy: Near-Term Perspective
(Percent change at annual rate from final quarter of preceding period except as noted)

Measure	2016	2017	2018	2018 Q4	2019 Q1	2019 Q2
Output gap¹	.1	.9	1.9	1.9	1.9	2.1
Previous Tealbook	.3	1.1	2.2	2.2	2.4	2.6
Real GDP	1.9	2.5	3.1	2.6	1.0	2.6
Previous Tealbook	1.9	2.5	3.1	2.8	2.3	2.6
Measurement error in GDP	-.3	.0	.3	.0	-.8	.0
Previous Tealbook	-.3	.0	.2	.1	-.1	.1
Potential output	1.6	1.7	1.8	1.8	1.8	1.8
Previous Tealbook	1.6	1.7	1.8	1.8	1.8	1.8

Note: The output gap is the percent difference between actual and potential output; a negative number indicates that the economy is operating below potential. The change in the output gap is equal to real GDP growth less the contribution of measurement error less the growth rate of potential output. For quarterly figures, the growth rates are at an annual rate, and this calculation needs to be multiplied by 1/4 to obtain the quarterly change in the output gap.

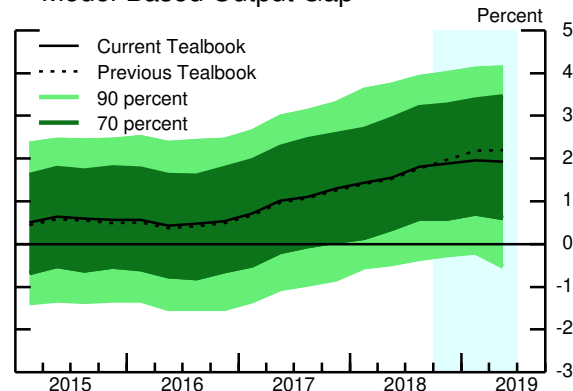
1. Percent, average for the final quarter in the period.

Judgmental Output Gap



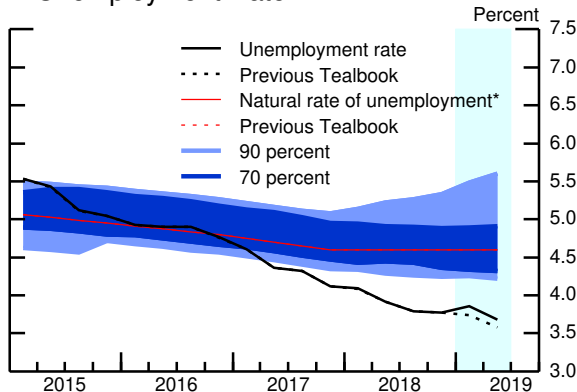
Note: Shaded regions show the distribution of historical revisions to the staff's estimates of the output gap.
Source: Various macroeconomic data; staff assumptions.

Model-Based Output Gap



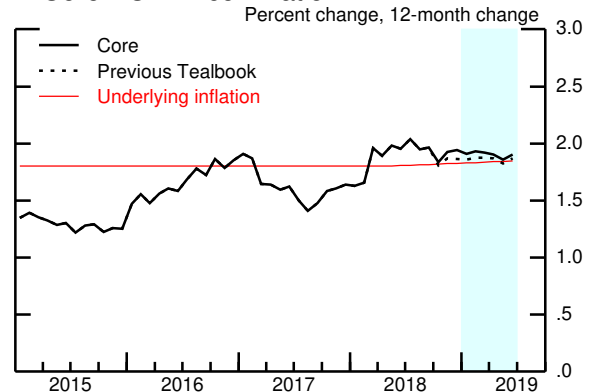
Note: Shaded regions denote model-computed uncertainty bands.
Source: Various macroeconomic data; staff assumptions.

Unemployment Rate



Note: Shaded regions show the distribution of historical revisions to the staff's estimates of the natural rate.
*Staff estimate including the effect of extended and emergency unemployment insurance benefits.
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

Core PCE Price Inflation



Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff assumptions.

Federal Reserve System Nowcasts of 2019:Q1 Real GDP Growth
(Percent change at annual rate from previous quarter)

Federal Reserve Entity	Type of model	Nowcast as of Mar. 7, 2019
Federal Reserve Bank		
Boston	<ul style="list-style-type: none"> Mixed-frequency BVAR 	2.4
New York	<ul style="list-style-type: none"> Factor-augmented autoregressive model combination Factor-augmented autoregressive model combination, financial factors only Dynamic factor model 	2.3 2.2 .9
Cleveland	<ul style="list-style-type: none"> Bayesian regressions with stochastic volatility Tracking model 	1.9 1.2
Atlanta	<ul style="list-style-type: none"> Tracking model combined with Bayesian vector autoregressions (VARs), dynamic factor models, and factor-augmented autoregressions (known as GDPNow) 	.5
Chicago	<ul style="list-style-type: none"> Dynamic factor models Bayesian VARs 	3.2 1.9
St. Louis	<ul style="list-style-type: none"> Dynamic factor models News index model Let-the-data-decide regressions 	.7 2.4 1.9
Kansas City	<ul style="list-style-type: none"> Accounting-based tracking estimate 	1.8
Board of Governors	<ul style="list-style-type: none"> Tealbook estimate (judgmental) Monthly dynamic factor models (DFM-45) Mixed-frequency dynamic factor model (DFM-BM) 	1.0 2.1 1.9
Memo: Median of Federal Reserve System nowcasts		1.9

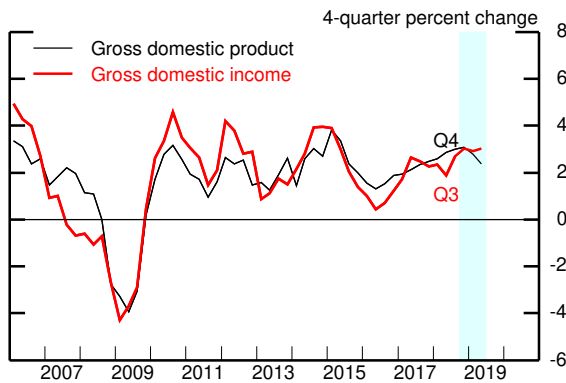
Summary of the Near-Term Outlook for GDP
(Percent change at annual rate except as noted)

Measure	2018:Q4		2019:Q1		2019:Q2	
	Previous Tealbook	Current Tealbook	Previous Tealbook	Current Tealbook	Previous Tealbook	Current Tealbook
Real GDP	2.8	2.6	2.3	1.0	2.6	2.6
Private domestic final purchases	4.0	2.9	2.3	1.0	2.5	2.7
Personal consumption expenditures	3.8	2.8	2.4	1.0	2.5	2.8
Residential investment	-4.4	-4.9	-3.4	-8.6	1.4	1.3
Nonres. private fixed investment	7.1	5.5	3.2	3.4	3.1	2.1
Government purchases	1.7	.0	.4	.7	3.7	4.0
<i>Contributions to change in real GDP</i>						
Inventory investment ¹	-.7	.4	.1	.2	.1	-.1
Net exports ¹	-.2	-.2	.1	-.1	-.3	-.3

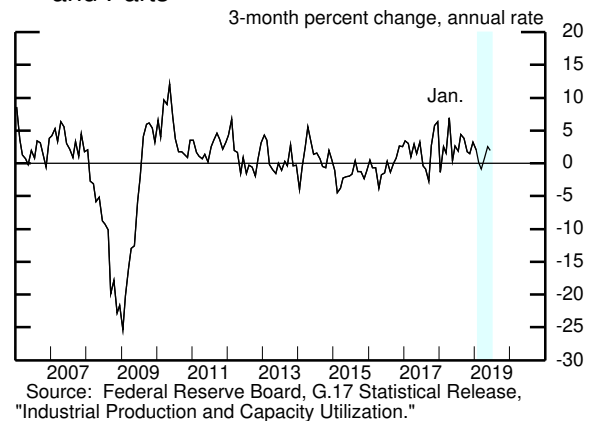
1. Percentage points.

Recent Nonfinancial Developments (1)

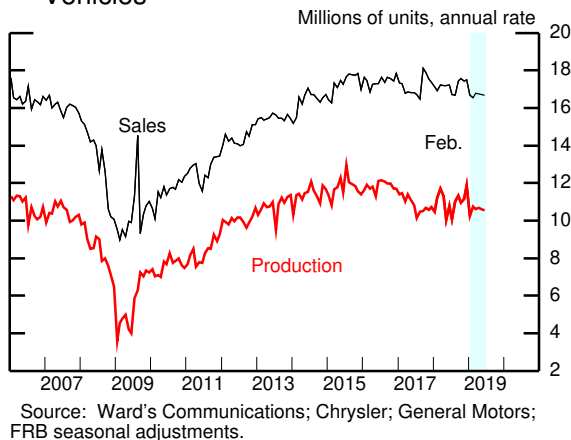
Real GDP and GDI



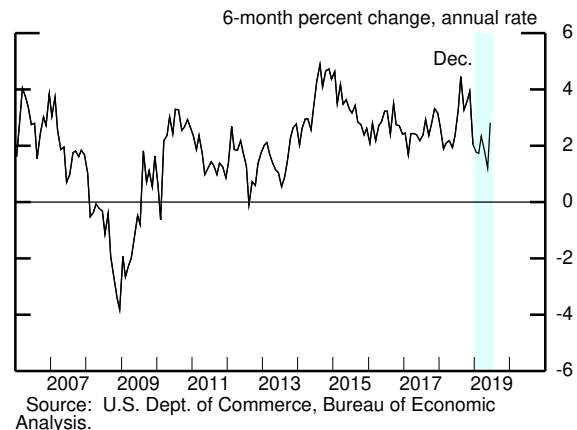
Manufacturing IP ex. Motor Vehicles and Parts



