Appendix A Business inflation expectations survey questions

A.1 BIE core monthly questions

Question: How do your current SALES LEVELS compare with sales levels during what you consider to be "normal"times?
Response options:

- o Much less than normal
- o Somewhat less than normal
- o About normal
- o Somewhat greater than normal
- o Much greater than normal

Question: How do your current PROFIT MARGINS compare with "normal" times?
Response options:

- o Unit costs down (less than -1%)
- o Unit costs about unchanged (-1% to 1%)
- o Unit costs up somewhat (1.1% to 3%)
- o Unit costs up significantly (3.1% to 5%)
- o Unit costs up very significantly (more than 5%)

Question: Projecting ahead, to the best of your ability, please assign a percent likelihood to the following changes to UNIT COSTS over the next 12 months. (Values should sum to 100%.)
For example, if you think each of these is equally likely, you might answer 20% for each:

20% Unit costs down (less than -1%)

20% Unit costs about unchanged (-1% to 1%)

20% Unit costs up somewhat (1.1% to 3%)

20% Unit costs up significantly (3.1% to 5%)

20% Unit costs up very significantly (more than 5%)

Response options:

☐% Unit costs down (less than -1%)

☐% Unit costs about unchanged (-1% to 1%)

☐% Unit costs up somewhat (1.1% to 3%)

☐% Unit costs up significantly (3.1% to 5%)

☐% Unit costs up very significantly (more than 5%)

A.2 BIE core quarterly questions

Question: Projecting ahead, to the best of your ability, please assign a percent likelihood to the following changes to UNIT COSTS per year, over the next five to 10 years. (Values should sum to 100%.)
Response options:

☐% Unit costs down (less than -1%)

☐% Unit costs about unchanged (-1% to 1%)

☐% Unit costs up somewhat (1.1% to 3%)

☐% Unit costs up significantly (3.1% to 5%)

☐% Unit costs up very significantly (more than 5%)

Question: By roughly what percent are your firm's sales levels ABOVE "normal"?
Response options:

Percent ☐

Question: By roughly what percent are your firm's sales levels BELOW "normal"?
Response options:

Percent □

Question: You indicated that your sales levels are "about normal". By roughly what percent are your firm's sales levels above/below "normal", if at all?
Response options:

Above/Below/Neither □

Percent □

A.3 BIE special questions

Question: On a scale from 1 to 5, with 1 being "no disruption", how would you assess the level of disruption resulting from the recent outbreak of the coronavirus when it comes to the items listed below?
Response options:

	1 - No disruption	2	3 - Moderate disruption	4	5 - Severe disruption	Too soon to tell
business operations	o	o	o	o	o	o
sales activity	o	o	o	o	o	o

Question: With regard to your supplies and/or supply chains, how would you assess the level of negative disruption, if any, resulting from COVID-19 (coronavirus)?
Response options:

- o No negative disruption
- o Some negative disruption
- o Significant negative disruption
- o Severe negative disruption
- o N/A

Question: Do you expect the price of the product/product line or service responsible for the largest share of your revenue to increase, remain the same, or decrease over the next **six months**?
Response options:

- o Increase
- o Remain the same
- o Decrease

Question: By roughly what percentage do you expect the price of the product/product line or service responsible for the largest share of your revenue to increase over the next **six months**?
Response options:

□%

Question: What is your best guess (in number of months) for when you will be able to return to normal business operations?
Response options:

□ months

Question: Approximately what share of your workforce performs routine, manual tasks that do not require a college degree or specialized training, commonly referred to as "low-skilled" labor?
Response options:

□%

Question: Since the onset of the COVID-19 pandemic (March 1, 2020), approximately what percentage of your low-skilled workforce has seen increases, decreases, and no change in their wages? Values should sum to 100.
Response options:

- □% Increase in wages
- □% No change in wages
- □% Decrease in wages

Question: From now until the end of 2020, approximately what percentage of your low-skilled workforce do you anticipate will see increases, decreases, and no change in their wages?
Values should sum to 100.
Response options:

☐% Increase in wages

☐% No change in wages

☐% Decrease in wages

Question: Approximately what share of your workforce performs non-routine, creative tasks and is college educated (or highly trained), commonly referred to as "high-skilled" labor?
Response options:

☐%

Question: Since the onset of the COVID-19 pandemic (March 1, 2020), approximately what percentage of your high-skilled workforce has seen increases, decreases, and no change in their wages?
Values should sum to 100.
Response options:

☐% Increase in wages

☐% No change in wages

☐% Decrease in wages

Question: From now until the end of 2020, approximately what percentage of your high-skilled workforce do you anticipate will see increases, decreases, and no change in their wages?
Values should sum to 100.
Response options:

☐% Increase in wages

☐% No change in wages

☐% Decrease in wages

Appendix B Representativeness of the BIE sample

Table B.1: BIE panel representativeness

Panel A: Representativeness by Firm Size

	BIE	United States			Sixth Federal Reserve District States		
		Establishments	Employment	Annual Payroll	Establishments	Employment	Annual Payroll
Small (1–99 employees)	50.9	78.0	33.0	26.7	77.2	31.2	26.5
Medium (100–499 employees)	27.4	4.9	14.1	13.6	4.4	12.7	12.5
Large (500+ employees)	21.6	17.1	52.9	59.7	18.4	56.2	61.0

Panel B: Representativeness by Industry

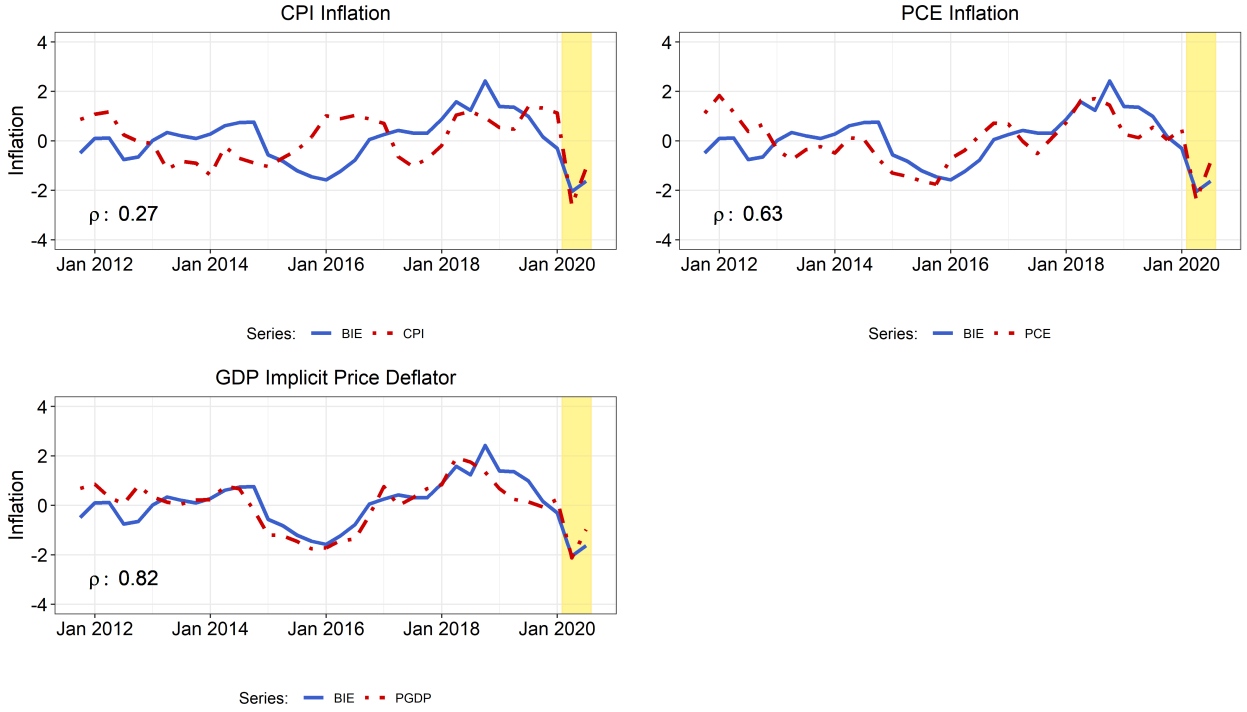
	BIE	United States			Sixth Federal Reserve District States			Private (Nonfarm) GDP
		Establishments	Employment	Annual Payroll	Establishments	Employment	Annual Payroll	
Construction	11.9	9.1	5.1	5.9	8.5	5.1	5.9	5.1
Manufacturing	18.0	3.7	9.1	10.2	3.0	8.0	9.4	18.8
Educational services	1.7	1.3	2.9	2.1	1.2	2.1	1.7	1.6
Finance and Insurance	11.9	6.1	5.0	9.6	6.5	4.4	7.5	9.5
Health care and social assistance	3.2	11.5	15.8	14.8	11.1	14.5	15.6	7.9
Information	1.3	2.0	2.7	5.3	1.8	2.2	3.7	5.8
Leisure and hospitality	3.0	11.1	12.8	5.3	10.1	13.5	6.0	4.7
Mining and utilities	2.0	0.6	1.0	1.8	0.5	0.8	1.5	3.3
Other services except government	2.8	9.8	4.3	2.7	9.4	4.2	2.7	2.3
Professional and business services	13.0	17.8	18.9	23.8	18.8	22.4	26.4	12.9
Real estate and rental and leasing	7.8	5.2	1.7	1.7	5.7	1.8	1.9	12.4
Retail and wholesale trade	18.4	18.8	17.0	13.1	20.3	17.2	13.4	12.2
Transportation and warehousing	5.0	3.0	3.8	3.6	3.0	4.0	4.4	4.1

