Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, December 2017

Percent

Variable	Median[1]					Central tendency[2]					Range[3]				
	2017	2018	2019	2020	Longer run	2017	2018	2019	2020	Longer run	2017	2018	2019	2020	Longer run
Change in real GDP	2.5	2.5	2.1	2.0	1.8	2.4 – 2.5	2.2 – 2.6	1.9 – 2.3	1.7 – 2.0	1.8 – 1.9	2.4 – 2.6	2.2 – 2.8	1.7 – 2.4	1.1 – 2.2	1.7 – 2.2
September projection	2.4	2.1	2.0	1.8	1.8	2.2 – 2.5	2.0 – 2.3	1.7 – 2.1	1.6 – 2.0	1.8 – 2.0	2.2 – 2.7	1.7 – 2.6	1.4 – 2.3	1.4 – 2.0	1.5 – 2.2
Unemployment rate	4.1	3.9	3.9	4.0	4.6	4.1	3.7 – 4.0	3.6 – 4.0	3.6 – 4.2	4.4 – 4.7	4.1	3.6 – 4.0	3.5 – 4.2	3.5 – 4.5	4.3 – 5.0
September projection	4.3	4.1	4.1	4.2	4.6	4.2 – 4.3	4.0 – 4.2	3.9 – 4.4	4.0 – 4.5	4.5 – 4.8	4.2 – 4.5	3.9 – 4.5	3.8 – 4.5	3.8 – 4.8	4.4 – 5.0
PCE inflation	1.7	1.9	2.0	2.0	2.0	1.6 – 1.7	1.7 – 1.9	2.0	2.0 – 2.1	2.0	1.5 – 1.7	1.7 – 2.1	1.8 – 2.3	1.9 – 2.2	2.0
September projection	1.6	1.9	2.0	2.0	2.0	1.5 – 1.6	1.8 – 2.0	2.0	2.0 – 2.1	2.0	1.5 – 1.7	1.7 – 2.0	1.8 – 2.2	1.9 – 2.2	2.0
Core PCE inflation[4]	1.5	1.9	2.0	2.0		1.5	1.7 – 1.9	2.0	2.0 – 2.1		1.4 – 1.5	1.7 – 2.0	1.8 – 2.3	1.9 – 2.3	
September projection	1.5	1.9	2.0	2.0		1.5 – 1.6	1.8 – 2.0	2.0	2.0 – 2.1		1.4 – 1.7	1.7 – 2.0	1.8 – 2.2	1.9 – 2.2	
Memo: Projected appropriate policy path															
Federal funds rate	1.4	2.1	2.7	3.1	2.8	1.4	1.9 – 2.4	2.4 – 3.1	2.6 – 3.1	2.8 – 3.0	1.1 – 1.4	1.1 – 2.6	1.4 – 3.6	1.4 – 4.1	2.3 – 3.0
September projection	1.4	2.1	2.7	2.9	2.8	1.1 – 1.4	1.9 – 2.4	2.4 – 3.1	2.5 – 3.5	2.5 – 3.0	1.1 – 1.6	1.1 – 2.6	1.1 – 3.4	1.1 – 3.9	2.3 – 3.5

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 19–20, 2017. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the September 19–20, 2017, meeting, and one participant did not submit such projections in conjunction with the December 12–13, 2017, meeting.

1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable in each year.
3. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.
4. Longer-run projections for core PCE inflation are not collected.

Table 1.A. Economic projections for the first half of 2017*
(in percent)

Medians, central tendencies, and ranges

	Median	Central tendency	Range
Change in real GDP	2.1	2.1	2.1
September projection	2.2	2.1 – 2.2	2.1 – 2.3
PCE inflation	1.2	1.2	1.2
September projection	1.2	1.2 – 1.3	1.2 – 1.3
Core PCE inflation	1.4	1.4	1.4
September projection	1.4	1.4	1.4

Participants' projections

Projection	Change in real GDP	PCE inflation	Core PCE inflation
1	2.1	1.2	1.4
2	2.1	1.2	1.4
3	2.1	1.2	1.4
4	2.1	1.2	1.4
5	2.1	1.2	1.4
6	2.1	1.2	1.4
7	2.1	1.2	1.4
8	2.1	1.2	1.4
9	2.1	1.2	1.4
10	2.1	1.2	1.4
11	2.1	1.2	1.4
12	2.1	1.2	1.4
13	2.1	1.2	1.4
14	2.1	1.2	1.4
15	2.1	1.2	1.4
16	2.1	1.2	1.4

* Growth and inflation are reported at annualized rates.

Table 1.B. Economic projections for the second half of 2017*
(in percent)

Medians, central tendencies, and ranges

	Median	Central tendency	Range
Change in real GDP	2.9	2.7 – 2.9	2.7 – 3.1
September projection	2.6	2.3 – 2.8	2.2 – 3.2
PCE inflation	2.2	2.0 – 2.2	1.8 – 2.2
September projection	1.9	1.8 – 2.0	1.7 – 2.2
Core PCE inflation	1.6	1.6	1.4 – 1.6
September projection	1.6	1.6 – 1.8	1.4 – 2.0

Participants' projections

Projection	Change in real GDP	PCE inflation	Core PCE inflation
1	2.7	2.2	1.6
2	2.9	2.2	1.6
3	2.9	2.0	1.6
4	3.1	2.2	1.6
5	2.7	2.0	1.6
6	2.7	2.2	1.6
7	2.7	2.2	1.6
8	2.7	1.8	1.6
9	2.9	2.2	1.6
10	2.9	1.8	1.4
11	2.9	2.2	1.6
12	2.9	2.2	1.6
13	2.7	2.2	1.6
14	2.9	2.2	1.6
15	2.9	2.2	1.6
16	2.9	2.2	1.6

* Projections for the second half of 2017 implied by participants' December projections for the first half of 2017 and for 2017 as a whole. Growth and inflation are reported at annualized rates.

Table 2. December economic projections, 2017–20 and over the longer run (in percent)

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	2017	2.4	4.1	1.7	1.5	1.38
2	2017	2.5	4.1	1.7	1.5	1.38
3	2017	2.5	4.1	1.6	1.5	1.38
4	2017	2.6	4.1	1.7	1.5	1.13
5	2017	2.4	4.1	1.6	1.5	1.13
6	2017	2.4	4.1	1.7	1.5	1.38
7	2017	2.4	4.1	1.7	1.5	1.38
8	2017	2.4	4.1	1.5	1.5	1.38
9	2017	2.5	4.1	1.7	1.5	1.38
10	2017	2.5	4.1	1.5	1.4	1.38
11	2017	2.5	4.1	1.7	1.5	1.38
12	2017	2.5	4.1	1.7	1.5	1.38
13	2017	2.4	4.1	1.7	1.5	1.38
14	2017	2.5	4.1	1.7	1.5	1.38
15	2017	2.5	4.1	1.7	1.5	1.38
16	2017	2.5	4.1	1.7	1.5	1.38
1	2018	2.3	4.0	1.9	1.9	2.38
2	2018	2.4	3.8	1.8	1.8	1.88
3	2018	2.2	4.0	2.0	2.0	1.38
4	2018	2.6	3.7	1.7	1.7	1.63
5	2018	2.8	3.9	1.7	1.7	1.13
6	2018	2.7	4.0	1.9	1.9	2.13
7	2018	2.6	3.7	1.9	1.9	2.13
8	2018	2.2	3.7	1.8	1.8	2.13
9	2018	2.5	3.6	1.9	1.9	2.13
10	2018	2.3	3.9	1.9	1.9	2.38
11	2018	2.6	3.7	1.8	1.9	2.63
12	2018	2.5	3.8	2.1	2.0	2.13
13	2018	2.2	3.9	1.7	1.7	2.13
14	2018	2.6	3.8	1.7	1.7	1.88
15	2018	2.5	3.9	1.9	1.8	2.38
16	2018	2.2	4.0	2.0	2.0	1.88

Table 2. *(continued)*

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	2019	2.0	3.9	2.0	2.0	3.38
2	2019	2.2	4.0	2.2	2.2	2.63
3	2019	2.0	4.2	2.0	2.0	1.38
4	2019	2.4	3.5	1.9	1.9	2.75
5	2019	2.4	3.6	2.0	2.0	1.63
6	2019	2.3	4.0	2.0	2.0	2.63
7	2019	2.2	3.6	2.0	2.0	2.88
8	2019	1.8	3.9	2.0	2.0	2.88
9	2019	2.1	3.5	2.0	2.0	2.63
10	2019	2.0	3.8	2.0	2.0	3.38
11	2019	1.7	3.7	2.1	2.1	3.63
12	2019	2.0	4.0	2.3	2.3	2.88
13	2019	1.9	3.8	1.9	1.9	2.63
14	2019	2.2	3.7	1.8	1.8	2.38
15	2019	2.3	4.1	2.0	2.0	3.13
16	2019	1.9	4.0	2.0	2.0	2.38
1	2020	1.8	3.8	2.0	2.0	3.50
2	2020	2.0	4.1	2.0	2.0	3.13
3	2020	2.0	4.5	2.0	2.0	1.38
4	2020	2.0	3.5	2.1	2.1	3.00
5	2020	2.0	3.6	2.1	2.1	2.38
6	2020	2.2	4.2	2.0	2.0	3.13
7	2020	1.9	3.5	2.0	2.0	3.13
8	2020	1.6	4.1	2.1	2.1	3.00
9	2020	1.8	3.5	2.1	2.1	2.63
10	2020	2.0	3.8	2.0	2.0	4.13
11	2020	1.1	4.0	2.2	2.3	4.13
12	2020	1.7	4.2	2.2	2.2	3.13
13	2020	1.6	3.9	2.0	2.0	3.13
14	2020	2.0	3.7	1.9	1.9	2.88
15	2020	2.0	4.3	2.0	2.0	3.00
16	2020	1.8	4.1	2.0	2.0	2.63

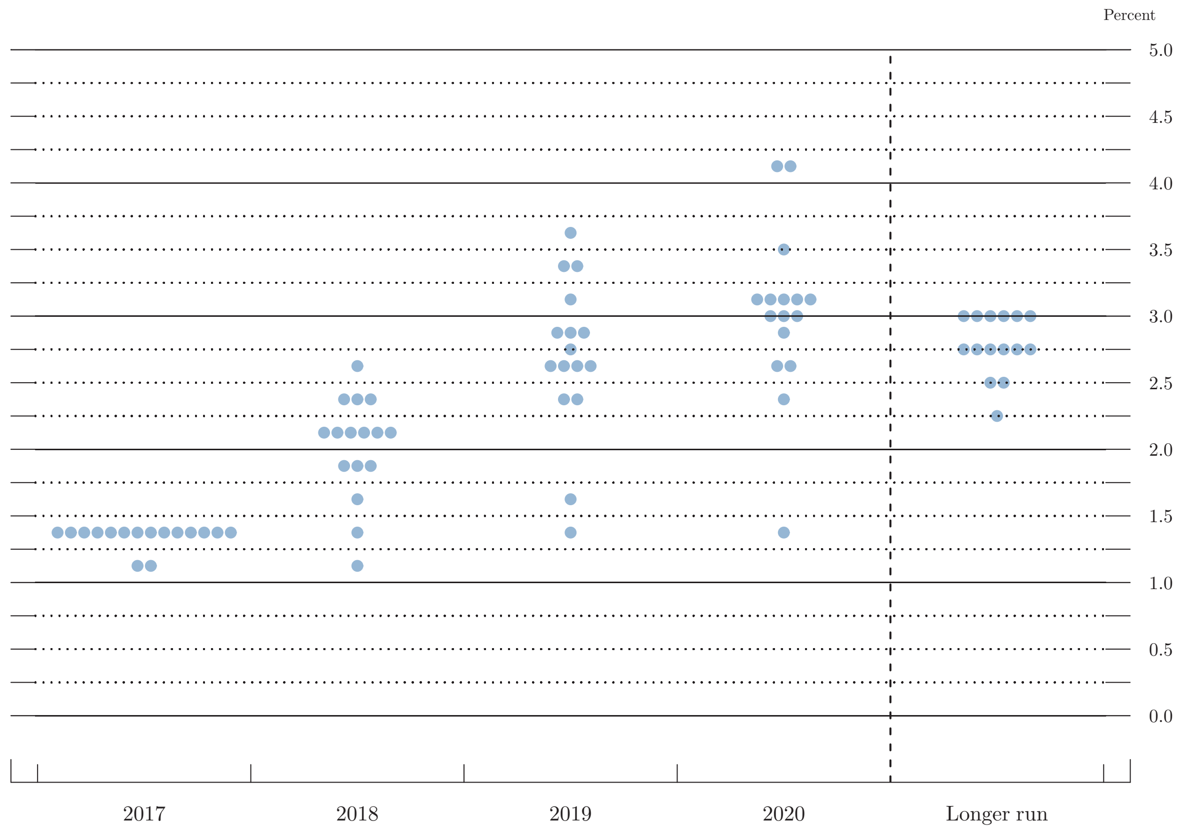
Table 2. *(continued)*

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	LR	1.8	5.0	2.0		3.00
2	LR	2.0	4.7	2.0		3.00
3	LR			2.0		
4	LR	1.8	4.5	2.0		2.75
5	LR	1.7	4.4	2.0		2.25
6	LR	2.2	4.5	2.0		3.00
7	LR	1.8	4.4	2.0		3.00
8	LR	1.7	4.7	2.0		2.50
9	LR	1.8	4.7	2.0		2.50
10	LR	1.8	4.8	2.0		3.00
11	LR	1.7	4.7	2.0		2.75
12	LR	1.8	4.6	2.0		2.75
13	LR	1.8	4.5	2.0		2.75
14	LR	1.9	4.3	2.0		2.75
15	LR	2.0	4.8	2.0		3.00
16	LR	1.8	4.4	2.0		2.75

