



# SURVEY OF PROFESSIONAL FORECASTERS

Release Date: February 11, 2022

## FIRST QUARTER 2022

### *Forecasters See Slower Growth in the First Quarter*

The U.S. economy for the current quarter looks weaker now than it did in November, according to 36 forecasters surveyed by the Federal Reserve Bank of Philadelphia. The forecasters predict real GDP will grow at an annual rate of 1.8 percent in the first quarter of 2022, down 2.1 percentage points from the prediction of 3.9 percent in the last survey. Using the annual-average over annual-average computation, the panel expects real GDP will grow at an annual rate of 3.7 percent this year, 2.7 percent in 2023, and 2.3 percent in 2024. The annual projections are little changed from the estimates of three months ago.

Downward revisions to the projections for the unemployment rate accompany the outlook for growth. The forecasters expect the unemployment rate will decrease from a projected 3.9 percent this quarter to 3.4 percent in the first quarter of 2023. Using the annual-average computation, the panelists predict the unemployment rate will decline from 3.7 percent in 2022 to 3.4 percent in 2023 and move slightly higher over the next two years. The annual-average projections for 2022 to 2024 are 0.1 to 0.4 percentage point lower than those of the last survey.

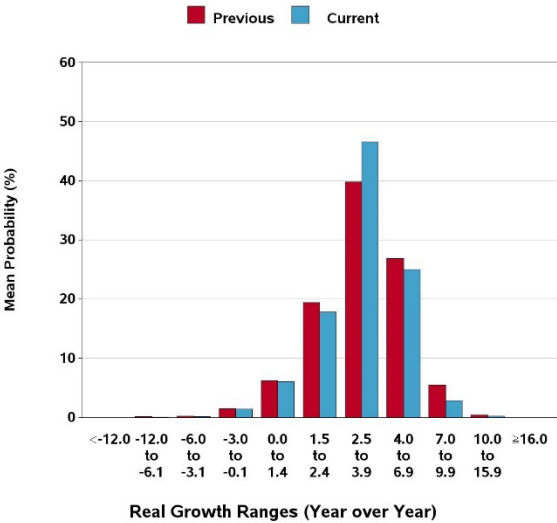
The forecasters have revised upward their estimates for job gains over the first two quarters of 2022. On an annual basis, the projections for the annual-average level of nonfarm payroll employment suggest job gains at a monthly rate of 430,900 in 2022, little changed from the previous estimate. (These annual-average projections 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*

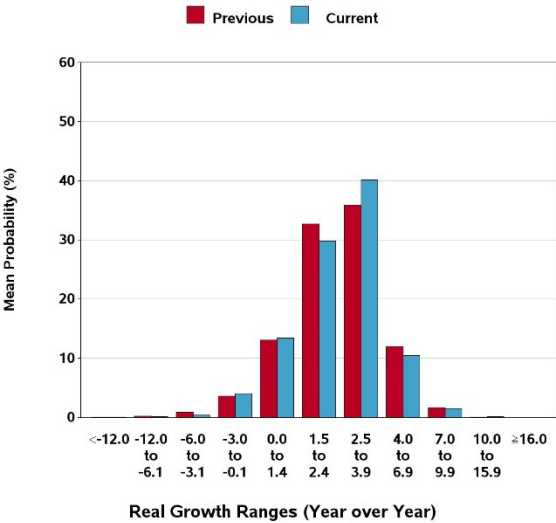
	Real GDP (%)		Unemployment Rate (%)		Payrolls (000s/month)	
	Previous	New	Previous	New	Previous	New
Quarterly data:						
2022:Q1	3.9	1.8	4.3	3.9	407.8	436.1
2022:Q2	4.0	4.2	4.1	3.7	310.9	357.0
2022:Q3	3.1	3.0	3.9	3.6	321.5	257.0
2022:Q4	3.1	2.9	3.9	3.5	306.2	225.4
2023:Q1	N.A.	2.8	N.A.	3.4	N.A.	144.8
Annual data (projections are based on annual-average levels):						
2022	3.9	3.7	4.1	3.7	439.7	430.9
2023	2.6	2.7	3.6	3.4	N.A.	197.2
2024	2.3	2.3	3.7	3.6	N.A.	N.A.
2025	N.A.	2.3	N.A.	3.7	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 forecasters see a higher probability that growth will fall into the range of 2.5 percent to 3.9 percent over each of the next two years than they predicted in the previous survey.

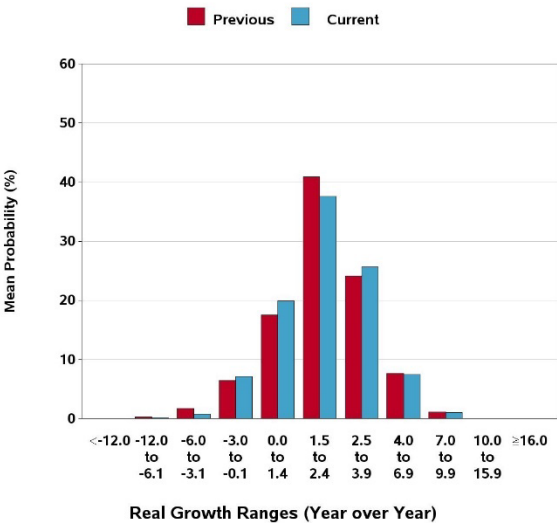
Mean Probabilities for Real GDP Growth in 2022



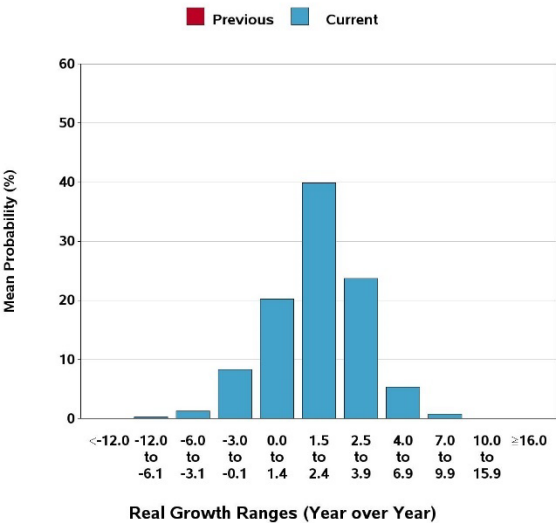
Mean Probabilities for Real GDP Growth in 2023