Sources: Census Bureau Statistics of U.S. Businesses 2017; Bureau of Economic Analysis; Federal Reserve Bank of Atlanta's Business Inflation Expectations Survey.

Notes: This table reports the share of U.S. firms. Values are calculated using 2019 nominal values for all private industries excluding agriculture, forestry, fishing, and hunting (NAICS 11). The Atlanta Fed territory covers the Sixth Federal Reserve District, which includes Alabama, Florida, Georgia, and portions of Louisiana, Mississippi, and Tennessee.

Appendix C Comparison of BIE inflation with price indices and other sources of inflation expectations

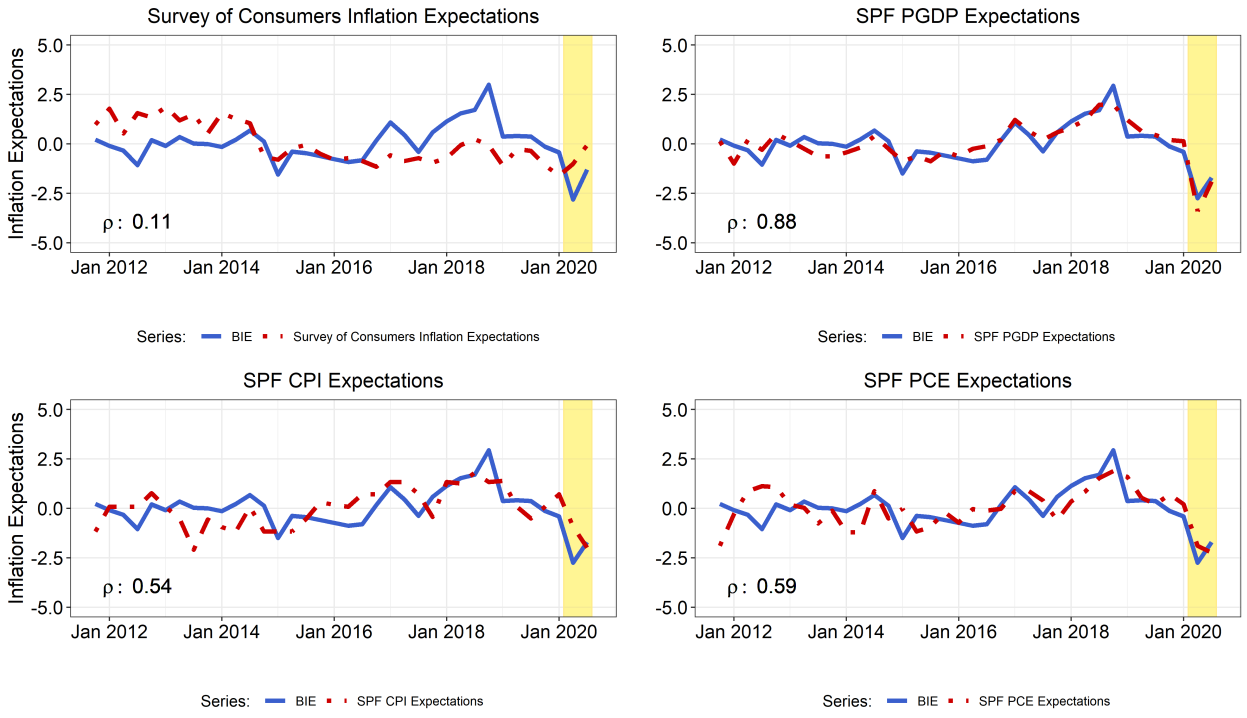
Figure 15: Firms' perceived inflation compared to realized inflation



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey* and U.S. Bureau of Economic Analysis

Note: The GDP implicit price deflator is calculated as the four-quarter growth rate. All of the time series are standardized and aggregated to the quarterly frequency. The correlation between the time series is given by ρ.