Sales and Production of Light Motor Vehicles

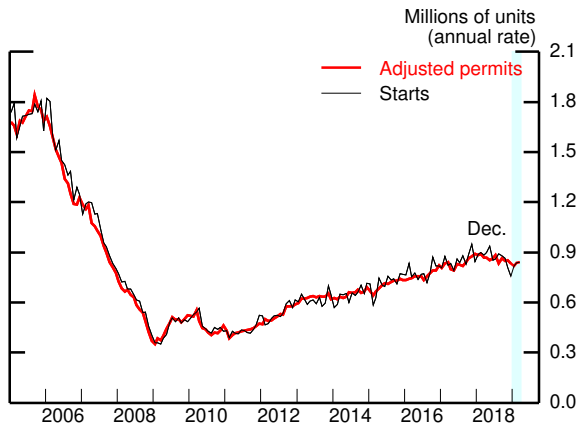


Real PCE Growth



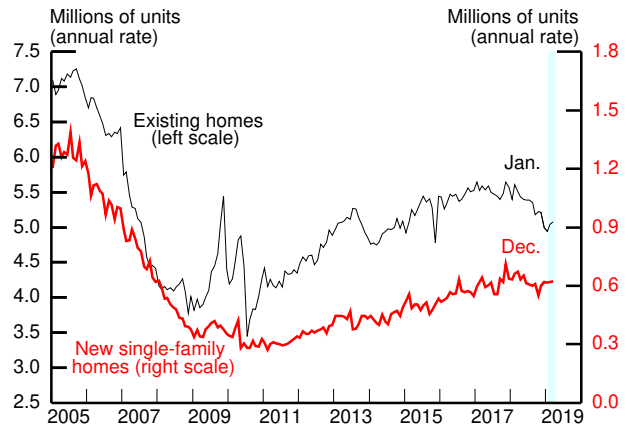
Recent Nonfinancial Developments (2)

Single-Family Housing Starts and Permits



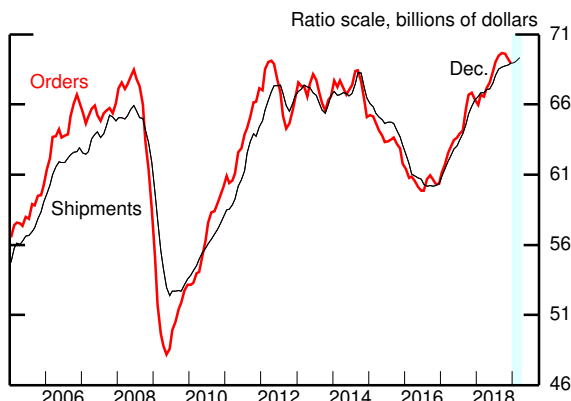
Note: Adjusted permits equal permit issuance plus starts outside of permit-issuing areas.
Source: U.S. Census Bureau.

Home Sales



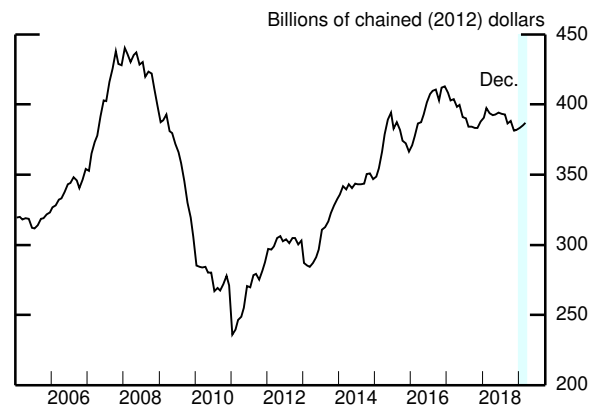
Source: For existing, National Association of Realtors; for new, U.S. Census Bureau.

Nondefense Capital Goods ex. Aircraft



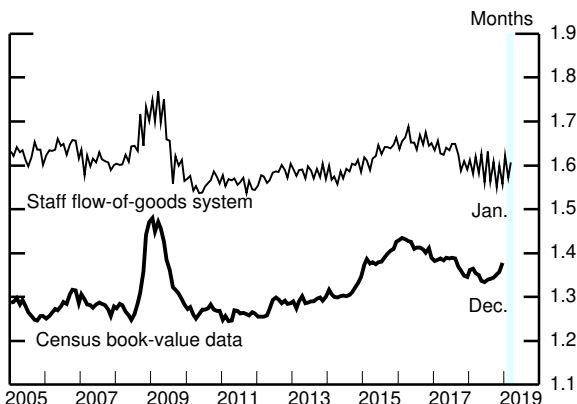
Note: Data are 3-month moving averages.
Source: U.S. Census Bureau.

Nonresidential Construction Put in Place



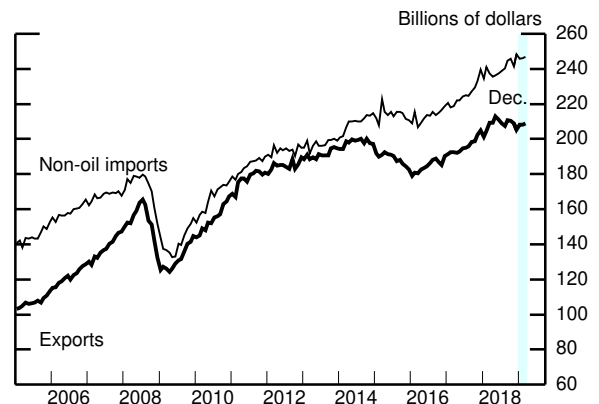
Note: Nominal CPIP deflated by BEA prices through 2018:Q3 and by the staff's estimated deflator thereafter.
Source: U.S. Census Bureau.

Inventory Ratios



Note: Flow-of-goods system inventories include manufacturing and mining industries and are relative to consumption. Census data cover manufacturing and trade, and inventories are relative to sales.
Source: U.S. Census Bureau; staff calculations.

Exports and Non-oil Imports



Note: Forecasts are linear interpolations of quarterly values.
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis; U.S. Census Bureau.

- Firms accumulated inventories at a high rate in the second half of 2018. We anticipate that firms will slow the pace of inventory accumulation this year to prevent an excessive buildup, implying a small drag on GDP growth in 2019.
- After a solid increase in the fourth quarter, industrial production declined in January as motor vehicle manufacturers pulled back on assemblies, and manufacturing production outside of motor vehicles also turned down. Motor vehicle production plans call for a partial rebound in February and March, but the recent sales weakness suggests those plans may be trimmed. In addition, readings from national and regional surveys of manufacturers have softened appreciably in recent months and point to only modest increases in manufacturing production ahead.⁵

Although the incoming data have led us to revise down our projection for GDP growth in the first half of this year, we have maintained our projection for growth just under 2 percent in the second half and boosted slightly our forecast for growth in 2020 and 2021, reflecting improved financial conditions. With regard to the contour of the projection, we see the past tightening of monetary policy as contributing to the slowing in GDP growth this year, and we project that the additional assumed tightening, along with waning fiscal support, will lead to a further deceleration in economic activity in 2021.

THE OUTLOOK FOR THE LABOR MARKET AND RESOURCE UTILIZATION

Taken together, the two employment reports that we have received since the January Tealbook indicate that the labor market has continued to gradually tighten. Even when the weak February reading is taken into account, average payroll employment growth has remained solid in recent months, the unemployment rate has remained low, and labor force participation has picked up. Given the projected slowing in aggregate demand growth this year, we expect employment gains to slow over the course of this year.

- In the establishment survey, total nonfarm payrolls increased more than 300,000 in January but only 20,000 in February. Our translation of the microdata from the payroll-processing firm ADP also pointed to a marked deceleration in private employment last month, and the pooled estimate of

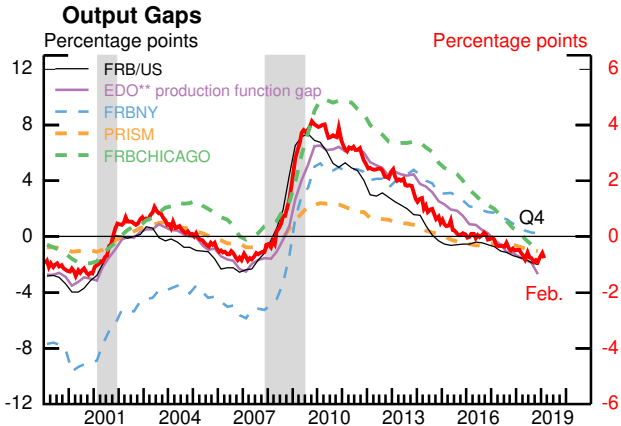
⁵ The step-down in motor vehicle production this quarter is roughly consistent with a ½ percentage point drag on GDP growth.

private employment growth that combines the signals from the BLS and ADP/FRB payroll estimates stood at 106,000 in February.

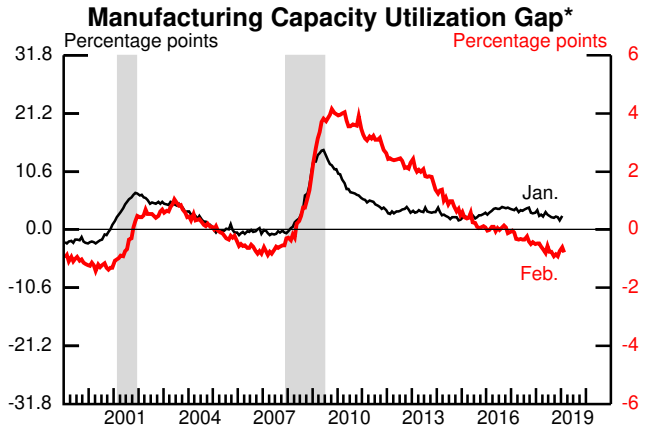
- We believe some of the weakness in February job growth is weather related, as evidenced by a large payroll decline in the weather-sensitive construction sector and an increase in the number of household survey respondents indicating they were not at work or working part time because of bad weather.
- Payroll gains over the past three months averaged a solid 186,000, which is nevertheless below our expectations in the January Tealbook. In response to these data along with the weaker near-term GDP projection, we marked down our forecast for payroll gains in coming months by about 20,000, to an average of about 165,000 per month.
- The unemployment rate moved back down to 3.8 percent in February but was still 0.1 percentage point above our projection in the previous Tealbook. We project the unemployment rate will edge down to 3.7 percent in the second quarter.
- The labor force participation rate (LFPR) moved up further in the first two months of the year to 63.2 percent; this level was two-tenths higher than in the January Tealbook and is well above the 62.8 percent level that we expected to prevail in the first quarter of 2019 as recently as last fall.
- In response to the continuing strength in labor force participation, we nudged up our estimate of its trend level by 0.2 percentage point in recent years, putting the level of the trend at 62.8 percent in the current quarter (now 0.4 percentage point below the actual participation rate).
- With this revision to trend labor force participation, together with the softer near-term GDP growth, we now estimate the output gap to be 2 percent in the first half of this year, $\frac{1}{2}$ percentage point less tight than we estimated in the January Tealbook.