Mean Probabilities for Real GDP Growth in 2024

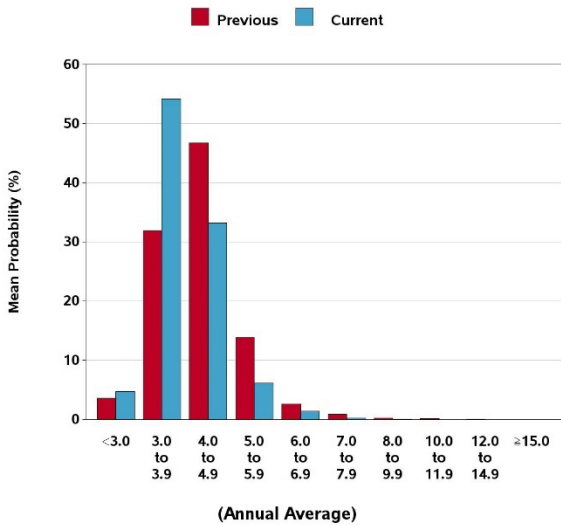


Mean Probabilities for Real GDP Growth in 2025

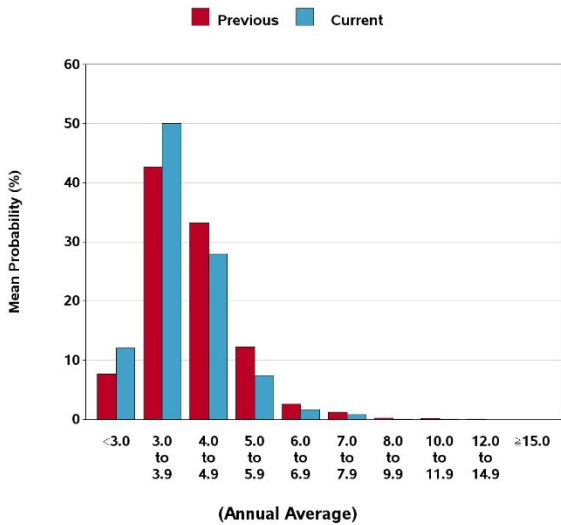


The forecasters' density projections for unemployment, shown below, shed light on uncertainty about the labor market over the next four years. Each chart presents the forecasters' current and previous estimates of the probability that unemployment will fall into each of 10 ranges. The charts show the panelists are raising their probability estimates for an unemployment rate below 4.0 percent over each of the next three years, compared with their previous estimates.

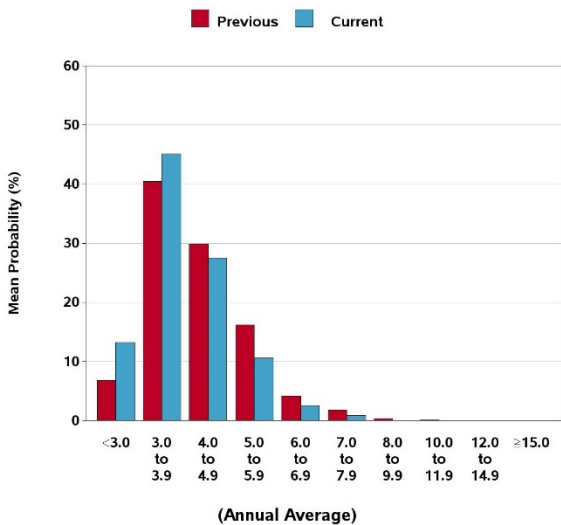
Mean Probabilities for Unemployment Rate in 2022



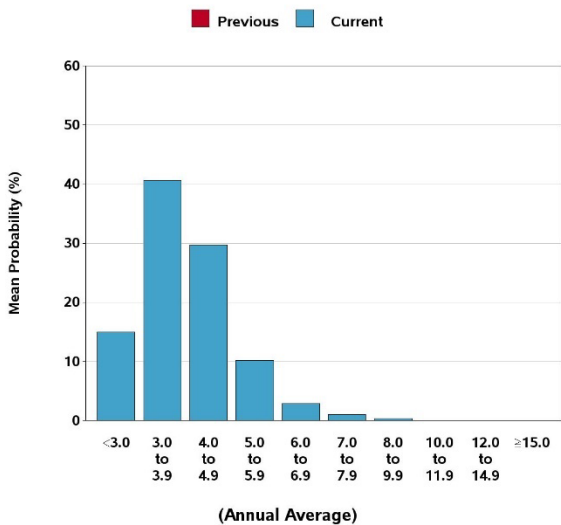
Mean Probabilities for Unemployment Rate in 2023



Mean Probabilities for Unemployment Rate in 2024



Mean Probabilities for Unemployment Rate in 2025



### ***Forecasters See Higher Near-Term Inflation***

The forecasters predict current-quarter headline CPI inflation to average 5.5 percent, up from the forecast of 3.0 percent in the last survey. Headline PCE inflation over the current quarter will be 4.7 percent, up from the previous forecast of 3.0 percent.

Projections for headline and core CPI and PCE inflation in 2022 have been revised upward, compared with the projections in the survey of three months ago.

