



# SURVEY OF PROFESSIONAL FORECASTERS

Release Date: November 15, 2019

## FOURTH QUARTER 2019

### *Lower Near-Term Growth*

The U.S. economy for the next four quarters looks weaker now than it did three months ago, according to 39 forecasters surveyed by the Federal Reserve Bank of Philadelphia. The panel predicts real GDP will grow at an annual rate of 1.7 percent this quarter, down from 2.0 percent in the last survey, 1.9 percent next quarter, and 1.7 percent in each of the two following quarters. On an annual-average over annual-average basis, the forecasters expect real GDP to grow 2.3 percent in 2019, 1.8 percent in 2020, and 2.0 percent in 2021 and 2022, respectively.

A steady outlook for the unemployment rate accompanies the outlook for growth. The forecasters predict the unemployment rate will average 3.7 percent from 2019 to 2021 and 3.9 percent in 2022. Notably, the projections for 2021 and 2022 are below those of the last survey.

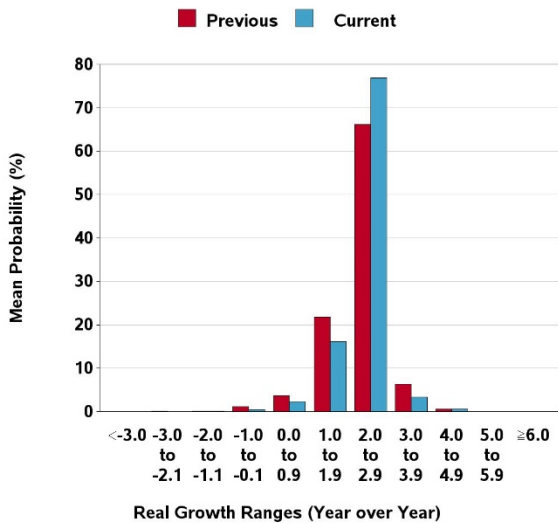
On the employment front, the forecasters have marginally revised upward their estimates for job gains over the next two years. The projections for the annual-average level of nonfarm payroll employment suggest job gains at a monthly rate of 191,700 in 2019 and 143,800 in 2020. (These annual-average estimates are computed as the year-to-year change in the annual-average level of nonfarm payroll employment, converted to a monthly rate.)

### *Median Forecasts for Selected Variables in the Current and Previous Surveys*

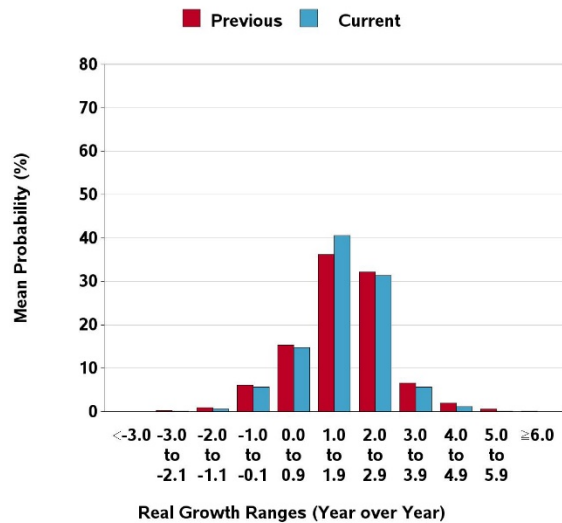
	Real GDP (%)		Unemployment Rate (%)		Payrolls (000s/month)	
	Previous	New	Previous	New	Previous	New
Quarterly data:						
2019:Q4	2.0	1.7	3.6	3.6	148.1	162.9
2020:Q1	1.9	1.9	3.6	3.6	137.6	133.1
2020:Q2	2.0	1.7	3.6	3.6	145.8	159.4
2020:Q3	2.0	1.7	3.7	3.7	108.3	122.5
2020:Q4	N.A.	1.9	N.A.	3.7	N.A.	127.3
Annual data (projections are based on annual-average levels):						
2019	2.3	2.3	3.7	3.7	190.6	191.7
2020	1.9	1.8	3.6	3.7	141.2	143.8
2021	2.0	2.0	3.9	3.7	N.A.	N.A.
2022	2.1	2.0	4.0	3.9	N.A.	N.A.

The charts below provide some insight into the degree of uncertainty the forecasters have about their projections for the rate of growth in the annual-average level of real GDP. Each chart presents the forecasters' previous and current estimates of the probability that growth will fall into each of 11 ranges. The charts show the forecasters have revised upward their estimates of the probability that real GDP will grow below 2.0 percent in 2021 and 2022.

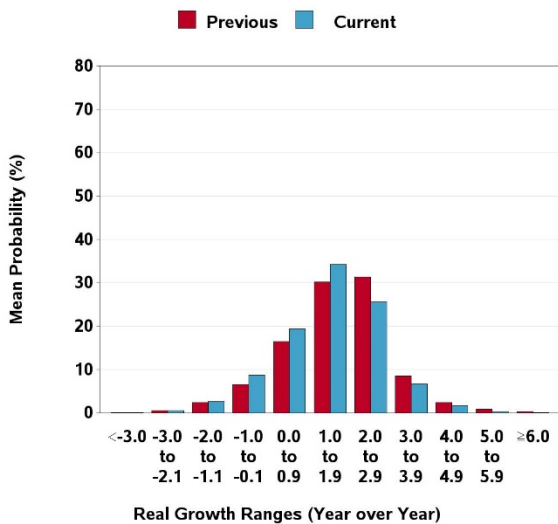
Mean Probabilities for Real GDP Growth in 2019