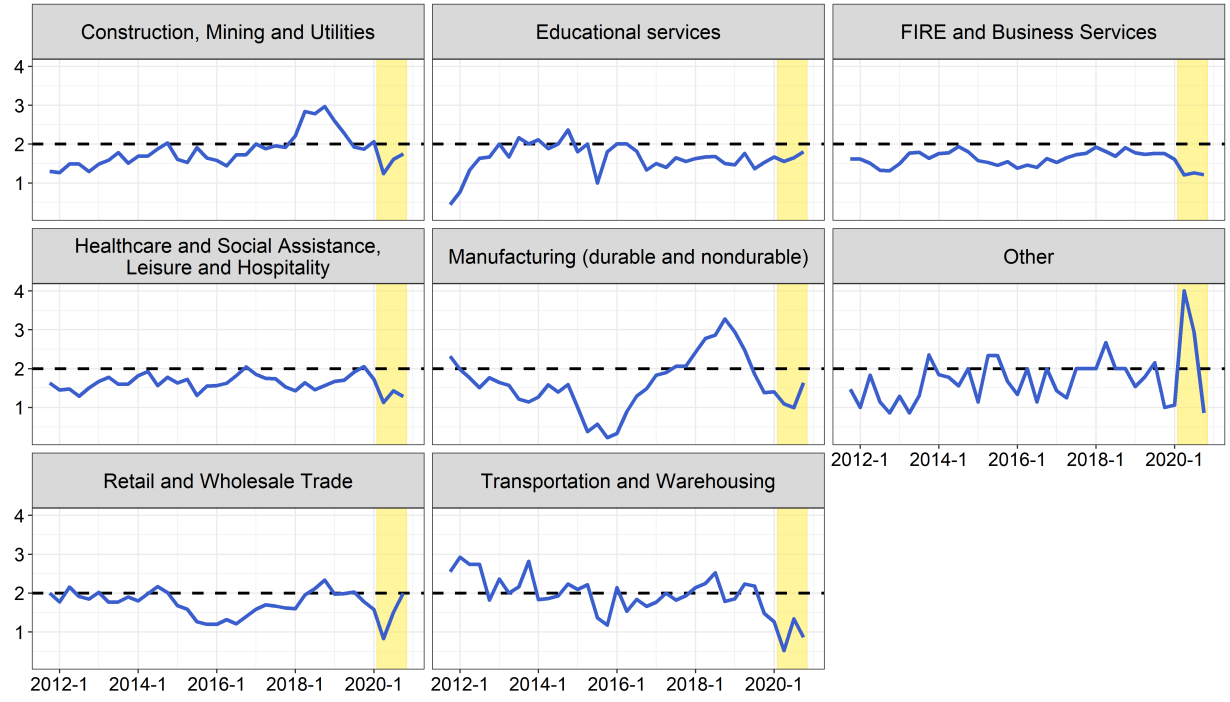
Figure 16: Comparison of expected one-year inflation of firms, professional forecasters, and households



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey* and Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters*

