Class I FOMC – Restricted Controlled (FR) October 19, 2020
Updated, October 30, 2020

Recommended Changes to the Summary of Economic Projections[1]

The subcommittee on communications is recommending two changes to the Summary of Economic Projections (SEP) that would enhance the information provided and the timeliness of its release. These changes would be described as part of the Federal Reserve's review of monetary policy strategy, tools, and communications practices. Feedback received during the review encouraged the Federal Reserve to take steps to highlight the uncertainties and risks surrounding the modal projections and to convey better the risk management considerations that monetary policy incorporates. The recommended changes to the SEP are consistent with this objective. These changes are:

- Add two new figures for GDP growth, unemployment, and inflation drawn from the public archive of participants' responses to existing SEP questions on uncertainty and risks. These new figures would further enhance the information provided on uncertainty and risks by showing how FOMC participants' assessments of uncertainties and risks have evolved over time.
- Release all SEP exhibits on FOMC decision day (the second day of the two-day meeting). This change would primarily serve to accelerate the provision of the SEP materials on uncertainty and risks that have heretofore been released with the minutes three weeks after an FOMC meeting and, perhaps as a result, have usually received less attention than the medians of modal projections released on decision day.

Pending your discussion at the November FOMC meeting, these changes could be communicated in the minutes with implementation in the December SEP. A mock-up of the new release, based on the September SEP and including the two new figures, is provided in the Appendix. Additional details are provided below.

[1] Memo prepared by Ellen Meade and incorporates feedback from Thomas Laubach and Trevor Reeve.

Adding new figures on uncertainty and risks

The subcommittee is proposing to add two new figures (attached) that use the existing responses on uncertainty and risks to construct diffusion indexes that display the balance of responses over time.

Figure 4.D. displays the number of participants who indicated they saw the uncertainty in their current projections as "higher" relative to the uncertainty over the past 20 years minus those who judged this uncertainty to be "lower," divided by the total number of participants. Similarly, Figure 4.E. subtracts the number of participants who see the risks to their projections as "weighted to the downside" from the number who view it as "weighted to the upside," divided by the total number of participants. The diffusion indexes are thus proportional measures that can vary from –1 to +1.

The new figures display a time series of the diffusion indexes beginning with the first SEP in October 2007 and provide a broader perspective on the evolution of views about uncertainty and risks than what is currently available in Figures 4.A. through 4.C., which compare the current SEP with the previous one.

Releasing all SEP exhibits on FOMC decision day

At the present time, three SEP exhibits are released to the public at 2 p.m. on FOMC decision day: a table of the economic projections for each year (including medians, central tendencies, ranges, and longer-run values), a figure of the economic variables, and the dot plot.[2]

Additional exhibits are provided three weeks later as an addendum to the meeting minutes. Figures 3.A. through 3.E. provide distributions of the projections for real GDP growth, the unemployment rate, headline PCE inflation, core PCE inflation, and the midpoint of the appropriate target range or level for the federal funds rate, respectively. These distributions shed only marginal additional light on the SEP projections over and above the summary statistics that are released with the FOMC statement.

[2] These exhibits are Table 1, Figure 1, and Figure 2—see the attached mock-up.

The entirely new material released at the time of the minutes is the information on uncertainty and risks. Table 2 shows the root mean squared errors for projections made by various private sector and government forecasters over the previous 20 years. Figures 4.A. through 4.C. provide histograms of participants' responses on uncertainty and risks for GDP growth, unemployment, and inflation, respectively. In addition, these exhibits include fan charts for each variable. Figure 5 displays a fan chart for the federal funds rate.[3]

With the current release schedule, the written text and the information on uncertainty and risks appear to be largely ignored by journalists and financial market participants, while the "dot plot"—which conveys no information about the uncertainty and risk considerations that the Committee must consider—is the subject of much attention and interpretation. Accelerating the release of Table 2, Figures 4.A. through 4.C., and Figure 5 (as well as the box "Forecast Uncertainty" that appears in each SEP) would help convey how participants view the uncertainty and risks that attend their projections. Importantly, with this new release schedule, the information on uncertainty and risks would be available for public communication on the day of the policy decision.

For example, at the June 2019 meeting, the Committee noted in its postmeeting statement that uncertainties surrounding the economic outlook had increased. The SEP histograms displayed a significant shift in risk assessments—to the downside for GDP growth and to the upside for the unemployment rate—relative to March.[4] If the histograms had been released with the FOMC statement, they would have reinforced the Committee's message.

Of course, there may be times when the additional SEP materials are not well aligned with the Committee's postmeeting statement, but such misalignments occur already. The transparency benefits of an earlier release of these materials may outweigh the occasional

[3] The fan charts display confidence intervals around the median projections. The confidence intervals are assumed to be symmetric and are based on the root mean squared errors shown in Table 2.
[4] The number of participants who indicated they saw downside risks to GDP growth under appropriate policy rose from 4 in the March 2019 SEP to 14 in the June 2019 SEP; the number who saw upside risks to the unemployment rate rose from 4 to 12. No participant saw risks to GDP growth weighted to the upside or risks to the unemployment rate weighted to the downside in either March or June.

misalignment of participants' assessments of uncertainty and risks (under appropriate policy) with the Committee's view.[5]

Should FOMC participants decide to move forward the release of SEP materials, the SEP narrative that is released with the minutes, which is quite formulaic, would be dropped.

Finally, releasing all of the SEP materials on the second day of an FOMC meeting (typically Wednesday) would require a deadline of 7 p.m. the night before the second day of the meeting (typically Tuesday) for submitting changes in participants' projections to the FOMC Secretariat. This deadline is the same as that used in June and September 2020.

[5] To the extent that public attention focuses on the divergence of individual views, releasing the fan charts earlier may help illustrate that the dispersion of participants' projections is modest relative to the uncertainty that attends macroeconomic forecasts. This point was noted during participants' discussions of adding fan charts to the SEP at FOMC meetings in January 2015 and January 2016.

Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on December 15–16, 2020, meeting participants submitted their projections of the most likely outcomes for real gross domestic product (GDP) growth, the unemployment rate, and inflation for each year from 2020 to 2023 and over the longer run. Each participant's projections were based on information available at the time of the meeting, together with her or his assessment of appropriate monetary policy—including a path for the federal funds rate and its longer-run value—and assumptions about other factors likely to affect economic outcomes. The longer-run projections represent each participant's assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy. "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the statutory mandate to promote maximum employment and price stability.

Beginning with the December 2020 FOMC meeting, all Summary of Economic Projections charts and tables previously released with the minutes of a meeting will be released following the conclusion of an FOMC meeting. That is, the release of the distribution of participants' projections (Figures 3.A. through 3.E.), participants' assessments of uncertainty and risks associated with the projections (Figures 4.A. though 4.C. and Figure 5), and Table 2 and associated box, which describe projection error ranges, have been accelerated by three weeks. Two new exhibits, Figures 4.D. and 4.E., have been added to further enhance the information provided on uncertainty and risks by showing how FOMC participants' assessments of uncertainties and risks have evolved over time.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, September 2020

