Forecasts and projections for the second half of 2020 and the first half of 2021 are detailed in the December Livingston Survey.

**Growth Rate of Real GDP (%)**

<table>
<thead>
<tr>
<th>Half-year data:</th>
<th>Previous</th>
<th>New</th>
<th>Unemployment Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020 Q2 to 2020 Q4</td>
<td>9.6</td>
<td>18.0</td>
<td>December 2020</td>
</tr>
<tr>
<td>2020 Q4 to 2021 Q2</td>
<td>7.2</td>
<td>2.9</td>
<td>June 2021</td>
</tr>
<tr>
<td>2021 Q2 to 2021 Q4</td>
<td>N.A.</td>
<td>3.7</td>
<td>December 2021</td>
</tr>
</tbody>
</table>

**Projections Increase for Year-over-Year Inflation**

On an annual-average over annual-average basis, the forecasters have revised upward their CPI inflation and PPI inflation projections for 2020 and 2021. CPI inflation is projected to be 1.2 percent in 2020 and then hold steady at 2.1 percent for 2021 and 2022. The PPI inflation projection remains negative for 2020, at -1.4 percent, but is higher than the previous survey’s projection of -2.1 percent. The forecasters project PPI inflation will average 2.4 percent in 2021 and 2.7 percent in 2022.

<table>
<thead>
<tr>
<th>Annual-average data:</th>
<th>Previous</th>
<th>New</th>
<th>Previous</th>
<th>New</th>
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</thead>
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<tr>
<td>2019 to 2020</td>
<td>0.8</td>
<td>1.2</td>
<td>-2.1</td>
<td>-1.4</td>
</tr>
<tr>
<td>2020 to 2021</td>
<td>1.6</td>
<td>2.1</td>
<td>2.2</td>
<td>2.4</td>
</tr>
<tr>
<td>2021 to 2022</td>
<td>N.A.</td>
<td>2.1</td>
<td>N.A.</td>
<td>2.7</td>
</tr>
</tbody>
</table>
Short-Term and Long-Term Rates Remain Low
The forecasters slightly revised downward their expectations for the rate on three-month Treasury bills compared with their expectations six months ago. The forecasters predict that the three-month rate will hold steady at 0.10 percent through December 2021. In December 2022, the three-month Treasury bill interest rate is expected to increase slightly to 0.13 percent. Compared with six months ago, the forecasters revised upward their expectations for the rate on 10-year Treasury bonds for December 2020 (to 0.89 percent) and downward for June and December 2021 (to 1.00 and 1.20 percent, respectively).

<table>
<thead>
<tr>
<th>3-Month Treasury Bill</th>
<th>10-Year Treasury Bond</th>
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</thead>
<tbody>
<tr>
<td><strong>Interest Rate</strong></td>
<td><strong>Interest Rate</strong></td>
</tr>
<tr>
<td><strong>Previous</strong></td>
<td><strong>New</strong></td>
</tr>
<tr>
<td><strong>Previous</strong></td>
<td><strong>New</strong></td>
</tr>
<tr>
<td>Dec. 31, 2020</td>
<td>0.14</td>
</tr>
<tr>
<td>Jun. 30, 2021</td>
<td>0.15</td>
</tr>
<tr>
<td>Dec. 31, 2021</td>
<td>0.20</td>
</tr>
<tr>
<td>Dec. 31, 2022</td>
<td>N.A.</td>
</tr>
<tr>
<td>Dec. 31, 2022</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Long-Term Output Projections Remain Steady but Increase for Inflation
The forecasters expect real GDP to grow at an annual-average rate of 2.20 percent over the next 10 years. This expectation is unchanged from that of the previous survey of six months ago. Inflation over the next 10 years, measured by the CPI, is projected to be slightly higher than that projected six months ago, increasing from 2.00 percent in the previous survey to 2.23 percent in the current survey.