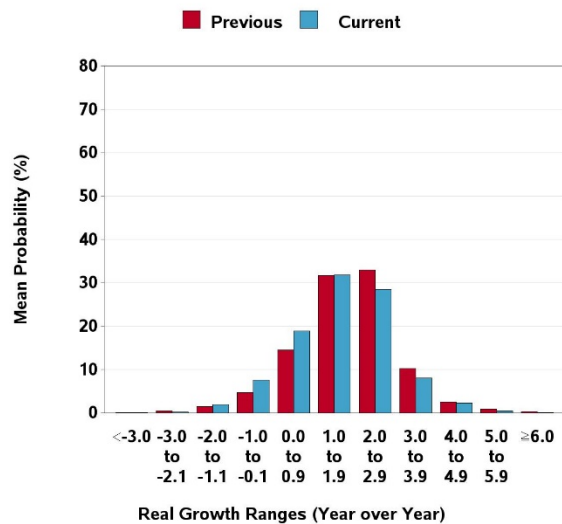
Mean Probabilities for Real GDP Growth in 2020



Mean Probabilities for Real GDP Growth in 2021

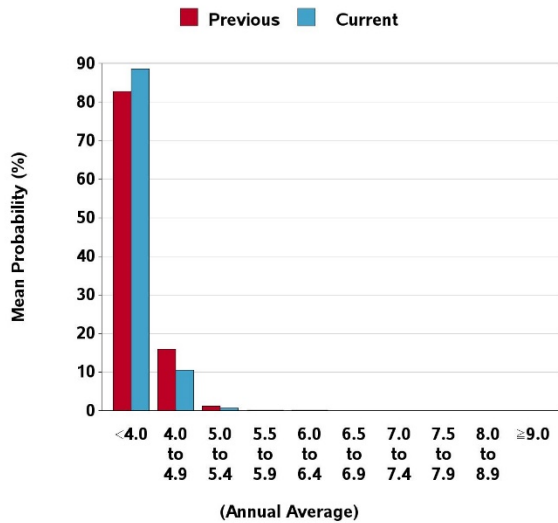


Mean Probabilities for Real GDP Growth in 2022

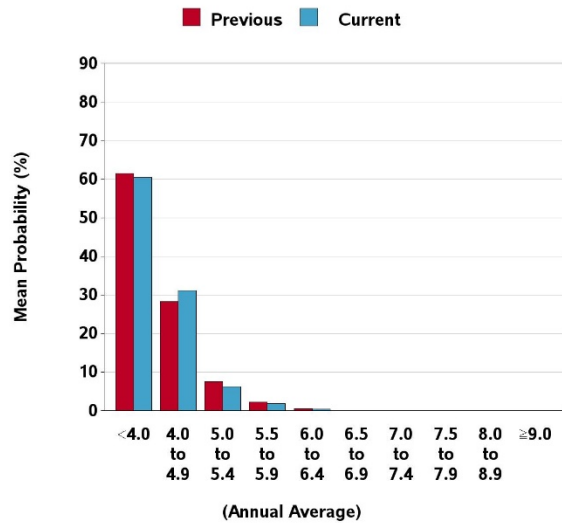


The forecasters' density projections for unemployment, shown below, shed light on uncertainty about the labor market over the next four years. Each chart presents the forecasters' current estimates of the probability that unemployment will fall into each of 10 ranges. The charts show that the estimates of uncertainty about the unemployment rate from 2020 to 2022 have changed little from those in the survey of three months ago.

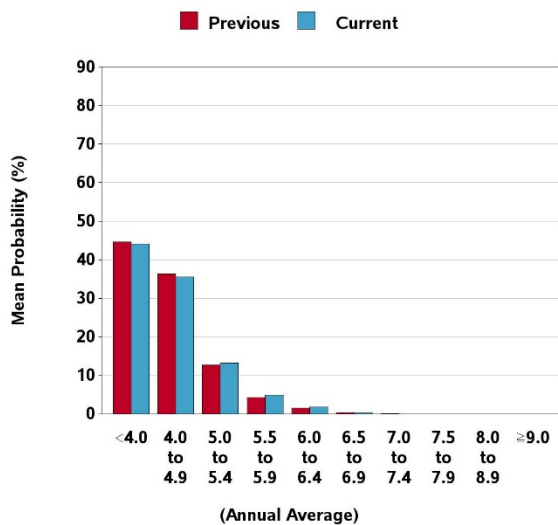
Mean Probabilities for Unemployment Rate in 2019



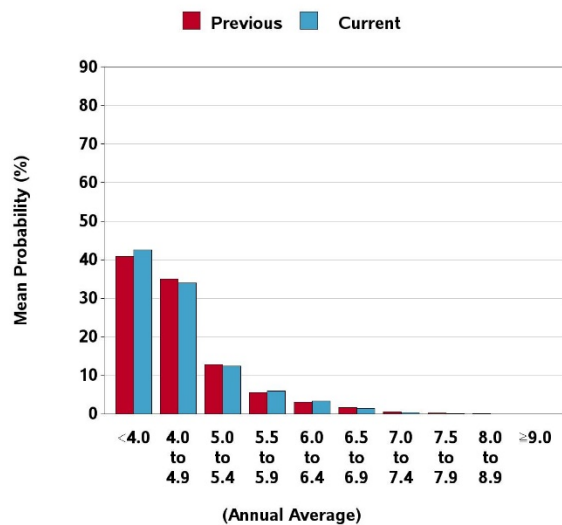
Mean Probabilities for Unemployment Rate in 2020



Mean Probabilities for Unemployment Rate in 2021



Mean Probabilities for Unemployment Rate in 2022



### ***Marginally Higher Inflation Beyond the Current Quarter***

The forecasters expect current-quarter headline CPI inflation to average 1.8 percent, down from 2.1 percent in the last survey. Headline PCE inflation for the current quarter will be 1.6 percent, down 0.3 percentage point from the previous estimate.

The forecasters' projections for inflation beyond the current quarter are marginally higher compared with the previous survey.