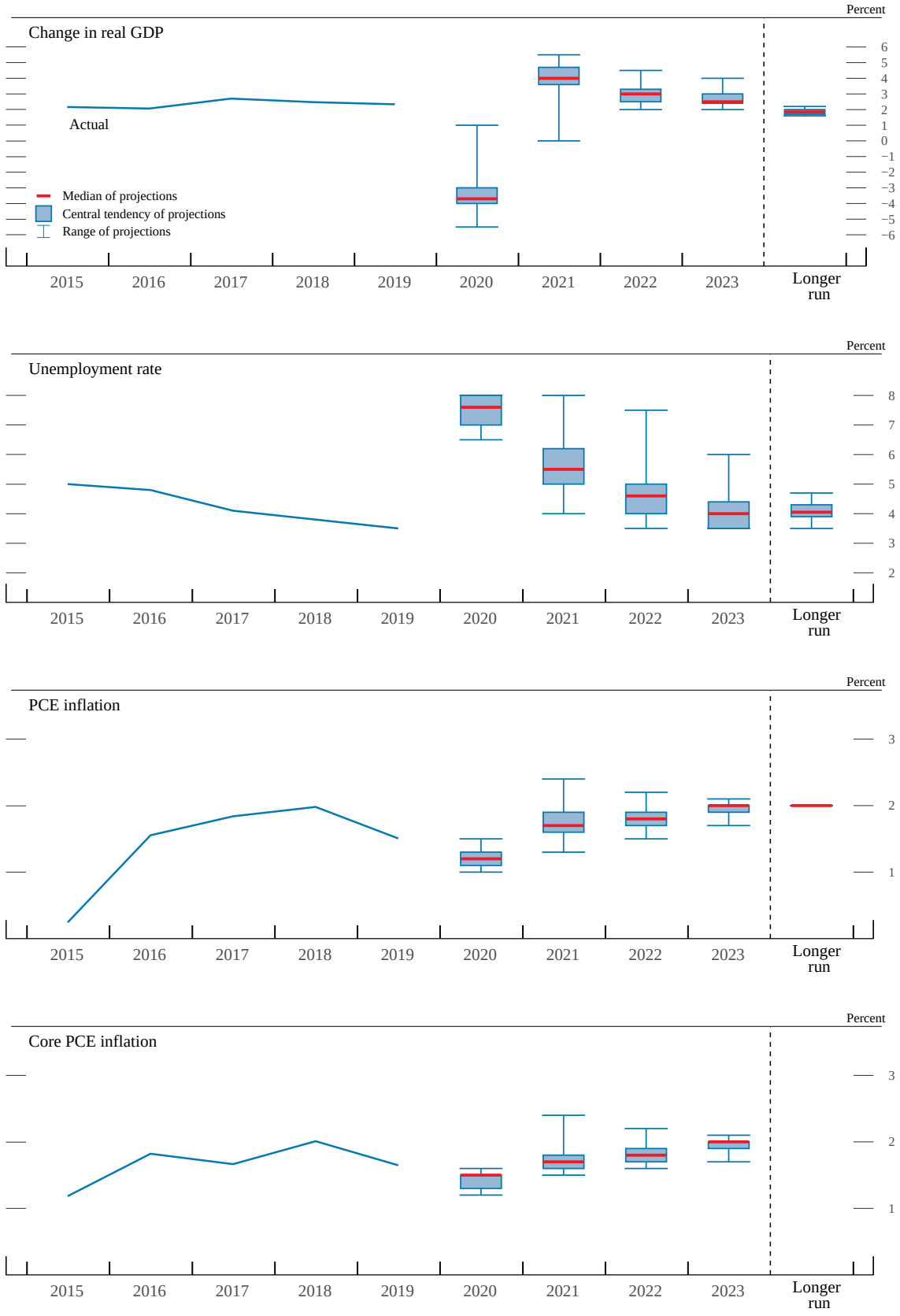
Percent

Variable	Median[1]					Central Tendency[2]					Range[3]				
	2020	2021	2022	2023	Longer run	2020	2021	2022	2023	Longer run	2020	2021	2022	2023	Longer run
Change in real GDP	-3.7	4.0	3.0	2.5	1.9	-4.0–-3.0	3.6–4.7	2.5–3.3	2.4–3.0	1.7–2.0	-5.5–1.0	0.0–5.5	2.0–4.5	2.0–4.0	1.6–2.2
June projection	-6.5	5.0	3.5		1.8	-7.6–-5.5	4.5–6.0	3.0–4.5		1.7–2.0	-10.0–-4.2	-1.0–7.0	2.0–6.0		1.6–2.2
Unemployment rate	7.6	5.5	4.6	4.0	4.1	7.0–8.0	5.0–6.2	4.0–5.0	3.5–4.4	3.9–4.3	6.5–8.0	4.0–8.0	3.5–7.5	3.5–6.0	3.5–4.7
June projection	9.3	6.5	5.5		4.1	9.0–10.0	5.9–7.5	4.8–6.1		4.0–4.3	7.0–14.0	4.5–12.0	4.0–8.0		3.5–4.7
PCE inflation	1.2	1.7	1.8	2.0	2.0	1.1–1.3	1.6–1.9	1.7–1.9	1.9–2.0	2.0	1.0–1.5	1.3–2.4	1.5–2.2	1.7–2.1	2.0
June projection	0.8	1.6	1.7		2.0	0.6–1.0	1.4–1.7	1.6–1.8		2.0	0.5–1.2	1.1–2.0	1.4–2.2		2.0
Core PCE inflation[4]	1.5	1.7	1.8	2.0		1.3–1.5	1.6–1.8	1.7–1.9	1.9–2.0		1.2–1.6	1.5–2.4	1.6–2.2	1.7–2.1	
June projection	1.0	1.5	1.7			0.9–1.1	1.4–1.7	1.6–1.8			0.7–1.3	1.2–2.0	1.2–2.2		
Memo: Projected appropriate policy path															
Federal funds rate	0.1	0.1	0.1	0.1	2.5	0.1	0.1	0.1	0.1–0.4	2.3–2.5	0.1	0.1	0.1–0.6	0.1–1.4	2.0–3.0
June projection	0.1	0.1	0.1		2.5	0.1	0.1	0.1		2.3–2.5	0.1	0.1	0.1–1.1		2.0–3.0

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 June projections were made in conjunction with the meeting of the Federal Open Market Committee on June 9–10, 2020. 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 June 9–10, 2020, meeting, and one participant did not submit such projections in conjunction with the September 15–16, 2020, meeting.