Alternative Measures of Slack

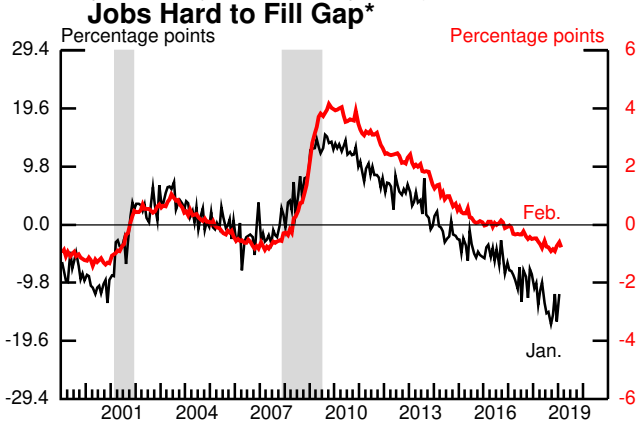
The red line in each panel is the staff's measure of the unemployment rate gap (right axis).



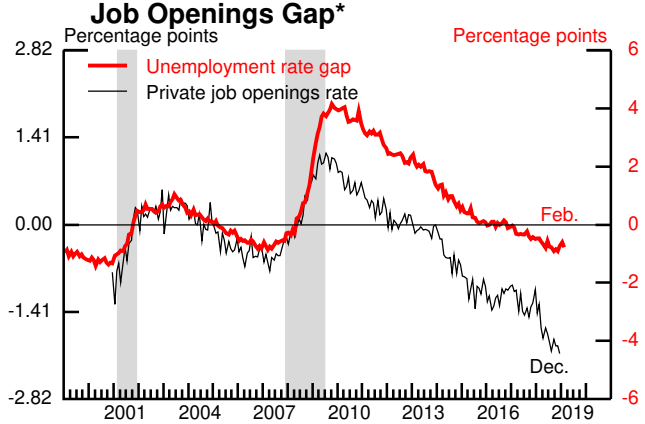
** EDO is Estimated, Dynamic, Optimization-based model.
 Source: Federal Reserve Board; PRISM: Federal Reserve Board Bank of Chicago; Federal Reserve Board Bank of Philadelphia, PRISM Model Documentation (June 2011); FRBNY: Federal Reserve Bank of New York Staff Report 618 (May 2013, revised April 2014).



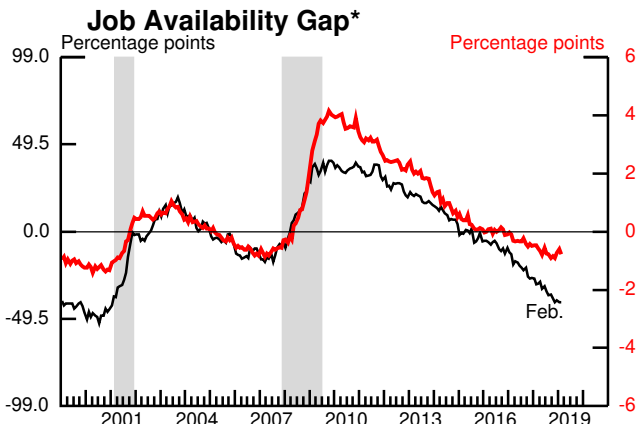
Source: Federal Reserve Board.



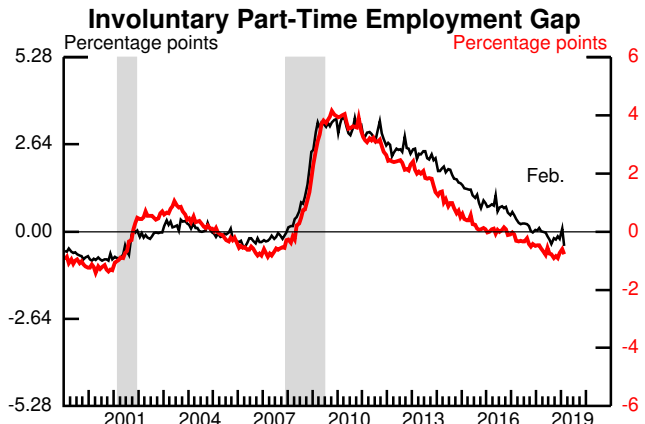
Note: Percent of small businesses surveyed with at least one "hard to fill" job opening. Seasonally adjusted by Federal Reserve Board Staff.
 Source: National Federation of Independent Business, Small Business Economic Trends Survey.



Note: Job openings rate is the number of job openings divided by employment plus job openings.
 Source: Job Openings and Labor Turnover Survey; U.S. Department of Labor, Bureau of Labor Statistics, Current Employment Statistics.



Note: Percent of households believing jobs are plentiful minus the percent believing jobs are hard to get.
 Source: Conference Board.



Note: Percent of employment.
 Source: U.S. Department of Labor, Bureau of Labor Statistics, Current Population Survey.

* Plots the negative of the gap to have the same sign as the unemployment rate gap.
 Note: The shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research. Output gaps are multiplied by negative 0.52 to facilitate comparison with the unemployment rate gap. Manufacturing capacity utilization gap is constructed by subtracting its average rate from 1972 to 2018. Other gaps were constructed by subtracting each series' average in 2004:Q4 and 2005:Q1.

We expect labor market conditions to tighten further through 2020 before easing somewhat in 2021.

- We project the unemployment rate will edge down to 3.6 percent by the end of this year, hold at 3.6 percent through 2020, and return to 3.7 percent by the end of 2021—nearly 1 percentage point below our estimate of its natural rate.
 - Over the medium term, the output gap is projected to be roughly $\frac{1}{2}$ percentage point narrower than it was in the January Tealbook, and the unemployment rate is 0.1 percentage point higher.⁶
- Strong job gains and rising real wages are expected to continue to draw individuals into the labor force while also damping outflows, and thus we project the LFPR to be above our estimate of its trend over the medium term.
- Average monthly total payroll gains slow over the projection, from 150,000 this year to 130,000 in 2020 and 75,000 in 2021.
- Business-sector labor productivity is reported to have increased almost 2 percent last year. As the productivity data are highly variable, we continue to take little signal from that pickup, and we expect productivity growth to average about 1 percent over the medium term, close to its average so far this expansion.

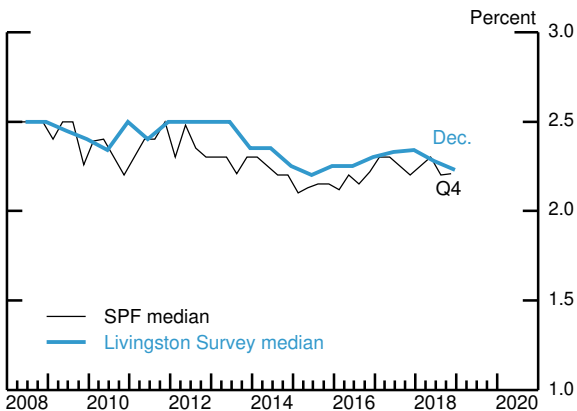
THE OUTLOOK FOR INFLATION

Core PCE prices increased 1.9 percent over the 12 months ending in December, and total inflation was 1.7 percent. We continue to project that core PCE inflation (on a four-quarter change basis) will edge up to 2 percent by the third quarter of 2019 as resource utilization tightens slightly further. Core inflation remains at that level in 2020 and 2021, as our assumption of a gradual small increase in underlying inflation is offset by a greater drag from import prices after this year as tariff effects fade. Given the

⁶ We assume that the response of the unemployment rate to changes in the output gap is only about one-half as large during periods of very tight labor markets as it is during other periods, and that the LFPR becomes more cyclically sensitive in a tight labor market. Without the assumed attenuation in the unemployment rate response, the upward revision to the unemployment rate in this projection would have been about 0.2 percentage point.

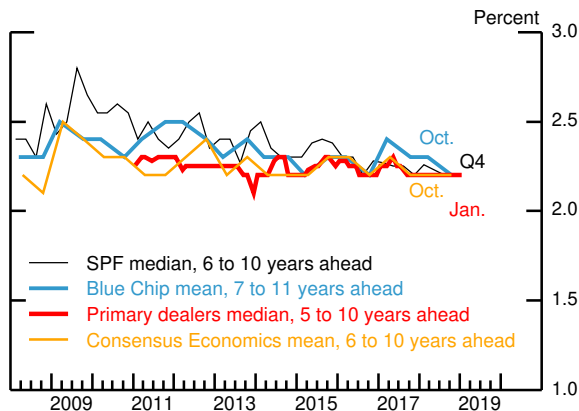
Survey Measures of Longer-Term Inflation Expectations

CPI Next 10 Years



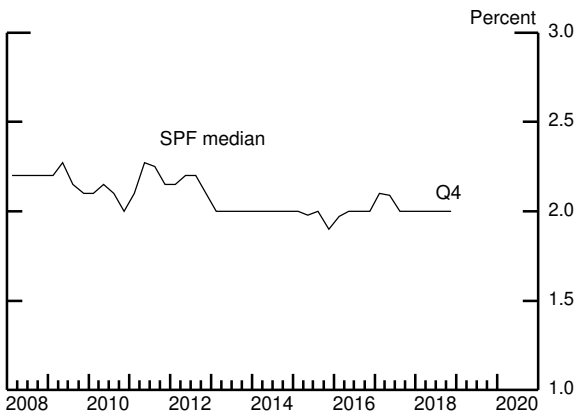
Note: SPF is Survey of Professional Forecasters.
Source: Federal Reserve Bank of Philadelphia.

CPI Forward Expectations



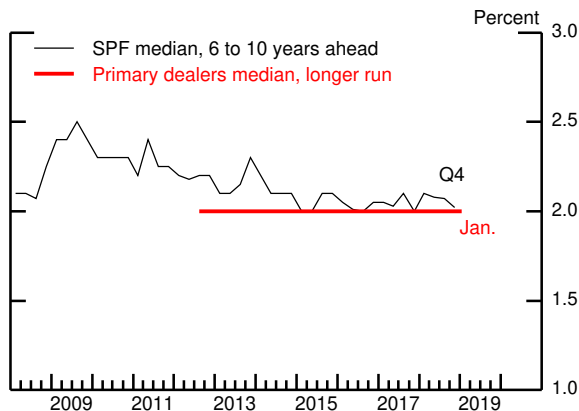
Source: Federal Reserve Bank of Philadelphia; Blue Chip Economic Indicators; Federal Reserve Bank of New York; Consensus Economics.