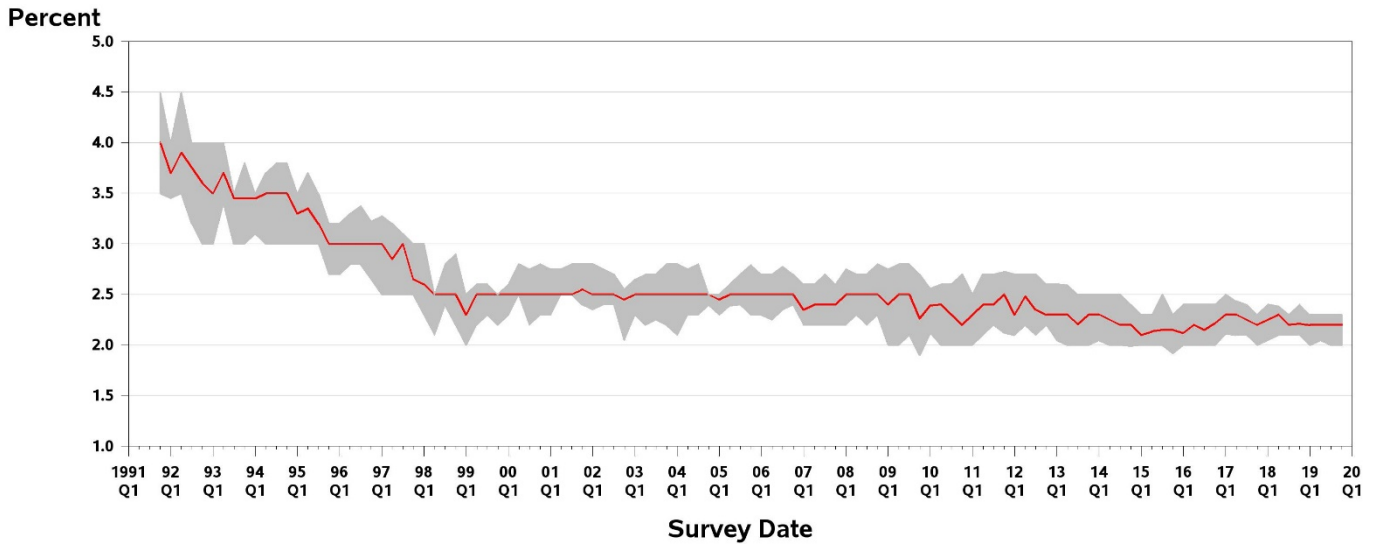
The long-horizon inflation projections are holding steady. Over the next 10 years, 2019 to 2028, the forecasters expect headline CPI inflation to average 2.20 percent at an annual rate, unchanged from the previous estimate. The corresponding estimate for 10-year annual-average PCE inflation is 2.00 percent, also unchanged from the estimate of three months ago.

### *Median Short-Run and Long-Run Projections for Inflation (Annualized Percentage Points)*

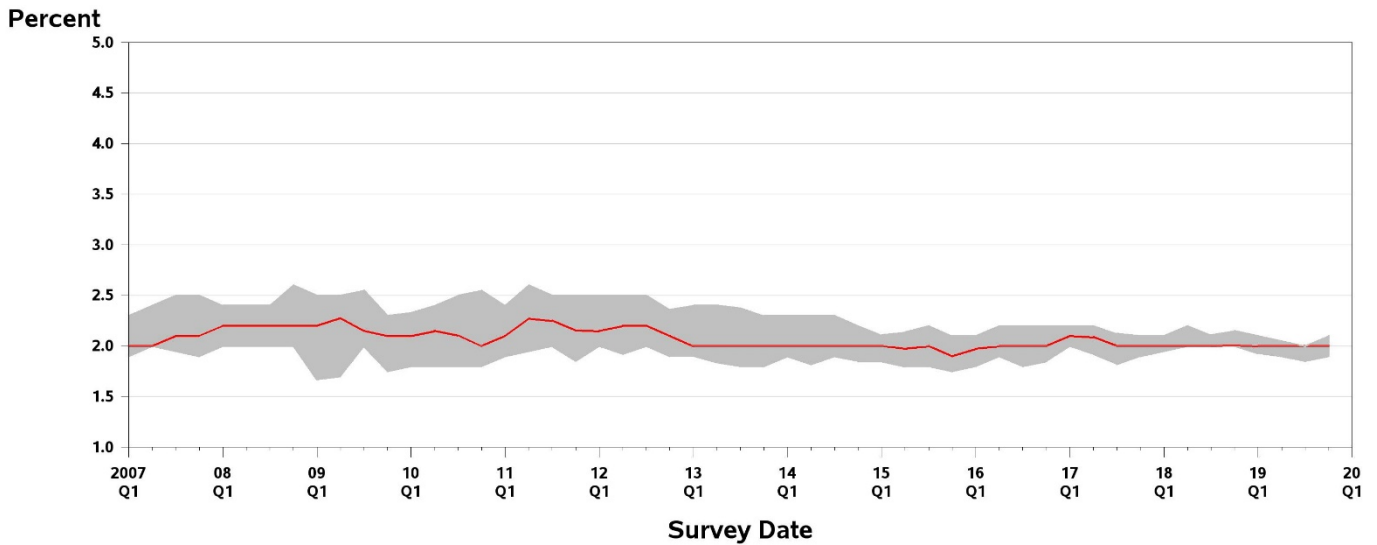
	Headline CPI		Core CPI		Headline PCE		Core PCE	
	Previous	Current	Previous	Current	Previous	Current	Previous	Current
Quarterly								
2019:Q4	2.1	1.8	2.1	2.2	1.9	1.6	1.9	1.9
2020:Q1	2.0	2.2	2.2	2.3	1.9	2.0	2.0	2.0
2020:Q2	2.0	2.1	2.1	2.2	1.8	2.0	1.9	2.0
2020:Q3	2.1	2.2	2.1	2.2	1.9	1.9	1.9	2.0
2020:Q4	N.A.	2.1	N.A.	2.2	N.A.	1.9	N.A.	2.0
Q4/Q4 Annual Averages								
2019	1.9	1.8	2.1	2.3	1.6	1.5	1.7	1.8
2020	2.0	2.1	2.2	2.3	1.9	1.9	2.0	2.0
2021	2.2	2.2	2.1	2.2	2.0	2.0	1.9	1.9
Long-Term Annual Averages								
2019-2023	2.09	2.20	N.A.	N.A.	1.90	1.90	N.A.	N.A.
2019-2028	2.20	2.20	N.A.	N.A.	2.00	2.00	N.A.	N.A.