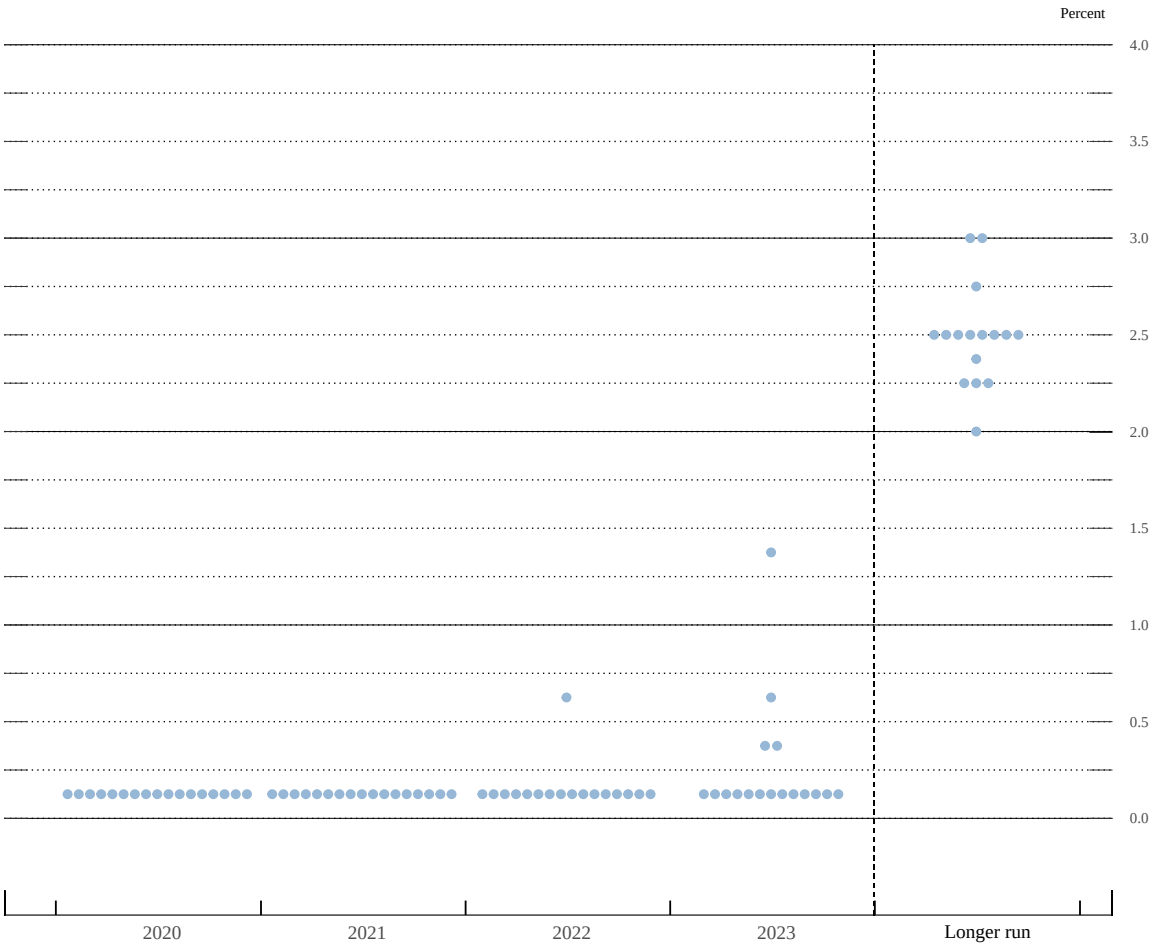
1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable 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.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2020–23 and over the longer run



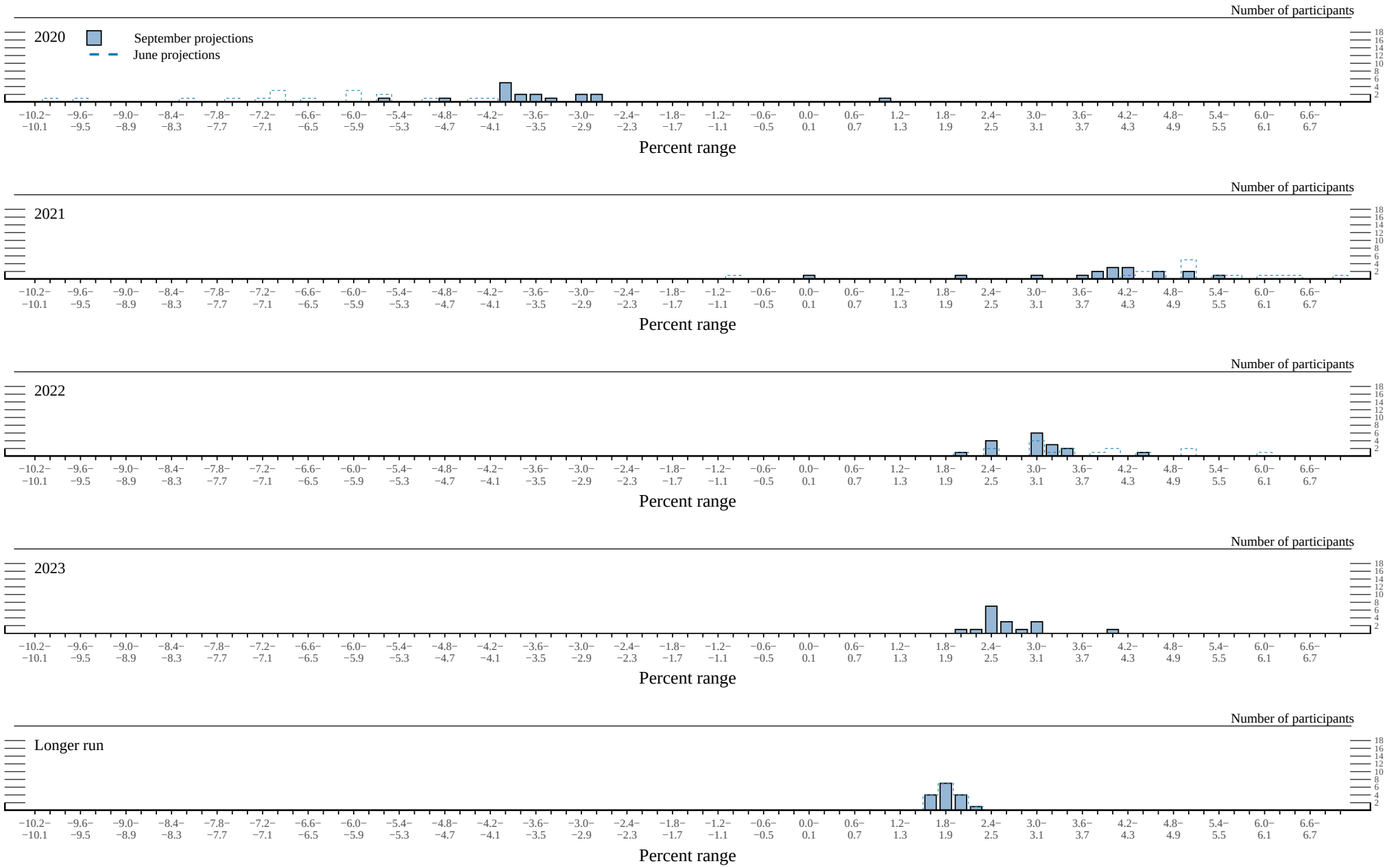
NOTE: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