PCE Next 10 Years



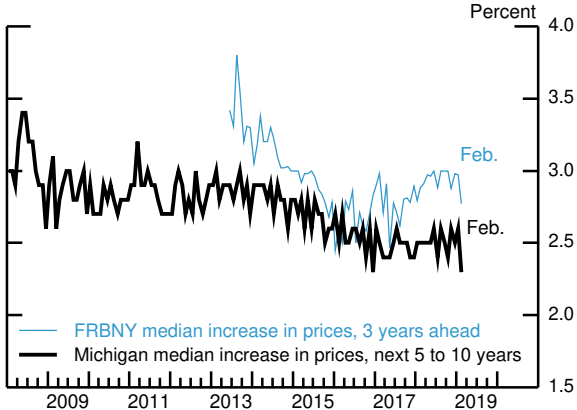
Source: Federal Reserve Bank of Philadelphia.

PCE Forward Expectations



Note: Primary dealers data begin in August 2012.
Source: Federal Reserve Bank of Philadelphia; Federal Reserve Bank of New York.

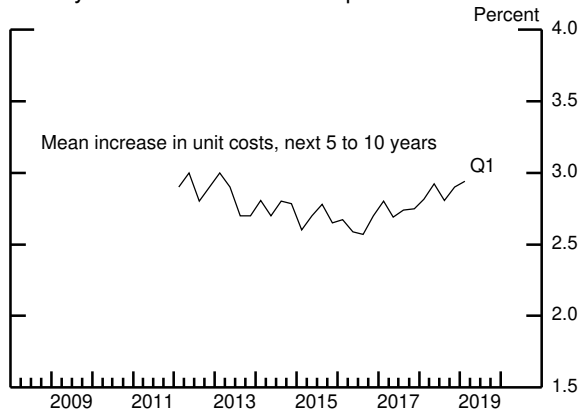
Surveys of Consumers



Note: Federal Reserve Bank of New York (FRBNY) Survey of Consumer Expectations reports expected 12-month inflation rate 3 years from the current survey date. FRBNY data begin in June 2013.

Source: University of Michigan Surveys of Consumers; Federal Reserve Bank of New York Survey of Consumer Expectations.

Survey of Business Inflation Expectations



Note: Survey of businesses in the Sixth Federal Reserve District. Data begin in February 2012.
Source: Federal Reserve Bank of Atlanta.

assumed downward trajectory of oil prices, total PCE inflation is projected to run slightly below core inflation throughout the medium term.

- The incoming data on prices, including the CPI and PPI data for January, are in line with our January Tealbook projection, and we continue to expect the 12-month change in core PCE prices to remain near 1.9 percent for a few more months.
 - Monthly readings on core PCE price inflation slowed a bit in the second half of last year. However, the second-half decline was largely driven by some weak readings in prices for goods (for example, apparel) that we think are providing little signal for future inflation. In addition, residual seasonality tends to hold down measured PCE inflation toward the end of the year.
- Total PCE price inflation is being restrained by recent declines in consumer energy prices. We expect the 12-month change in total PCE prices to move down to 1.5 percent in January and February before moving back up to 1.7 percent in March.
- Boosted by implemented tariffs, the effective price of imported goods is estimated to have risen about 2.5 percent (at an annual rate) in the second half of 2018. With no additional tariff changes in our forecast, import prices are expected to rise less than 1 percent per year in 2019 and thereafter, restrained by the gradual appreciation of the dollar and consistent with moderate foreign inflation. Effective core import prices are estimated to have been neutral for PCE price inflation in 2018 and are expected to hold down core inflation only slightly in 2019, as the estimated boost from tariff hikes largely offsets the drag from dollar appreciation and weak nonfuel commodity prices. For the remainder of the medium term, with no further boosts from tariff hikes, core import price inflation is projected to be a bit more of a drag on core PCE price inflation.
- The latest readings on longer-term inflation expectations suggest, on balance, that expectations remain well anchored.

- Among survey-based measures, long-term inflation expectations from the University of Michigan Surveys of Consumers came in just below the range of recent years and matched the all-time low for this measure (from December 2016). However, the median of three-year-ahead expectations from the Federal Reserve Bank of New York's Survey of Consumer Expectations remained within its range of readings in recent years.
- TIPS-based measures of longer-term inflation compensation have increased some since the January Tealbook.

The incoming data on labor compensation remain consistent with the gradual firming we have been projecting.

- The average hourly earnings of employees on private nonfarm payrolls rose 3.4 percent over the 12 months ending in February, up from 2.6 percent a year earlier.
- Compensation per hour (CPH) in the business sector rose 2.9 percent over the four quarters of 2018, about the same as a year earlier. Over the remainder of the forecast, we project gains of about 3¾ percent per year, a pace we think is more in line with tight labor market conditions, trend price inflation, and trend productivity growth.
- The employment cost index (ECI) rose 3 percent over the 12 months ending in December, compared with 2.6 percent a year earlier. We expect it will continue rising at a similar pace over the medium term. (Note that increases in the ECI tend to run a little lower than those in business-sector CPH.)
- The Federal Reserve Bank of Atlanta's Wage Growth Tracker was 3.7 percent in January, near the upper end of the range observed in recent years.

THE LONG-TERM OUTLOOK

- We continue to assume that the natural rate of unemployment will remain at 4.6 percent. Also, as in previous Tealbooks, we assume that potential output

growth slows after 2021, as the boost to potential from fiscal policy wanes, and that growth converges to 1.7 percent per year in the longer run.

- We have maintained our assumption that the real equilibrium federal funds rate that will prevail in the longer run will be 0.5 percent. The nominal yield on 10-year Treasury securities is assumed to be 3.4 percent in the longer run.
 - We expect that the Federal Reserve's holdings of securities will continue to put downward pressure on longer-term interest rates, though to a diminishing extent over time.
 - We continue to assume that, in the longer run, fiscal policymakers will gradually reduce deficits by an amount sufficient to stabilize the debt-to-GDP ratio. We expect this ratio to level off at around 105 percent of GDP, 20 percentage points higher than would have occurred in the absence of recent and projected policy actions. We also continue to anticipate that this increment to the debt-to-GDP ratio will push up the term premium on 10-year Treasury yields 50 basis points in the longer run.
- With these assumptions, GDP growth slows to about 1.3 percent from 2022 to 2024, as the federal funds rate is above its neutral level and the contribution to growth from fiscal policy fades. The unemployment rate moves up gradually from 3.7 percent at the end of 2021 toward its assumed natural rate in subsequent years. PCE price inflation remains close to 2 percent throughout.
- With resource utilization easing only slowly and inflation remaining close to the Committee's 2 percent objective, the nominal federal funds rate moves down gradually from about 4.1 percent at the end of the medium term toward its longer-run value of 2½ percent.

(This page is intentionally blank.)

Projections of Real GDP and Related Components
(Percent change at annual rate from final quarter of preceding period except as noted)

Measure	2018	2018 H2	2019 H1	2019	2020	2021
Real GDP	3.1	3.0	1.8	1.8	2.0	1.5
Previous Tealbook	3.1	3.1	2.4	2.2	1.9	1.4
Final sales	2.6	1.6	1.7	2.1	1.9	1.5
Previous Tealbook	3.0	2.2	2.3	2.3	1.9	1.5
Personal consumption expenditures	2.7	3.2	1.9	2.3	2.2	2.0
Previous Tealbook	2.9	3.7	2.5	2.4	2.2	1.9
Residential investment	-3.3	-4.2	-3.8	-.1	.1	-2.8
Previous Tealbook	-3.2	-4.0	-1.1	.7	-.6	-.4
Nonresidential structures	5.3	-2.9	2.2	2.0	-1.0	-2.3
Previous Tealbook	5.9	-1.8	2.8	1.9	-.8	-2.0
Equipment and intangibles	7.5	6.1	2.9	2.7	2.5	1.8
Previous Tealbook	7.9	6.8	3.3	2.8	2.2	1.6
Federal purchases	2.8	2.5	4.3	3.5	2.7	1.0
Previous Tealbook	3.2	3.3	3.3	3.4	2.9	.9
State and local purchases	1.0	.6	1.2	1.2	1.0	1.0
Previous Tealbook	1.4	1.4	1.2	1.2	1.0	1.0
Exports	2.2	-1.8	1.4	1.7	2.7	3.2
Previous Tealbook	2.3	-1.6	2.4	2.3	3.0	3.1
Imports	3.5	5.9	2.7	2.6	3.1	2.9
Previous Tealbook	3.5	5.9	2.4	2.5	2.9	2.6
Contributions to change in real GDP (percentage points)						
Inventory change	.5	1.4	.1	-.2	.1	.0
Previous Tealbook	.2	.8	.1	-.1	.1	-.1
Net exports	-.3	-1.1	-.2	-.2	-.1	.0
Previous Tealbook	-.3	-1.1	-.1	-.1	-.1	.0

Domestic Econ Devel & Outlook

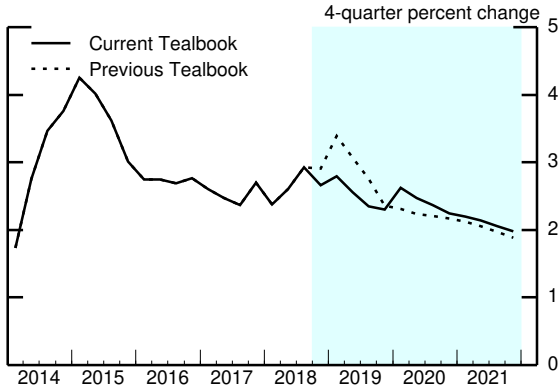
Real GDP



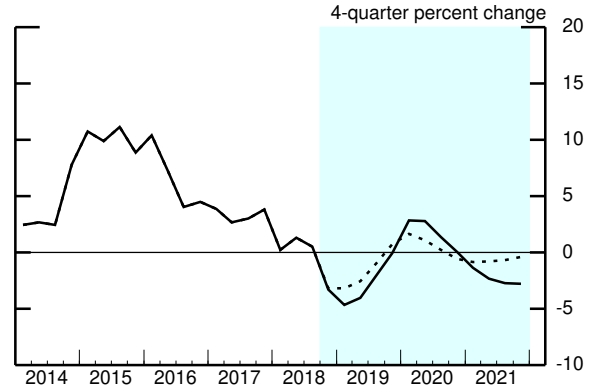
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Components of Final Demand