Forecasters Increase Their Expectations for Stock Prices
The panel projects that stock prices, as measured by the S&P 500 Index, will increase steadily from the end of 2020 to the end of 2022. The panel sees prices at 3600.0 at the end of December 2020, 3650.0 at the end of June 2021, and 3745.0 at the end of December 2021. These projections are higher than those of the previous survey of six months ago. In addition, the panel expects stock prices to reach 3899.2 by the end of 2022.

<table>
<thead>
<tr>
<th>Stock Prices (end of period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500 Index</td>
</tr>
<tr>
<td><strong>Previous</strong></td>
</tr>
<tr>
<td>Dec. 31, 2020</td>
</tr>
<tr>
<td>Jun. 30, 2021</td>
</tr>
<tr>
<td>Dec. 31, 2021</td>
</tr>
<tr>
<td>Dec. 31, 2022</td>
</tr>
</tbody>
</table>
**Technical Notes**
This news release reports the median value across the 22 forecasters on the survey’s panel. All forecasts were submitted before the December 4, 2020, employment report.

The Philadelphia Fed’s *Livingston Survey* is the oldest survey of economists’ expectations. The survey was started in 1946 by the late columnist Joseph A. Livingston. It summarizes the forecast of economists from industry, government, banking and academia. It is published twice a year, in June and December.

To subscribe to the survey, go to https://www.philadelphiafed.org/notifications.

|------------------------------|------------------|------|-----------------------------|------------------------|----------------------------------|-------------------------------|-----------------------|----------------------|------------------------|----------------------|------------------------|------------------------|
## Livingston Survey Summary Table

### Major Macroeconomic Indicators, 2020-2022

#### Quarterly Indicators

<table>
<thead>
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<tbody>
<tr>
<td>Real Gross Domestic Product</td>
<td>18.0</td>
<td>2.9</td>
<td>3.7</td>
<td>-3.5</td>
<td>4.1</td>
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<tr>
<td>Nominal Gross Domestic Product</td>
<td>21.3</td>
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</tr>
<tr>
<td>Nonresidential Fixed Investment</td>
<td>13.5</td>
<td>3.3</td>
<td>5.2</td>
<td>-4.6</td>
<td>4.2</td>
<td>4.7</td>
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<tr>
<td>Corporate Profits After Taxes</td>
<td>59.4</td>
<td>2.0</td>
<td>3.3</td>
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<td>9.7</td>
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#### Monthly Indicators

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<tr>
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<th>Dec 2020</th>
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<th>Dec 2021</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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<tbody>
<tr>
<td>Industrial Production</td>
<td>13.1</td>
<td>3.8</td>
<td>4.5</td>
<td>-7.1</td>
<td>5.0</td>
<td>3.4</td>
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<tr>
<td>Producer Prices - Finished Goods</td>
<td>3.3</td>
<td>2.7</td>
<td>2.7</td>
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<td>2.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Consumer Price Index (CPI-U)</td>
<td>3.1</td>
<td>1.9</td>
<td>2.5</td>
<td>1.2</td>
<td>2.1</td>
<td>2.1</td>
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<tr>
<td>Average Weekly Earnings in Mfg.</td>
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<td>3.0</td>
<td>4.4</td>
<td>0.4</td>
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<td>Retail Trade</td>
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#### Financial Indicators

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<td>Prime Interest Rate</td>
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<td>3.25</td>
<td>3.25</td>
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<td>10-Year Treasury Note Yield</td>
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<td>1.00</td>
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<td>3-Month Treasury Bill Rate</td>
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<td>Stock Prices (S&amp;P500)</td>
<td>3600.0</td>
<td>3650.0</td>
<td>3745.0</td>
<td>3899.2</td>
</tr>
</tbody>
</table>