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



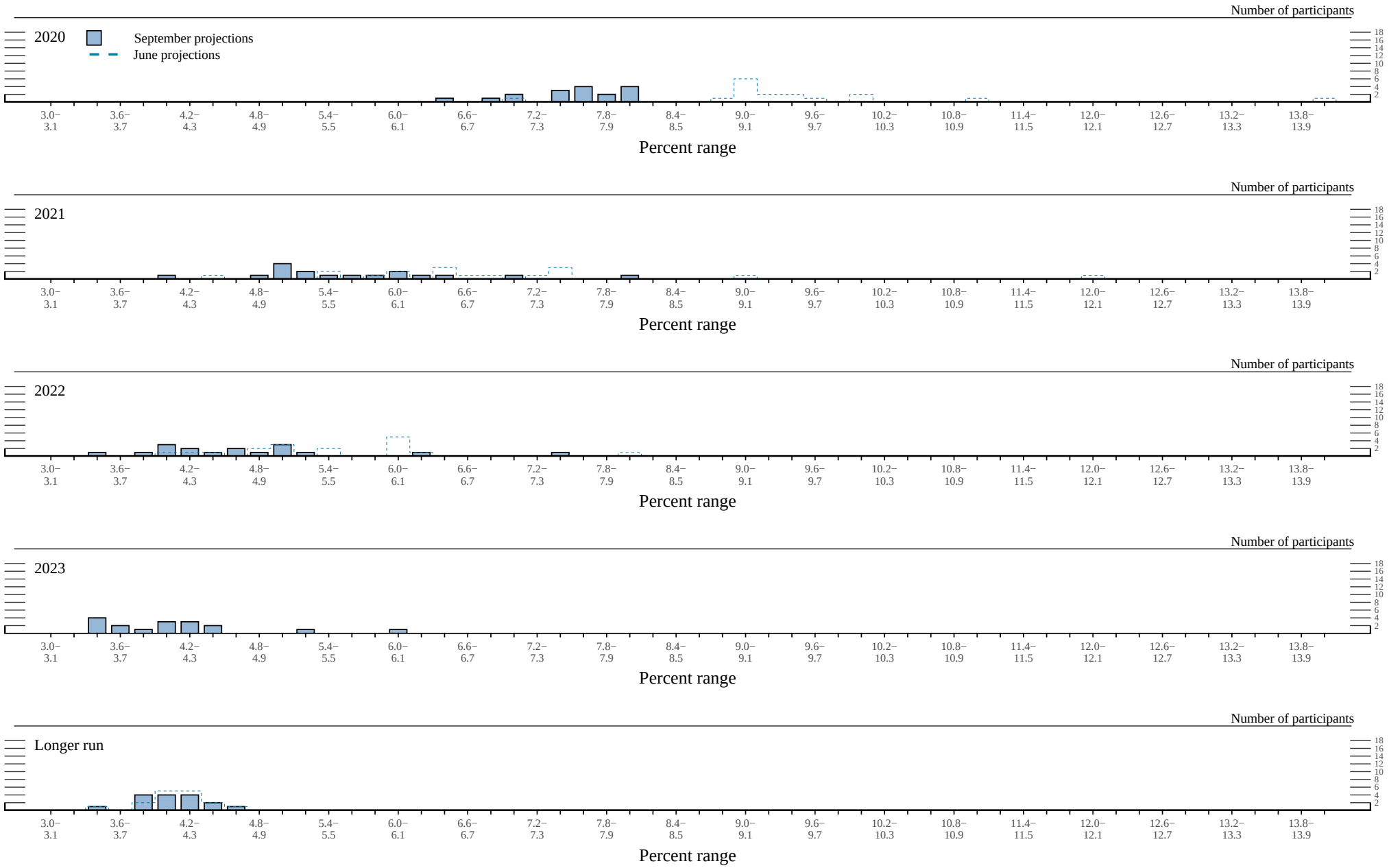
NOTE: Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar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

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2020–23 and over the longer run



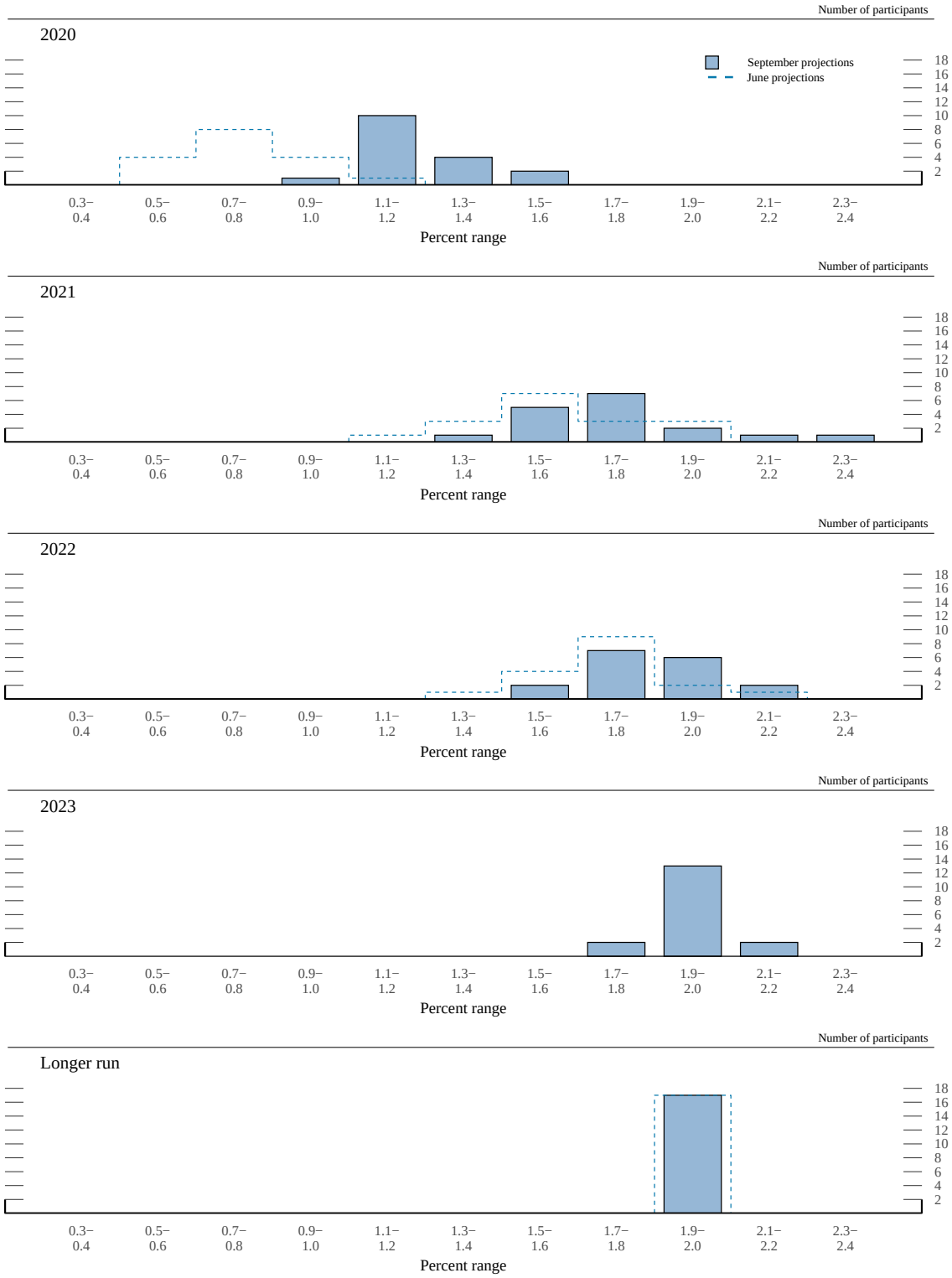
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2020–23 and over the longer run