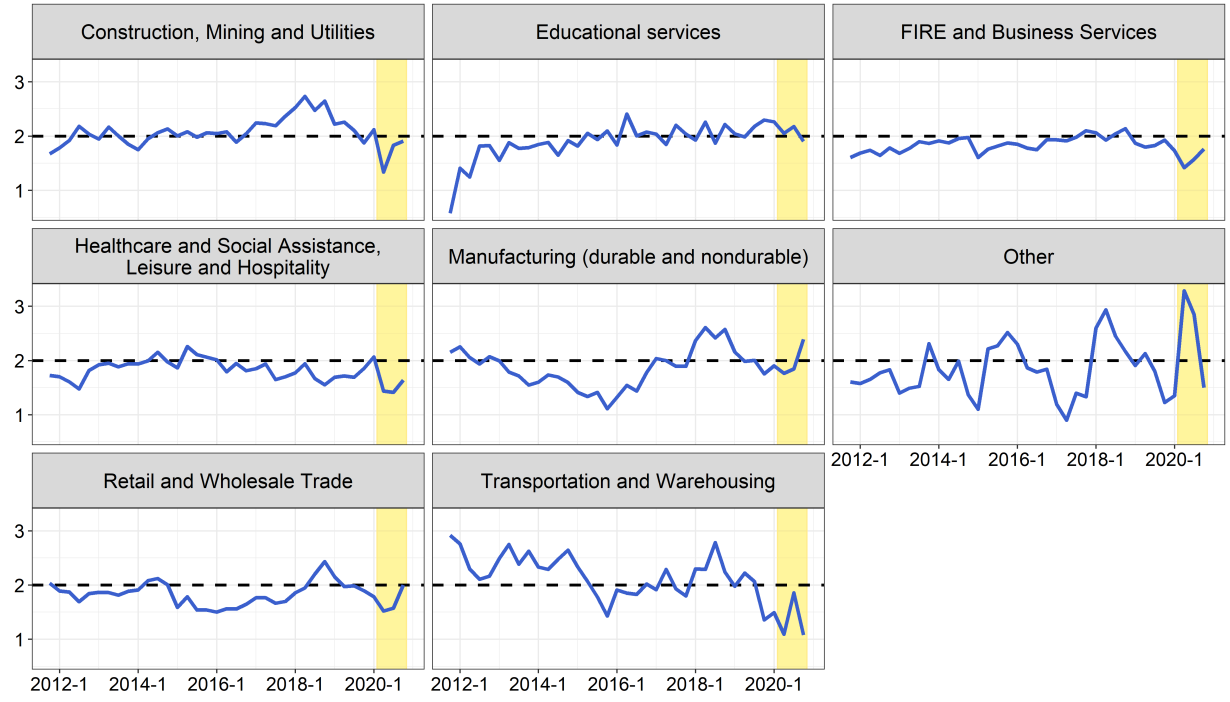
Note: The professional forecaster expectations are the median forecast and each time series is standardized and aggregated to the quarterly frequency. The correlation between the time series is given by ρ.

Figure 17: Perceived inflation of firms by sector



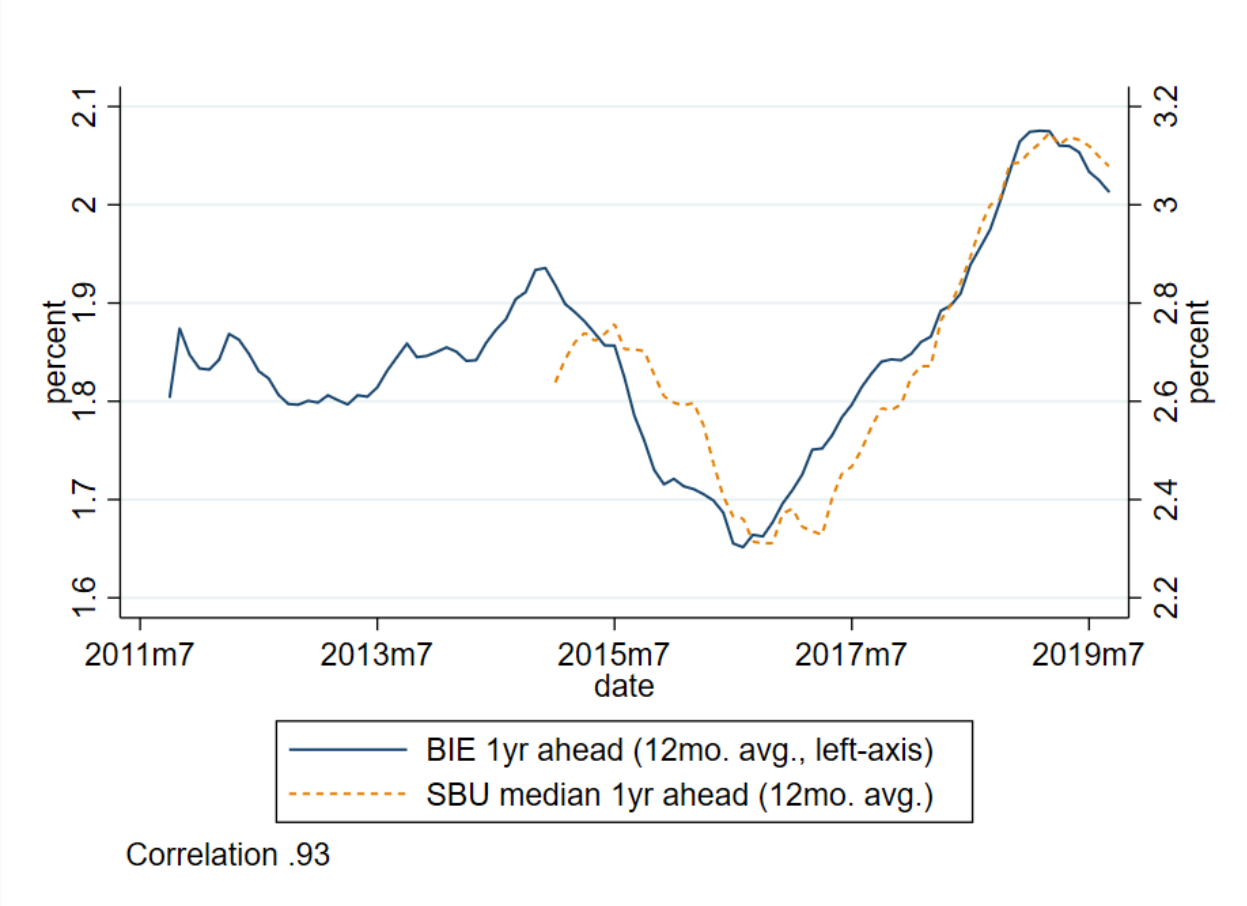
Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey*.