Figure 1. Medians, central tendencies, and ranges of economic projections, 2017–20 and over the longer run

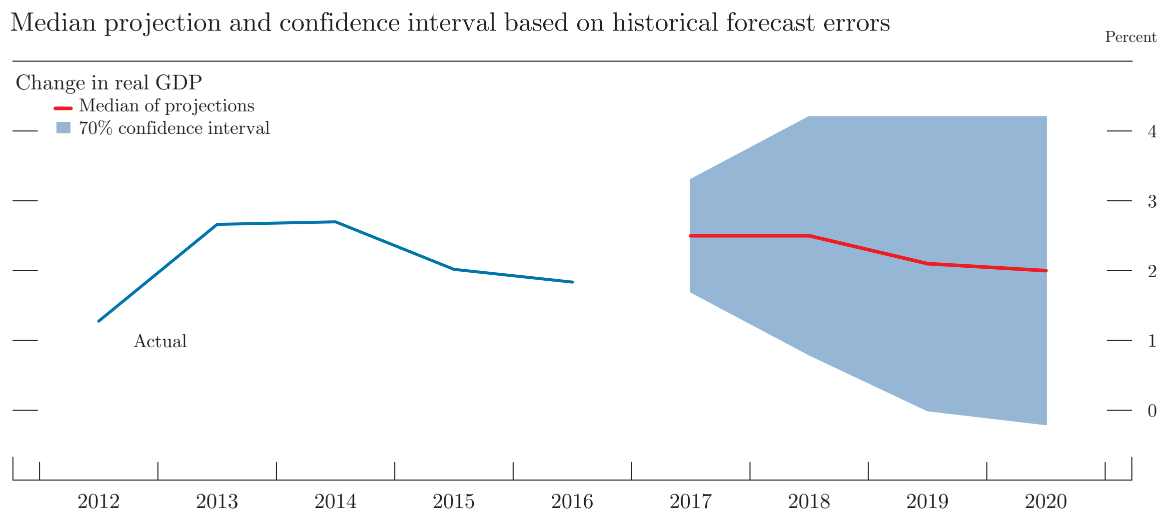
NOTE: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

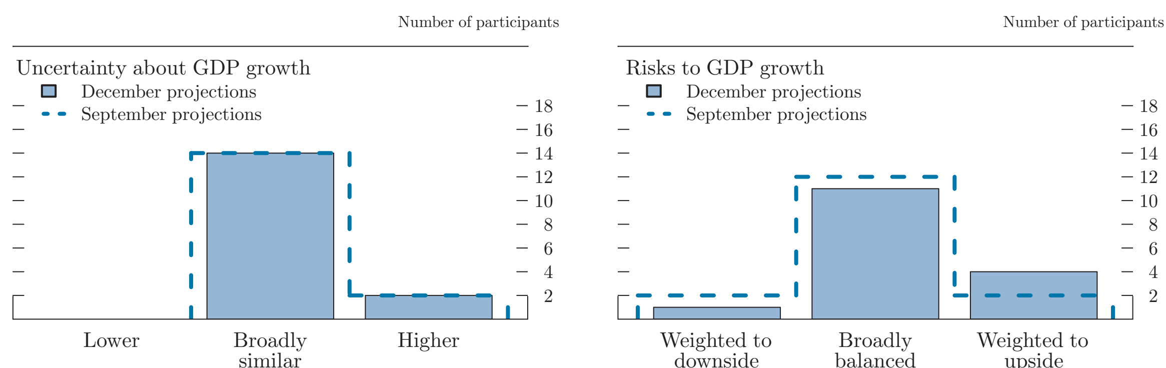
Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



NOTE: Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. One participant did not submit longer-run projections for the federal funds rate.

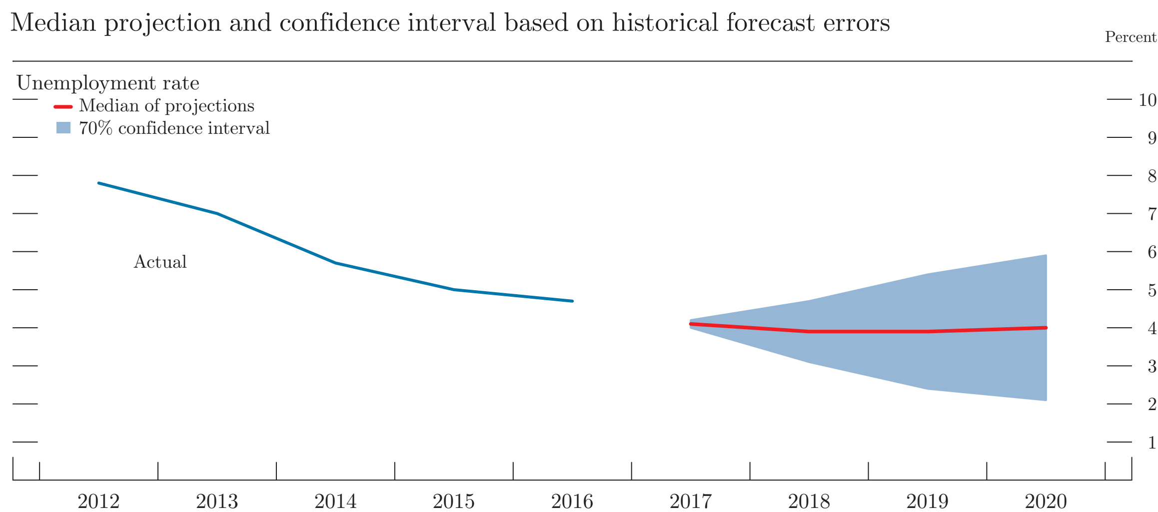
Figure 4.A. Uncertainty and risks in projections of GDP growth

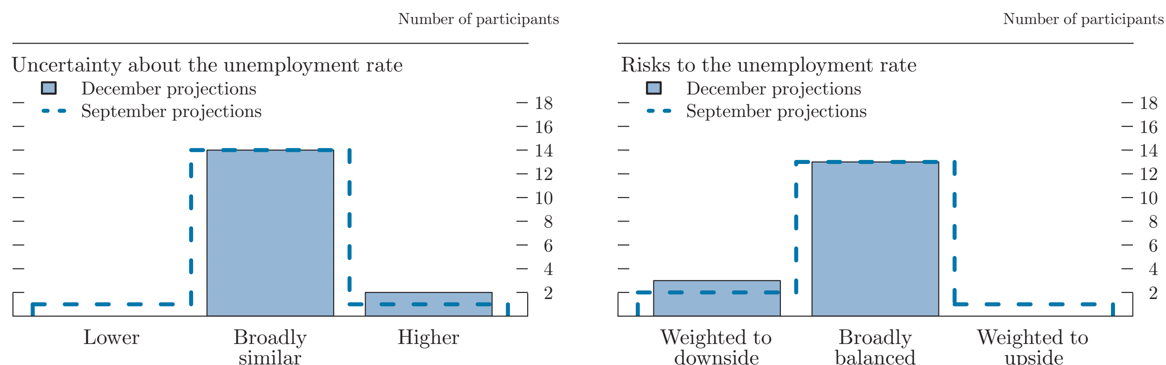




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

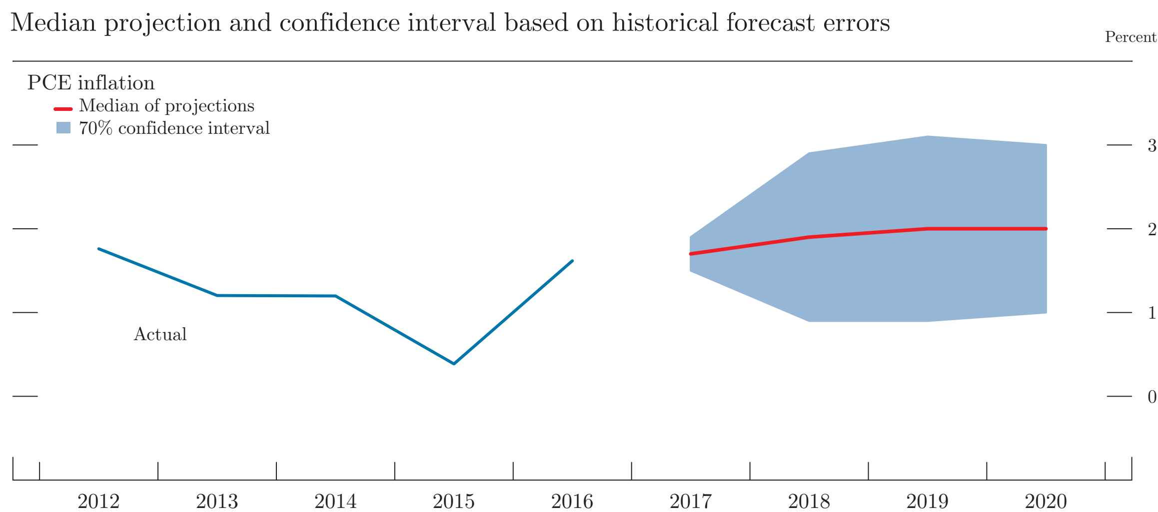
Figure 4.B. Uncertainty and risks in projections of the unemployment rate

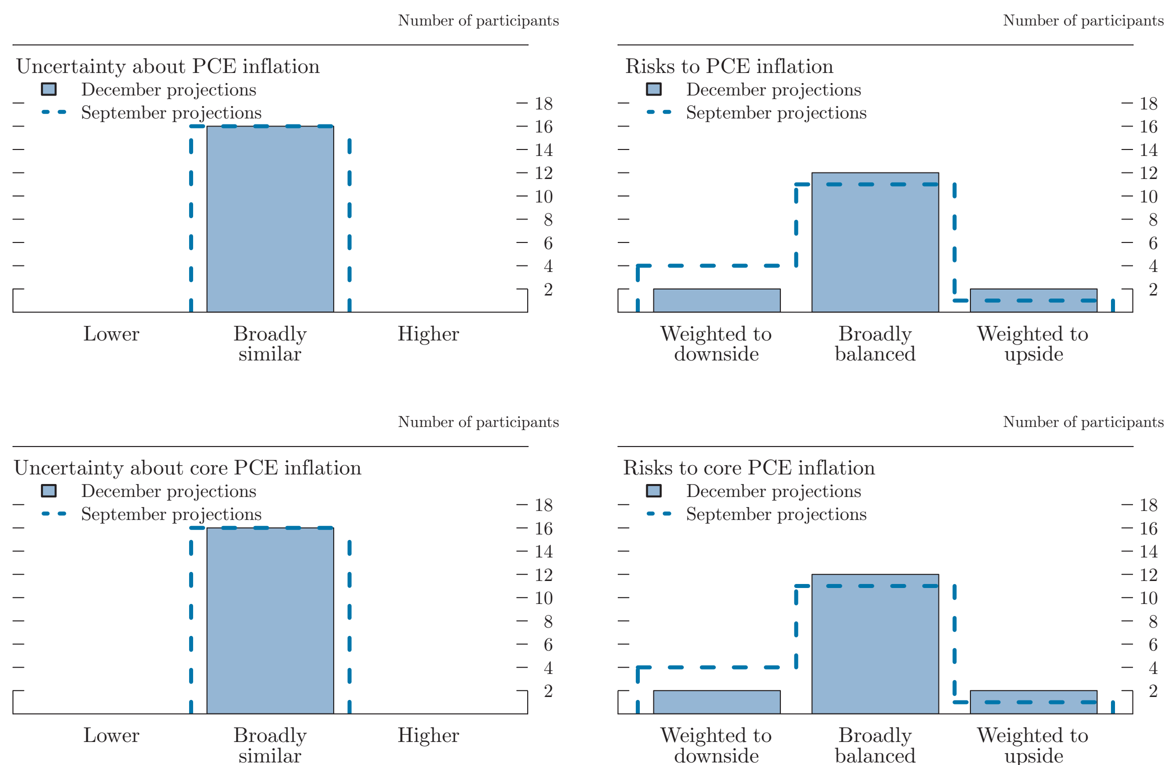




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.C. Uncertainty and risks in projections of PCE inflation





NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Table 3. Uncertainty and risks

Question 2(a): Please indicate your judgment of the uncertainty attached to your projections relative to levels of uncertainty over the past 20 years.

Individual responses

Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Change in real GDP	B	A	B	B	B	B	B	B	B	B	A	B	B	B	B	B
Unemployment rate	B	A	B	B	B	B	B	B	B	B	A	B	B	B	B	B
PCE Inflation	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Core PCE Inflation	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

A = Higher B = Broadly similar C = Lower

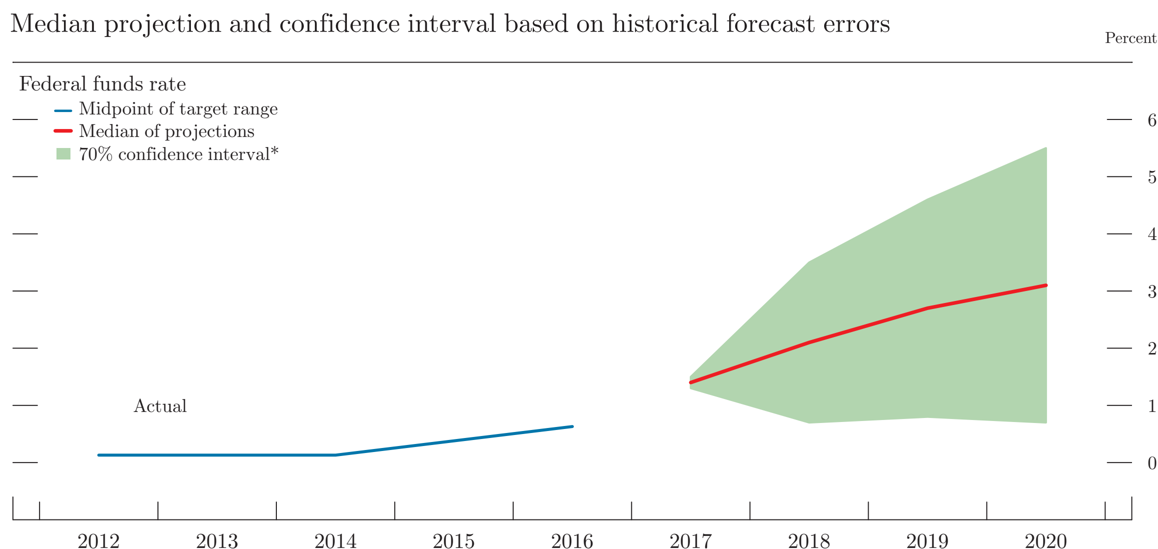
Question 2(b): Please indicate your judgment of the risk weighting around your projections.