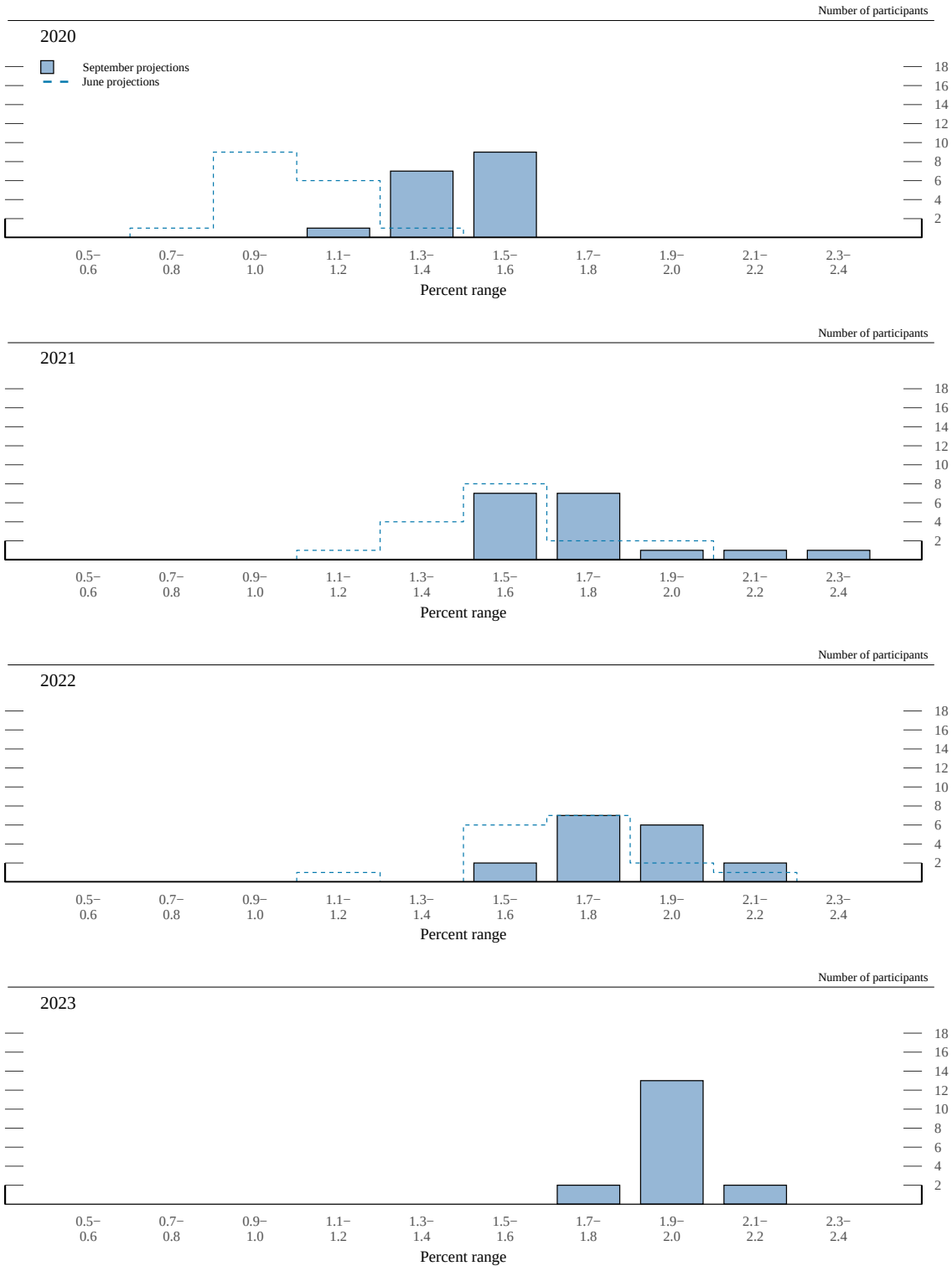
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2020–23 and over the longer run



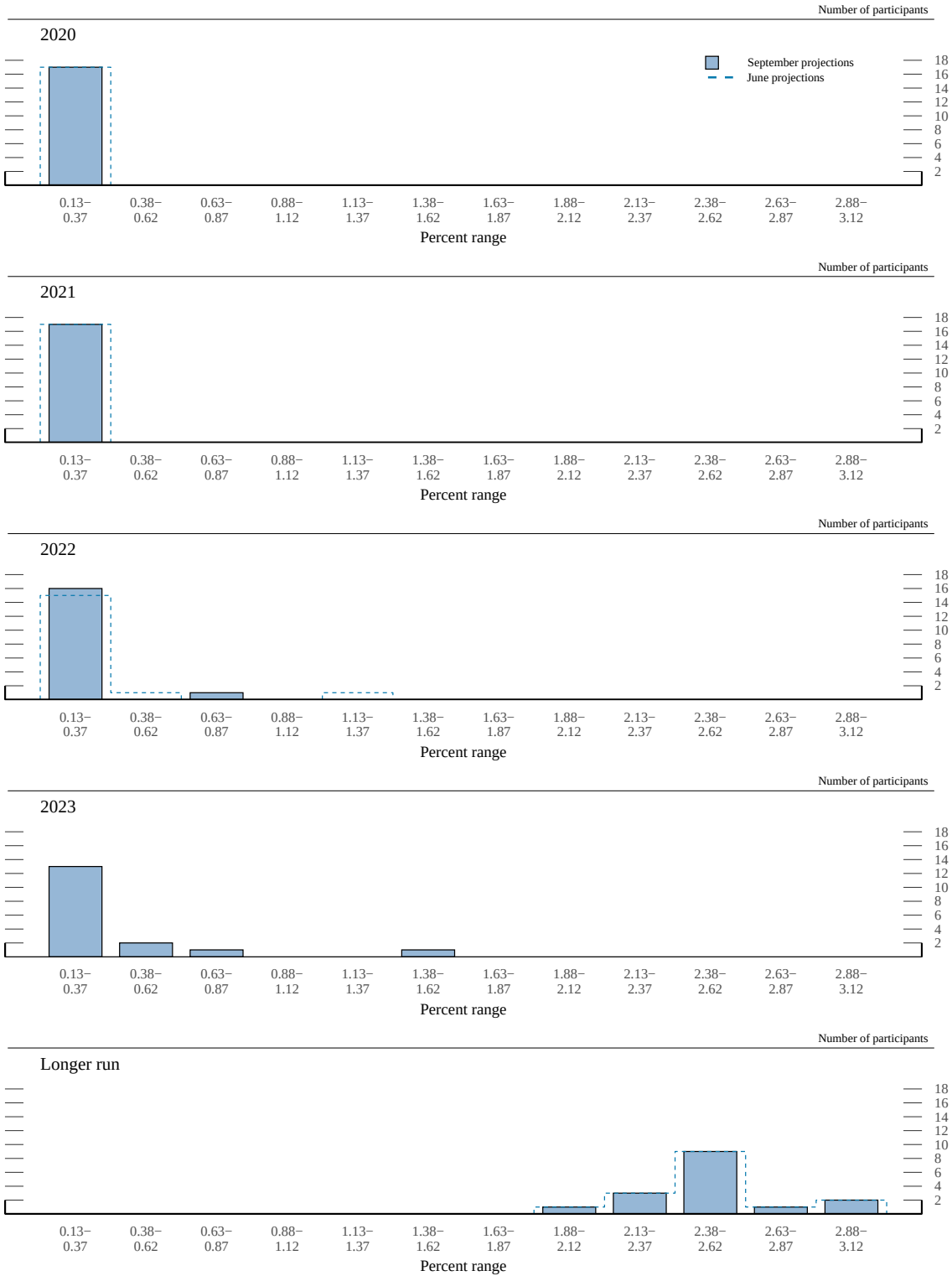
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2020–23