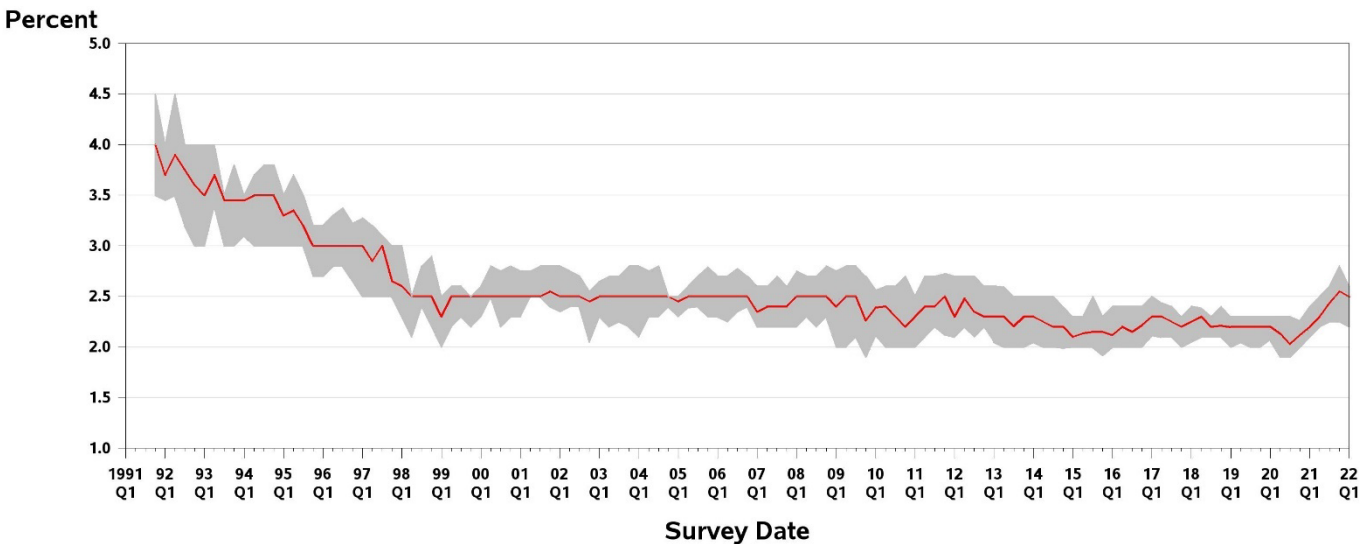
Over the next 10 years, 2022 to 2031, the forecasters predict headline CPI inflation will average 2.50 percent at an annual rate. The corresponding estimate for 10-year annual-average PCE inflation is 2.20 percent. These 10-year projections are slightly below those of the previous survey, which covered the 10-year horizon from 2021 to 2030.

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

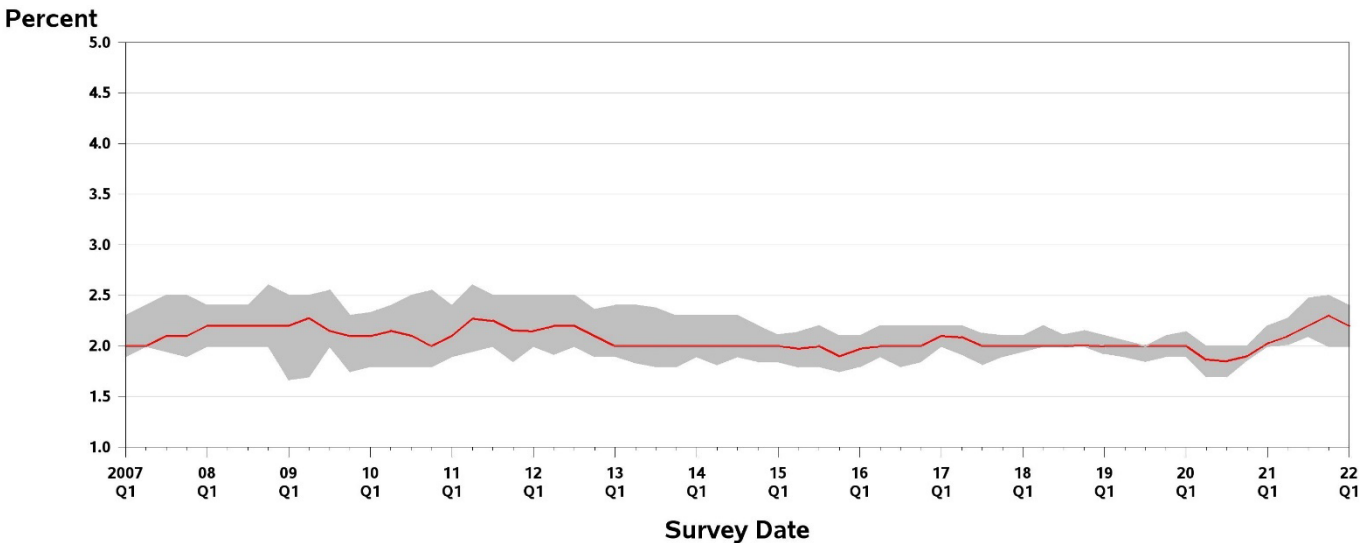
	Headline CPI		Core CPI		Headline PCE		Core PCE	
	Previous	Current	Previous	Current	Previous	Current	Previous	Current
Quarterly								
2022:Q1	3.0	5.5	2.8	5.1	3.0	4.7	2.5	4.3
2022:Q2	2.6	3.8	2.6	3.6	2.5	3.1	2.4	3.1
2022:Q3	2.5	2.7	2.6	3.1	2.3	2.6	2.3	2.5
2022:Q4	2.4	2.7	2.4	2.6	2.2	2.4	2.1	2.3
2023:Q1	N.A.	2.5	N.A.	2.5	N.A.	2.3	N.A.	2.3
Q4/Q4 Annual Averages								
2022	2.7	3.8	2.6	3.6	2.4	3.1	2.3	3.1
2023	2.4	2.4	2.4	2.5	2.2	2.2	2.1	2.2
2024	N.A.	2.3	N.A.	2.4	N.A.	2.2	N.A.	2.2
Long-Term Annual Averages								
2021-2025	2.90	N.A.	N.A.	N.A.	2.59	N.A.	N.A.	N.A.
2022-2026	N.A.	2.70	N.A.	N.A.	N.A.	2.40	N.A.	N.A.
2021-2030	2.55	N.A.	N.A.	N.A.	2.30	N.A.	N.A.	N.A.
2022-2031	N.A.	2.50	N.A.	N.A.	N.A.	2.20	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 10-year annual-average CPI and PCE inflation. The charts show the slightly lower projections for the long-term inflation rate in the current survey.