Individual responses

Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Change in real GDP	B	A	A	B	C	A	B	B	B	B	B	B	B	B	B	A
Unemployment rate	B	C	B	B	B	C	B	B	B	B	B	B	B	B	B	C
PCE Inflation	A	B	A	B	C	B	C	B	B	B	B	B	B	B	B	B
Core PCE Inflation	A	B	A	B	C	B	C	B	B	B	B	B	B	B	B	B

A = Weighted to upside B = Broadly balanced C = Weighted to downside

Figure 5. Uncertainty in projections of the federal funds rate



Note: The blue and red lines are based on actual values and median projected values, respectively, of the Committee's target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants' individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero—the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Longer-run Projections

Question 1(c). If you anticipate that the convergence process will take SHORTER OR LONGER than about five or six years, please indicate below your best estimate of the duration of the convergence process. You may also include below any other explanatory comments that you think would be helpful.

Respondent 1: N/A

Respondent 2: I anticipate that the economy will converge to my longer-run projection within 5 years.

Respondent 3: Reflecting recent data, we project a temporary undershooting of inflation for 2017. GDP growth and unemployment are also expected to deviate temporarily from a regime characterized by low productivity growth and a low real interest rate on short-term government debt. This regime features GDP growth of 2.0 percent, an unemployment rate of 4.5 percent, and inflation of 2.0 percent. We project that the undershooting of inflation will end in 2018, the overshooting of GDP growth will end in 2019, and the undershooting of unemployment will end in 2020. Because there are multiple potential medium-term outcomes, we cannot provide a single set of projections for GDP growth and unemployment. Calculating an average of these variables based on multiple outcomes is potentially misleading. We do provide a 2.0 percent longer-run inflation projection that is independent of the regime.

Respondent 4: N/A

Respondent 5: N/A

Respondent 6: N/A

Respondent 7: N/A

Respondent 8: Our dual mandate goals are reached by 2019. However, it will take a couple more years to achieve complete convergence to longer-run levels. The effects from sustained accommodative monetary policy will generate a modest degree of overshooting of inflation and an unemployment rate that remains well below the natural rate for a number of years, before returning back to longer-run levels.

Respondent 9: We are already below my estimate of the longer-run sustainable unemployment rate. I expect that we will be close to our 2-percent inflation objective by the end of next year, although the exact timing is uncertain. I expect unemployment to remain low during 2019 and 2020, and inflation to move above 2 percent. Under appropriate policy, it might easily take an additional 3-to-5 years for unemployment and inflation to converge to their respective longer-run rates.

Respondent 10: Having essentially achieved our objectives for inflation and unemployment, the current stance of monetary policy will likely cause tightening of the unemployment rate beyond its longer-run level. Policy rates will need to adjust gradually over several years to bring unemployment back in line with the longer-run objective, ensuring sustainable economic growth with price stability.

Respondent 11: Given our estimate of the equilibrium unemployment rate, the economy is now operating above potential and the underlying pace of activity suggests a significant risk of further undesirable overshooting of full employment in the near term. In order to converge back to full employment, a prolonged period of growth below potential will be needed. The historical record, however, places a significant probability on a "growth recession" eventually morphing into a full-blown recession. In sum, while a purely model-driven forecast would suggest convergence to the equilibrium unemployment rate from below around 2023, there is a nontrivial risk that the projected soft landing will not materialize in practice.

Respondent 12: We still assume the potential GDP growth rate is 1.8 percent. We continue to judge that the longer-run normal rate of unemployment is between 4 and 6 percent, with the mode of that distribution between 4.5 and 5 percent; for now, we have maintained our point estimate at 4.6 percent. However, the recent developments in the labor market and inflation suggest there is a higher probability that u* could be below 4.5 percent.

At this time, we tentatively judge that the supply-side impact of any likely tax legislation will be fairly small, and thus it has little effect on our estimates of potential GDP growth and the longer-run normal rate of unemployment. Assuming that the legislation is finalized and enacted into law, we will undertake over the coming FOMC cycles a further assessment of its impact on potential growth and u*.

We project that the unemployment rate will be below its longer-run normal level through 2020, and probably not return to that level until at least a couple of years into that decade. Our scenario analysis of labor flows and the historical behavior of the unemployment rate in long expansions indicate that there is a significant probability that the unemployment rate could fall even further below its longer-run normal level than occurs in our central forecast.

We assume that long-term inflation expectations will remain anchored at levels consistent with the FOMC's longer-run objective. Under these conditions and with some undershooting of the longer-run normal unemployment rate over the forecast horizon, we expect inflation as measured by the PCE price index to be mildly above the FOMC's longer-run objective in 2019-20, before returning to that level early in the next decade.

Respondent 13: Full convergence will likely take six years or so, for two reasons. First, I anticipate a gradual rise in the neutral rate through 2020 and beyond as productivity growth gradually picks up and the dollar depreciates modestly. Second, my forecast shows the unemployment rate running modestly below my estimate of its longer-run sustainable level through 2020, and so it will need to rise modestly in subsequent years to stabilize inflation at 2 percent.

Respondent 14: N/A

Respondent 15: At this point, convergence is likely in four to five years.

Respondent 16: N/A

Uncertainty and Risks

Question 2(a). (Optional) If you have any explanatory comments regarding your judgment of the uncertainty attached to your projections relative to levels of uncertainty over the past 20 years, you may enter them below.

Respondent 1: N/A

Respondent 2: Uncertainty surrounding output growth and unemployment remains elevated by the heightened uncertainty about the course of fiscal policy, regulatory reform, and trade policy. The impact on inflation uncertainty is small given how flat the Phillips curve seems to be.

Respondent 3: N/A

Respondent 4: The impending changes to the federal tax code certainly add uncertainty to the outlook. Tax cuts will boost consumption and investment and will increase the level of potential output over time. However the magnitude and timing of the effects are inherently difficult and complicated to assess. The wide range of possible aggregate demand and supply effects also implies substantial uncertainty over resource utilization. These considerations add to the uncertainty surrounding our projections for both inflation and real activity, but not by enough to move us out of the "broadly similar" uncertainty box.

Respondent 5: The current level of uncertainty lies somewhere between the low levels experienced during the Great Moderation and the high levels experienced during the financial crisis and its immediate aftermath.

Respondent 6: N/A

Respondent 7: N/A

Respondent 8: Uncertainty about my projection for economic activity and inflation is similar to its average level over the past 20 years. Inflation remains anchored by stable longer-run inflation expectations at the FOMC's stated goal of 2 percent.

Respondent 9: Uncertainty about the appropriate path for the federal funds rate over the next few years is high, with little room for error on either side. The adverse economic consequences of any policy errors will be felt in late 2019 and, especially, 2020. At those horizons, uncertainty about the paths of real activity and inflation is elevated. Over 2018 and early 2019, however, economic uncertainty is about average.

Respondent 10: N/A

Respondent 11: Our baseline forecast delivers a soft landing from a low level of the unemployment rate to a higher level consistent with full employment. As already mentioned, these smooth transitions are rare in practice, even when considering the international evidence. For this reason, we view the uncertainty around our projection of real activity as higher than usual.

Respondent 12: Ours is a quantitative judgment based on the widths of the probability intervals from the FRBNY forecast distributions for real GDP growth and core PCE inflation. The widths of these intervals are not substantially different from those in our September SEP submission. Even though the economic data have been solid, financial market volatility generally has been subdued, and the probability of a tax package has increased markedly (all of which should reduce uncertainty); however, the macroeconomic impact of the likely tax legislation remains quite uncertain and significant geopolitical uncertainties are still apparent. The probability intervals for real activity and core PCE inflation forecasts thus are broadly in line with the SEP standard–for inflation, this assessment takes into account the differences between forecast errors for overall consumer inflation and core PCE inflation.

Respondent 13: While I think the uncertainty attached to my projection remains broadly similar that experienced over the past 20 years, it is worth noting that it is probably a bit greater than it was at the time of the September projection because the macroeconomic effects of the tax package now under consideration are complicated and difficult to judge.

Respondent 14: N/A

Respondent 15: N/A

Respondent 16: N/A

Uncertainty and Risks (continued)

Question 2(b). (Optional) If you have any explanatory comments regarding your judgment of the risk weighting around your projections, you may enter them below.

Respondent 1: With GDP growth above trend, the unemployment rate below 4 percent, and fiscal stimulus kicking in, the Phillips Curve could awaken and rise.

Respondent 2: While I anticipate some small stimulus from tax reform beginning in 2018 that will boost demand, raise output growth, and lower the unemployment rate further, my uncertainty about the magnitude and timing of fiscal stimulus and its effects on the economy remains high.

Respondent 3: We are answering this question variable by variable as they may be affected by important regime shifts.

With respect to GDP growth, the current productivity regime is low. A higher productivity growth regime is possible, but we see no compelling reason to predict a switch at this time. Recent increases in productivity growth still leave productivity in the low productivity regime. However, as changes in tax policy become more likely, we foresee the possibility of more rapid GDP growth. Thus, we see an upside risk for GDP growth.

Concerning unemployment, the current rate is at the low end for an economic expansion. If a recession were to occur, the unemployment rate would rise substantially. We have no compelling reason to predict a recession during the forecast horizon. On the other hand, we also see the possibility of further declines in the unemployment rate. Overall, we see the risks as broadly balanced.

For PCE inflation, we place negligible weight on the prospects of Phillips Curve effects. There is, however, a risk that Phillips Curve effects reassert themselves and inflation moves higher as the unemployment rate falls. It is also possible that inflation expectations drift higher and become unanchored. Thus, we see the risks on this variable to be weighted to the upside.

For core PCE inflation, the risks are the same as for PCE inflation. In addition, this variable depends on the behavior of energy prices and an upward price shock is a possibility. Overall, we see the risks as weighted to the upside.

Respondent 4: We see the risks to the outlook for growth as broadly balanced. Our forecast assumes a modest impetus to growth from fiscal policy in 2018; we see the odds as roughly equal that the policy process will result in a bit more or a bit less stimulus. Similarly, the likelihood of stronger world-wide demand appears balanced against the potential for some future weakness, most notably from a slowdown in China. With regard to inflation, we judge that the risks to the forecast continue to be balanced. Once again, this was a close call. We could see stronger fiscal effects on growth that put more upward pressure on inflation than we have assumed. But persistently low inflation readings, as well as the continued low levels of inflation compensation in financial markets and some survey expectations, remain disconcerting. Although these latter risks seem somewhat more important, we did not feel they were enough to tip the balance of risks to the downside.

Respondent 5: Risks for output and inflation are weighted to the downside because the effective lower bound limits the ability of monetary policy to respond to adverse shocks. For the unemployment rate, there is a countervailing risk that it will fall more rapidly if the labor force participation rate resumes its downward trend. Therefore I see the risks to unemployment as broadly balanced.

Respondent 6: N/A

Respondent 7: N/A

Respondent 8: Risks to economic activity appear broadly balanced. We have exceeded our objective of maximum sustainable employment according to a wide array of labor market measures and will remain beyond full employment for the next few years. The main uncertainty is by how much and for how long.

There remains considerable uncertainty regarding the size and timing of proposed changes to corporate and personal taxes and their ultimate effects on the economic outlook. This uncertainty will diminish only when the final legislation is formulated and fully implemented.

Although the effective lower bound somewhat constrains our ability to respond to adverse shocks, this constraint is becoming less important given that appropriate policy calls for steady increases in the target funds rate over the next two years.

Despite soft inflation readings earlier this year I continue to see inflation moving gradually to our 2 percent goal and view the risks to this forecast as balanced. On the upside, there is the risk that very tight labor markets may foster a more rapid increase in inflation than I assume in my forecast. On the downside, there are other factors, such as muted healthcare services inflation, which if sustained could slow the pace of inflation going forward.

Respondent 9: While I see some potential upside for regulatory reform, broader prospects for thoughtful policy changes have faded. In particular, prospective tax changes are unlikely to result in meaningful long-term improvement in GDP growth, but will leave us with a higher level of debt to GDP at a time when the U.S. government is already highly leveraged.

Respondent 10: N/A

Respondent 11: N/A

Respondent 12: Ours is a quantitative judgment based on the difference between the central projection and the expected value from the New York Fed forecast distribution. We see two-sided risks associated with any likely tax legislation. It could have more positive supply-side and/or demand-side effects than we currently anticipate; however, because the legislation also appears to have significant regional and sectoral distributional effects, frictions in capital stock adjustment and in labor mobility could lead to adverse supply-side and demand-side effects. In addition, the risks associated with other changes in U.S. fiscal, regulatory, and trade policies as well as notable outstanding geopolitical issues still seem two-sided. Therefore, as in September, we judge the real activity risks to be roughly balanced over the forecast horizon.

Inflation risks also remain roughly balanced throughout the forecast horizon. Longer-term inflation compensation, the Michigan survey long-run inflation expectations, and our SCE 3-year inflation expectations remain at low levels, consistent with continued downside risks. By contrast, global disinflationary forces appear to have abated somewhat and financial conditions have eased, indicating still-significant upside risks. Also, the October CPI and PCE price index were consistent with transitory factors beginning to fade, as is implied in our central projection. Measures of underlying inflation have provided varying signals since the September FOMC meeting, with some rising modestly, some being little changed, and a few falling slightly.