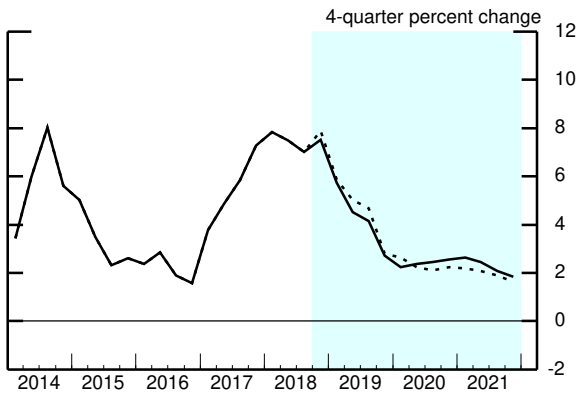
Personal Consumption Expenditures



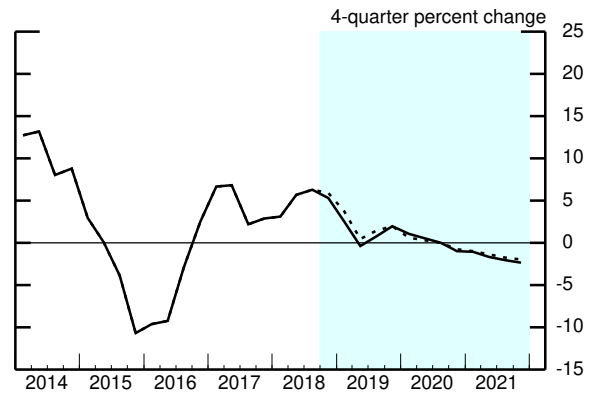
Residential Investment



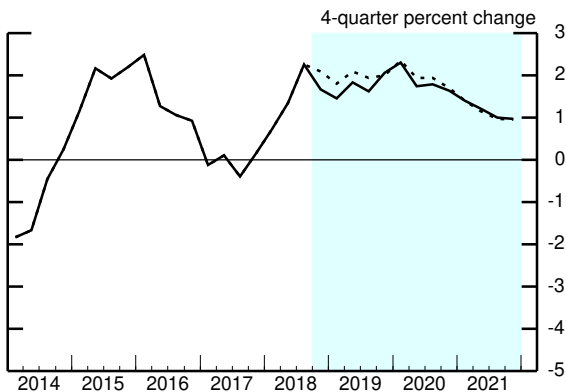
Equipment and Intangibles



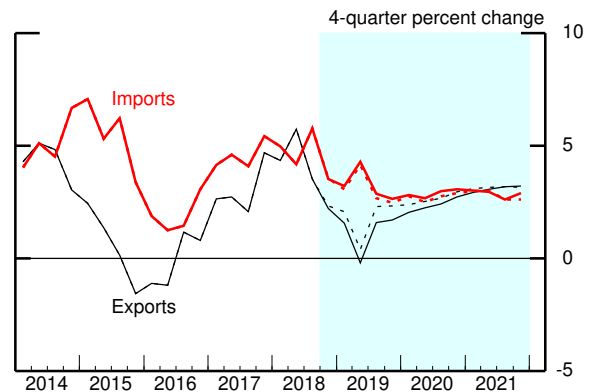
Nonresidential Structures



Government Consumption and Investment



Exports and Imports



Source: U.S. Department of Commerce, Bureau of Economic Analysis.

falling below the natural rate. The optimal control policy and associated outcomes depend on the relative (rather than the absolute) values of the weights.

For each of these three specifications of the loss function, the optimal control policy is subject to the effective lower bound constraint on nominal interest rates. Policy tools other than the federal funds rate are taken as given and subsumed within the Tealbook baseline. The path chosen by policymakers today is assumed to be credible, meaning that the public sees this path as a binding commitment on policymakers' future decisions; the optimal control policy takes as given the initial lagged value of the federal funds rate but is otherwise unconstrained by policy decisions made prior to the simulation period.

ESTIMATES OF THE EQUILIBRIUM REAL FEDERAL FUNDS RATE IN THE LONGER RUN

The top panel of the exhibit “Estimates of the Equilibrium Real Federal Funds Rate in the Longer Run” shows a range of estimates of r^{LR} from eight time-series models based on the following studies: Christensen and Rudebusch (2017); Del Negro, Giannone, Giannoni, and Tambalotti (2017); Holston, Laubach, and Williams (2017); Johannsen and Mertens (2016); Kiley (2015); Laubach and Williams (2003); Lewis and Vazquez-Grande (2017); and Lubik and Matthes (2015). For comparability, all computations use the latest vintage of historical data through 2018:Q4. Moreover, the estimates are “one sided” in the sense that, at each point, they make use of historical data only up to that point in time. As a result, their historical movements can differ from the “two sided” estimates reported in some of those studies.

Where possible, the middle panel reports 68 percent uncertainty bands around each model's point estimate for 2018:Q4. The computation and interpretation of these bands are specific to each study.

The bottom panel shows r^{LR} values from selected forecasters. These values were obtained as follows:

- “Tealbook baseline” is the staff's assumption about the level of the equilibrium real federal funds rate in the longer run.
- “Median SEP” is the median of FOMC participants' projections of the federal funds rate in the longer run minus the corresponding projection of PCE inflation as of the December 2018 SEP.
- “Median Survey of Primary Dealers” equals the long-run median dealer forecast for the target rate minus the longer-run median dealer forecast of PCE inflation as of the January 2019 survey.
- “Median Blue Chip (6-to-10-year)” equals the consensus five-year average (2025–29) forecast for the three-month Treasury bill rate minus the consensus five-year average (2025–29) forecast for the annual change in the GDP chained price index as of the October 2018 Blue Chip Economic Indicators survey.

- “Congressional Budget Office (10-year)” equals the federal funds rate at the end of 2029 minus the annualized change in the PCE index at the end of 2029 as of January 2019.

REFERENCES

- Christensen, Jens H.E., and Glenn D. Rudebusch (2017). “A New Normal for Interest Rates? Evidence from Inflation-Indexed Debt,” FRBSF Working Paper 2017-07. San Francisco: Federal Reserve Bank of San Francisco, May, <https://www.frbsf.org/economic-research/publications/working-papers/wp2017-07.pdf>.
- Chung, Hess, Edward Herbst, and Michael T. Kiley (2014). “Effective Monetary Policy Strategies in New Keynesian Models: A Reexamination,” *NBER Macroeconomics Annual*, vol. 29 (1), pp. 289–344.
- Del Negro, Marco, Domenico Giannone, Marc P. Giannoni, and Andrea Tambalotti (2017). “Safety, Liquidity, and the Natural Rate of Interest,” *Brookings Papers on Economic Activity*, Spring, pp. 235–316, <https://www.brookings.edu/wp-content/uploads/2017/08/delnegrottextsp17bpea.pdf>.
- Erceg, Christopher, Jon Faust, Michael Kiley, Jean-Philippe Laforte, David López-Salido, Stephen Meyer, Edward Nelson, David Reifschneider, and Robert Tetlow (2012). “An Overview of Simple Policy Rules and Their Use in Policymaking in Normal Times and Under Current Conditions,” memorandum to the Federal Open Market Committee, Board of Governors of the Federal Reserve System, Divisions of International Finance, Monetary Affairs, and Research and Statistics, July 18.
- Gust, Christopher, Benjamin K. Johansson, David López-Salido, and Robert Tetlow (2016). “ r^* : Concepts, Measures, and Uses,” memorandum to the Federal Open Market Committee, Board of Governors of the Federal Reserve System, Division of Monetary Affairs, October 13.
- Holston, Kathryn, Thomas Laubach, and John C. Williams (2017). “Measuring the Natural Rate of Interest: International Trends and Determinants,” *Journal of International Economics*, vol. 108 (May), pp. S59–75.
- Johansson, Benjamin K., and Elmar Mertens (2016). “A Time Series Model of Interest Rates with the Effective Lower Bound,” Finance and Economics Discussion Series 2016-033. Washington: Board of Governors of the Federal Reserve System, April, <http://dx.doi.org/10.17016/FEDS.2016.033>.
- Kiley, Michael T. (2015). “What Can the Data Tell Us about the Equilibrium Real Interest Rate?” Finance and Economics Discussion Series 2015-077. Washington: Board of Governors of the Federal Reserve System, August, <http://dx.doi.org/10.17016/FEDS.2015.077>.

- Laubach, Thomas, and John C. Williams (2003). “Measuring the Natural Rate of Interest,” *Review of Economics and Statistics*, vol. 85 (November), pp. 1063–70.
- Lewis, Kurt F., and Francisco Vazquez-Grande (2017). “Measuring the Natural Rate of Interest: Alternative Specifications,” Finance and Economics Discussion Series 2017-059. Washington: Board of Governors of the Federal Reserve System, June, <https://dx.doi.org/10.17016/FEDS.2017.059>.
- Lubik, Thomas A., and Christian Matthes (2015). “Time-Varying Parameter Vector Autoregressions: Specification, Estimation, and an Application,” *Economic Quarterly*, vol. 101 (Fourth Quarter), pp. 323–52.
- Orphanides, Athanasios (2003). “Historical Monetary Policy Analysis and the Taylor Rule,” *Journal of Monetary Economics*, vol. 50 (July), pp. 983–1022.
- Taylor, John B. (1993). “Discretion versus Policy Rules in Practice,” *Carnegie-Rochester Conference Series on Public Policy*, vol. 39 (December), pp. 195–214.
- (1999). “A Historical Analysis of Monetary Policy Rules,” in John B. Taylor, ed., *Monetary Policy Rules*. Chicago: University of Chicago Press, pp. 319–41.

(This page is intentionally blank.)