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

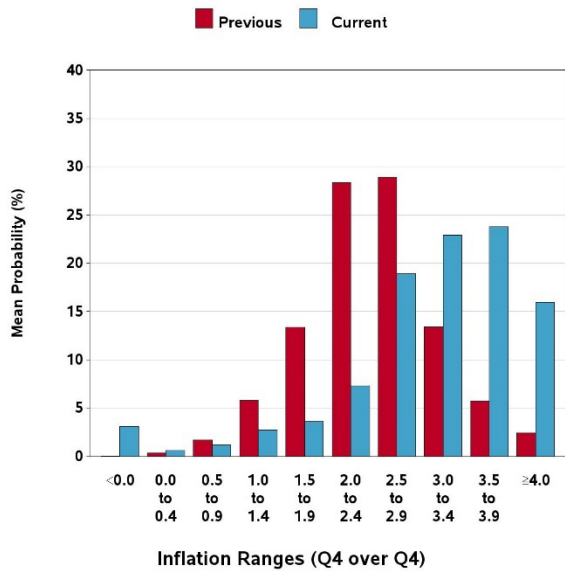


**Projections for the 10-Year Annual-Average Rate of PCE Inflation**  
(Median and Interquartile Range)

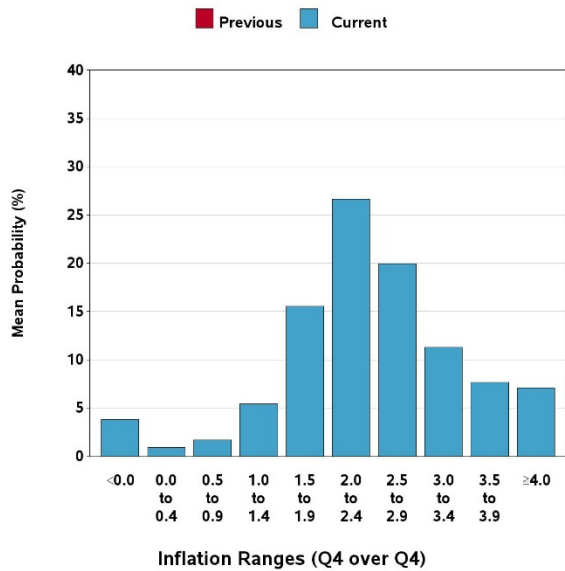


The figures below show the probabilities that the forecasters are assigning to each of 10 possible ranges for fourth-quarter over fourth-quarter core PCE inflation in 2022 and 2023. The forecasters have significantly raised their estimates for the probability that core PCE inflation in 2022 will be 3.0 percent or higher, compared with their estimates of three months ago.

Mean Probabilities for Core PCE Inflation in 2022



Mean Probabilities for Core PCE Inflation in 2023



### Forecasters See a One-in-Five Chance of Negative First-Quarter Real GDP Growth

The forecasters have raised their probability estimates for the risk of a downturn in real GDP this quarter to 20.3 percent, up from 13.3 percent in the previous survey.

Risk of a Negative Quarter (%)  
Survey Means

Quarterly data:	Previous	New
2022:Q1	13.3	20.3
2022:Q2	15.0	14.8
2022:Q3	15.9	17.5
2022:Q4	16.9	16.3
2023:Q1	N.A.	18.1

### ***Forecasters State Their Views on House Price Growth over the Next Two Years***

In a special question in this survey, panelists were asked to provide their forecasts for fourth-quarter over fourth-quarter growth in house prices, as measured by a number of alternative indices. The panelists were allowed to choose their measure from a list of indices or to write in their own index. For each index of their choosing, the panelists provided forecasts for growth in 2022 and 2023.

Fifteen panelists answered the special question. Some panelists provided projections for more than one index. The table below provides a summary of the forecasters' responses. The number of responses (N) is low for each index. The median estimates for the six house price indices listed in the table below range from 7.0 percent to 8.5 percent in 2022 and from 3.9 percent to 6.0 percent in 2023.

#### *Projections for Growth in Various Indices of House Prices Q4/Q4, Percentage Points*

Index	2022 (Q4/Q4 Percent Change)			2023 (Q4/Q4 Percent Change)		
	N	Mean	Median	N	Mean	Median
S&P CoreLogic Case-Shiller: U.S. National	8	7.0	7.3	8	3.8	3.9
S&P CoreLogic Case-Shiller: Composite 10	1	8.1	8.1	1	4.6	4.6
S&P CoreLogic Case-Shiller: Composite 20	4	8.6	8.5	4	4.9	4.8
FHFA: Purchase Only (U.S. Total)	7	9.4	8.1	7	5.6	6.0
CoreLogic: National HPI, incl. Distressed Sales (Single Family Combined)	1	7.0	7.0	1	5.5	5.5
NAR Median: Total Existing	1	7.2	7.2	7	4.8	4.8

### ***Little Change in Long-Term Output and Productivity Growth but Higher Returns on Financial Assets***

In our first-quarter surveys, the forecasters provide their 10-year annual-average projections for an expanded set of variables, including growth in output and productivity, as well as returns on financial assets.

As the table below shows, the forecasters expect real GDP to grow at an annual-average rate of 2.28 percent over the next 10 years, little changed from their projection of 2.25 percent in the first-quarter survey of 2021. Ten-year annual-average productivity growth is now expected to be 1.60 percent, down slightly from 1.75 percent previously.

Higher returns on financial assets over the next 10 years accompany the current long-term outlook for real GDP and productivity. The forecasters predict the S&P 500 returning an annual-average 6.73 percent over the next 10 years, up from the previous estimate of 5.00 percent in the first-quarter survey of 2021. The forecasters see the rate on 10-year Treasuries averaging 3.07 percent over the next 10 years, up from 2.80 percent in last year's first-quarter survey. Three-month Treasury bills will return an annual-average 2.25 percent over the next 10 years, up from 1.75 percent previously.