Respondent 13: My assessment of the overall risks to real activity continue to be broadly balanced, although it is worth noting that I have modestly steepened the path of the federal funds rate in my current projection, which has the effect of diminishing the asymmetric risks associated with the zero lower bound.

Because my current outlook for real activity is somewhat stronger than in my previous forecast (thereby implying somewhat tighter labor market conditions over the medium term), I no longer view the risks to the inflation outlook as weighted to the downside.

Respondent 14: N/A

Respondent 15: I continue to view the risks around my forecast as broadly balanced, conditional on a monetary policy path that is somewhat steeper than the median path in the September SEPs.

Since the September SEP, a tax package affecting households and businesses has become likely, although details in the final package are still being negotiated. My baseline forecast continues to incorporate a small fiscal stimulus effect from the tax package, on the order of an addition of 0.25 to 0.50 percentage points to Q4/Q4 GDP growth in 2018-2020. Even without the tax cuts, there is momentum in the economy given healthy underlying fundamentals.

I see the risks due to fiscal policy as being balanced: there are upside risks to growth in the near term because the tax cuts could be more stimulative than I've assumed, but there are downside risks in the out years and beyond the forecast horizon because higher fiscal deficits could necessitate reduced fiscal spending.

The global outlook has improved over the last year, though there remain some vulnerabilities in emerging market economies, as well as geopolitical risks. Even with a gradual reduction in the level of accommodation, monetary policy is expected to remain accommodative and supportive of growth in many countries.

I continue to see inflation risks as roughly balanced. After softening since the beginning of the year, the most recent inflation readings have shown some stability. My modal forecast is that inflation will gradually return to our goal of 2 percent over time, with this goal being achieved on a sustainable basis in the first half of 2019.

If the dynamics of inflation have fundamentally changed, then I may be underestimating the persistence of low inflation and this persistence might mean I am overestimating the long-run unemployment rate. This would mean inflation would be weaker than in my modal forecast. But if the forces weighing on inflation are transitory (as assumed), if labor markets tighten more than I expect, or if nonlinear Phillips curve dynamics begin to kick in, inflation could move higher than I expect, especially if the withdrawal of monetary accommodation is slower than I've assumed. Even absent a change in the slope of the Phillips curve, a slower withdrawal of monetary accommodation than I've assumed poses an upside risk to my inflation forecast.

After appreciating over most of the last two and a half years, the dollar has depreciated this year. I assume that this downward trend will reverse given the strength in the U.S. economy and prospects for tighter monetary policy. However, a continuation of the depreciation poses an upside risk to my inflation forecast.

Risks to financial stability from very low interest rates appear to be contained so far. There does not seem to be excessive leverage and banks are holding relatively high levels of capital and liquid assets. However, equity prices appear to be somewhat high relative to earnings even accounting for the low level of interest rates, and commercial real estate valuations continue to be lofty. These signs, the relatively low level of interest rates, and the outlook for continued strength in the economy suggest that financial stability risks could rise should we fail to remove monetary policy accommodation at an appropriate pace. Indeed, the low level of market volatility coupled with the low equity premium suggests that these risks are building.

Respondent 16: N/A

Key Factors Informing Your Judgments regarding the Appropriate Path of the Federal Funds Rate

Question 3(b). Please describe the key factors informing your judgments regarding the appropriate path of the federal funds rate. If, in your projections for any year in the projection period, the unemployment rate for that year is close to or below your projection for its longer-run normal level and inflation for that year is close to or above 2 percent, and your assessment of the appropriate level of the federal funds rate for that year is still significantly below your assessment of its longer-run normal value, please describe the factor or factors that you anticipate will make the lower-than-normal funds rate appropriate. If you have revised your estimate of the longer-run normal value of the federal funds rate since the previous SEP, please indicate the factor or factors accounting for the change. You may include any other comments on appropriate monetary policy as well.

Respondent 1: Recent data are consistent with inflation moving toward 2 percent in the near term. With inflation expectations well anchored, I believe that gradual increases in the federal funds rate will continue to be appropriate. I also believe that balance sheet normalization should continue to play out in the background or on "autopilot" as has been discussed.

Respondent 2: My projection for the appropriate path of the federal funds is lower over the next two years compared to September. While I expect somewhat stronger economic growth and lower unemployment due to fiscal policy, I am concerned about the realization of generally soft inflation over the course of 2017. Looking ahead, I anticipate that a slightly more accommodative path for monetary policy will be necessary to return inflation to its target level over the medium term.

Respondent 3: A target of 1.38 percent for the forecast horizon is consistent with our assessment of current economic conditions and the convergence of inflation, GDP growth, and unemployment to their values in a regime characterized by low productivity growth and a low real interest rate on short-term government debt. In the event of a regime change, such as a shift from low productivity growth to high productivity growth, our target federal funds rate will change.

Respondent 4: We think it is appropriate to leave the range for the funds rate unchanged at this meeting, followed by two increases in 2018, four in 2019, and one in 2020. We assume balance sheet normalization proceeds according to the announced plan.

We believe this policy package represents a balanced approach to achieving both of our dual mandate objectives. Given our projection of continued low inflation in the near term, as well as considerable uncertainty over its outlook, we think it is appropriate to forego increasing the funds rate until 2018. Eschewing a rate change at the current meeting is meant to send a strong signal to markets that we are concerned about inflation developments. Even with this delay, we feel policy has more work to do in order to solidify inflationary expectations symmetrically around 2 percent, which is a pre-requisite for achieving our inflation objective. That is why we have only two increases in 2018, and why in 2020 we have the funds rate at 3.00 percent, only 25 basis points above its longer-run level, even though we project inflation at 2.1 percent and the unemployment rate a full percentage point below the natural rate. This configuration should generate some further modest overshooting of 2 percent inflation beyond 2020, which would reinforce the symmetry of our inflation target and mitigate the risk that inflation expectations could settle in below 2 percent.

Respondent 5: Inflation continues to come in below our 2 percent target; in fact it had been falling since February until recently. Even though the labor market continues to strengthen, it is not clear that we have

reached maximum employment as the labor force participation rate and employment-population ratio for prime age persons remain well below their pre-recession levels, and wage growth remains subdued. Given the persistent undershooting of our inflation target, I believe that appropriate monetary policy implies a very gradual path for the federal funds rate.

Respondent 6: N/A

Respondent 7: N/A

Respondent 8: The labor market has exceeded full employment according to various measures and I expect it to continue to strengthen over the next year. I expect the unemployment rate to fall below 4 percent next year before gradually returning to its natural rate of 4.7 percent. I expect the strong economy gradually to push inflation up over the next few years, reaching our 2 percent objective by 2019 and a modest overshooting in 2020.

My assessment of appropriate policy is generally informed by looking at simple rules that adjust for the zero lower bound and assume a low natural rate of interest of 1/2 percent.

My fed funds path is flatter than some simple rules would suggest. This reflects an inflation rate that has been rising only gradually toward our objective from below. Beyond the near term, I envision a path for the fed funds rate that modestly overshoots its long-run level in 2019 and 2020 as policy acts to unwind the overshooting in inflation and labor market conditions.

Respondent 9: As the economy's momentum carries it further past full employment and eventually past 2-percent inflation, it will be appropriate to transition to a mildly restrictive policy stance. A mildly restrictive policy maintained over several years will give us our best chance of moving the economy along a smooth glide path back to full employment and price stability.

Risks to my funds-rate projections are balanced. However, my confidence that the funds-rate path I have specified will prove to be appropriate is lower than usual. I am cognizant that the 10-year Treasury yield now stands at approximately 2.35 percent. At issue is whether we can slow the economy to a sustainable rate of growth without inverting the yield curve. I think that we can, but the margin for error is small.

Respondent 10: My judgment regarding the appropriate path of the federal funds rate is predicated on promoting sustainable economic growth and price stability. The economy has reached full capacity and we have essentially achieved price stability, yet I view the appropriate level of the federal funds rate to be below my estimate of its longer-run level in 2017 and 2018. That the federal funds rate is still low despite the economy's return to full employment and price stability reflects the Committee's past decisions, and I view a gradual path of the funds rate as important to promote economic and financial stability.

Respondent 11: Optimal control policy simulations as reported, for example, in the current Tealbook prescribe a much higher path for the federal funds rate than the path penciled in here. While the simulations penalize changes in the federal funds rate, aggressive policy tightening could increase the probability of a recession in ways that our linear models are unable to capture. Our projected path for the federal funds rate balances this concern against the concern that continuing to provide monetary policy accommodation when the economy has already surpassed full employment will create distortions that, too, increase the probability of a future downturn. Our estimate of the longer-run normal value of the federal funds rate now stands at 2.75 percent. Lower values of the equilibrium federal funds rate are becoming more difficult to reconcile with the declines in the unemployment rate we have seen so far this year.

Respondent 12: The principal factors behind our assessment of the appropriate path for monetary policy are the current state of the economy, our central economic outlook, and our balance of risks around the outlook. The steepness of the policy path also depends on how overall financial conditions respond to our policy actions.

Even though the real growth outlook has improved and financial conditions have eased, the near-term inflation outlook remains subdued and the balance of risks is little changed. Consequently, our projection of the appropriate policy path is only modestly different from that in the September SEP submission: The target FFR ranges at the end of 2017, 2018, and 2019 are 1 1/4 – 1 1/2 percent, 2 – 2 1/4 percent, and 2 3/4 – 3 percent respectively. For 2020, we anticipate that a small further tightening of the policy stance will be needed to ensure achievement of the FOMC's

objectives over the medium term following the small inflation overshoot and the unemployment undershoot. Our policy path remains fairly shallow and is consistent with the gradual rising path of the natural interest rate as projected by the New York Fed sta DSGE model.

Our estimate of the longer-run equilibrium real short-term interest rate remains in the range of 0 – 2 percent, consistent with the estimates and forecasts from a variety of models. Adding the objective for inflation (2 percent) gives our estimated range for the nominal equilibrium rate as 2 – 4 percent. Our modal projection is in the lower half of this range due to the combination of continued fairly subdued productivity growth, low longer-term sovereign yields, continued indications of a global "saving glut," and demographic factors. As reported in the response to question 3(a) we maintained our point estimate of the nominal equilibrium rate at $2\ ^3/_4$ percent. Our appropriate policy path thus slightly overshoots the longer-run FFR.

Respondent 13: My assessment that the federal funds rate will need to rise gradually over the next several years rests on three assumptions. First, the real neutral rate is currently close to zero, implying that one or two additional hikes will be needed in the near term in order to stabilize the unemployment rate. Second, the nominal neutral rate is likely to rise modestly over the next several years as a result of easier fiscal policy, somewhat faster productivity growth, and a rise in inflation to 2 percent. Finally, the return to 2 percent inflation will be facilitated by the maintenance of strong labor conditions, which in turn depends on not raising the funds rate too quickly.

Respondent 14: As has been the case for some time, there is a tension between the data on the real economy, which are quite strong, and the inflation data, which have remained below our objective. Tipping the balance for me at the current meeting is the high likelihood of tax cut legislation, which is likely to be quite stimulative over the next several years: In the current proposals, tax cuts are strongly front-loaded, deficit-financed, and business-focused. They are also quite large by historical standards, especially given how late in the cycle they will arrive.

Over the medium run, the funds rate in my projection rises gradually, balancing the increase in aggregate demand – which is in part fiscally-related – against inflation that is likely to remain below our objective for some time. On balance, the path in this projection is shallow enough to convince the public that the Committee is committed to its inflation objective – and should thus help boost underlying inflation over time – while at the same time curbing excessive overshooting on the real side of the economy.

I have boosted the longer-run federal funds rate in my projection by 25 basis points, to 2.75 percent, reflecting the likely effect of the higher level of government debt.

Respondent 15: I continue to view a gradual upward path for the funds rate as appropriate; the slope of the path will depend on the evolution of the economy, medium run outlook, and the risks around the outlook, in particular, for inflation and labor markets.

Over the forecast horizon, I project growth above trend and the unemployment rate below my estimate of its longer-run level. I expect some firming in labor compensation measures, in line with anecdotal reports of increasing wage pressures across a range of skill groups. However, if productivity growth remains low, wage gains will likely be slower than in past expansions.

I continue to see the softness in inflation this year as largely reflecting transitory factors rather than a fallo in demand that would put more persistent downward pressure on inflation. The stability in recent inflation readings and in inflation expectations lends some support for this view. My modal projection has inflation gradually increasing to our goal over the forecast horizon. However, if there has been some fundamental change in inflation dynamics, it could be that low inflation will be more persistent, even as labor markets remain tight and growth remains above trend. In such a scenario, delaying further rate increases or taking other actions (such as forward guidance) to try to raise inflation may be appropriate, but this would have to be balanced against labor market developments and financial stability risks.

Given that monetary policy affects the economy with a lag, I believe appropriate monetary policy should reflect both actual and projected progress toward the Committee's goals. Based on the outlook and risks, I believe it will be appropriate for the FOMC to gradually move rates up over the course of the forecast horizon. This strategy would seem to prudently balance the risks of stronger than expected growth leading to overheating in labor markets, which would necessitate sharper, and potentially destabilizing, rate increases in the future versus the possibility that the softness in inflation will persist and lead to an unanchoring of inflation expectations and possible loss of Fed credibility. I assume that the funds rate will end 2019 at a level slightly higher than my longer-run estimate of 3 percent, and then move down to 3 percent in 2020.

Respondent 16: My projection for the federal funds rate is informed by a simple policy rule with a gradual rise in the short-run equilibrium funds rate. I lowered the longer-run normal federal funds rate in my projection by 25 basis points, in conjunction with a mark-down to longer-run potential GDP growth.