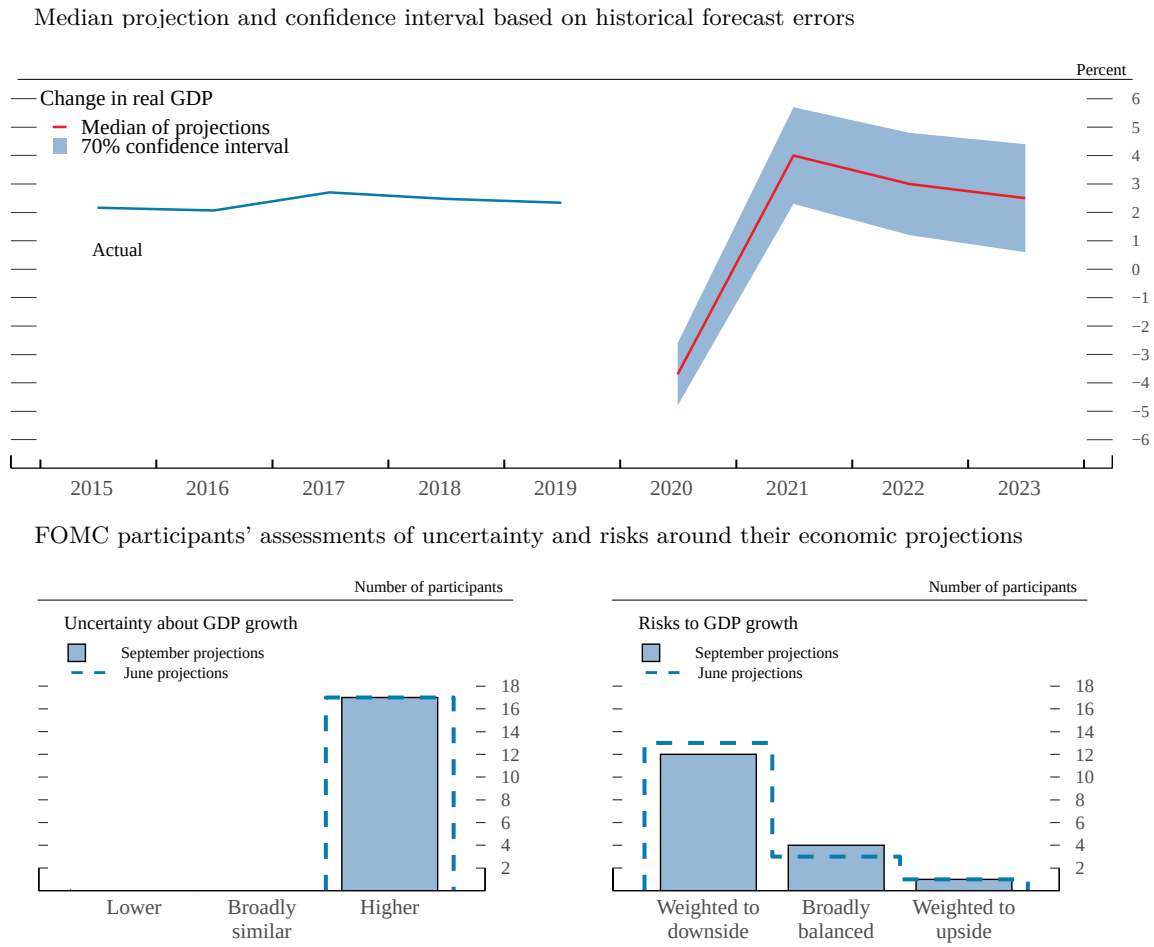
NOTE: Definitions of variables and other explanations are in the notes to table 1.

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, 2020–23 and over the longer run



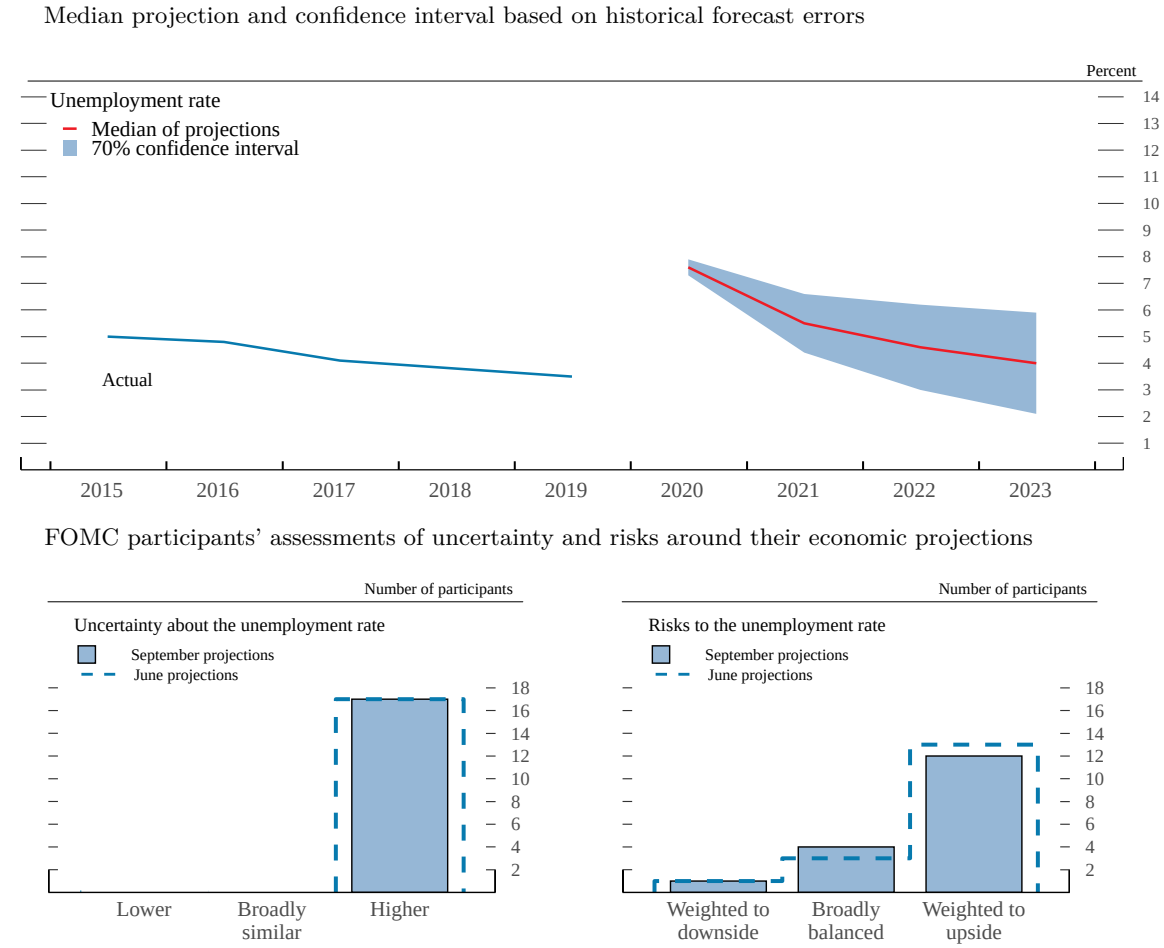
NOTE: Definitions of variables and other explanations are in the notes to table 1.