Changes in GDP, Prices, and Unemployment
(Percent, annual rate except as noted)

Interval	Nominal GDP		Real GDP		PCE price index		Core PCE price index		Unemployment rate ¹	
	01/18/19	03/08/19	01/18/19	03/08/19	01/18/19	03/08/19	01/18/19	03/08/19	01/18/19	03/08/19
<i>Quarterly</i>										
2018:Q1	4.3	4.3	2.2	2.2	2.5	2.5	2.2	2.2	4.1	4.1
2018:Q2	7.6	7.6	4.2	4.2	2.0	2.0	2.1	2.1	3.9	3.9
2018:Q3	4.9	4.9	3.4	3.4	1.6	1.6	1.6	1.6	3.8	3.8
2018:Q4	4.4	4.6	2.8	2.6	1.4	1.5	1.5	1.7	3.8	3.8
2019:Q1	3.9	2.7	2.3	1.0	1.3	1.3	2.3	2.3	3.7	3.9
2019:Q2	4.7	4.6	2.6	2.6	2.1	2.3	2.0	2.0	3.6	3.7
2019:Q3	4.1	4.1	1.9	1.9	2.0	2.0	2.0	2.0	3.6	3.7
2019:Q4	3.9	3.8	1.9	1.8	1.8	1.8	1.9	1.8	3.5	3.6
2020:Q1	4.1	4.1	1.9	2.0	2.0	1.9	2.1	2.0	3.5	3.6
2020:Q2	4.2	4.4	1.9	2.2	1.9	1.9	2.0	2.0	3.5	3.6
2020:Q3	4.0	4.1	1.9	2.0	1.9	1.8	2.0	1.9	3.5	3.6
2020:Q4	3.9	4.0	1.9	2.0	1.9	1.8	2.0	1.9	3.5	3.6
<i>Two-quarter²</i>										
2018:Q2	5.9	5.9	3.2	3.2	2.2	2.2	2.1	2.1	-2	-2
2018:Q4	4.7	4.7	3.1	3.0	1.5	1.5	1.5	1.7	-1	-1
2019:Q2	4.3	3.6	2.4	1.8	1.7	1.8	2.2	2.1	-2	-1
2019:Q4	4.0	3.9	1.9	1.9	1.9	1.9	1.9	1.9	-1	-1
2020:Q2	4.1	4.2	1.9	2.1	2.0	1.9	2.0	2.0	.0	.0
2020:Q4	4.0	4.0	1.9	2.0	1.9	1.8	2.0	1.9	.0	.0
<i>Four-quarter³</i>										
2017:Q4	4.5	4.5	2.5	2.5	1.8	1.8	1.6	1.6	-7	-7
2018:Q4	5.3	5.3	3.1	3.1	1.8	1.9	1.8	1.9	-3	-3
2019:Q4	4.1	3.8	2.2	1.8	1.8	1.8	2.0	2.0	-3	-2
2020:Q4	4.1	4.1	1.9	2.0	1.9	1.9	2.0	2.0	.0	.0
2021:Q4	3.5	3.6	1.4	1.5	2.0	1.9	2.0	2.0	.1	.1
<i>Annual</i>										
2017	4.2	4.2	2.2	2.2	1.8	1.8	1.6	1.6	4.4	4.4
2018	5.2	5.2	2.9	2.9	2.0	2.0	1.9	1.9	3.9	3.9
2019	4.5	4.2	2.6	2.2	1.7	1.7	1.9	1.9	3.6	3.7
2020	4.1	4.1	2.0	2.0	1.9	1.9	2.0	2.0	3.5	3.6
2021	3.8	3.8	1.7	1.7	2.0	1.9	2.0	2.0	3.5	3.6

1. Level, except for two-quarter and four-quarter intervals.
 2. Percent change from two quarters earlier; for unemployment rate, change is in percentage points.
 3. Percent change from four quarters earlier; for unemployment rate, change is in percentage points.

Changes in Real Gross Domestic Product and Related Items
(Percent, annual rate except as noted)

Item	2018				2019				2020				2018 ¹	2019 ¹	2020 ¹	2021 ¹
	Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Real GDP	4.2	3.4	2.6	1.8	1.0	2.6	1.9	1.8	2.0	2.2	2.0	2.0	3.1	1.8	2.0	1.5
<i>Previous Tealbook</i>	4.2	3.4	2.8	1.9	2.3	2.6	1.9	1.9	1.9	1.9	1.9	1.9	3.1	2.2	1.9	1.4
Final sales	5.4	1.0	2.2	2.5	.8	2.7	2.4	2.5	2.0	2.0	1.8	1.9	2.6	2.1	1.9	1.5
<i>Previous Tealbook</i>	5.4	1.0	3.5	2.2	2.2	2.5	2.1	2.2	2.0	2.0	1.7	1.8	3.0	2.3	1.9	1.5
Priv. dom. final purch.	4.3	3.0	2.9	2.6	1.0	2.7	2.7	2.6	2.1	2.2	2.1	1.9	3.1	2.2	2.1	1.6
<i>Previous Tealbook</i>	4.3	3.0	4.0	2.2	2.3	2.5	2.3	2.2	2.0	2.0	2.0	1.9	3.3	2.3	1.9	1.6
Personal cons. expend.	3.8	3.5	2.8	2.7	1.0	2.8	2.7	2.7	2.3	2.3	2.2	2.2	2.7	2.3	2.2	2.0
<i>Previous Tealbook</i>	3.8	3.5	3.8	2.2	2.4	2.5	2.3	2.2	2.2	2.2	2.2	2.1	2.9	2.4	2.2	1.9
Durables	8.6	3.7	5.9	2.1	-3.1	4.3	2.2	2.1	1.8	1.7	1.7	1.6	4.0	1.3	1.7	1.4
Nondurables	4.0	4.6	2.8	2.8	1.6	3.3	2.8	2.8	2.4	2.3	2.3	2.3	2.9	2.6	2.3	2.1
Services	3.0	3.2	2.4	2.7	1.5	2.5	2.7	2.7	2.3	2.3	2.3	2.2	2.4	2.4	2.3	2.0
Residential investment	-1.3	-3.6	-4.9	3.0	-8.6	1.3	4.5	3.0	2.5	1.0	-1.1	-2.1	-3.3	-1	.1	-2.8
<i>Previous Tealbook</i>	-1.3	-3.6	-4.4	2.2	-3.4	1.4	2.9	2.2	.1	-8	-5	-1.1	-3.2	.7	-6	-4
Nonres. priv. fixed invest.	8.7	2.5	5.5	2.2	3.4	2.1	2.5	2.2	1.0	2.0	2.3	1.5	7.0	2.6	1.7	.9
<i>Previous Tealbook</i>	8.7	2.5	7.1	1.8	3.2	3.1	2.3	1.8	1.4	1.6	1.6	1.5	7.4	2.6	1.5	.8
Equipment & intangibles	7.1	4.4	7.9	2.1	3.7	2.2	2.9	2.1	1.8	2.6	3.3	2.5	7.5	2.7	2.5	1.8
<i>Previous Tealbook</i>	7.1	4.4	9.4	1.8	2.8	3.7	2.9	1.8	2.1	2.2	2.3	2.3	7.9	2.8	2.2	1.6
Nonres. structures	14.5	-3.4	-2.3	2.4	2.3	2.1	1.2	2.4	-1.4	.0	-9	-1.5	5.3	2.0	-1.0	-2.3
<i>Previous Tealbook</i>	14.5	-3.4	-2	1.8	4.6	1.0	.4	1.8	-9	-1	-8	-1.2	5.9	1.9	-8	-2.0
Net exports ²	-841	-950	-964	-1013	-973	-992	-1009	-1013	-1020	-1030	-1053	-1053	-914	-997	-1039	-1062
<i>Previous Tealbook</i> ²	-841	-950	-961	-988	-955	-972	-984	-988	-991	-996	-1014	-1015	-913	-975	-1004	-1023
Exports	9.3	-4.9	1.4	1.8	.9	1.9	2.2	1.8	2.3	2.7	2.9	3.1	2.2	1.7	2.7	3.2
Imports	-6	9.3	2.6	1.8	1.7	3.6	3.4	1.8	2.4	3.0	4.7	2.1	3.5	2.6	3.1	2.9
Gov't. cons. & invest.	2.5	2.6	.0	1.7	.7	4.0	1.8	1.7	1.7	1.8	1.9	1.1	1.7	2.1	1.6	1.0
<i>Previous Tealbook</i>	2.5	2.6	1.7	2.0	.4	3.7	2.0	2.0	1.8	2.0	1.9	1.1	2.1	2.0	1.7	.9
Federal	3.7	3.5	1.6	2.8	.1	8.8	2.6	2.8	2.9	3.1	3.5	1.4	2.8	3.5	2.7	1.0
Defense	6.0	4.9	6.9	2.9	4.8	3.0	2.7	2.9	3.0	3.2	3.3	1.3	5.2	3.3	2.7	.6
Nondefense	.5	1.6	-5.6	2.7	-6.5	17.9	2.6	2.7	2.7	3.1	3.7	1.7	-4	3.8	2.8	1.4
State & local	1.8	2.0	-9	1.1	1.1	1.2	1.2	1.1	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0
Change in priv. inventories ²	-37	90	97	38	100	96	72	38	35	43	56	65	45	77	50	60
<i>Previous Tealbook</i> ²	-37	90	46	32	52	55	44	32	29	26	37	44	32	46	34	36

1. Change from fourth quarter of previous year to fourth quarter of year indicated.

2. Billions of chained (2012) dollars; annual values show annual averages.

Changes in Real Gross Domestic Product and Related Items
(Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise noted)