Forecast Narratives

Question 4(a). Please describe the key factors, potentially including your assumptions about changes to government policies, shaping your central economic outlook and the uncertainty and risks around that outlook.

Respondent 1: Economic growth is likely to continue to be slightly above trend in 2018 and 2019. Debt-financed tax cuts are likely to have small, temporary effects on aggregate demand; in my projection, they add 0.1 percent to real GDP growth in 2018, 2019, and 2020. In addition, the rising federal debt-GDP ratio is likely to put upward pressure on long-term interest rates, which will likely prove to be an increasing drag on growth over the longer term.

Respondent 2: My forecast calls for slightly above-trend growth of 2.4 percent in 2018, edging down to 2 percent in 2020, which is about my estimate of trend growth. I now expect some stimulus from fiscal policy and so have slightly more output growth and lower unemployment in my projection compared to last time. However, my uncertainty about the magnitude and timing of tax reform and fiscal stimulus is high. I expect the unemployment rate to remain below my estimate of the natural rate over the forecast horizon as output grows at a healthy pace and the labor force participation rate declines further. Headline inflation was soft in 2017 and while it may have been held down by temporary factors, my concern about underlying trend inflation is now higher. Consequently, I have a more gradual pace of federal funds rate increases over the next two years. My forecast calls for inflation to rise gradually to a level that is slightly above target 2019 – but inflation then moves down to the 2 percent target in 2020.

Respondent 3: Our forecast continues to use a regime-based conception of outcomes for the U.S. economy. In our conception, there are multiple regimes and we appear to have nearly converged to one of them. The current regime is viewed as persistent, and we see no reason to forecast an exit from the current regime over the forecast horizon. We are, of course, paying close attention to many factors that might precipitate a regime change, such as a change in tax policy that might move the economy to a high productivity state. Monetary policy is regime-dependent and can be viewed as optimal given the current regime. Longer term, the economy may visit other regimes, such as ones associated with the previously mentioned higher productivity growth, a higher real return to short-term government debt, or recession. If the economy transitions to any of these states, all variables may be affected and, in particular, the optimal regime-dependent policy may require adjustment. However, predicting when these transitions may occur is very challenging, so we forecast that the economy will remain in the current regime over the forecast horizon.

Respondent 4: The fundamentals underlying private domestic final demand are solid and stronger than we were seeing in September. Accommodative monetary policy, a healthy labor market, and improved household balance sheets are supporting solid gains in consumer spending and investment. Our baseline scenario envisions such momentum carrying forward into next year. We also assume growth in 2018 and 2019 will be boosted a bit less than 1/2 percentage point per year due to tax cuts, with about equal parts coming from investment and consumption. We assume the tax bill adds a tenth of a percentage point to growth in 2020, entirely through investment. The gradual removal of monetary accommodation and a smaller impulse from fiscal policy are projected to bring GDP growth down in 2019 and 2020. On the supply side, we project the tax bill to increase capital deepening and labor supply, and so we have nudged up our potential growth rates for 2018 through 2020. In sum, we now expect growth to run nearly a full percentage point above potential in 2018 before slowing gradually to potential in 2020.

We think the natural rate of unemployment currently is 4.6 percent and that it will trend down to 4.5 percent by 2020. So, at 4.1 percent, the current unemployment rate is 50 basis points below our estimate of the natural rate. We expect the unemployment rate to move down further, reaching 3.5 percent in 2019 and then staying there in 2020, leaving a 1.0 percentage point gap from the natural rate we expect to prevail at that time.

We have maintained our view that the string of disappointing news on inflation implies that the persistent component in underlying inflation is currently below 2 percent. But we are projecting factors that will help offset the downdraft from the persistent component and subsequently help boost this trend closer to our inflation target. With unemployment projected to undershoot the natural rate substantially, resource pressures should provide a more palpable lift to inflation going forward. Furthermore, our assumption of a shallow path for policy

normalization and a strongly communicated commitment to a symmetric 2 percent inflation target play critical roles in solidifying inflation expectations and helping to bring actual inflation toward target. While we see inflation reaching only 1.7 percent next year, but by 2020 we see a modest overshooting of our inflation objective.

Respondent 5: Near-term core inflation has remained well below target and the economy continues to add jobs without increasing wage pressures. This reinforces my assessment that there continues to be slack in the economy. At this point I am concerned that the increases in the federal funds rate since late 2015 may have had an adverse effect on inflation expectations.

I now expect that a tax cut will be enacted in the near future. I expect that it will somewhat increase both output and employment.

Respondent 6: I believe that the enactment of significant tax cuts will provide a boost to both the near-term economic outlook as well as to the long-term potential growth rate of the economy. The boost to potential growth allows GDP growth to remain relatively strong without pushing up inflation all that much. I think there is a chance that the effects of the tax cut could be even larger than I have written down, suggesting that the risks to my GDP forecast are on the upside.

Respondent 7: Data on the labor market, nonfarm productivity , and inflation have all been somewhat stronger than I anticipated in my September projection, and in addition I have incorporated effects from the tax package now that the details are better known and the likelihood of passage is high. As a result, I now expect output to grow faster and the unemployment rate to decline more over the next several years, and while I have also slightly lowered my estimate of the natural rate, my projection now incorporates a faster pace of tightening in 2018 in order to respond to a larger and more sustained reduction in economic slack.

Respondent 8: I have increased my estimate of the economy's longer run growth rate by 0.2 percentage point. This decision is based on a reassessment of the underlying trend growth rate of labor productivity and the incorporation of supply-side effects stemming from anticipated corporate and personal income tax cuts.

The economy continues to expand at a solid pace relative to trend, which has pushed the unemployment rate lower. Going forward, the strength in labor market hiring, faster wage growth, and gains in household wealth should support continued consumption growth. The outlook for fixed business investment appears to have improved given the recent tax proposals and the continued expectation of lighter regulatory burdens. However, there is substantial uncertainty regarding the size and timing of the effects of the fiscal stimulus.

In this environment, I expect the economic recovery to proceed at a pace that is above potential. Output and unemployment gaps were closed in 2016. With substantial monetary stimulus still in place, I expect these gaps to overshoot for the next few years, leading to a gradual pickup in inflation over the next few years. I continue to expect inflation to reach our 2 percent target in 2019, and to overshoot slightly in 2020. Normalization of monetary policy will help bring inflation, growth, and unemployment back to their long-run sustainable levels by the following year or two.

Respondent 9: Business pricing power is being increasingly challenged and profit margins are under pressure. Companies are seeking to defend margins by investing in technology that allows them to replace people and improve productivity. They are also, increasingly, looking to merger activity as a way to lower costs and increase scale. This aggressive pursuit of lower costs continues to act as an inflation headwind.

Nevertheless, with the labor market tight and still tightening, cyclical inflationary forces are building. We should see confirmation of those building pressures toward the middle of 2018, but I do not expect to see inflation hit 2 percent with regularity until sometime in 2019.

The more immediate danger is the economic excesses and imbalances that can develop when firms and households come to believe that above-trend growth can be sustained. Unrealistic expectations lead to unwise commitments–commitments that have the potential to produce out-sized responses when growth slows and imbalances must be unwound. While real imbalances are not yet evident, they have the potential to develop if we do not continue to remove policy accommodation.

Financial imbalances are another threat. By many measures, valuations are rich. That suggests a need for heightened vigilance to monitor the build-up of leverage and other imbalances often associated with historically high levels of valuation. A correction could lead to a sudden tightening in financial-market conditions.

Our “Statement on Longer-Run Goals and Monetary Policy Strategy” recognizes that realized inflation is not an adequate guide to policy by itself: It calls for us to look at the size and likely persistence of full-employment overshoot in addition to the size and likely persistence of inflation undershoot. The unemployment rate cannot stay below the natural rate indefinitely, and a large full-employment overshoot necessarily implies either a very sharp or a very persistent slowing of output and employment growth at some point in the future–a slowing that will leave the economy vulnerable to adverse shocks and policy mistakes. Our best chance for achieving and sustaining price stability is to extend the expansion of the US economy, and our best chance for extending the expansion is to moderate it, sooner rather than later.

Respondent 10: Government policies: As the likelihood of an expansionary fiscal package has increased significantly since September, I now assume a tax reform will boost real GDP growth by 0.2 percentage point per year in 2018, 2019, and 2020, and lead the unemployment rate to decline by 0.1 percentage point per year in this period. I see negligible effects on headline and core PCE inflation. These assumptions include multiplier effects and take into account the offsetting effects of a higher path for the federal funds rate. Such a tax reform would reinforce my view that four increases in the federal funds rate will be appropriate in 2018. For 2019 and in 2020, such a tax reform would call for one additional rate hike in each year.

Modal forecast: My forecast for real GDP growth is characterized by above-trend growth in the period from 2017 to 2020, which is partly attributable to the expansionary fiscal policy stance. Without the fiscal stimulus, and as monetary policy accommodation is gradually removed, real GDP would likely increase at its longer-run rate from 2019 onward, based on modest increases in the labor force and moderate productivity gains. Despite the softness in consumer prices this year I expect core inflation to rise to near 2 percent next year, consistent with real GDP above potential and tightening labor market conditions.

Uncertainty and risks: I view uncertainty surrounding my projections as broadly similar to levels of uncertainty over the past 20 years, considering the magnitude of historical projection errors and current economic and policy uncertainty at home and abroad. The risks to economic growth, inflation, and unemployment appear broadly balanced. On the downside, possible changes in government policies appear to be a source of uncertainty, including the risk of a deterioration in financial market conditions and broader sentiment if tax reform disappoints and the risk of more restrictive trade policies. Furthermore, an overly expansionary monetary policy could lead the unemployment rate to significantly undershoot its natural level, as periods of overheating have historically often ended with a recession. In addition, an overly expansionary monetary policy would increase financial stability risks. Upside risks to my forecast stem from greater-than-expected momentum in the economy, the possibility that elevated business confidence translates into sustained increases in investment and productivity, and the possibility that tax reform may increase inflationary pressures.

Respondent 11: Incoming data have been roughly in line with previous expectations. As a result, our assessment of the underlying strength of the economy in 2017:H2 has not changed since September. Financial conditions, however, remain more favorable than previously thought. In particular, equity valuations are higher than expected, and the tightening of monetary policy so far does not appear to have translated into noticeable upward pressures on long-term yields. For these reasons, the near- and medium-term outlook for real activity has been revised up. With the unemployment rate already running somewhat below our expectations, we now expect the unemployment rate to drop below 4 percent in 2018 and 2019.

The contours of the outlook have not changed. Near-term growth is boosted not just by the favorable conditioning assumptions in terms of household net worth and interest rates, but also by the fiscal stimulus. While uncertainty about the package has not been fully resolved, the Board sta ’s recent upward revision to their assessment of the effect of the stimulus on real activity highlights the risk that the pace of growth might be even stronger than what we are currently envisioning. By the end of 2018, we expect the unemployment rate to be at 3.7 percent. The tightening of monetary policy brings the pace of GDP growth near potential in 2019, and below potential in 2020. As a result, the unemployment rate is by then projected to start to increase modestly. Recent readings on prices are consistent with the view that the softness in inflation earlier this year was a temporary phenomenon. Nevertheless, core inflation measures have yet to show a noticeable acceleration relative to the readings prevailing in 2015 and 2016. With the unemployment rate projected to stay below its equilibrium level over the forecast horizon, we expect inflation to eventually increase above 2 percent.

The current forecast is conditioned on a 25 bp increase in the federal funds rate at the current meeting, and on future rate increases that cumulate to 275 bp by the end of 2020. By historical standards, this represents a cautious pace of policy tightening given that the unemployment rate is already below its estimated equilibrium level. Such

an approach tries to strike a balance between the financial stability risks associated with an even more gradual increase in rates, and the risk that faster policy tightening may increase the probability of the economy falling into a recession. It is nevertheless important to recognize that the past does not provide much guidance in terms of how to conduct policy so as to achieve a soft landing when the economy is beyond full employment. The optimal policy mix under current circumstances may well entail an active use of supervisory tools.

We view the risks around the GDP growth outlook as roughly balanced. As already mentioned, there is the risk that the tax cuts will stimulate activity by more than what we are currently expecting. At the same time, the historical evidence highlights the risk that a prolonged period of monetary policy tightening may weaken real activity by more than we think. As concerns prices, there is the possibility that the equilibrium unemployment rate is lower than what we are currently estimating. A countervailing risk is a nonlinear response of inflation associated with low levels of the unemployment rate. From a policy standpoint, it is worth mentioning that long-term yields remain very low by historical standards, even when taking into account a reduction in the equilibrium real rate of interest. If this pattern persists, the federal funds rate may need to increase by more than what we are currently assuming.

Respondent 12: Our projection for real GDP growth in 2017Q4 is about 2 1/2 percent (annual rate), resulting in a Q4/Q4 growth rate of 2.5 percent for 2017, slightly above that in the September SEP projection. Moreover, the U.S. and global economies appear to have greater forward momentum going into 2018 than we anticipated earlier this year. In particular, manufacturing activity has rebounded smartly in the U.S. and the euro area, and to a lesser extent in China. Relatively low inventories-sales ratios in the U.S. should support manufacturing activity over the near term. In addition, there is clear evidence of a sustained strengthening in the pace of business investment, a development we have been expecting for some time. In response to these signals, we have significantly upgraded our real growth projection for 2018 since the September SEP submission, even before we had begun to factor in possible tax legislation.

Given the high likelihood that a tax reform/cut will be enacted in the near future, after deferring until this cycle, we have now incorporated the broad outlines of this legislation into our modal forecast. The House and Senate versions are conceptually similar, lowering marginal income tax rates for individuals and businesses while broadening the tax base. Based on our initial assessment, we anticipate that the reduction of individual tax liabilities will be about 0.2 percent of GDP in 2018 and then rise around 0.6 – 0.8 percent of GDP in 2019. The bulk of this reduction will accrue to upper-income households with relatively low marginal propensities to consume. Thus, while we anticipate some boost to real consumer spending, we also expect the personal saving rate to rise by 1/2 - 3/4 percentage point, as occurred following the tax cuts of the early 2000s.