#### *Median Long-Term (10-Year) Forecasts (%)*

	<i>First Quarter 2021</i>	<i>Current Survey</i>
<i>Real GDP Growth</i>	2.25	2.28
<i>Productivity Growth</i>	1.75	1.60
<i>Stock Returns (S&amp;P 500)</i>	5.00	6.73
<i>Rate on 10-Year Treasury Bonds</i>	2.80	3.07
<i>Bill Returns (3-Month)</i>	1.75	2.25

### ***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:

**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; **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; **Gabriel Ehrlich**, **Daniil Manaenkov**, and **Tereza Ranosova**, RSQE, University of Michigan; **Michael R. Englund**, Action Economics, LLC; **Sacha Gelfer**, Bentley University; **James Glassman**, JPMorgan Chase & Co.; **Jan Hatzius**, Goldman Sachs; **Fred Joutz**, Benchmark Forecasts; **Sam Kahan**, Kahan Consulting Ltd. (ACT Research LLC); **N. Karp**, BBVA Research USA; **Jack Kleinhenz**, Kleinhenz & Associates, Inc.; **Yaniv Konchitchki**, University of California, Berkeley; **Rohan Kumar** and **Allen Sinai**, Decision Economics, Inc.; **Thomas Lam**, Sim Kee Boon Institute, Singapore Management University; **John Lonski**, Moody's Capital Markets Group; **Matthew Luzzetti**, Deutsche Bank Securities; **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; **Nomura Securities International**; **Brendon Ogmundson**, BC Real Estate Association; **Perc Pineda, Ph.D.**, Plastics Industry Association; **Jason Prole**, Capital Risk Management; **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, Inc.; **Stephen Stanley**, Amherst Pierpont Securities; **Charles Steindel**, Editor, NABE *Business Economics*; **Susan M. Sterne**, Economic Analysis Associates, Inc.; **James Sweeney**, Credit Suisse; **Maira Trimble**, Eaton Corporation; **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

	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2022	2023 (YEAR-OVER-YEAR)	2024	2025
PERCENT GROWTH AT ANNUAL RATES									
1. REAL GDP (BILLIONS, CHAIN WEIGHTED)	1.8	4.2	3.0	2.9	2.8	3.7	2.7	2.3	2.3
2. GDP PRICE INDEX (PERCENT CHANGE)	4.2	3.5	2.3	2.6	2.8	4.6	2.3	N.A.	N.A.
3. NOMINAL GDP (\$ BILLIONS)	6.0	7.7	5.9	5.1	4.9	8.4	5.2	N.A.	N.A.
4. NONFARM PAYROLL EMPLOYMENT (PERCENT CHANGE)	3.6	2.9	2.1	1.8	1.1	3.5	1.6	N.A.	N.A.
(AVG MONTHLY CHANGE)	436.1	357.0	257.0	225.4	144.8	430.9	197.2	N.A.	N.A.
VARIABLES IN LEVELS									
5. UNEMPLOYMENT RATE (PERCENT)	3.9	3.7	3.6	3.5	3.4	3.7	3.4	3.6	3.7
6. 3-MONTH TREASURY BILL (PERCENT)	0.2	0.6	0.8	1.1	1.2	0.7	1.5	1.9	2.1
7. 10-YEAR TREASURY BOND (PERCENT)	1.8	2.0	2.2	2.3	2.4	2.1	2.6	2.8	3.0
	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2022	2023 (Q4-OVER-Q4)	2024	
INFLATION INDICATORS									
8. CPI (ANNUAL RATE)	5.5	3.8	2.7	2.7	2.5	3.8	2.4	2.3	
9. CORE CPI (ANNUAL RATE)	5.1	3.6	3.1	2.6	2.5	3.6	2.5	2.4	
10. PCE (ANNUAL RATE)	4.7	3.1	2.6	2.4	2.3	3.1	2.2	2.2	
11. CORE PCE (ANNUAL RATE)	4.3	3.1	2.5	2.3	2.3	3.1	2.2	2.2	

Note: The figures on each line are medians of 36 forecasters.

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, First Quarter 2022.

## **SURVEY OF PROFESSIONAL FORECASTERS**

**First Quarter 2022**

### **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 January 27, 2022; the tables do not reflect subsequent revisions to the data. All forecasts were received on or before February 7, 2022.

TABLE ONE  
MAJOR MACROECONOMIC INDICATORS  
MEDIAN OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL	FORECAST					ACTUAL	FORECAST			
		2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2021 ANNUAL	2022 ANNUAL	2023 ANNUAL	2024 ANNUAL	2025 ANNUAL
1. GROSS DOMESTIC PRODUCT (GDP) (\$ BILLIONS)	35	23992	24344	24802	25161	25475	25782	22993	24934	26233	N.A.	N.A.
2. GDP PRICE INDEX (2012=100)	34	121.28	122.52	123.60	124.30	125.09	125.96	118.48	123.92	126.80	N.A.	N.A.
3. CORPORATE PROFITS AFTER TAXES (\$ BILLIONS)	15	N.A.	2584.6	2622.4	2638.0	2669.4	2665.0	N.A.	2632.6	2707.6	N.A.	N.A.
4. UNEMPLOYMENT RATE (PERCENT)	35	4.2	3.9	3.7	3.6	3.5	3.4	5.4	3.7	3.4	3.6	3.7
5. NONFARM PAYROLL EMPLOYMENT (THOUSANDS)	30	148735	150043	151114	151886	152562	152996	146147	151318	153685	N.A.	N.A.
6. INDUSTRIAL PRODUCTION (2017=100)	27	101.7	102.5	103.5	104.4	105.2	105.8	100.2	104.0	106.3	N.A.	N.A.
7. NEW PRIVATE HOUSING STARTS (ANNUAL RATE, MILLIONS)	29	1.64	1.65	1.65	1.65	1.65	1.65	1.60	1.66	1.63	N.A.	N.A.
8. 3-MONTH TREASURY BILL RATE (PERCENT)	33	0.05	0.24	0.55	0.80	1.08	1.21	0.04	0.67	1.48	1.85	2.10
9. MOODY'S AAA CORP BOND YIELD * (PERCENT)	20	N.A.	3.00	3.18	3.38	3.53	3.69	N.A.	3.27	3.87	N.A.	N.A.
10. MOODY'S BAA CORP BOND YIELD * (PERCENT)	20	N.A.	3.65	3.84	4.08	4.33	4.52	N.A.	3.97	4.68	N.A.	N.A.
11. 10-YEAR TREASURY BOND YIELD (PERCENT)	33	1.54	1.84	2.00	2.15	2.27	2.38	1.44	2.06	2.56	2.82	3.03
12. REAL GDP (BILLIONS, CHAIN WEIGHTED)	36	19806	19893	20097	20244	20390	20533	19427	20152	20699	21185	21673
13. TOTAL CONSUMPTION EXPENDITURE (BILLIONS, CHAIN WEIGHTED)	32	13842.7	13918.6	14042.9	14137.4	14230.4	14322.0	13630.9	14081.5	14452.4	N.A.	N.A.
14. NONRESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	31	2899.3	2953.2	2996.5	3037.1	3074.6	3113.4	2866.9	3017.6	3138.7	N.A.	N.A.
15. RESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	31	692.8	698.6	707.2	713.1	718.7	725.3	706.5	708.7	730.3	N.A.	N.A.
16. FEDERAL GOVERNMENT C & I (BILLIONS, CHAIN WEIGHTED)	31	1325.6	1331.6	1335.8	1339.6	1343.9	1348.0	1349.2	1338.4	1353.6	N.A.	N.A.
17. STATE AND LOCAL GOVT C & I (BILLIONS, CHAIN WEIGHTED)	32	2030.7	2040.8	2052.4	2063.3	2073.3	2084.6	2027.0	2057.5	2097.1	N.A.	N.A.
18. CHANGE IN PRIVATE INVENTORIES (BILLIONS, CHAIN WEIGHTED)	29	173.5	105.0	93.5	89.0	90.5	91.9	-37.5	89.0	88.5	N.A.	N.A.
19. NET EXPORTS (BILLIONS, CHAIN WEIGHTED)	31	-1338.0	-1337.2	-1350.0	-1359.9	-1360.3	-1365.9	-1281.3	-1354.3	-1384.1	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, First Quarter 2022.