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



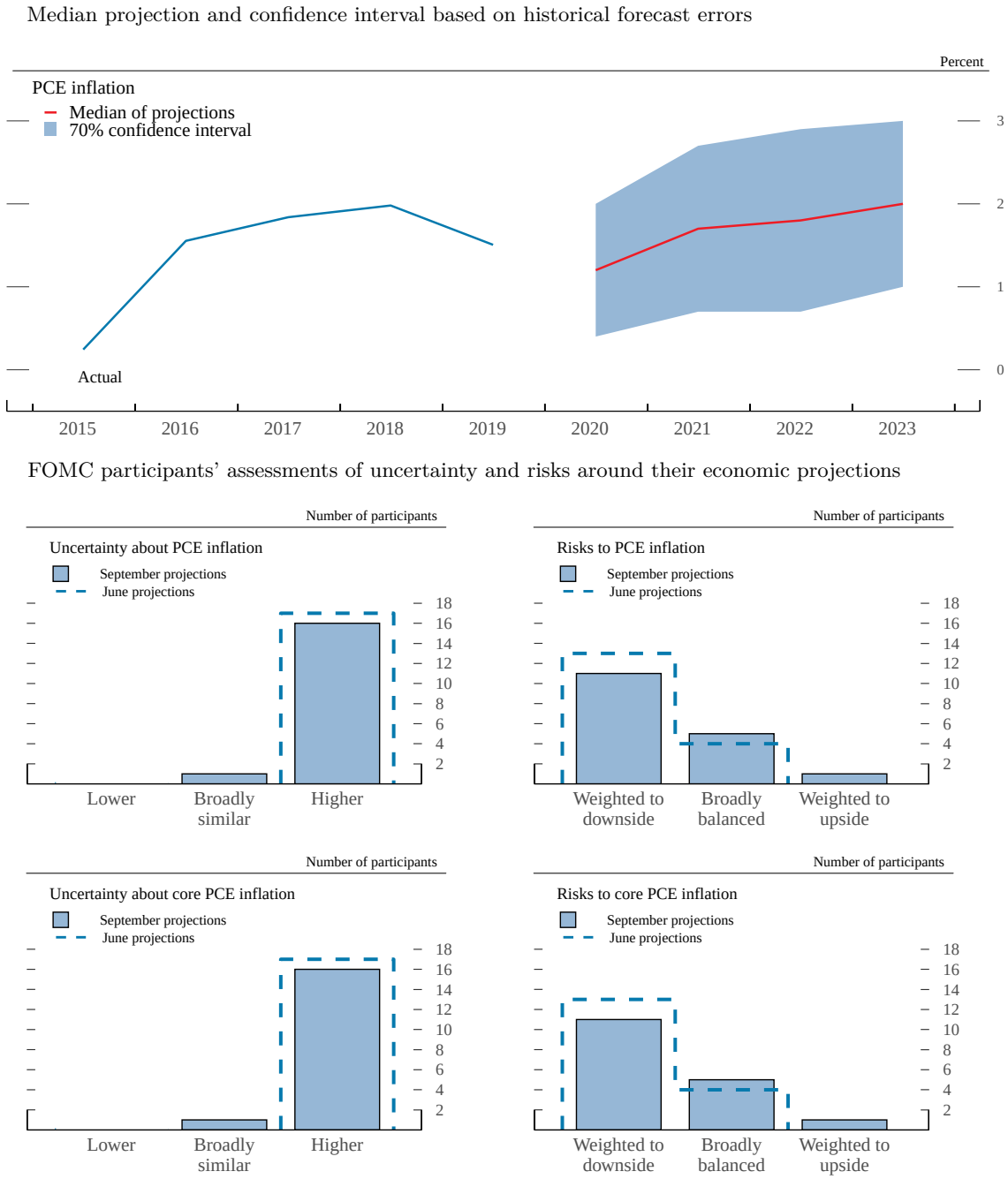
NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected 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



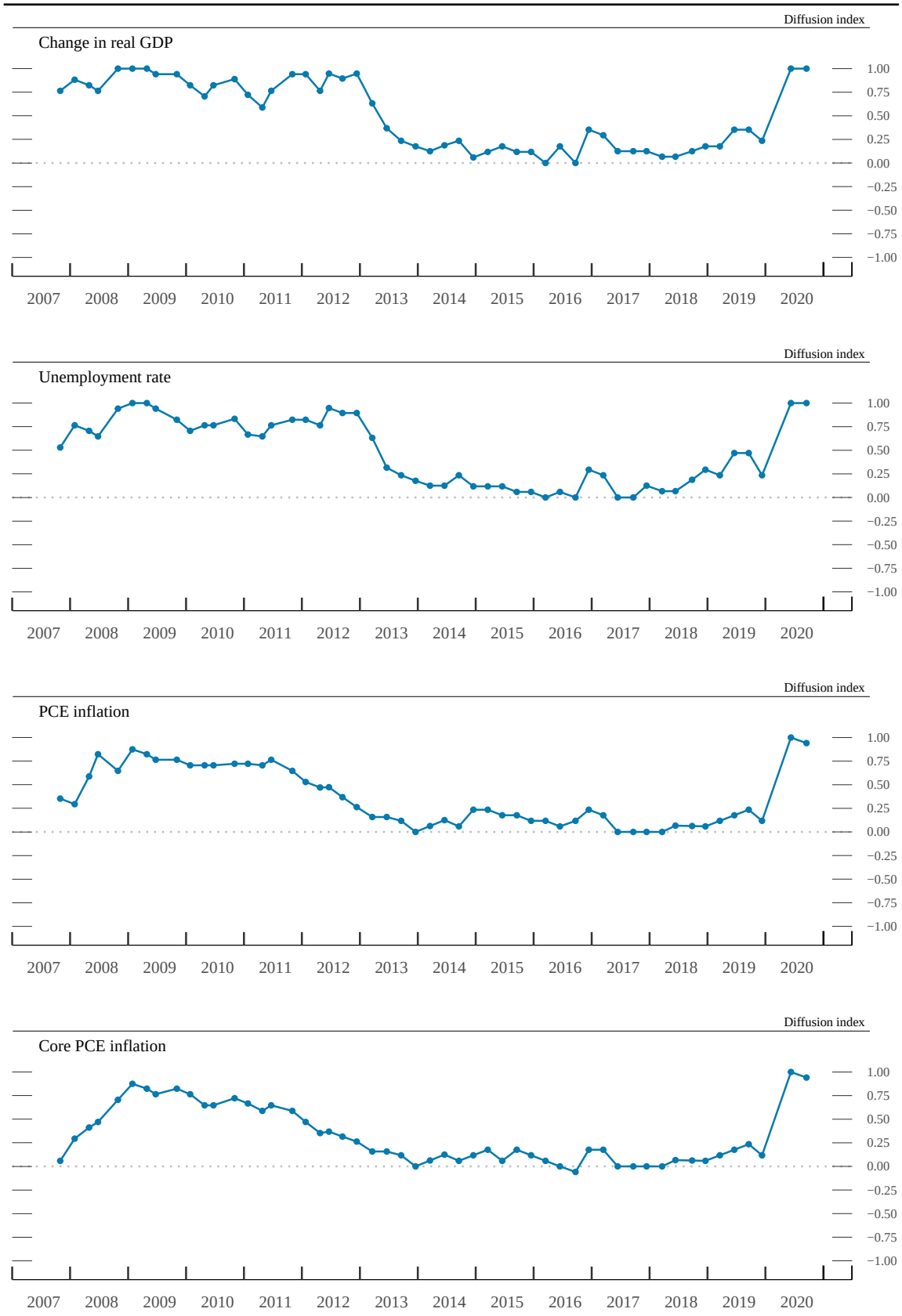
NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root 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