### Long-Term Outlook

Average Annual Growth Rate for the Next Ten Years

- Real GDP: 2.20
- Consumer Price Index: 2.23

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 November 19; the tables do not reflect subsequent revisions to the data. All forecasts were received on or before December 1.
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<td>1. Real Gross Domestic Product</td>
<td>22</td>
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<td>18795.6</td>
<td>19065.8</td>
<td>19412.0</td>
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<td>2. Nominal Gross Domestic Product</td>
<td>22</td>
<td>19520.1</td>
<td>21502.3</td>
<td>22020.2</td>
<td>22575.1</td>
<td>21433.2</td>
<td>20930.6</td>
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<td>3. Nonresidential Fixed Investment</td>
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<td>2525.5</td>
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<td>2734.0</td>
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<td>2776.8</td>
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<td>4. Corporate Profits After Taxes</td>
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<td>5. Industrial Production</td>
<td>19</td>
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<td>103.8</td>
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<td>(2012=100)</td>
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<tr>
<td>6. Total Private Housing Starts</td>
<td>18</td>
<td>1.265</td>
<td>1.506</td>
<td>1.500</td>
<td>1.485</td>
<td>1.295</td>
<td>1.365</td>
<td>1.460</td>
<td>1.473</td>
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<tr>
<td>7. Producer Prices – Finished Goods</td>
<td>13</td>
<td>201.1</td>
<td>204.4</td>
<td>207.2</td>
<td>210.0</td>
<td>205.7</td>
<td>202.9</td>
<td>207.7</td>
<td>213.3</td>
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<tr>
<td>(index level)</td>
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<td>8. Consumer Price Index (CPI-U)</td>
<td>20</td>
<td>257.2</td>
<td>261.2</td>
<td>263.7</td>
<td>266.9</td>
<td>255.7</td>
<td>258.8</td>
<td>264.2</td>
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<tr>
<td>9. Unemployment Rate</td>
<td>20</td>
<td>11.1</td>
<td>6.7</td>
<td>6.1</td>
<td>5.5</td>
<td>3.7</td>
<td>8.1</td>
<td>6.0</td>
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<td>(percent)</td>
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<td>10. Average Weekly Earnings in Mfg. ($)</td>
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<td>901.6</td>
<td>953.8</td>
<td>968.0</td>
<td>989.0</td>
<td>921.7</td>
<td>925.2</td>
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<td>11. Retail Trade</td>
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<td>557.8</td>
<td>563.9</td>
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<tr>
<td>12. Automobile Sales (incl. foreign)</td>
<td>13</td>
<td>2.9</td>
<td>3.8</td>
<td>3.9</td>
<td>4.0</td>
<td>4.7</td>
<td>3.5</td>
<td>4.0</td>
<td>4.1</td>
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<td>(annual rate, millions)</td>
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<td>INTEREST RATES &amp; STOCK PRICES</td>
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<td>(end of period)</td>
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<tr>
<td>14. 10-Year Treasury Note Yield (percent)</td>
<td>21</td>
<td>0.66</td>
<td>0.89</td>
<td>1.00</td>
<td>1.20</td>
<td>1.45</td>
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<td>15. 3-Month Treasury Bill Rate (percent)</td>
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<td>0.10</td>
<td>0.13</td>
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<tr>
<td>16. Stock Prices (S&amp;P500) (index level)</td>
<td>16</td>
<td>3100.3</td>
<td>3600.0</td>
<td>3650.0</td>
<td>3745.0</td>
<td>3899.2</td>
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### TABLE TWO