TABLE TWO  
MAJOR MACROECONOMIC INDICATORS  
PERCENTAGE CHANGES AT ANNUAL RATES

	NUMBER OF FORECASTERS	Q4 2021 TO Q1 2022	Q1 2022 TO Q2 2022	Q2 2022 TO Q3 2022	Q3 2022 TO Q4 2022	Q4 2022 TO Q1 2023	2021 TO 2022	2022 TO 2023	2023 TO 2024	2024 TO 2025
1. GROSS DOMESTIC PRODUCT (GDP) (\$ BILLIONS)	35	6.0	7.7	5.9	5.1	4.9	8.4	5.2	N.A.	N.A.
2. GDP PRICE INDEX (2012=100)	34	4.2	3.5	2.3	2.6	2.8	4.6	2.3	N.A.	N.A.
3. CORPORATE PROFITS AFTER TAXES (\$ BILLIONS)	15	0.6	6.0	2.4	4.8	-0.7	8.0	2.9	N.A.	N.A.
4. UNEMPLOYMENT RATE (PERCENT)	35	-0.3	-0.2	-0.1	-0.1	-0.1	-1.7	-0.3	0.1	0.1
5. NONFARM PAYROLL EMPLOYMENT (PERCENT CHANGE)	30	3.6	2.9	2.1	1.8	1.1	3.5	1.6	N.A.	N.A.
(AVG MONTHLY CHANGE)	30	436.1	357.0	257.0	225.4	144.8	430.9	197.2	N.A.	N.A.
6. INDUSTRIAL PRODUCTION (2017=100)	27	3.2	4.1	3.5	3.2	2.0	3.7	2.3	N.A.	N.A.
7. NEW PRIVATE HOUSING STARTS (ANNUAL RATE, MILLIONS)	29	1.5	1.2	-1.4	0.2	-1.0	3.7	-1.7	N.A.	N.A.
8. 3-MONTH TREASURY BILL RATE (PERCENT)	33	0.19	0.31	0.25	0.28	0.13	0.63	0.81	0.38	0.25
9. MOODY'S AAA CORP BOND YIELD * (PERCENT)	20	N.A.	0.18	0.21	0.15	0.15	N.A.	0.60	N.A.	N.A.
10. MOODY'S BAA CORP BOND YIELD * (PERCENT)	20	N.A.	0.19	0.24	0.25	0.19	N.A.	0.71	N.A.	N.A.
11. 10-YEAR TREASURY BOND YIELD (PERCENT)	33	0.30	0.16	0.15	0.12	0.11	0.62	0.50	0.25	0.22
12. REAL GDP (BILLIONS, CHAIN WEIGHTED)	36	1.8	4.2	3.0	2.9	2.8	3.7	2.7	2.3	2.3
13. TOTAL CONSUMPTION EXPENDITURE (BILLIONS, CHAIN WEIGHTED)	32	2.2	3.6	2.7	2.7	2.6	3.3	2.6	N.A.	N.A.
14. NONRESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	31	7.6	6.0	5.5	5.0	5.1	5.3	4.0	N.A.	N.A.
15. RESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	31	3.4	5.0	3.4	3.2	3.7	0.3	3.0	N.A.	N.A.
16. FEDERAL GOVERNMENT C & I (BILLIONS, CHAIN WEIGHTED)	31	1.8	1.3	1.1	1.3	1.2	-0.8	1.1	N.A.	N.A.
17. STATE AND LOCAL GOVT C & I (BILLIONS, CHAIN WEIGHTED)	32	2.0	2.3	2.1	2.0	2.2	1.5	1.9	N.A.	N.A.
18. CHANGE IN PRIVATE INVENTORIES (BILLIONS, CHAIN WEIGHTED)	29	-68.5	-11.5	-4.5	1.5	1.4	126.5	-0.5	N.A.	N.A.
19. NET EXPORTS (BILLIONS, CHAIN WEIGHTED)	31	0.8	-12.8	-9.9	-0.4	-5.6	-73.0	-29.7	N.A.	N.A.

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

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, First Quarter 2022.

TABLE THREE  
MAJOR PRICE INDICATORS  
MEDIAN OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL	FORECAST (Q/Q)						ACTUAL	FORECAST (Q4/Q4)		
		2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1		2021 ANNUAL	2022 ANNUAL	2023 ANNUAL	2024 ANNUAL
1. CONSUMER PRICE INDEX (ANNUAL RATE)	34	8.2	5.5	3.8	2.7	2.7	2.5		6.8	3.8	2.4	2.3
2. CORE CONSUMER PRICE INDEX (ANNUAL RATE)	34	5.5	5.1	3.6	3.1	2.6	2.5		5.0	3.6	2.5	2.4
3. PCE PRICE INDEX (ANNUAL RATE)	34	6.5	4.7	3.1	2.6	2.4	2.3		5.5	3.1	2.2	2.2
4. CORE PCE PRICE INDEX (ANNUAL RATE)	34	4.9	4.3	3.1	2.5	2.3	2.3		4.6	3.1	2.2	2.2

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, First Quarter 2022.