Item	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Real GDP	1.5	2.6	2.7	2.0	1.9	2.5	3.1	1.8	2.0	1.5
<i>Previous Tealbook</i>	1.5	2.6	2.7	2.0	1.9	2.5	3.1	2.2	1.9	1.4
Final sales	1.9	2.0	3.0	1.9	2.1	2.6	2.6	2.1	1.9	1.5
<i>Previous Tealbook</i>	1.9	2.0	3.0	1.9	2.1	2.6	3.0	2.3	1.9	1.5
Priv. dom. final purch.	2.6	2.6	4.3	2.7	2.7	3.3	3.1	2.2	2.1	1.6
<i>Previous Tealbook</i>	2.6	2.6	4.3	2.7	2.7	3.3	3.3	2.3	1.9	1.6
Personal cons. expend.	1.6	1.9	3.8	3.0	2.8	2.7	2.7	2.3	2.2	2.0
<i>Previous Tealbook</i>	1.6	1.9	3.8	3.0	2.8	2.7	2.9	2.4	2.2	1.9
Durables	6.3	5.0	9.2	6.0	6.8	7.7	4.0	1.3	1.7	1.4
Nondurables	.7	2.8	3.0	3.0	2.0	3.0	2.9	2.6	2.3	2.1
Services	1.2	1.1	3.2	2.6	2.4	1.8	2.4	2.4	2.3	2.0
Residential investment	15.4	7.1	7.8	8.9	4.5	3.8	-3.3	-1	.1	-2.8
<i>Previous Tealbook</i>	15.4	7.1	7.8	8.9	4.5	3.8	-3.2	.7	-6	-4
Nonres. priv. fixed invest.	5.6	5.4	6.4	-7	1.8	6.3	7.0	2.6	1.7	.9
<i>Previous Tealbook</i>	5.6	5.4	6.4	-7	1.8	6.3	7.4	2.6	1.5	.8
Equipment & intangibles	6.1	5.1	5.6	2.6	1.6	7.3	7.5	2.7	2.5	1.8
<i>Previous Tealbook</i>	6.1	5.1	5.6	2.6	1.6	7.3	7.9	2.8	2.2	1.6
Nonres. structures	4.0	6.7	8.8	-10.7	2.5	2.9	5.3	2.0	-1.0	-2.3
<i>Previous Tealbook</i>	4.0	6.7	8.8	-10.7	2.5	2.9	5.9	1.9	-8	-2.0
Net exports ¹	-569	-533	-578	-725	-786	-859	-914	-997	-1039	-1062
<i>Previous Tealbook¹</i>	-569	-533	-578	-725	-786	-859	-913	-975	-1004	-1023
Exports	2.1	6.0	3.0	-1.6	.8	4.7	2.2	1.7	2.7	3.2
Imports	.6	3.0	6.7	3.4	3.1	5.4	3.5	2.6	3.1	2.9
Gov't. cons. & invest.	-2.1	-2.4	.2	2.2	.9	.1	1.7	2.1	1.6	1.0
<i>Previous Tealbook</i>	-2.1	-2.4	.2	2.2	.9	.1	2.1	2.0	1.7	.9
Federal	-2.6	-6.1	-1.2	1.2	.2	1.3	2.8	3.5	2.7	1.0
Defense	-4.7	-6.5	-3.6	-2	-7	1.3	5.2	3.3	2.7	.6
Nondefense	1.2	-5.5	2.7	3.4	1.5	1.3	-4	3.8	2.8	1.4
State & local	-1.7	.2	1.1	2.8	1.4	-5	1.0	1.2	1.0	1.0
Change in priv. inventories ¹	71	109	87	129	23	23	45	77	50	60
<i>Previous Tealbook¹</i>	71	109	87	129	23	23	32	46	34	36

1. Billions of chained (2012) dollars; annual values show annual averages.

Contributions to Changes in Real Gross Domestic Product
(Percentage points, annual rate except as noted)

Item	2018				2019				2020				2018 ¹	2019 ¹	2020 ¹	2021 ¹
	Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Real GDP <i>Previous Tealbook</i>	4.2	3.4	2.6		1.0	2.6	1.9	1.8	2.0	2.2	2.0	2.0	3.1	1.8	2.0	1.5
	4.2	3.4	2.8		2.3	2.6	1.9	1.9	1.9	1.9	1.9	1.9	3.1	2.2	1.9	1.4
Final sales <i>Previous Tealbook</i>	5.3	1.0	2.2		.8	2.6	2.4	2.5	2.0	2.0	1.8	1.9	2.6	2.1	1.9	1.5
	5.3	1.0	3.5		2.2	2.5	2.1	2.2	2.0	2.0	1.7	1.8	2.9	2.2	1.9	1.5
Priv. dom. final purch. <i>Previous Tealbook</i>	3.7	2.6	2.5		.8	2.3	2.3	2.2	1.8	1.9	1.8	1.6	2.6	1.9	1.8	1.4
	3.7	2.6	3.4		2.0	2.2	2.0	1.9	1.7	1.7	1.7	1.6	2.8	2.0	1.7	1.4
Personal cons. expend. <i>Previous Tealbook</i>	2.6	2.4	1.9		.7	1.9	1.8	1.8	1.6	1.5	1.5	1.5	1.8	1.6	1.5	1.4
	2.6	2.4	2.6		1.7	1.7	1.5	1.5	1.5	1.5	1.5	1.4	2.0	1.6	1.5	1.3
Durables	.6	.3	.4		-2	.3	.2	.1	.1	.1	.1	.1	.3	.1	.1	.1
Nondurables	.6	.6	.4		.2	.5	.4	.4	.3	.3	.3	.3	.4	.4	.3	.3
Services	1.4	1.5	1.1		.7	1.2	1.3	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0
Residential investment <i>Previous Tealbook</i>	-1	-1	-2		-3	.0	.2	.1	.1	.0	.0	-1	-1	.0	.0	-1
	-1	-1	-2		-1	.1	.1	.1	.0	.0	.0	.0	-1	.0	.0	.0
Nonres. priv. fixed invest. <i>Previous Tealbook</i>	1.2	.4	.7		.5	.3	.3	.3	.1	.3	.3	.2	.9	.3	.2	.1
	1.2	.4	1.0		.4	.4	.3	.2	.2	.2	.2	.2	1.0	.4	.2	.1
Equipment & intangibles <i>Previous Tealbook</i>	.7	.5	.8		.4	.2	.3	.2	.2	.3	.3	.3	.8	.3	.3	.2
	.7	.5	1.0		.3	.4	.3	.2	.2	.2	.2	.2	.8	.3	.2	.2
Nonres. structures <i>Previous Tealbook</i>	.4	-1	-1		.1	.1	.0	.1	.0	.0	.0	.0	.2	.1	.0	-1
	.4	-1	.0		.1	.0	.0	.1	.0	.0	.0	.0	.2	.1	.0	-1
Net exports <i>Previous Tealbook</i>	1.2	-2.0	-2		-1	-3	-3	-1	-1	-1	-4	.0	-3	-2	-1	.0
	1.2	-2.0	-2		.1	-3	-2	.0	.0	.0	-3	.0	-3	-1	-1	.0
Exports	1.1	-6	.2		.1	.2	.3	.2	.3	.3	.3	.4	.3	.2	.3	.4
Imports	.1	-1.4	-4		-3	-5	-5	-3	-4	-4	-7	-3	-5	-4	-5	-4
Gov't. cons. & invest. <i>Previous Tealbook</i>	.4	.4	.0		.1	.7	.3	.3	.3	.3	.3	.2	.3	.4	.3	.2
	.4	.4	.3		.1	.6	.3	.3	.3	.4	.3	.2	.4	.3	.3	.2
Federal	.2	.2	.1		.0	.6	.2	.2	.2	.2	.2	.1	.2	.2	.2	.1
Defense	.2	.2	.3		.2	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.0
Nondefense	.0	.0	-2		-2	.4	.1	.1	.1	.1	.1	.0	.0	.1	.1	.0
State & local	.2	.2	-1		.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Change in priv. inventories <i>Previous Tealbook</i>	-1.2	2.3	.4		.2	-1	-4	-6	-1	.1	.2	.2	.5	-2	.1	.0
	-1.2	2.3	-7		.1	.1	-2	-2	-1	-1	-1	-1	.2	-1	.1	-1

1. Change from fourth quarter of previous year to fourth quarter of year indicated.

Changes in Prices and Costs
(Percent, annual rate except as noted)

Item	2018				2019				2020				2018 ¹	2019 ¹	2020 ¹	2021 ¹
	Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
GDP chain-wt. price index <i>Previous Tealbook</i>	3.0	1.8	1.8	1.8	1.8	2.0	2.1	1.9	2.1	2.2	2.0	1.9	2.2	2.0	2.1	2.1
PCE chain-wt. price index <i>Previous Tealbook</i>	2.0	1.6	1.5	1.5	1.3	2.3	2.0	1.8	1.9	1.9	1.9	1.8	1.9	1.8	1.9	1.9
Energy <i>Previous Tealbook</i>	.7	3.3	-2.0	-4	-18.5	10.7	1.1	.0	-8	-1.0	-1.2	-1.2	3.5	-2.2	-1.0	-7
Food <i>Previous Tealbook</i>	1.2	.4	.3	.3	1.8	2.1	2.4	2.4	2.3	2.3	2.3	2.3	.5	2.2	2.3	2.3
Ex. food & energy <i>Previous Tealbook</i>	2.1	1.6	1.7	1.7	2.3	2.0	2.0	1.8	2.0	2.0	1.9	1.9	.5	2.3	2.3	2.3
Ex. food & energy, market based <i>Previous Tealbook</i>	2.2	1.2	1.5	1.5	2.3	1.9	1.8	1.6	1.9	1.8	1.8	1.8	1.7	1.9	1.8	1.8
CPI <i>Previous Tealbook</i>	2.2	1.2	1.3	1.3	2.3	2.0	1.8	1.7	1.9	1.8	1.8	1.8	1.7	1.9	1.9	1.9
Ex. food & energy <i>Previous Tealbook</i>	2.1	2.0	1.5	1.5	.9	3.0	2.3	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.2
ECI, hourly compensation ² <i>Previous Tealbook</i> ²	1.7	2.0	1.8	1.8	1.0	2.5	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.0	2.3	2.3
Business sector Output per hour <i>Previous Tealbook</i>	1.9	2.0	2.2	2.2	2.6	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.2	2.4	2.4	2.4
Compensation per hour <i>Previous Tealbook</i>	1.8	2.0	2.0	2.0	2.7	2.5	2.4	2.3	2.5	2.4	2.4	2.4	2.2	2.5	2.4	2.5
Unit labor costs <i>Previous Tealbook</i>	2.4	3.0	2.4	2.4	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.0	2.8	2.8	2.8
Core goods imports chain-wt. price index ³ <i>Previous Tealbook</i> ³	2.4	3.0	2.6	2.6	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.8	3.0	2.9	2.8	2.8
Business sector Output per hour <i>Previous Tealbook</i>	3.4	1.4	1.8	.8	.4	.7	.6	.8	1.2	1.5	1.3	1.3	1.9	.6	1.3	1.1
Compensation per hour <i>Previous Tealbook</i>	3.6	1.8	1.8	.9	.3	1.2	.8	.9	1.1	1.2	1.2	1.2	1.9	.8	1.2	1.2
Unit labor costs <i>Previous Tealbook</i>	.3	3.2	3.6	3.8	2.7	3.8	3.8	3.8	3.7	3.7	3.7	3.7	2.9	3.5	3.7	3.7
Core goods imports chain-wt. price index ³ <i>Previous Tealbook</i> ³	.5	2.8	3.4	3.9	3.7	3.9	3.9	3.9	3.8	3.8	3.8	3.8	2.7	3.8	3.8	3.7
Core goods imports chain-wt. price index ³ <i>Previous Tealbook</i> ³	-3.0	1.8	1.8	1.6	2.3	3.1	3.2	3.0	2.4	2.2	2.4	2.4	1.0	2.9	2.4	2.5
Core goods imports chain-wt. price index ³ <i>Previous Tealbook</i> ³	-2.9	1.0	1.6	1.6	3.3	2.7	3.1	2.9	2.7	2.6	2.5	2.5	.8	3.0	2.6	2.5
Core goods imports chain-wt. price index ³ <i>Previous Tealbook</i> ³	.6	-1.2	.0	.8	-1	.8	.8	.8	.9	.9	.8	.8	.5	.6	.8	.7
Core goods imports chain-wt. price index ³ <i>Previous Tealbook</i> ³	.6	-1.2	-1	.9	.4	1.5	.9	.9	1.1	.9	.8	.9	.5	.9	.9	.8