Figure 18: Expected one-year inflation of firms by sector



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey*.

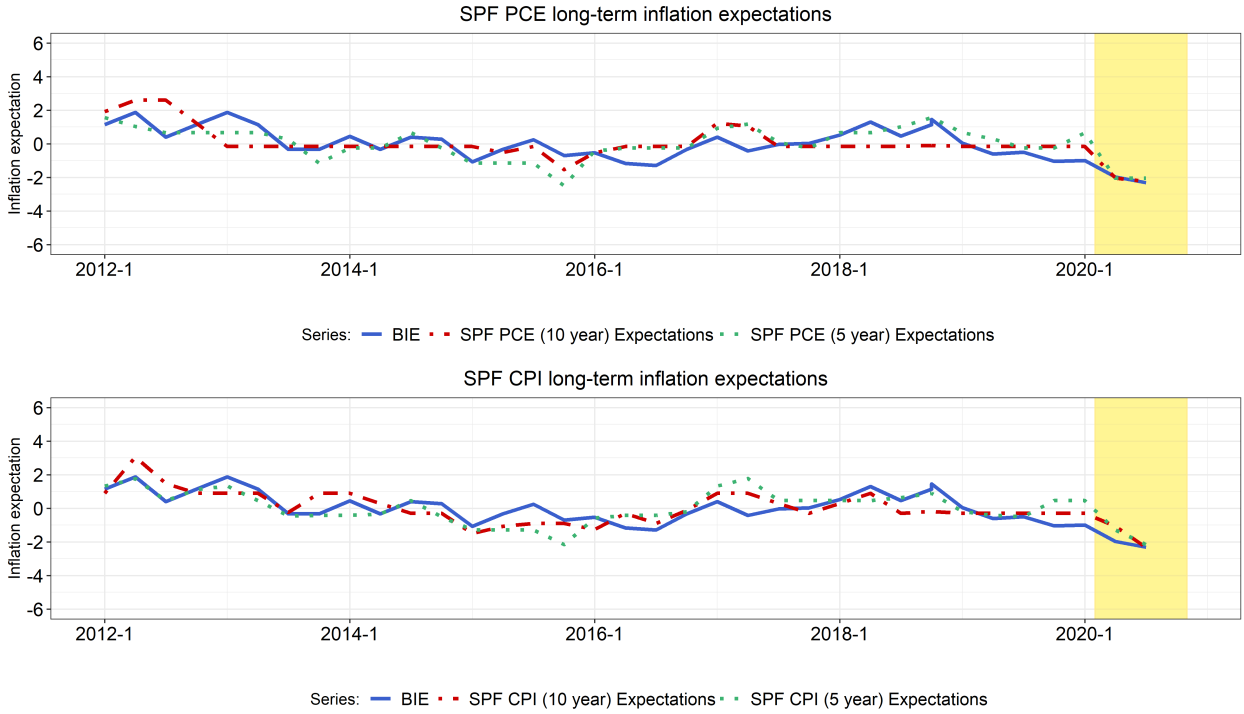
Figure 19: Expected one-year inflation of firms from the BIE and Survey of Business Uncertainty (SBU)



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey* and Federal Reserve Bank of Atlanta/University of Chicago Booth School of Business/Stanford University's *Survey of Business Uncertainty*

Note: The specific questions asked in the SBU are: "Looking ahead, from now to 12 months from now, what approximate percentage change in your AVERAGE UNIT COST would you assign to each of the following scenarios?" followed by "Please assign a percentage likelihood to the AVERAGE UNIT COST changes you entered. (Values should sum to 100%.)". The SBU was first fielded during January 2017.