TABLE FOUR  
YIELD SPREADS  
MEDIAN OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL	FORECAST					ACTUAL	FORECAST			
		2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2021 ANNUAL	2022 ANNUAL	2023 ANNUAL	2024 ANNUAL	2025 ANNUAL
1. TBOND MINUS TBILL (PERCENTAGE POINTS)	32	1.48	1.60	1.49	1.45	1.32	1.27	1.40	1.45	1.22	1.05	0.87
2. AAA MINUS TBOND (PERCENTAGE POINTS)	20	N.A.	1.15	1.19	1.18	1.18	1.17	N.A.	1.17	1.23	N.A.	N.A.
3. BAA MINUS TBOND (PERCENTAGE POINTS)	20	N.A.	1.81	1.88	1.90	1.94	2.00	N.A.	1.89	2.04	N.A.	N.A.
4. BAA MINUS AAA (PERCENTAGE POINTS)	20	N.A.	0.68	0.69	0.72	0.74	0.77	N.A.	0.71	0.83	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, First Quarter 2022.

TABLE FIVE  
ESTIMATED PROBABILITY OF DECLINE IN REAL GDP

ESTIMATED PROBABILITY (CHANCES IN 100)	Q4 2021 TO Q1 2022	Q1 2022 TO Q2 2022	Q2 2022 TO Q3 2022	Q3 2022 TO Q4 2022	Q4 2022 TO Q1 2023
NUMBER OF FORECASTERS					
10 OR LESS	11	12	10	11	7
11 TO 20	6	10	11	11	14
21 TO 30	6	4	5	3	3
31 TO 40	2	1	1	3	3
41 TO 50	1	0	1	0	0
51 TO 60	0	0	0	0	0
61 TO 70	0	0	0	0	0
71 TO 80	1	0	0	0	0
81 TO 90	0	0	0	0	0
91 AND OVER	0	0	0	0	0
NOT REPORTING	9	9	8	8	9
MEAN AND MEDIAN					
MEDIAN PROBABILITY	15.00	13.80	15.00	14.50	15.00
MEAN PROBABILITY	20.31	14.81	17.45	16.31	18.07

Note: Total number of forecasters reporting is 27.

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, First Quarter 2022.

TABLE SIX  
MEAN PROBABILITIES

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

	2022	2023	2024	2025
15.0 PERCENT OR MORE	0.00	0.00	0.00	0.00
12.0 TO 14.9 PERCENT	0.00	0.00	0.00	0.00
10.0 TO 11.9 PERCENT	0.00	0.00	0.00	0.01
8.0 TO 9.9 PERCENT	0.07	0.05	0.02	0.38
7.0 TO 7.9 PERCENT	0.20	0.78	0.89	1.09
6.0 TO 6.9 PERCENT	1.42	1.68	2.60	2.94
5.0 TO 5.9 PERCENT	6.17	7.43	10.64	10.23
4.0 TO 4.9 PERCENT	33.23	27.96	27.55	29.71
3.0 TO 3.9 PERCENT	54.19	50.04	45.11	40.62
LESS THAN 3.0 PERCENT	4.71	12.07	13.20	15.03

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

	2021-2022	2022-2023	2023-2024	2024-2025
16.0 PERCENT OR MORE	0.00	0.00	0.00	0.00
10.0 TO 15.9 PERCENT	0.21	0.14	0.05	0.00
7.0 TO 9.9 PERCENT	2.81	1.51	1.06	0.79
4.0 TO 6.9 PERCENT	25.00	10.49	7.50	5.38
2.5 TO 3.9 PERCENT	46.57	40.12	25.65	23.72
1.5 TO 2.4 PERCENT	17.80	29.79	37.62	39.89
0.0 TO 1.4 PERCENT	6.04	13.38	19.88	20.24
-3.0 TO -0.1 PERCENT	1.38	4.00	7.14	8.31
-6.0 TO -3.1 PERCENT	0.14	0.39	0.82	1.34
-12.0 TO -6.1 PERCENT	0.03	0.14	0.23	0.28
LESS THAN -12.0 PERCENT	0.00	0.04	0.05	0.06

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

	2021-2022	2022-2023
4.0 PERCENT OR MORE	55.23	9.77
3.5 TO 3.9 PERCENT	19.76	9.76
3.0 TO 3.4 PERCENT	9.60	18.05
2.5 TO 2.9 PERCENT	6.30	22.08
2.0 TO 2.4 PERCENT	5.31	23.32
1.5 TO 1.9 PERCENT	2.91	11.29
1.0 TO 1.4 PERCENT	0.71	3.84
0.5 TO 0.9 PERCENT	0.18	1.01
0.0 TO 0.4 PERCENT	0.00	0.50
LESS THAN 0.0 PERCENT	0.00	0.38

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, First Quarter 2022.



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

MEAN PROBABILITY ATTACHED TO CORE CPI INFLATION:

	21Q4 TO 22Q4	22Q4 TO 23Q4
	<hr/>	<hr/>
4.0 PERCENT OR MORE	28.81	8.14
3.5 TO 3.9 PERCENT	23.04	10.21
3.0 TO 3.4 PERCENT	23.37	16.24
2.5 TO 2.9 PERCENT	10.73	25.21
2.0 TO 2.4 PERCENT	5.95	22.55
1.5 TO 1.9 PERCENT	2.18	9.47
1.0 TO 1.4 PERCENT	1.64	2.87
0.5 TO 0.9 PERCENT	0.77	0.92
0.0 TO 0.4 PERCENT	0.56	0.81
LESS THAN 0.0 PERCENT	2.96	3.57

MEAN PROBABILITY ATTACHED TO CORE PCE INFLATION:

	21Q4 TO 22Q4	22Q4 TO 23Q4
	<hr/>	<hr/>
4.0 PERCENT OR MORE	15.97	7.09
3.5 TO 3.9 PERCENT	23.77	7.66
3.0 TO 3.4 PERCENT	22.93	11.29
2.5 TO 2.9 PERCENT	18.89	19.97
2.0 TO 2.4 PERCENT	7.28	26.66
1.5 TO 1.9 PERCENT	3.60	15.52
1.0 TO 1.4 PERCENT	2.74	5.45
0.5 TO 0.9 PERCENT	1.18	1.66
0.0 TO 0.4 PERCENT	0.58	0.90
LESS THAN 0.0 PERCENT	3.08	3.80

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, First Quarter 2022.