The charts below show the median projections (the red line) and the associated interquartile ranges (gray areas around the red line) for the projections for 10-year annual-average CPI and PCE inflation. The charts highlight unchanged projections for the long-term inflation rate, compared with those of the last survey.

### Projections for the 10-Year Annual-Average Rate of CPI Inflation (Median and Interquartile Range)

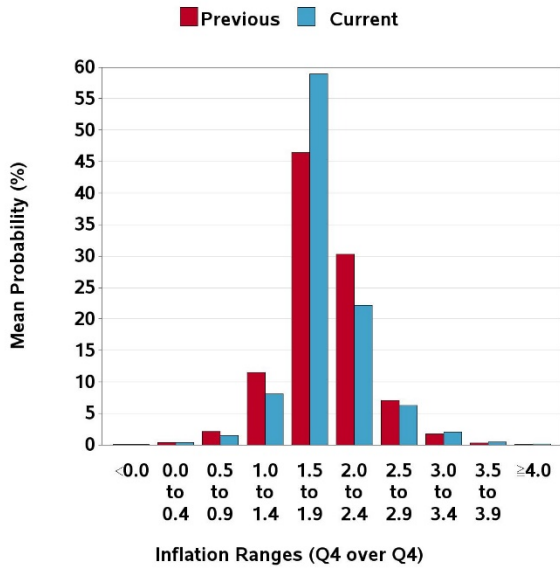


### Projections for the 10-Year Annual-Average Rate of PCE Inflation (Median and Interquartile Range)

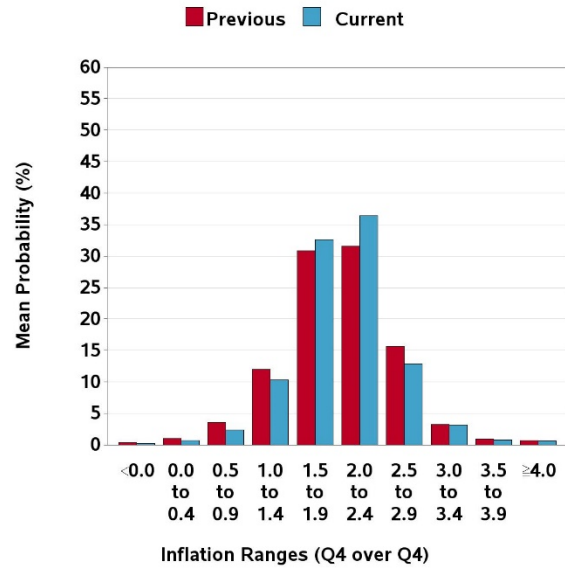


The figures below show the probabilities that the forecasters are assigning to each of 10 possible ranges for fourth-quarter over fourth-quarter core PCE inflation in 2019 and 2020. For 2020, the forecasters have increased the probability that core PCE inflation will be between 1.5 and 2.4 percent.

**Mean Probabilities for Core PCE Inflation in 2019**



**Mean Probabilities for Core PCE Inflation in 2020**



***Risk of a Negative Quarter Mostly Lower***

The forecasters have revised downward the chance of a contraction in real GDP in three of the next four quarters. For the current quarter, the forecasters predict a 12.8 percent chance of negative growth, down from 14.2 percent in the survey of three months ago.

*Risk of a Negative Quarter (%)*

*Survey Means*

Quarterly data:	Previous	New
2019:Q4	14.2	12.8
2020:Q1	17.6	18.1
2020:Q2	21.5	20.8
2020:Q3	26.1	22.6
2020:Q4	N.A.	25.1

### *Technical Notes*

#### **Moody's Aaa and Baa Historical Rates**

The historical values of Moody's Aaa and Baa rates are proprietary and, therefore, not available in the data files on the Bank's website or on the tables that accompany the survey's complete write-up in the PDF.

The Federal Reserve Bank of Philadelphia thanks the following forecasters for their participation in recent surveys:

**Lewis Alexander**, Nomura Securities; **Scott Anderson**, Bank of the West (BNP Paribas Group); **Robert J. Barbera**, Johns Hopkins University Center for Financial Economics; **Peter Bernstein**, RCF Economic and Financial Consulting, Inc.; **Wayne Best** and **Michael Brown**, Visa, Inc.; **Jay Bryson**, Wells Fargo; **J. Burton**, **G. Ehrlich**, **D. Manaenkov**, **W. Song**, and **A. Thapar**, RSQE, University of Michigan; **Christine Chmura, Ph.D.**, and **Xiaobing Shuai, Ph.D.**, Chmura Economics & Analytics; **Gary Ciminero**, CFA, GLC Financial Economics; **Gregory Daco**, Oxford Economics USA, Inc.; **Rajeev Dhawan**, Georgia State University; **Bill Diviney**, ABN AMRO Bank NV; **Michael R. Englund**, Action Economics, LLC; **Michael Gapen**, Barclays Capital; **Sacha Gelfer**, Bentley University; **James Glassman**, JPMorgan Chase & Co.; **Jan Hatzius**, Goldman Sachs; **Brian Higginbotham**, U.S. Chamber of Commerce; **Peter Hooper**, Deutsche Bank Securities, Inc.; **Fred Joutz**, Benchmark Forecasts; **Sam Kahan**, Kahan Consulting Ltd. (ACT Research LLC); **N. Karp**, BBVA Research USA; **Walter Kemmsies**, Jones Lang LaSalle; **Jack Kleinhenz**, Kleinhenz & Associates, Inc.; **Thomas Lam**, Sim Kee Boon Institute, Singapore Management University; **L. Douglas Lee**, Economics from Washington; **John Lonski**, Moody's Capital Markets Group; **Macroeconomic Advisers**, **IHS Markit**; **Robert McNab**, Old Dominion University; **R. Anthony Metz**, Pareto Optimal Economics; **R. M. Monaco**, TitanRM; **Michael Moran**, Daiwa Capital Markets America; **Joel L. Naroff**, Naroff Economic Advisors; **Mark Nielson, Ph.D.**, MacroEcon Global Advisors; **Brendon Ogmundson**, BC Real Estate Association; **Philip Rothman**, East Carolina University; **Chris Rupkey**, MUFG Union Bank; **Sean M. Snaith, Ph.D.**, University of Central Florida; **Constantine G. Soras, Ph.D.**, CGS Economic Consulting/Montclair State University; **Stephen Stanley**, Amherst Pierpont Securities; **Charles Steindel**, Ramapo College of New Jersey; **Susan M. Sterne**, Economic Analysis Associates, Inc.; **James Sweeney**, Credit Suisse; **Thomas Kevin Swift**, American Chemistry Council; **Maira Trimble**, Eaton Corporation; **Gary Wagner**, University of Louisiana at Lafayette; **Mark Zandi**, Moody's Analytics; **Ellen Zentner**, Morgan Stanley.

This is a partial list of participants. We also thank those who wish to remain anonymous.



SUMMARY TABLE  
 SURVEY OF PROFESSIONAL FORECASTERS  
 MAJOR MACROECONOMIC INDICATORS

	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2019	2020	2021	2022
						(YEAR-OVER-YEAR)			
PERCENT GROWTH AT ANNUAL RATES									
1. REAL GDP (BILLIONS, CHAIN WEIGHTED)	1.7	1.9	1.7	1.7	1.9	2.3	1.8	2.0	2.0
2. GDP PRICE INDEX (PERCENT CHANGE)	1.8	2.0	1.9	1.9	2.0	1.8	1.9	N.A.	N.A.
3. NOMINAL GDP (\$ BILLIONS)	3.6	3.7	4.1	3.8	3.7	4.1	3.8	N.A.	N.A.
4. NONFARM PAYROLL EMPLOYMENT (PERCENT CHANGE)	1.3	1.1	1.3	1.0	1.0	1.5	1.1	N.A.	N.A.
(AVG MONTHLY CHANGE)	162.9	133.1	159.4	122.5	127.3	191.7	143.8	N.A.	N.A.
VARIABLES IN LEVELS									
5. UNEMPLOYMENT RATE (PERCENT)	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.9
6. 3-MONTH TREASURY BILL (PERCENT)	1.6	1.6	1.6	1.6	1.6	2.1	1.6	1.7	2.2
7. 10-YEAR TREASURY BOND (PERCENT)	1.7	1.8	1.9	2.0	2.0	2.1	1.9	2.2	2.6
	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2019	2020	2021	
						(Q4-OVER-Q4)			
INFLATION INDICATORS									
8. CPI (ANNUAL RATE)	1.8	2.2	2.1	2.2	2.1	1.8	2.1	2.2	
9. CORE CPI (ANNUAL RATE)	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.2	
10. PCE (ANNUAL RATE)	1.6	2.0	2.0	1.9	1.9	1.5	1.9	2.0	
11. CORE PCE (ANNUAL RATE)	1.9	2.0	2.0	2.0	2.0	1.8	2.0	1.9	

Note: The figures on each line are medians of 39 forecasters.

Source: Research Department, Federal Reserve Bank of Philadelphia.  
 Survey of Professional Forecasters, Fourth Quarter 2019.

## **SURVEY OF PROFESSIONAL FORECASTERS**

**Fourth Quarter 2019**

### **Tables**

Note: Data in these tables listed as "actual" are the data that were available to the forecasters when they were sent the survey questionnaire on October 30, 2019; the tables do not reflect subsequent revisions to the data. All forecasts were received on or before November 11, 2019.