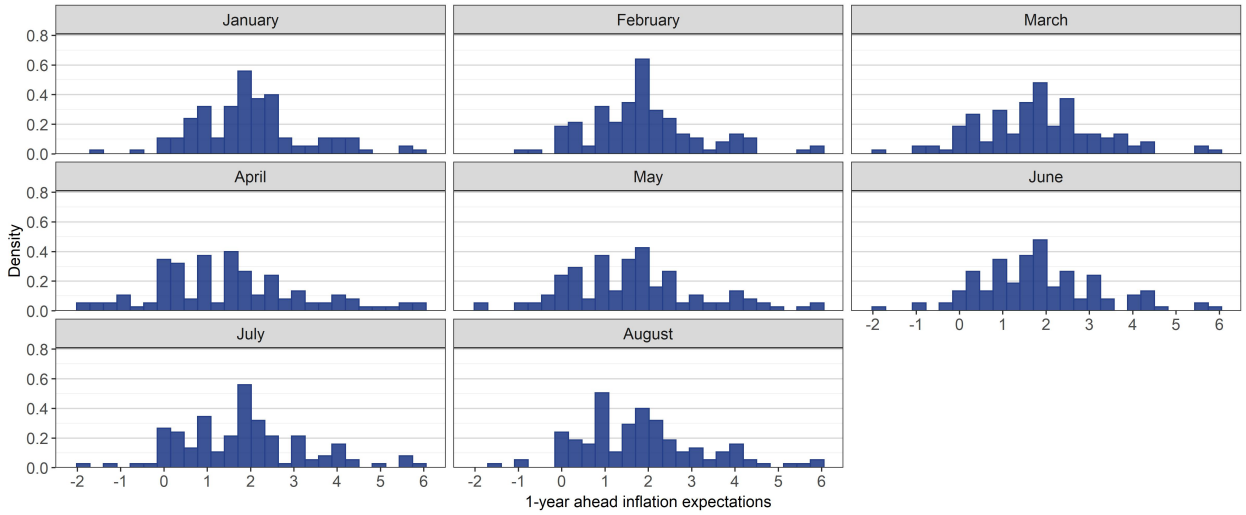
Figure 20: Expected long-run inflation of firms and professional forecasters



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey* and Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters*
Note: The professional forecaster expectations are the median forecast and each time series is standardized.

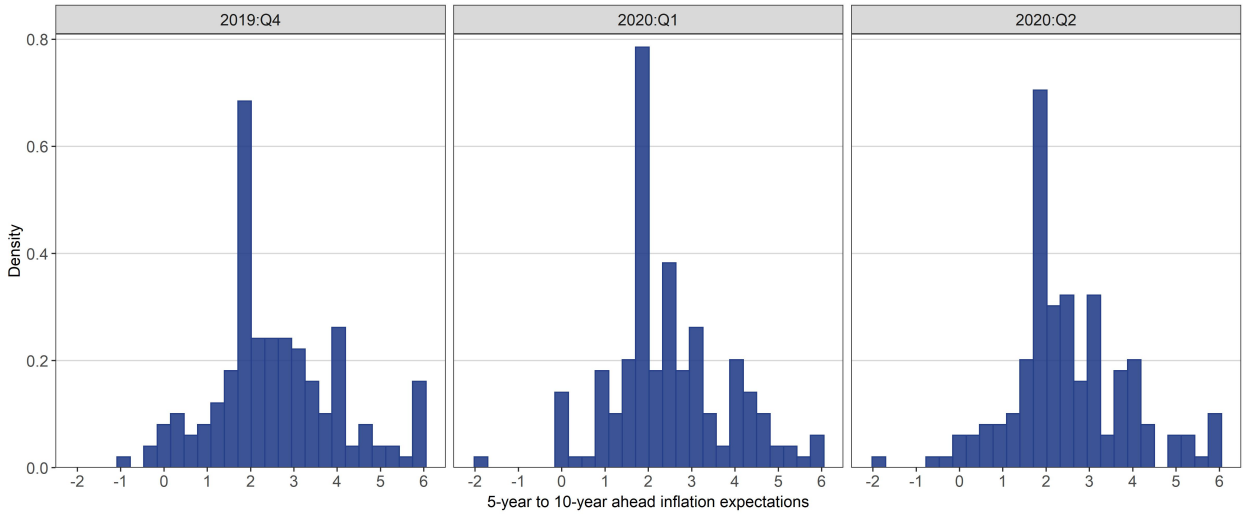
Appendix D Monthly distribution of firms' inflation expectations

Figure 21: Distribution of short-run inflation expectations



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey*, January to August 2020.
Note: The specific question asked is provided in Appendix A. This question is asked to firms on a quarterly basis.