The magnitude of the cuts in corporate taxes is less certain, as the House version has the 20 percent corporate tax rate effective in 2018 while the Senate version delays it to 2019 (also, there has been discussion of setting the marginal rate at 22 percent in the bill reconciliation). More importantly, we are not certain about the impact that a lower corporate tax rate and full expensing of investment will have on business capital spending. At this point, we have boosted business fixed investment moderately in both 2018 and 2019.

The combined impact of these assumed effects on real PCE and real BFI raises projected growth of final sales to domestic purchases by roughly 1/4 percentage point in both 2018 and 2019. Some of this increase in domestic demand is satisfied through more imports. In addition, it is likely that financial conditions will tighten somewhat more over the forecast horizon than we previously thought. We thus anticipate that the tax bill boosts projected growth rates for 2018 and 2019 by about 0.2 percentage point, to 2.5 percent (Q4/Q4) and 2.0 percent, respectively. For now, we expect those effects to fade by 2020, so that real GDP growth in that year is projected to fall to just below its longer-run potential rate.

We want to emphasize that these projected impacts of the tax bill are very tentative at this point, and may be adjusted as the legislation is finalized and our thinking on its impacts progresses.

With a stronger growth outlook, we have lowered the path of the unemployment rate over the forecast horizon. It is now expected to reach 3.8 percent by 2018Q4, and then gradually rise to 4.0 percent by 2019Q4 and 4.2 percent by 2020Q4. The path of the unemployment rate would have been even lower except that we anticipate somewhat higher productivity growth and labor force participation.

Finally, with less slack in the economy, we have raised slightly our inflation projection. We anticipate that it overshoots the FOMC objective, reaching 2.3 percent (Q4/Q4) in 2019 and 2.2 percent in 2020. We see this overshoot as appropriate to ensure that inflation expectations are consistent with a symmetric objective of 2 percent.

Respondent 13: Key factors include: incorporation of the macroeconomic effects of the tax provisions now under consideration in Congress; a gradual pickup in productivity growth over the next few years; continued solid growth in global activity; and a gradual rise in the federal funds rate that will bring it into line with its neutral rate next year and keep it in line with a (rising) neutral rate thereafter. This monetary policy should facilitate the maintenance of strong labor market conditions, which in turn will speed the return to 2 percent inflation.

Important risks to this outlook include: the possibility that the macroeconomic effects of the changes in tax policy now in train will turn out to be materially different (up or down) from what I have assumed; the risk that the neutral rate is currently higher than I have assumed, or will fail to rise as I anticipate; and that returning inflation to 2 percent will prove to be more difficult that I have assumed, perhaps because inflation expectations are consistent with PCE inflation of less than 2 percent.

Respondent 14: In my projection, I have assumed that a large tax cut, similar to the proposals that have passed both the House and the Senate, will be enacted into law. My estimates of the effects of the tax cuts are broadly similar to those of the Board staff, with real GDP growth boosted 0.3 or 0.4 percentage point per year over the medium term, with about a third of the boost to real GDP coming in the form of higher potential GDP. One exception is that I have assumed a somewhat more rapid ramp-up in investment spending than the sta , reflecting a greater initial response to the expensing provisions.

Respondent 15: The fundamentals supporting the expansion remain favorable, including accommodative monetary policy, household balance sheets that have improved greatly since the recession, continued improvement in labor markets, and relatively low oil prices. The likely tax package should provide a moderate boost to growth over the forecast horizon. Consumer and business sentiment remain positive. Consistent with the data, business contacts report further tightening in labor markets, more widespread difficulties in finding qualified workers, and the increasing need to raise wages in order to retain workers across a range of skill groups and occupations. The global outlook has improved over the last year. Inflation rates here and abroad are fluctuating around a general upward trajectory, supported by accommodative monetary policy. However, the inflation levels generally remain below targets.

I project above trend growth and that labor market strength will continue and move the economy somewhat further beyond maximum employment.

Readings on inflation have come down since the start of the year, with transitory factors playing a role, but recent readings have shown some stability. Measured year-over-year, PCE inflation is notably higher than it was in 2015 and most of 2016 and is not that far from our 2 percent goal. I view inflation expectations as reasonably well-anchored. This, coupled with continued strengthening in labor market conditions and ongoing economic growth, suggests that inflation will gradually move to 2 percent on a sustained basis over the forecast horizon.

I view overall uncertainty as roughly comparable to the historical norms of the last 20 years. As described above, while there are a number of risks to my outlook, I view them as broadly balanced for both the real economy and inflation.

Respondent 16: My outlook has output growth continuing to outstrip potential next year, before converging to trend by 2020, supported by a moderate pace of consumption and investment spending. Growth next year receives a modest boost from changes to the existing tax code that accelerate capital investment plans, pulling some investment spending into 2018. My judgment that the legislative changes will only lead to modest changes in output growth is informed by recent survey results from businesses on their likely responses to the proposed tax reform and sentiment from district contacts.

The risks to my growth outlook are weighted to the upside. Changes to the tax code could have a much more transformative effect on growth that I currently expect. I am also treating any positive supply effects that could come from increased capital deepening as an upside risk.

Consistent with some of the stronger readings in recent months and given the absence of resource slack in my projection, I see inflation converging to target by the end of next year.

The risks to my inflation outlook are balanced. While recent history suggests that the response of inflation to resource slack is somewhat muted, it may be more pronounced at high rates of resource utilization. On the other hand, after a number of years with below-target inflation, it is possible that inflation expectations are becoming entrenched at a level lower than is consistent with our mandate.

Forecast Narratives (continued)

Question 4(b). Please describe the key factors, potentially including revisions to your assumptions about changes to government policies, causing your forecasts to change since the previous SEP.

Respondent 1: In large part, the upward revision in our projection for real GDP growth and the lower path for unemployment is due to our incorporating new data in the forecast. In addition, our quantitative models suggested some upside risk to the growth path. And, the prospect of debt-financed tax cuts added a small amount to growth projections.

Respondent 2: I have incorporated a small fiscal stimulus from tax reform into my forecast. Lower-than-expected inflation in 2017 has led me to revise down my path for appropriate monetary policy over the next two years. Under appropriate monetary policy, I now anticipate that inflation will slightly overshoot the FOMC target in 2019.

Respondent 3: Recent data has caused us to change our projections for GDP growth and unemployment for 2017 and 2018.

Respondent 4: We revised our GDP forecast for 2017 up 0.1 percentage point in light of stronger incoming data. We boosted our forecast for growth in 2018 and 2019 by 0.3 and 0.4 percentage point, respectively, and moved up the outlook for 2020 by 0.1 percentage point. The bulk of these changes are due to our assumed impact of the impending tax cuts compared to the more modest assumptions we had in place before; we also revised 2018 up a tad to reflect the greater momentum in the incoming data. Strong investment in 2017 and the additional capital deepening and labor supply we anticipate coming from the tax cuts have led us to revise upward our assessment of potential growth by 0.1 percentage points in each of 2018, 2019, and 2020. We see actual growth rising by more than potential, so that by the end of the forecast period the projected overshooting of potential is 1/2 a percentage point more than in our September forecast. This configuration also led to a downward revision to our unemployment rate forecast throughout the projection period. Due to the larger overshooting of potential in our current projection, we have revised up our forecast for inflation in 2019 and 2020 by 0.1 percentage point.

Respondent 5: The unemployment rate has come in a little lower than I had expected.
Previously, I had not incorporated any assumptions about tax cuts in my projections.

Respondent 6: N/A

Respondent 7: N/A

Respondent 8: Since September, I have introduced an assumption of corporate and personal income tax changes along the lines of the Board sta memo from December 7, 2017. (I previously assumed no changes in tax policy.) I boosted my projection for growth in 2018 through 2020 based on greater momentum in recent economic data than I had previously expected as well as the effects of the tax changes. Based on research showing that fiscal multipliers are lower in expansions and other considerations, I assume a somewhat smaller impact of the tax reform than that described in the special memo issued by the Board on December 7th.
My inflation projection is largely unchanged from September. I continue to expect inflation to gradually reach target by 2019.

Respondent 9: Real growth seems likely to stay stronger for longer than I had anticipated in September. Partly, that is a result of the stimulus to demand from tax changes that seem increasingly likely to be put into effect. Accordingly, I've revised upward my GDP growth forecasts for 2017 and 2018, revised downward my unemployment-rate forecasts over the entire forecast horizon, and call for policy to move a bit faster toward a mildly restrictive stance. I've left my inflation projections largely unchanged, however, as I believe it likely that stronger growth in capital spending will be accompanied by accelerated technology-enabled disruption.

Respondent 10: The changes in my forecast reflect both the change in my fiscal policy assumption and the incoming data since September. The recent data accounts for the upward revision of my projection for real GDP growth fully for 2017 and partially for 2018. It also accounts for 0.2 percentage point of the downward revision in my projected unemployment path. With unemployment now projected to move farther below its longer-run level than in September, I view a higher level of the federal funds rate in 2019 and 2020 as appropriate.

Respondent 11: Conditioning assumptions are, overall, more favorable relative to September. As a result the real outlook has been revised upward, and so has the outlook for inflation.

Respondent 12: As noted earlier, with the passage of tax legislation now appearing to be quite likely, we have incorporated into our projection a tax package consistent with the broad outlines of the bills passed in the House and the Senate. We have tentatively assessed that this package will raise modestly the real GDP growth rate in the next two years, but have no material effect on the potential growth rate or on the longer-run normal level of the unemployment rate.

We see stronger momentum in the global economy, which also contributed to raising our projected path for real GDP growth in 2018 and 2019. Nevertheless, we still expect real growth to slow to near its potential rate in 2020. The combination of a stronger growth projection along with the recent below-projection unemployment rate has led us to lower notably the path of the unemployment rate over the forecast horizon.

With projections of tighter resource constraints, we forecast that inflation will rise a bit more than we projected in September, resulting in a slightly larger overshoot of the FOMC's longer-run inflation objective in 2019 – 20. This overshoot helps to sustain inflation expectations and thus helps to achieve the Federal Reserve's mandated objectives over the longer run.

Our assessment of the appropriate policy path is unchanged through the end of 2019. In 2020, we now assume a little bit more tightening, putting the policy rate modestly above its longer-run normal level. The mild overshoot of the longer-term policy rate is meant to ensure that the overshoot of inflation and undershoot of unemployment are temporary, and the longer-run objectives are met within 5 – 6 years.

Respondent 13: I have raised my projection for real GDP growth modestly to take on board the effects of the tax changes now under consideration by the Congress, as well as the movements in equity prices and the dollar since the September FOMC meeting. I have lowered my projection for the unemployment rate in response to both the upward revision in my GDP forecast and recent readings on labor market conditions. My inflation projection is essentially unchanged.

Respondent 14: As discussed above, I introduced a tax cut, which was not a feature of my September projection.

I also reduced my estimate of the longer-run unemployment rate by 0.2 percentage point, largely because inflation – for both wages and prices – remains subdued despite a low unemployment rate.

Respondent 15: The narrative of my forecast has changed little since September. Both growth and labor market conditions have been somewhat stronger than I assumed, so I've edged up my growth forecast and edged down my unemployment forecast over the forecast horizon. Recent readings on inflation have shown some stability and I continue to expect inflation to gradually firm over the forecast horizon. However, there is uncertainty about the speed of that return to goal.

Given current conditions, the medium run outlook, and risks, I view an upward path of monetary policy as appropriate and a prudent course that balances the risks given that growth is expected to be above trend, the unemployment rate is expected to remain below its longer-run level, and inflation is projected to gradually move to our goal of 2 percent over the forecast horizon. My funds rate path is slightly flatter compared to my September projection for two reasons: (1) I don't think the Committee will go back to targeting a point rather than a range for the fed funds rate until sometime in 2020 (or even later); (2) my inflation path is slightly shallower.

Respondent 16: I have raised my current year growth projection because of stronger than expected third-quarter growth. Given the details of the recently passed House and Senate tax reform bills, and the high likelihood of a bill being signed into law, I have marked in a modest increase to my 2018 growth projection. This increase is

attenuated by my lowering the trajectory of potential GDP growth in light of the continued sluggish performance in labor productivity.

My path for the unemployment rate is lower than last submission throughout the forecast horizon, owing to its recent decline and a downward adjustment of my judgment about the natural rate of unemployment, informed in part, by a reassessment of the impact of demographic and technological changes on the labor market that appear to have lowered frictional unemployment.

I have also marked down my projection for the longer-run neutral federal funds rate in conjunction with a decrease in my estimate for longer-run output growth.

Forecast Narratives (continued)

Question 4(c). Please describe any important differences, potentially including those related to your assumptions about changes to government policies, between your current economic forecast and the Tealbook.

Respondent 1: N/A

Respondent 2: My path for appropriate monetary policy remains considerably more accommodative than the Tealbook over the forecast horizon.

Respondent 3: For GDP growth and inflation, our projections are quite similar to those in the Tealbook. Differences arise because the Tealbook projections incorporate the idea of a longer-run steady state to which the economy is converging. Monetary policy has to be set appropriately as the economy transitions to the longer-run steady state. This tends to imply an upward-sloping policy rate path. Our regime conception, in contrast, views monetary policy as regime-dependent and the current regime is viewed as persistent. It is acknowledged that the economy may visit other regimes in the future, but switches to these regimes are quite difficult to forecast, this suggest a flat path for the policy rate over the forecast horizon relative to that contained in the Tealbook. The Tealbook also has a substantial undershooting of the unemployment rate, far more than our undershooting, before returning to its longer-run value of 4.7 percent.