TABLE ONE  
MAJOR MACROECONOMIC INDICATORS  
MEDIAN OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL		FORECAST				ACTUAL		FORECAST		
		2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2018 ANNUAL	2019 ANNUAL	2020 ANNUAL	2021 ANNUAL	2022 ANNUAL
1. GROSS DOMESTIC PRODUCT (GDP) (\$ BILLIONS)	38	21526	21716	21915	22137	22346	22551	20580	21421	22238	N.A.	N.A.
2. GDP PRICE INDEX (2012=100)	38	112.64	113.14	113.70	114.23	114.78	115.34	110.38	112.36	114.49	N.A.	N.A.
3. CORPORATE PROFITS AFTER TAXES (\$ BILLIONS)	26	N.A.	1877.3	1884.4	1891.2	1901.9	1923.6	1854.9	1852.1	1903.7	N.A.	N.A.
4. UNEMPLOYMENT RATE (PERCENT)	39	3.6	3.6	3.6	3.6	3.7	3.7	3.9	3.7	3.7	3.7	3.9
5. NONFARM PAYROLL EMPLOYMENT (THOUSANDS)	34	151575	152064	152463	152941	153309	153691	149064	151364	153090	N.A.	N.A.
6. INDUSTRIAL PRODUCTION (2012=100)	33	109.5	109.7	110.2	110.5	110.7	111.0	108.6	109.6	110.5	N.A.	N.A.
7. NEW PRIVATE HOUSING STARTS (ANNUAL RATE, MILLIONS)	35	1.28	1.29	1.28	1.28	1.28	1.29	1.25	1.26	1.29	N.A.	N.A.
8. 3-MONTH TREASURY BILL RATE (PERCENT)	37	1.98	1.61	1.60	1.56	1.60	1.60	1.94	2.10	1.60	1.67	2.18
9. MOODY'S AAA CORP BOND YIELD * (PERCENT)	26	N.A.	3.00	3.10	3.20	3.24	3.25	N.A.	3.38	3.23	N.A.	N.A.
10. MOODY'S BAA CORP BOND YIELD * (PERCENT)	26	N.A.	3.97	4.03	4.18	4.23	4.24	N.A.	4.39	4.25	N.A.	N.A.
11. 10-YEAR TREASURY BOND YIELD (PERCENT)	38	1.80	1.75	1.79	1.85	1.95	2.01	2.91	2.13	1.89	2.21	2.60
12. REAL GDP (BILLIONS, CHAIN WEIGHTED)	38	19113	19191	19281	19364	19444	19534	18638	19063	19404	19783	20187
13. TOTAL CONSUMPTION EXPENDITURE (BILLIONS, CHAIN WEIGHTED)	36	13343.7	13419.8	13492.8	13559.5	13630.1	13696.9	12944.6	13279.4	13595.4	N.A.	N.A.
14. NONRESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	35	2737.8	2750.2	2762.9	2779.0	2785.9	2797.3	2692.3	2753.0	2782.7	N.A.	N.A.
15. RESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	35	594.3	598.7	602.4	604.7	606.3	609.8	602.9	592.8	605.4	N.A.	N.A.
16. FEDERAL GOVERNMENT C & I (BILLIONS, CHAIN WEIGHTED)	34	1284.5	1290.8	1298.8	1308.2	1312.2	1317.1	1232.2	1274.4	1308.0	N.A.	N.A.
17. STATE AND LOCAL GOVT C & I (BILLIONS, CHAIN WEIGHTED)	36	2027.1	2033.7	2039.7	2046.2	2052.3	2057.6	1990.1	2022.5	2049.3	N.A.	N.A.
18. CHANGE IN PRIVATE INVENTORIES (BILLIONS, CHAIN WEIGHTED)	34	69.0	53.0	49.9	47.3	44.9	45.0	48.2	76.9	42.9	N.A.	N.A.
19. NET EXPORTS (BILLIONS, CHAIN WEIGHTED)	34	-986.4	-992.5	-998.3	-1007.2	-1012.5	-1021.0	-920.0	-975.9	-1007.7	N.A.	N.A.

\* The historical values of Moody's Aaa and Baa rates are proprietary and therefore not available to the general public.

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Fourth Quarter 2019.

TABLE TWO  
MAJOR MACROECONOMIC INDICATORS  
PERCENTAGE CHANGES AT ANNUAL RATES

	NUMBER OF FORECASTERS	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	2018	2019	2020	2021
		TO Q4 2019	TO Q1 2020	TO Q2 2020	TO Q3 2020	TO Q4 2020	TO 2019	TO 2020	TO 2021	TO 2022
1. GROSS DOMESTIC PRODUCT (GDP) (\$ BILLIONS)	38	3.6	3.7	4.1	3.8	3.7	4.1	3.8	N.A.	N.A.
2. GDP PRICE INDEX (2012=100)	38	1.8	2.0	1.9	1.9	2.0	1.8	1.9	N.A.	N.A.
3. CORPORATE PROFITS AFTER TAXES (\$ BILLIONS)	26	2.5	1.5	1.4	2.3	4.6	-0.1	2.8	N.A.	N.A.
4. UNEMPLOYMENT RATE (PERCENT)	39	0.0	0.0	0.0	0.1	0.0	-0.2	-0.1	0.0	0.2
5. NONFARM PAYROLL EMPLOYMENT (PERCENT CHANGE) (AVG MONTHLY CHANGE)	34 34	1.3 162.9	1.1 133.1	1.3 159.4	1.0 122.5	1.0 127.3	1.5 191.7	1.1 143.8	N.A. N.A.	N.A. N.A.
6. INDUSTRIAL PRODUCTION (2012=100)	33	0.8	1.7	1.3	0.5	1.2	0.9	0.8	N.A.	N.A.
7. NEW PRIVATE HOUSING STARTS (ANNUAL RATE, MILLIONS)	35	2.7	-2.9	0.8	-0.1	0.5	0.8	2.0	N.A.	N.A.
8. 3-MONTH TREASURY BILL RATE (PERCENT)	37	-0.37	-0.01	-0.04	0.04	0.00	0.16	-0.50	0.07	0.51
9. MOODY'S AAA CORP BOND YIELD * (PERCENT)	26	N.A.	0.10	0.10	0.03	0.02	N.A.	-0.15	N.A.	N.A.
10. MOODY'S BAA CORP BOND YIELD * (PERCENT)	26	N.A.	0.07	0.14	0.05	0.01	N.A.	-0.14	N.A.	N.A.
11. 10-YEAR TREASURY BOND YIELD (PERCENT)	38	-0.05	0.04	0.06	0.10	0.06	-0.78	-0.24	0.32	0.39
12. REAL GDP (BILLIONS, CHAIN WEIGHTED)	38	1.7	1.9	1.7	1.7	1.9	2.3	1.8	2.0	2.0
13. TOTAL CONSUMPTION EXPENDITURE (BILLIONS, CHAIN WEIGHTED)	36	2.3	2.2	2.0	2.1	2.0	2.6	2.4	N.A.	N.A.
14. NONRESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	35	1.8	1.9	2.3	1.0	1.6	2.3	1.1	N.A.	N.A.
15. RESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	35	3.0	2.5	1.5	1.1	2.3	-1.7	2.1	N.A.	N.A.
16. FEDERAL GOVERNMENT C & I (BILLIONS, CHAIN WEIGHTED)	34	2.0	2.5	2.9	1.2	1.5	3.4	2.6	N.A.	N.A.
17. STATE AND LOCAL GOVT C & I (BILLIONS, CHAIN WEIGHTED)	36	1.3	1.2	1.3	1.2	1.0	1.6	1.3	N.A.	N.A.
18. CHANGE IN PRIVATE INVENTORIES (BILLIONS, CHAIN WEIGHTED)	34	-16.0	-3.1	-2.7	-2.3	0.1	28.7	-34.0	N.A.	N.A.
19. NET EXPORTS (BILLIONS, CHAIN WEIGHTED)	34	-6.1	-5.7	-8.9	-5.3	-8.5	-55.9	-31.8	N.A.	N.A.