1. Change from fourth quarter of previous year to fourth quarter of year indicated.
 2. Private-industry workers.
 3. Core goods imports exclude computers, semiconductors, oil, and natural gas.

Greensheets

Changes in Prices and Costs

(Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise noted)

Item	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
GDP chain-wt. price index <i>Previous Tealbook</i>	2.1 2.1	1.8 1.8	1.6 1.6	.9 .9	1.5 1.5	2.0 2.0	2.2 2.2	2.0 1.9	2.1 2.1	2.1 2.1
PCE chain-wt. price index <i>Previous Tealbook</i>	1.8 1.8	1.2 1.2	1.2 1.2	.3 .3	1.6 1.6	1.8 1.8	1.9 1.8	1.8 1.8	1.9 1.9	2.0 2.0
Energy <i>Previous Tealbook</i>	2.1 2.1	-2.9 -2.9	-6.9 -6.9	-16.4 -16.4	2.1 2.1	8.1 8.1	3.5 4.2	-2.2 -4.1	-1.0 -1	-7 .5
Food <i>Previous Tealbook</i>	1.3 1.3	.7 .7	2.8 2.8	.3 .3	-1.8 -1.8	.7 .7	.5 .5	2.2 2.3	2.3 2.3	2.3 2.3
Ex. food & energy <i>Previous Tealbook</i>	1.8 1.8	1.6 1.6	1.5 1.5	1.2 1.2	1.8 1.8	1.6 1.6	1.9 1.8	2.0 2.0	2.0 2.0	2.0 2.0
Ex. food & energy, market based <i>Previous Tealbook</i>	1.5 1.5	1.1 1.1	1.2 1.2	1.1 1.1	1.5 1.5	1.2 1.2	1.7 1.7	1.9 1.9	1.8 1.9	1.8 1.9
CPI <i>Previous Tealbook</i>	1.9 1.9	1.2 1.2	1.2 1.2	.4 .4	1.8 1.8	2.1 2.1	2.2 2.2	2.1 2.0	2.2 2.3	2.2 2.3
Ex. food & energy <i>Previous Tealbook</i>	1.9 1.9	1.7 1.7	1.7 1.7	2.0 2.0	2.2 2.2	1.8 1.7	2.2 2.2	2.4 2.5	2.4 2.4	2.4 2.5
ECI, hourly compensation ¹ <i>Previous Tealbook</i> ¹	1.8 1.8	2.0 2.0	2.3 2.3	1.9 1.9	2.2 2.2	2.6 2.6	3.0 3.0	2.8 2.9	2.8 2.8	2.8 2.8
Business sector Output per hour <i>Previous Tealbook</i>	.1 .2	1.8 1.8	.2 .1	.7 .7	1.1 1.1	.7 .8	1.9 1.9	.6 .8	1.3 1.2	1.1 1.2
Compensation per hour <i>Previous Tealbook</i>	5.9 5.9	-3 -3	2.8 2.8	2.5 2.5	2.1 2.1	3.0 3.0	2.9 2.7	3.5 3.8	3.7 3.8	3.7 3.7
Unit labor costs <i>Previous Tealbook</i>	5.7 5.7	-2.0 -2.0	2.7 2.7	1.8 1.8	1.0 1.0	2.3 2.3	1.0 .8	2.9 3.0	2.4 2.6	2.5 2.5
Core goods imports chain-wt. price index ² <i>Previous Tealbook</i> ²	-4 -4	-2.2 -2.2	-4 -4	-4.4 -4.4	-7 -7	1.1 1.1	.5 .5	.6 .9	.8 .9	.7 .8

1. Private-industry workers.

2. Core goods imports exclude computers, semiconductors, oil, and natural gas.

Other Macroeconomic Indicators

Item	2018				2019				2020				2019 ¹	2020 ¹	2021 ¹
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018 ¹			
<i>Employment and production</i>															
Nonfarm payroll employment ²	243	189	233	171	157	140	132	130	134	132	129	223	150	131	77
Unemployment rate ³	3.9	3.8	3.8	3.9	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.8	3.6	3.6	3.7
<i>Previous Tealbook³</i>	3.9	3.8	3.8	3.7	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.8	3.5	3.5	3.6
Natural rate of unemployment ³	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
<i>Previous Tealbook³</i>	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Employment-to-Population Ratio ³	60.4	60.4	60.6	60.7	60.8	60.7	60.7	60.7	60.7	60.7	60.7	60.6	60.7	60.7	60.4
Employment-to-Population Trend ³	60.0	60.0	59.9	59.9	59.9	59.8	59.8	59.8	59.7	59.7	59.7	59.9	59.8	59.7	59.5
Output gap ⁴	1.4	1.7	1.9	1.9	2.1	2.1	2.1	2.2	2.2	2.1	2.3	1.9	2.1	2.3	1.9
<i>Previous Tealbook⁴</i>	1.6	2.0	2.2	2.4	2.6	2.6	2.6	2.6	2.7	2.6	2.7	2.2	2.6	2.7	2.2
Industrial production ⁵	5.2	4.9	4.6	.5	2.8	.6	1.0	1.7	1.5	1.1	1.0	4.3	1.2	1.3	.7
<i>Previous Tealbook⁵</i>	5.2	4.7	3.8	1.0	2.1	1.0	1.0	1.6	1.6	1.4	1.5	4.1	1.3	1.5	.8
Manufacturing industr. prod. ⁵	2.3	3.8	2.6	-7	2.0	.5	.9	.9	1.0	1.2	1.1	2.6	.7	1.0	.5
<i>Previous Tealbook⁵</i>	2.3	3.7	2.3	1.7	1.1	1.0	1.0	.7	1.0	1.2	1.1	2.5	1.2	1.0	.5
Capacity utilization rate - mfg. ³	75.5	76.0	76.2	75.8	75.9	75.7	75.7	75.6	75.7	75.7	75.8	76.2	75.7	75.8	75.7
<i>Previous Tealbook³</i>	75.5	75.9	76.1	76.2	76.2	76.3	76.2	76.3	76.3	76.4	76.5	76.1	76.2	76.5	76.6
Housing starts ⁶	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Light motor vehicle sales ⁶	17.2	16.9	17.5	16.7	16.7	16.8	16.8	16.8	16.8	16.8	16.7	17.2	16.7	16.7	16.6
<i>Income and saving</i>															
Nominal GDP ⁵	7.6	4.9	4.6	2.7	4.6	4.1	3.8	4.1	4.4	4.1	4.0	5.3	3.8	4.1	3.6
Real disposable pers. income ⁵	1.8	2.6	4.2	3.3	2.1	1.5	2.2	2.8	1.8	1.5	2.2	3.3	2.3	2.1	1.8
<i>Previous Tealbook⁵</i>	1.8	2.4	3.3	4.1	2.3	2.1	2.0	3.1	2.0	1.3	2.0	3.0	2.6	2.1	1.6
Personal saving rate ³	6.7	6.4	6.7	7.1	7.0	6.7	6.6	6.7	6.6	6.5	6.5	6.7	6.6	6.5	6.3
<i>Previous Tealbook³</i>	6.7	6.3	6.2	6.5	6.5	6.5	6.4	6.6	6.6	6.4	6.4	6.2	6.4	6.4	6.1
Corporate profits ⁷	12.5	14.7	-4.4	-10.1	1.9	2.2	-1.7	-4.7	4.5	2.7	2.2	6.7	-2.0	1.1	1.4
Profit share of GNP ³	10.8	11.1	10.9	10.6	10.5	10.4	10.3	10.1	10.1	10.1	10.0	10.9	10.3	10.0	9.8
Gross national saving rate ³	18.5	18.8	18.5	18.9	18.6	18.5	18.4	18.2	18.3	18.2	18.3	18.5	18.4	18.3	18.1
Net national saving rate ³	3.3	3.6	3.7	4.1	3.6	3.4	3.2	2.9	2.9	2.9	2.8	3.7	3.2	2.8	2.4

1. Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise indicated.

2. Average monthly change, thousands.

3. Percent; annual values are for the fourth quarter of the year indicated.

4. Percent difference between actual and potential output; a negative number indicates that the economy is operating below potential.

5. Annual values are for the fourth quarter of the year indicated.

6. Level, millions; annual values are annual averages.

7. Percent change, annual rate, with inventory valuation and capital consumption adjustments.

LFPR	labor force participation rate
LIBOR	London interbank offered rate
OPEC	Organization of the Petroleum Exporting Countries
PCE	personal consumption expenditures
PMI	purchasing managers index
PPI	producer price index
SEP	Summary of Economic Projections
SIGMA	A calibrated multicountry DSGE model
SOMA	System Open Market Account
S&P	Standard & Poor's
SPF	Survey of Professional Forecasters
TIPS	Treasury Inflation-Protected Securities
TLTRO	targeted longer-term refinancing operation
USMCA	U.S.-Mexico-Canada Agreement
VAR	vector autoregression
VAT	value-added tax
VIX	one-month-ahead option-implied volatility on the S&P 500 index