Respondent 4: Our federal funds rate path is noticeably below the Tealbook over the next three years, ending 2020 at 3.00 percent. This is only 1/4 percentage point above our long-run normal level, so we do not overshoot the long-run level of the fed funds rate by nearly as much as the Tealbook does.

Our projections for growth in 2018, 2019 and 2020 are close to the Tealbook's. They are based on similar assumptions for the net effect on GDP growth of tax cuts. Our forecast of potential growth has been adjusted upward much like the Tealbook, and consequently remains a tenth or two stronger. However, given we assess the current output gap to be narrower, our output gap at the end of 2020 remains about 1/2 percentage point smaller than the Tealbook's. In terms of labor market slack, our projection for the unemployment rate averages about 0.1 percentage point higher than the Tealbook, and we assume the natural rate of unemployment is about 0.1 percentage point lower. Accordingly, our 3.5 percent unemployment rate projection for 2020:Q4 undershoots the natural rate by less than in the Tealbook.

We do not see quite as much of an increase in inflation over the next couple of years as in the Tealbook, despite our more accommodative monetary policy path. However, we do see this path and additional fiscal stimulus eventually generating a 0.1 percentage point overshooting of our inflation objective in 2020, a year sooner than the overshooting in the Tealbook.

Respondent 5: Relative to the Tealbook, my forecast for economic activity is a bit stronger, but my forecast for inflation is broadly similar. I believe the long-run unemployment rate is lower and the improving labor market will continue to keep the labor force participation rate from falling, minimizing the downward effects of healthy job growth on the unemployment rate. I believe that it is appropriate for the federal funds rate to rise more gradually than in the Tealbook. Even with lower rates, my projection anticipates that inflation will return to target more gradually than the Tealbook.

Respondent 6: I have a stronger outlook for potential growth than the Tealbook. Consequently, I believe that the economy can grow faster in the near-term than projected in the Tealbook without much additional upward impetus to price inflation. My more optimistic outlook for potential growth is consistent with a slightly higher long-run neutral interest rate compared to that in the Sta outlook.

Respondent 7: N/A

Respondent 8: The December 8th update to the Tealbook projects a more substantial and protracted overshooting of full employment, with the unemployment rate declining to 3.3 percent at the end of 2020, and inflation returning to the 2 percent target very gradually. In my projection, there is more modest overshooting of unemployment and output through early 2019, and those gaps begin to close later in that year. Despite strong financial conditions and favorable consumer sentiment, I am not seeing much evidence in the data that this is translating into markedly higher growth in business or consumer spending. I see the unemployment rate bottoming out at 3.7 percent by the third quarter of next year.

The gradual removal of monetary policy accommodation tightens financial conditions over time and slows growth to below potential in 2019. This pushes up the unemployment rate to 3.9 percent by the end of 2019. Finally, the persistent overshooting of full employment pushes inflation back to 2 percent by 2019 and results in a slight overshooting of inflation for some time afterwards. Tighter monetary policy brings inflation back to target and unemployment closer to its long-run sustainable level in 2020.

Respondent 9: I have the federal funds rate level o considerably earlier than is assumed by Board sta , and at a lower level. The key to achieving sustainable price stability, in my view, is to prolong the economic expansion. Our best chance for prolonging the expansion is to continue to remove accommodation, and then shift to a policy stance that is restrictive, but only mildly so.

Respondent 10: My assumptions and projections are qualitatively similar to those in the Tealbook.

Respondent 11: The Tealbook is projecting a faster pace of GDP growth over the forecast horizon. Part of the difference stems from the Board sta 's more optimistic assessment of the effect of the fiscal stimulus on economic activity. Another reason for the difference is that we are assuming that the tightening of monetary policy will raise long-term rates by more than what the Tealbook is envisioning. Absent such additional tightening at the longer-end of the maturity spectrum, the two forecasts would be closer in terms of unemployment rate outcomes. Our forecast also features more inflationary pressures, though our baseline outlook for inflation remains very benign.

Respondent 12: As in the September SEP, there are some notable differences between the Tealbook forecast and our projections for the key SEP variables. These differences partly reflect divergences in some of the underlying assumptions in the two forecasts. In particular, the Tealbook forecast (based on the update of December 8) incorporates stronger effects of the likely tax package than we have incorporated into our projections.

Although the projections for 2018 are similar, the Tealbook projects faster growth in 2019 – 20 than in our outlook. Furthermore, based on its assessment of potential GDP growth, the Tealbook path of real GDP leads to a notably positive output gap in those years that appears to be larger than our rough assessment.

A major component behind the differences between the two real GDP growth projections is consumption. The Tealbook forecast has higher real PCE growth in 2018 – 19 than in our projection; this is a long-standing difference between the two forecasts. Related to this difference, the Tealbook's projected saving rate is above our projection in 2018 – 19. In part, the difference this time appears to reflect the Tealbook's somewhat larger consumption effect (and thus smaller saving impact) from the tax package than is incorporated into our projection.

Because the Tealbook has reduced its assumption on the longer-run natural rate of unemployment to 4.7 percent, it is now close to our estimate which stands at 4.6 percent. However, with its stronger growth projection, the Tealbook projects that the unemployment will undershoot the longer-run natural rate in 2018 – 20 by a larger extent than in September (again, based on the December 8 update). This pattern is a counterpart of the sizable positive output gap that arises in the Tealbook forecast. The lower unemployment rate path also contributes to higher projected payroll growth in the Tealbook forecast.

One other difference in the labor market projections concerns the paths for labor force participation. In our projection, the participation rate rises gradually to 63.1 percent in 2019. In the Tealbook this rate still declines to 62.5 percent at end-2019. This difference reflects our assumption of some positive cyclical effects on participation.

For inflation, the two forecasts differ notably. We see inflation rising to 2 percent in 2018 and modestly above that level in 2019 – 20 before returning to objective early in the next decade. In contrast, the Tealbook projects core inflation to reach 2 percent in 2019, despite an even larger undershooting of unemployment, and then running persistently slightly above that level in the early 2020s. The considerable persistence of inflation and the flat Phillips curve within the Tealbook framework appear to require a prolonged period of above-potential growth in order to induce inflation to rise toward the longer-run inflation goal. As mentioned previously, the overshoot of

inflation in our projection occurs to prevent inflation expectations from falling below levels consistent with the FOMC's longer-run objective.

In terms of the uncertainty and risk assessment, both projections see uncertainty at near normal levels and risks broadly balanced.

Finally, our monetary policy path is below the Tealbook path for 2018 – 20. In addition, our assumption for the longer-run normal policy rate is 25bps above that of the Tealbook. Both policy paths have an overshooting of the longer-run FFR in 2019 – 20, although the Tealbook's is appreciably larger, which is a reflection of the larger projected positive output gap in the Tealbook forecast.

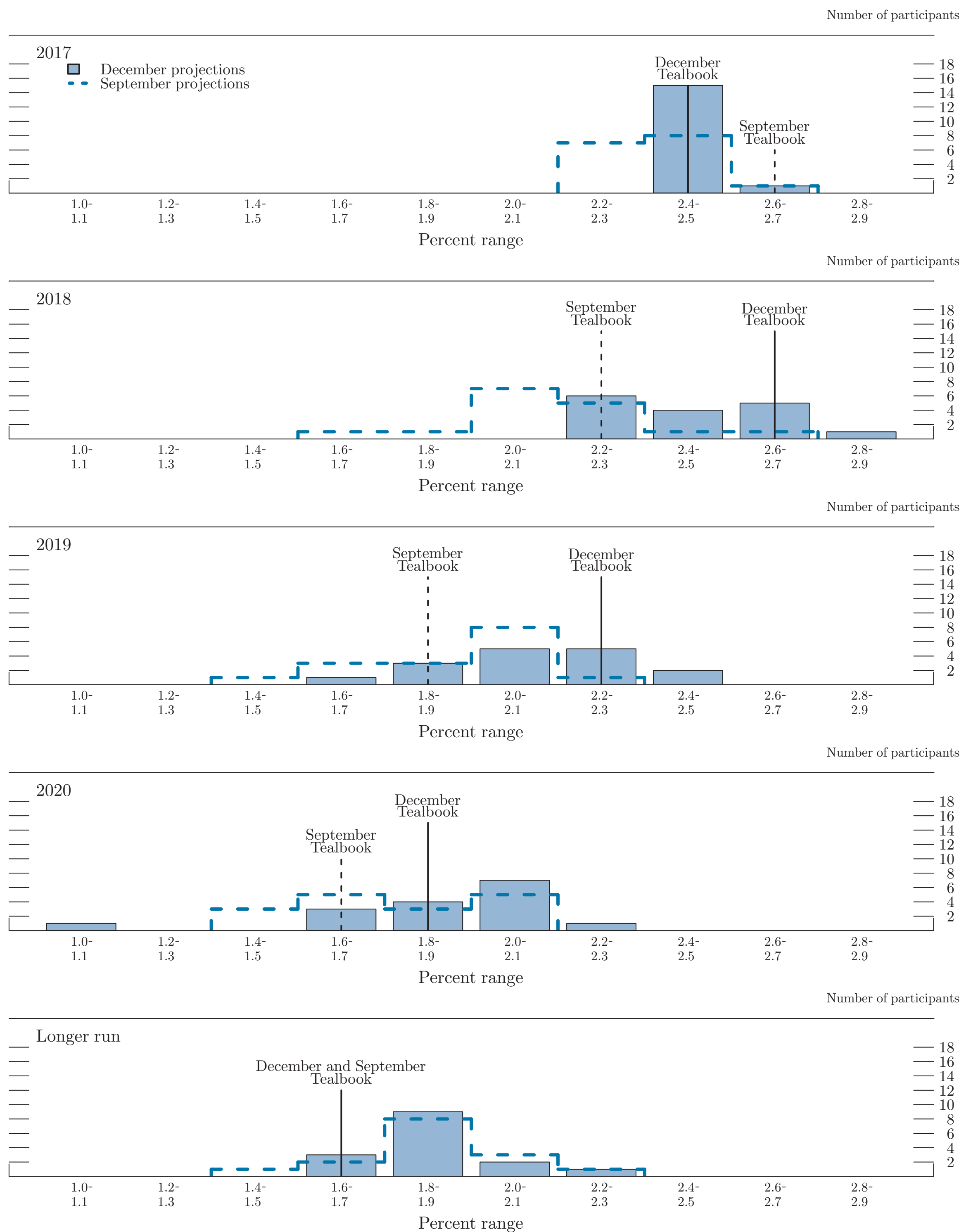
Respondent 13: My assessment of the likely macroeconomic effects of the House/Senate tax bills is similar to those of the sta , except that I have not taken on board their assessment of the medium-term effects of the fiscal initiatives on labor supply; accordingly, I have assumed that the boost to potential output from the tax changes is quite small. In addition to this difference, my forecast continues to assume that, over the next few years, the neutral rate will be appreciably lower than the sta estimates. Finally, I continue to assume that inflation expectations are anchored at 2 percent, unlike the staff; thus, my forecast assumes that less undershooting of the long-run unemployment rate will be needed to return inflation to 2 percent.

Respondent 14: My assumptions about the effects of fiscal policy are similar to those in the latest sta forecast update; those effects are about twice as large as the ones in the Tealbook.

Respondent 15: As in the Tealbook forecast (revised to include updated tax policy assumptions), I expect that the economy will grow at an above trend pace, labor market conditions will continue to strengthen, and inflation will gradually rise to our 2 percent goal. The inflation and labor market dynamics in my outlook differ from those in the Tealbook forecast: our inflation paths are similar but I do not project as great a fall in the unemployment rate. Thus, compared to the Tealbook forecast, I see inflation somewhat better anchored at target and see somewhat stronger inflationary pressures. On balance, my funds rate path over the next two years is similar to that in the Tealbook forecast. My fiscal policy assumptions are similar to those in the Tealbook forecast, but I might be a little more skeptical about supply-side responses to the tax package.