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

ANNUAL AVERAGE OVER THE NEXT 5 YEARS: 2022-2026  
=====

CPI INFLATION RATE		PCE INFLATION RATE	
-----		-----	
MINIMUM	1.80	MINIMUM	1.60
LOWER QUARTILE	2.40	LOWER QUARTILE	2.20
MEDIAN	2.70	MEDIAN	2.40
UPPER QUARTILE	3.10	UPPER QUARTILE	2.70
MAXIMUM	4.10	MAXIMUM	3.80
MEAN	2.77	MEAN	2.48
STD. DEVIATION	0.53	STD. DEVIATION	0.48
N	27	N	26
MISSING	9	MISSING	10

ANNUAL AVERAGE OVER THE FOLLOWING 5 YEARS: 2027-2031  
=====

CPI INFLATION RATE		PCE INFLATION RATE	
-----		-----	
MINIMUM	1.51	MINIMUM	1.60
LOWER QUARTILE	2.00	LOWER QUARTILE	1.80
MEDIAN	2.15	MEDIAN	2.00
UPPER QUARTILE	2.40	UPPER QUARTILE	2.10
MAXIMUM	2.90	MAXIMUM	3.10
MEAN	2.19	MEAN	2.00
STD. DEVIATION	0.31	STD. DEVIATION	0.32
N	26	N	25
MISSING	10	MISSING	11

ANNUAL AVERAGE OVER THE NEXT 10 YEARS: 2022-2031  
=====

CPI INFLATION RATE		PCE INFLATION RATE	
-----		-----	
MINIMUM	2.00	MINIMUM	1.70
LOWER QUARTILE	2.20	LOWER QUARTILE	2.00
MEDIAN	2.50	MEDIAN	2.20
UPPER QUARTILE	2.60	UPPER QUARTILE	2.40
MAXIMUM	3.30	MAXIMUM	3.20
MEAN	2.49	MEAN	2.25
STD. DEVIATION	0.36	STD. DEVIATION	0.36
N	26	N	25
MISSING	10	MISSING	11

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, First Quarter 2022.

TABLE NINE  
ADDITIONAL LONG-TERM (10-YEAR) FORECASTS

ANNUAL AVERAGE OVER THE NEXT 10 YEARS: 2022-2031

=====

REAL GDP GROWTH RATE		PRODUCTIVITY GROWTH RATE	
-----		-----	
MINIMUM	1.70	MINIMUM	1.20
LOWER QUARTILE	2.00	LOWER QUARTILE	1.50
MEDIAN	2.28	MEDIAN	1.60
UPPER QUARTILE	2.49	UPPER QUARTILE	1.90
MAXIMUM	2.80	MAXIMUM	3.00
MEAN	2.25	MEAN	1.71
STD. DEVIATION	0.32	STD. DEVIATION	0.44
N	24	N	17
MISSING	12	MISSING	19

STOCK RETURNS (S&P 500)		BOND RATE (10-YEAR)		BILL RETURNS (3-MONTH)	
-----		-----		-----	
MINIMUM	4.00	MINIMUM	2.00	MINIMUM	1.20
LOWER QUARTILE	5.00	LOWER QUARTILE	2.80	LOWER QUARTILE	1.70
MEDIAN	6.73	MEDIAN	3.07	MEDIAN	2.25
UPPER QUARTILE	8.00	UPPER QUARTILE	3.40	UPPER QUARTILE	2.50
MAXIMUM	10.40	MAXIMUM	3.75	MAXIMUM	2.80
MEAN	6.91	MEAN	3.03	MEAN	2.10
STD. DEVIATION	1.95	STD. DEVIATION	0.45	STD. DEVIATION	0.46
N	13	N	21	N	21
MISSING	23	MISSING	15	MISSING	15

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, First Quarter 2022.

SUMMARY TABLE  
SURVEY OF PROFESSIONAL FORECASTERS  
MAJOR MACROECONOMIC INDICATORS

	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2022	2023 (YEAR-OVER-YEAR)	2024	2025
PERCENT GROWTH AT ANNUAL RATES									
1. REAL GDP (BILLIONS, CHAIN WEIGHTED)	1.8	4.2	3.0	2.9	2.8	3.7	2.7	2.3	2.3
2. GDP PRICE INDEX (PERCENT CHANGE)	4.2	3.5	2.3	2.6	2.8	4.6	2.3	N.A.	N.A.
3. NOMINAL GDP (\$ BILLIONS)	6.0	7.7	5.9	5.1	4.9	8.4	5.2	N.A.	N.A.
4. NONFARM PAYROLL EMPLOYMENT (PERCENT CHANGE)	3.6	2.9	2.1	1.8	1.1	3.5	1.6	N.A.	N.A.
(AVG MONTHLY CHANGE)	436.1	357.0	257.0	225.4	144.8	430.9	197.2	N.A.	N.A.
VARIABLES IN LEVELS									
5. UNEMPLOYMENT RATE (PERCENT)	3.9	3.7	3.6	3.5	3.4	3.7	3.4	3.6	3.7
6. 3-MONTH TREASURY BILL (PERCENT)	0.2	0.6	0.8	1.1	1.2	0.7	1.5	1.9	2.1
7. 10-YEAR TREASURY BOND (PERCENT)	1.8	2.0	2.2	2.3	2.4	2.1	2.6	2.8	3.0
	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2022	2023 (Q4-OVER-Q4)	2024	
INFLATION INDICATORS									
8. CPI (ANNUAL RATE)	5.5	3.8	2.7	2.7	2.5	3.8	2.4	2.3	
9. CORE CPI (ANNUAL RATE)	5.1	3.6	3.1	2.6	2.5	3.6	2.5	2.4	
10. PCE (ANNUAL RATE)	4.7	3.1	2.6	2.4	2.3	3.1	2.2	2.2	
11. CORE PCE (ANNUAL RATE)	4.3	3.1	2.5	2.3	2.3	3.1	2.2	2.2	

Note: The figures on each line are medians of 36 forecasters.

Source: Research Department, Federal Reserve Bank of Philadelphia.  
Survey of Professional Forecasters, First Quarter 2022.