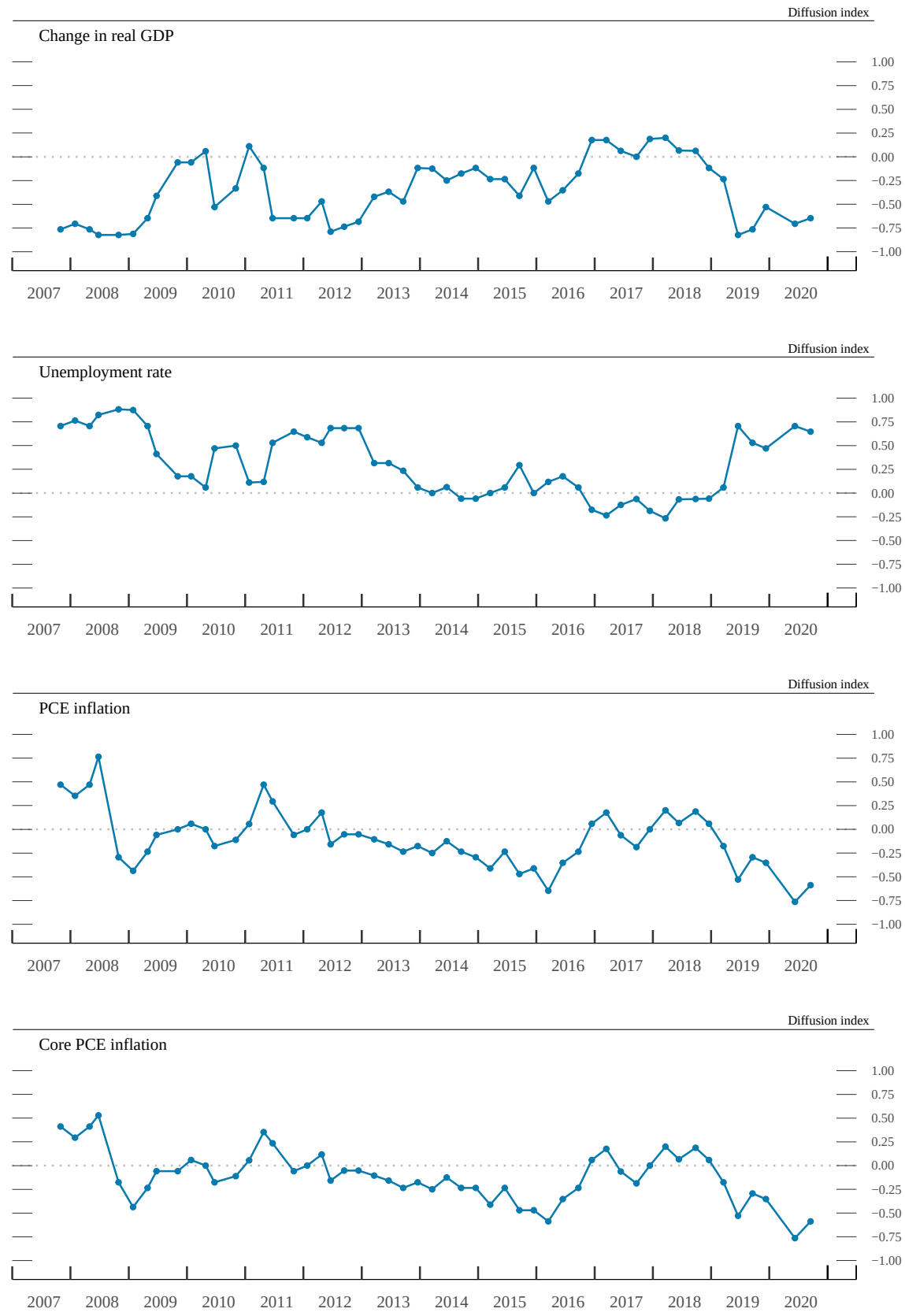
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval 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."

Figure 4.D. Diffusion indexes of participants' uncertainty assessments



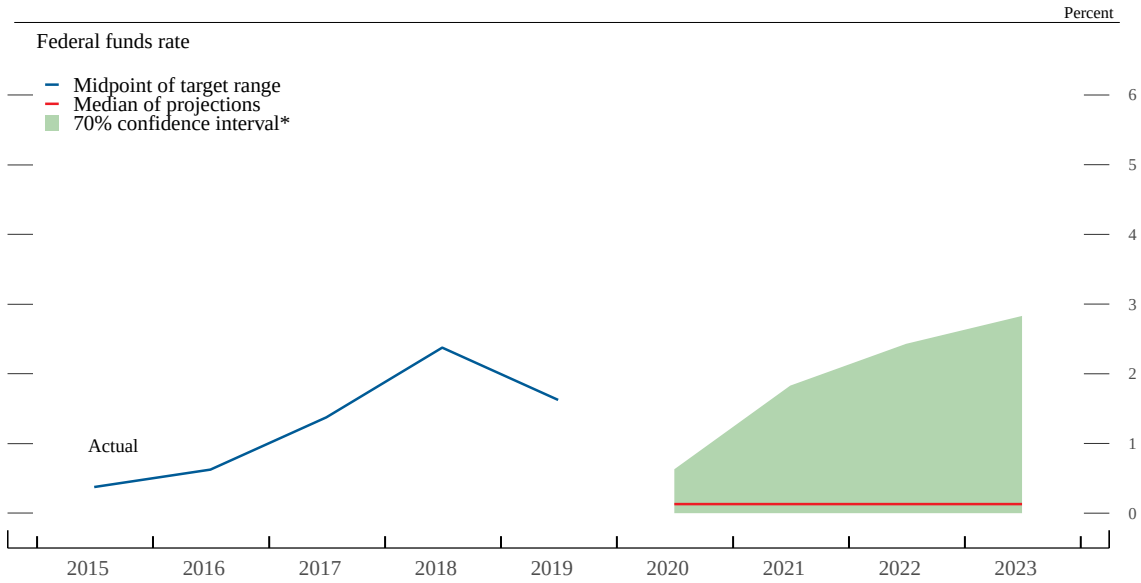
NOTE: Number of participants who responded "Higher" less those who responded "Lower" for the question, "Please indicate your judgment of the uncertainty attached to your projections relative to levels of uncertainty over the past 20 years," divided by the total number of participants. Figure excludes March 2020 when no projections were submitted.

Figure 4.E. Diffusion indexes of participants' risk weightings



NOTE: Each point represents the number of participants who responded "Weighted to the Upside" less those who responded "Weighted to the Downside" for the question, "Please indicate your judgment of the risk weighting around your projections," divided by the total number of participants. Figure excludes March 2020 when no projections were submitted.

Figure 5. Uncertainty and risks 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.

Table 2. Average historical projection error ranges
Percentage points

Variable	2020	2021	2022	2023
Change in real GDP[1]	±1.1	±1.7	±1.8	±1.9
Unemployment rate[1]	±0.3	±1.1	±1.6	±1.9
Total consumer prices[2]	±0.8	±1.0	±1.1	±1.0
Short-term interest rates[3] . . .	±0.5	±1.7	±2.3	±2.7

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 2000 through 2019 that were released in the fall by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, consumer prices, and the federal funds rate will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2017), "Gauging the Uncertainty of the Economic Outlook Using Historical Forecasting Errors: The Federal Reserve's Approach," Finance and Economics Discussion Series 2017-020 (Washington: Board of Governors of the Federal Reserve System, February), https://dx. doi.org/10.17016/FEDS.2017.020.

1. Definitions of variables are in the general note to table 1.

2. Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projections are percent changes on a fourth quarter to fourth quarter basis.

3. For Federal Reserve staff forecasts, measure is the federal funds rate. For other forecasts, measure is the rate on 3-month Treasury bills. Projection errors are calculated using average levels, in percent, in the fourth quarter.

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Report*s and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee. The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 1.9 to 4.1 percent in the current year, 1.3 to 4.7 percent in the second year, 1.2 to 4.8 percent in the third year, and 1.1 to 4.9 percent in the fourth year. The corresponding 70 percent confidence intervals for overall inflation would be 1.2 to 2.8 percent in the current year, 1.0 to 3.0 percent in the second year, 0.9 to 3.1 percent in the third year, and 1.0 to 3.0 percent in the fourth year.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each economic variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty seen in the past 20 years, as presented in table 2.

That is, participants judge whether each economic variable is more likely to be above or below their projections of the most likely outcome. These judgments about the uncertainty and the risks attending each participant's projections are distinct from the diversity of participants' views about the most likely outcomes. Forecast uncertainty is concerned with the risks associated with a particular projection rather than with divergences across a number of different projections. As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward. The final line in table 2 shows the error ranges for forecasts of short-term interest rates. They suggest that the historical confidence intervals associated with projections of the federal funds rate are quite wide. It should be noted, however, that these confidence intervals are not strictly consistent with the projections for the federal funds rate, as these projections are not forecasts of the most likely quarterly outcomes but rather are projections of participants' individual assessments of appropriate monetary policy and are on an end-of-year basis. However, the forecast errors should provide a 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 would be appropriate to offset the effects of shocks to the economy.