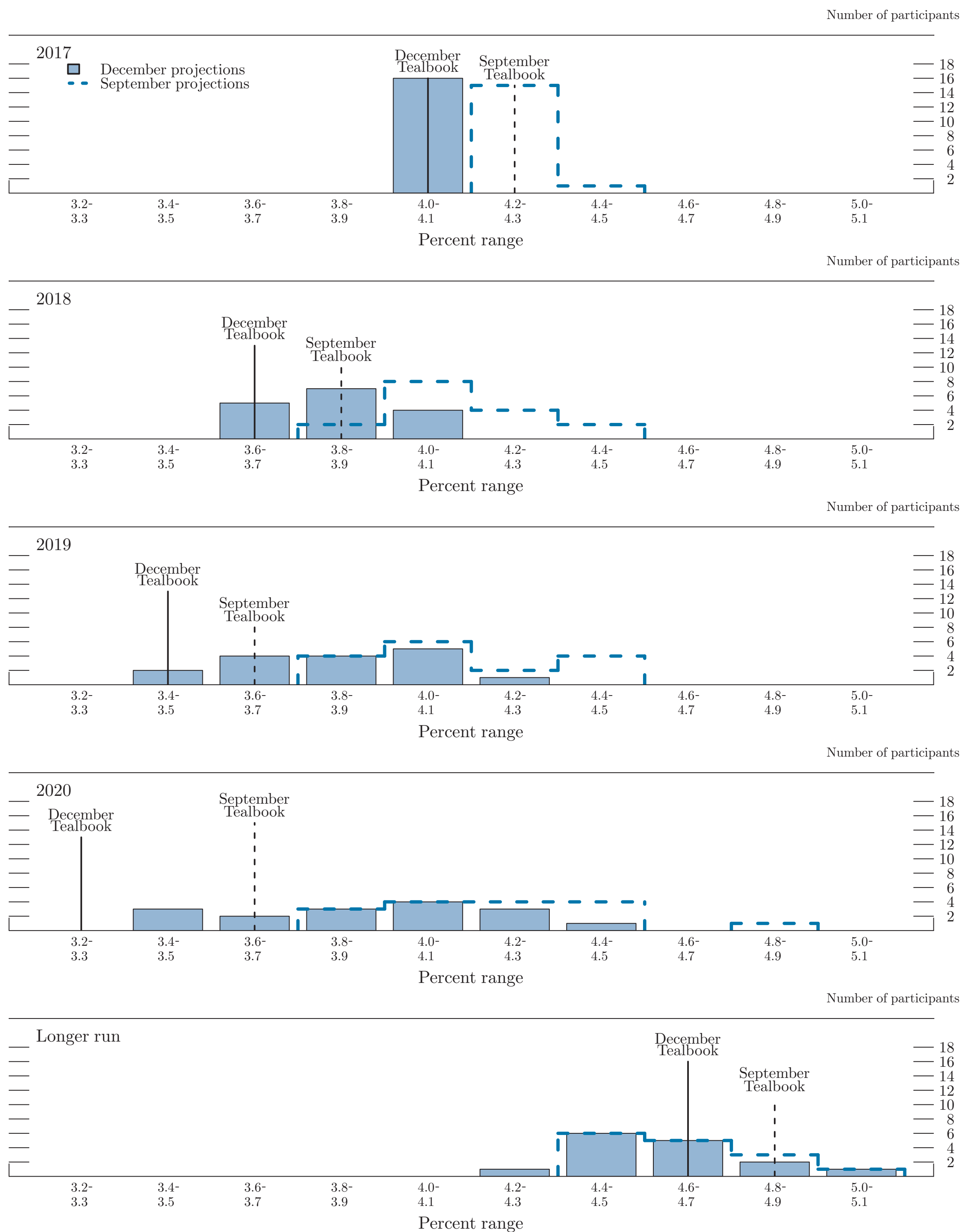
Respondent 16: My projection for real GDP growth is lower than the revised Tealbook projection throughout the medium-term forecast horizon. However, I see inflation converging to target by the end of next year, owing to an assumption that longer-run inflation expectations remain at mandate-consistent levels. Also, I am forecasting much less of a decline in the unemployment rate than the Tealbook due to a lower projection for employment growth.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2017–20 and over the longer run



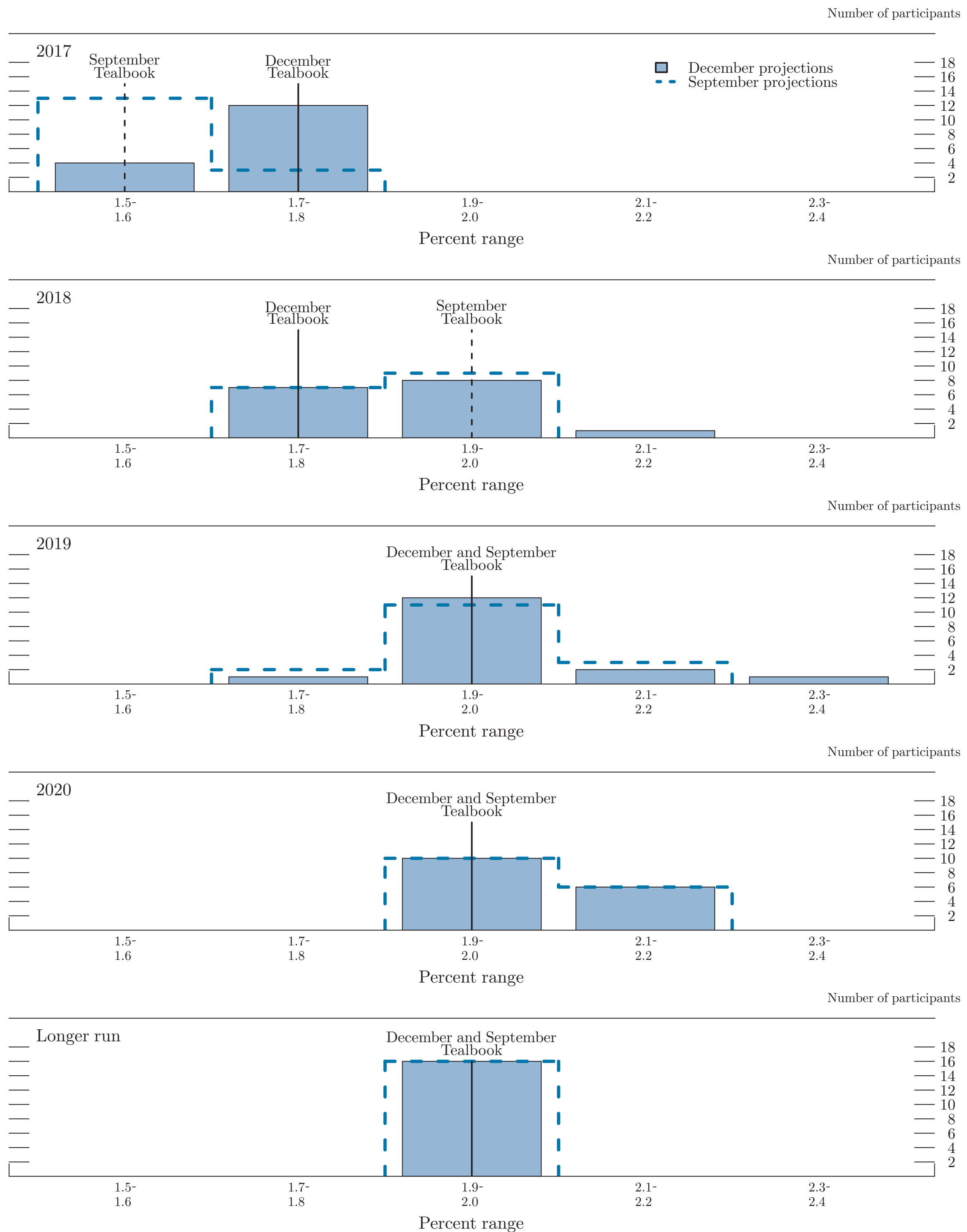
NOTE: Updated December Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2017–20 and over the longer run



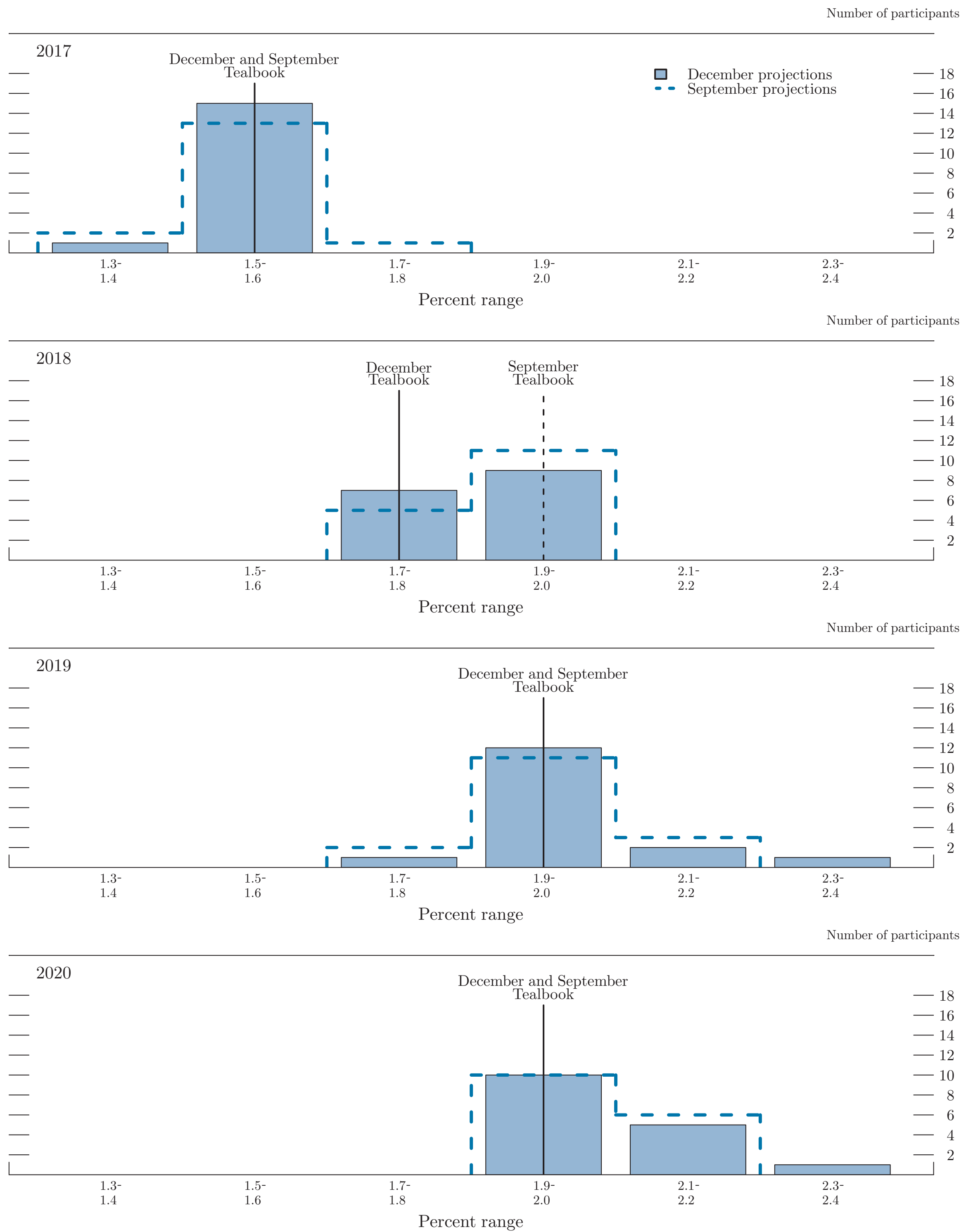
NOTE: Updated December Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2017–20 and over the longer run



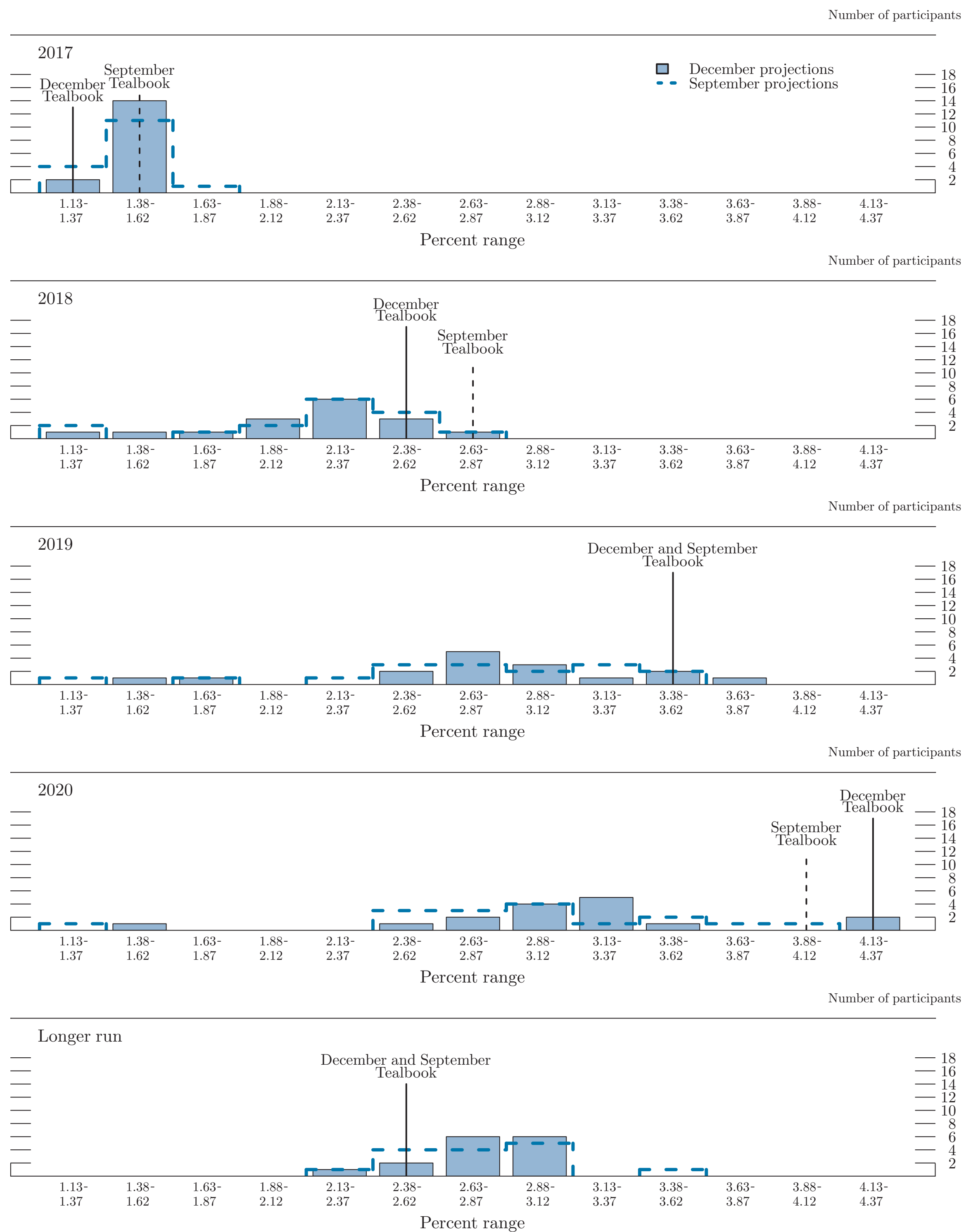
NOTE: Updated December Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2017–20



Note: Updated December Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2017–20 and over the longer run



NOTE: Updated December Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.