MAJOR MACROECONOMIC INDICATORS, 2020-2021

PERCENTAGE CHANGES AT ANNUAL RATES

<table>
<thead>
<tr>
<th>QUARTERLY INDICATORS</th>
<th>NUMBER OF FORECASTERS</th>
<th>Q2 2020 TO Q4 2020</th>
<th>Q4 2020 TO Q2 2021</th>
<th>Q2 2021 TO Q4 2021</th>
<th>2019 TO 2020</th>
<th>2020 TO 2021</th>
<th>2021 TO 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Real Gross Domestic Product</td>
<td>22</td>
<td>18.0</td>
<td>2.9</td>
<td>3.7</td>
<td>-3.5</td>
<td>4.1</td>
<td>2.6</td>
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<tr>
<td>2. Nominal Gross Domestic Product</td>
<td>22</td>
<td>21.3</td>
<td>4.9</td>
<td>5.1</td>
<td>-2.3</td>
<td>5.9</td>
<td>4.6</td>
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<tr>
<td>3. Nonresidential Fixed Investment</td>
<td>21</td>
<td>13.5</td>
<td>3.3</td>
<td>5.2</td>
<td>-4.6</td>
<td>4.2</td>
<td>4.7</td>
</tr>
<tr>
<td>4. Corporate Profits After Taxes</td>
<td>17</td>
<td>59.4</td>
<td>2.0</td>
<td>3.3</td>
<td>-5.2</td>
<td>9.7</td>
<td>2.4</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>MONTHLY INDICATORS</th>
<th>JUN 2020 TO DEC 2020</th>
<th>JUN 2021 TO DEC 2021</th>
<th>JUN 2021 TO DEC 2021</th>
<th>JUN 2021 TO DEC 2021</th>
<th>DEC 2021 TO DEC 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Industrial Production</td>
<td>19</td>
<td>13.1</td>
<td>3.8</td>
<td>4.5</td>
<td>-7.1</td>
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<td>6. Total Private Housing Starts</td>
<td>18</td>
<td>0.241</td>
<td>-0.006</td>
<td>-0.015</td>
<td>0.070</td>
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<td>7. Producer Prices - Finished Goods</td>
<td>13</td>
<td>3.3</td>
<td>2.7</td>
<td>2.7</td>
<td>-1.4</td>
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<tr>
<td>8. Consumer Price Index (CPI-U)</td>
<td>20</td>
<td>3.1</td>
<td>1.9</td>
<td>2.5</td>
<td>1.2</td>
</tr>
<tr>
<td>9. Unemployment Rate</td>
<td>20</td>
<td>-4.4</td>
<td>-0.6</td>
<td>-0.6</td>
<td>4.4</td>
</tr>
<tr>
<td>10. Average Weekly Earnings in Mfg.</td>
<td>8</td>
<td>11.9</td>
<td>3.0</td>
<td>4.4</td>
<td>0.4</td>
</tr>
<tr>
<td>11. Retail Trade</td>
<td>11</td>
<td>10.8</td>
<td>2.2</td>
<td>3.6</td>
<td>0.9</td>
</tr>
<tr>
<td>12. Automobile Sales (incl. foreign)</td>
<td>13</td>
<td>0.9</td>
<td>0.1</td>
<td>0.1</td>
<td>-1.2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>INTEREST RATES &amp; STOCK PRICES</th>
<th>JUN 2020 TO DEC 2020</th>
<th>JUN 2021 TO DEC 2021</th>
<th>JUN 2021 TO DEC 2021</th>
<th>DEC 2021 TO DEC 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Prime Interest Rate</td>
<td>21</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>14. 10-Year Treasury Note Yield</td>
<td>21</td>
<td>0.23</td>
<td>0.11</td>
<td>0.20</td>
</tr>
<tr>
<td>15. 3-Month Treasury Bill Rate</td>
<td>21</td>
<td>-0.06</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>16. Stock Prices (S&amp;P500)</td>
<td>16</td>
<td>34.8</td>
<td>2.8</td>
<td>5.3</td>
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</tbody>
</table>

Note: Figures for housing starts, unemployment rate, auto sales, prime interest rate, 10-year Treasury bond, and 90-day Treasury bill are changes in levels. All others are percentage changes at annual rates.

TABLE THREE
LONG-TERM (10 YEAR) FORECASTS

SERIES: Real GDP

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Minimum</th>
<th>1.50</th>
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<tbody>
<tr>
<td></td>
<td>Lower Quartile</td>
<td>1.99</td>
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<td>Median</td>
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<tr>
<td></td>
<td>Upper Quartile</td>
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</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>3.00</td>
</tr>
<tr>
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</tr>
<tr>
<td>Std. Deviation</td>
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</tr>
<tr>
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</tbody>
</table>

SERIES: CPI Inflation Rate

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</tr>
</thead>
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<td>Std. Deviation</td>
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<tr>
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