\* The historical values of Moody's Aaa and Baa rates are proprietary and therefore not available to the general public.

Note: Figures for unemployment rate, 3-month Treasury bill rate, Moody's Aaa corporate bond yield, Moody's Baa corporate bond yield, and 10-year Treasury bond yield are changes in these rates, in percentage points. Figures for change in private inventories and net exports are changes in billions of chain-weighted dollars. All others are percentage changes at annual rates.

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Fourth Quarter 2019.

TABLE THREE  
 MAJOR PRICE INDICATORS  
 MEDIANS OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL		FORECAST (Q/Q)				ACTUAL				FORECAST (Q4/Q4)	
		2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2018 ANNUAL	2019 ANNUAL	2020 ANNUAL	2021 ANNUAL		
1. CONSUMER PRICE INDEX (ANNUAL RATE)	37	1.8	1.8	2.2	2.1	2.2	2.1	2.2	1.8	2.1	2.2		
2. CORE CONSUMER PRICE INDEX (ANNUAL RATE)	37	3.0	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2		
3. PCE PRICE INDEX (ANNUAL RATE)	37	1.5	1.6	2.0	2.0	1.9	1.9	1.9	1.5	1.9	2.0		
4. CORE PCE PRICE INDEX (ANNUAL RATE)	36	2.2	1.9	2.0	2.0	2.0	2.0	1.9	1.8	2.0	1.9		

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Fourth Quarter 2019.

TABLE FOUR  
YIELD SPREADS  
MEDIAN OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL		FORECAST				ACTUAL		FORECAST		
		2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2018 ANNUAL	2019 ANNUAL	2020 ANNUAL	2021 ANNUAL	2022 ANNUAL
1. TBOND MINUS TBILL (PERCENTAGE POINTS)	36	-0.18	0.13	0.17	0.25	0.32	0.42	0.97	0.04	0.28	0.54	0.50
2. AAA MINUS TBOND (PERCENTAGE POINTS)	26	N.A.	1.28	1.26	1.27	1.25	1.25	N.A.	1.25	1.26	N.A.	N.A.
3. BAA MINUS TBOND (PERCENTAGE POINTS)	26	N.A.	2.19	2.19	2.23	2.23	2.21	N.A.	2.25	2.22	N.A.	N.A.
4. BAA MINUS AAA (PERCENTAGE POINTS)	25	N.A.	0.91	0.95	0.99	1.00	1.00	N.A.	1.00	0.99	N.A.	N.A.

Notes:

TBOND is the rate on 10-year Treasury bonds.  
TBILL is the rate on 3-month Treasury bills.  
AAA is the rate on Moody's Aaa corporate bonds.  
BAA is the rate on Moody's Baa corporate bonds.

The historical values for interest rate spreads for Moody's Aaa and Baa rates are proprietary and therefore not available to the general public.

Each interest rate spread is computed as the median value of the forecasters' spreads. These median values may differ from those computed as the difference between the median values of each interest rate in the spread.

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Fourth Quarter 2019.

TABLE FIVE  
ESTIMATED PROBABILITY OF DECLINE IN REAL GDP

ESTIMATED PROBABILITY (CHANCES IN 100)	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020
	TO Q4 2019	TO Q1 2020	TO Q2 2020	TO Q3 2020	TO Q4 2020
NUMBER OF FORECASTERS					
10 OR LESS	18	9	6	6	5
11 TO 20	7	15	14	7	7
21 TO 30	5	4	7	14	11
31 TO 40	1	2	3	3	5
41 TO 50	0	1	1	1	3
51 TO 60	0	0	0	0	0
61 TO 70	0	0	0	0	0
71 TO 80	0	0	0	0	0
81 TO 90	0	0	0	0	0
91 AND OVER	0	0	0	0	0
NOT REPORTING	8	8	8	8	8
MEAN AND MEDIAN					
MEDIAN PROBABILITY	10.00	15.00	20.00	25.00	25.00
MEAN PROBABILITY	12.84	18.14	20.78	22.56	25.12

Note: Total number of forecasters reporting is 31.

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, Fourth Quarter 2019.

TABLE SIX  
MEAN PROBABILITIES

MEAN PROBABILITY ATTACHED TO POSSIBLE  
CIVILIAN UNEMPLOYMENT RATES:  
(ANNUAL AVERAGE)

	2019	2020	2021	2022
9.0 PERCENT OR MORE	0.00	0.00	0.00	0.00
8.0 TO 8.9 PERCENT	0.00	0.00	0.00	0.02
7.5 TO 7.9 PERCENT	0.00	0.00	0.00	0.06
7.0 TO 7.4 PERCENT	0.00	0.00	0.02	0.33
6.5 TO 6.9 PERCENT	0.00	0.01	0.40	1.39
6.0 TO 6.4 PERCENT	0.10	0.36	1.79	3.34
5.5 TO 5.9 PERCENT	0.16	1.80	4.86	5.92
5.0 TO 5.4 PERCENT	0.68	6.28	13.28	12.45
4.0 TO 4.9 PERCENT	10.51	31.07	35.51	34.01
LESS THAN 4.0 PERCENT	88.55	60.49	44.13	42.48

MEAN PROBABILITY ATTACHED TO POSSIBLE  
PERCENT CHANGES IN REAL GDP:  
(ANNUAL-AVERAGE OVER ANNUAL-AVERAGE)

	2018-2019	2019-2020	2020-2021	2021-2022
6.0 PERCENT OR MORE	0.00	0.02	0.08	0.10
5.0 TO 5.9 PERCENT	0.03	0.14	0.32	0.43
4.0 TO 4.9 PERCENT	0.58	1.14	1.73	2.24
3.0 TO 3.9 PERCENT	3.38	5.63	6.63	8.06
2.0 TO 2.9 PERCENT	76.92	31.31	25.58	28.50
1.0 TO 1.9 PERCENT	16.18	40.56	34.23	31.79
0.0 TO 0.9 PERCENT	2.29	14.79	19.36	18.86
-1.0 TO -0.1 PERCENT	0.48	5.69	8.78	7.61
-2.0 TO -1.1 PERCENT	0.10	0.60	2.62	1.99
-3.0 TO -2.1 PERCENT	0.03	0.10	0.60	0.27
LESS THAN -3.0 PERCENT	0.00	0.03	0.07	0.15

MEAN PROBABILITY ATTACHED TO POSSIBLE  
PERCENT CHANGES IN GDP PRICE INDEX:  
(ANNUAL-AVERAGE OVER ANNUAL-AVERAGE)

	2018-2019	2019-2020
4.0 PERCENT OR MORE	0.00	0.18
3.5 TO 3.9 PERCENT	0.10	0.38
3.0 TO 3.4 PERCENT	1.03	2.58
2.5 TO 2.9 PERCENT	5.07	11.87
2.0 TO 2.4 PERCENT	27.87	33.96
1.5 TO 1.9 PERCENT	55.35	33.12
1.0 TO 1.4 PERCENT	9.38	12.93
0.5 TO 0.9 PERCENT	0.97	3.48
0.0 TO 0.4 PERCENT	0.20	1.22
LESS THAN 0.0 PERCENT	0.03	0.28

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, Fourth Quarter 2019.



TABLE SEVEN  
 MEAN PROBABILITY OF CORE CPI AND CORE PCE INFLATION (Q4/Q4)

MEAN PROBABILITY ATTACHED TO CORE CPI INFLATION:

	18Q4 TO 19Q4	19Q4 TO 20Q4
4.0 PERCENT OR MORE	0.00	0.59
3.5 TO 3.9 PERCENT	0.07	1.57
3.0 TO 3.4 PERCENT	2.14	5.46
2.5 TO 2.9 PERCENT	12.79	20.68
2.0 TO 2.4 PERCENT	59.09	37.42
1.5 TO 1.9 PERCENT	23.46	26.90
1.0 TO 1.4 PERCENT	2.05	5.67
0.5 TO 0.9 PERCENT	0.30	1.31
0.0 TO 0.4 PERCENT	0.10	0.31
LESS THAN 0.0 PERCENT	0.00	0.08

MEAN PROBABILITY ATTACHED TO CORE PCE INFLATION:

	18Q4 TO 19Q4	19Q4 TO 20Q4
4.0 PERCENT OR MORE	0.13	0.61
3.5 TO 3.9 PERCENT	0.49	0.78
3.0 TO 3.4 PERCENT	2.03	3.13
2.5 TO 2.9 PERCENT	6.25	12.89
2.0 TO 2.4 PERCENT	22.17	36.39
1.5 TO 1.9 PERCENT	58.90	32.56
1.0 TO 1.4 PERCENT	8.12	10.33
0.5 TO 0.9 PERCENT	1.50	2.40
0.0 TO 0.4 PERCENT	0.36	0.69
LESS THAN 0.0 PERCENT	0.05	0.21

Source: Research Department, Federal Reserve Bank of Philadelphia.  
 Survey of Professional Forecasters, Fourth Quarter 2019.

TABLE EIGHT  
LONG-TERM (5-YEAR AND 10-YEAR) INFLATION FORECASTS

ANNUAL AVERAGE OVER THE NEXT 5 YEARS: 2019-2023  
=====

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	1.70	MINIMUM	1.68
LOWER QUARTILE	2.00	LOWER QUARTILE	1.80
MEDIAN	2.20	MEDIAN	1.90
UPPER QUARTILE	2.20	UPPER QUARTILE	2.00
MAXIMUM	2.60	MAXIMUM	2.60
MEAN	2.14	MEAN	1.93
STD. DEVIATION	0.19	STD. DEVIATION	0.20
N	29	N	29
MISSING	10	MISSING	10

ANNUAL AVERAGE OVER THE FOLLOWING 5 YEARS: 2024-2028  
=====

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	1.60	MINIMUM	1.60
LOWER QUARTILE	2.00	LOWER QUARTILE	1.93
MEDIAN	2.20	MEDIAN	2.00
UPPER QUARTILE	2.40	UPPER QUARTILE	2.14
MAXIMUM	2.60	MAXIMUM	2.70
MEAN	2.18	MEAN	2.07
STD. DEVIATION	0.25	STD. DEVIATION	0.25
N	27	N	27
MISSING	12	MISSING	12

ANNUAL AVERAGE OVER THE NEXT 10 YEARS: 2019-2028  
=====

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	1.90	MINIMUM	1.77
LOWER QUARTILE	2.00	LOWER QUARTILE	1.90
MEDIAN	2.20	MEDIAN	2.00
UPPER QUARTILE	2.30	UPPER QUARTILE	2.10
MAXIMUM	2.50	MAXIMUM	2.40
MEAN	2.17	MEAN	2.00
STD. DEVIATION	0.17	STD. DEVIATION	0.15
N	27	N	27
MISSING	12	MISSING	12

Note: The summary statistics for each forecast horizon are computed on a sample of panelists that may differ from one horizon to the next. The usual identity linking the 10-year horizon to the two underlying five-year horizons may not hold in the results.

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, Fourth Quarter 2019.