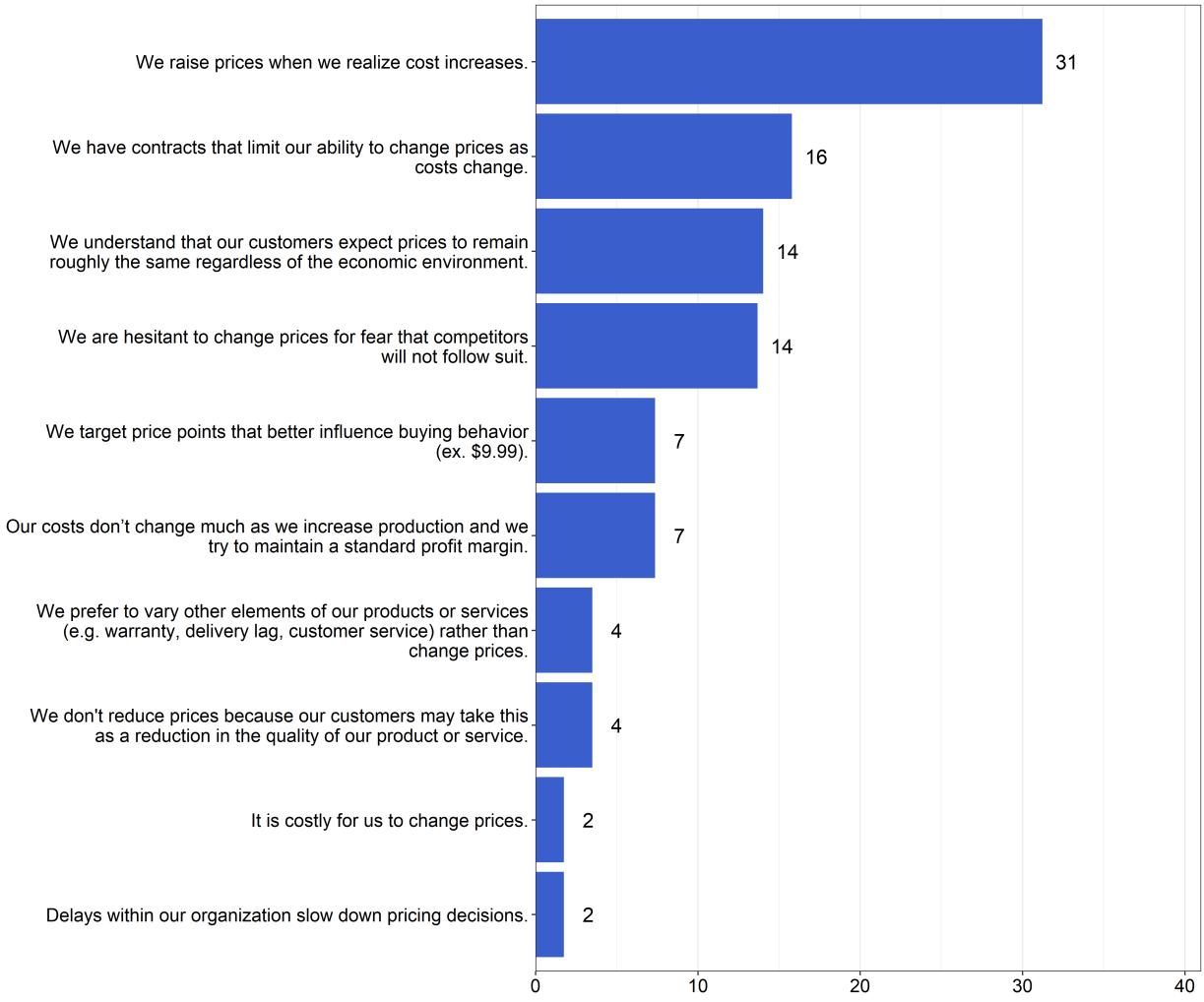
Figure 22: Distribution of long-run inflation expectations



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey*, 2019:Q4 to 2020:Q2.
Note: The specific question asked is provided in Appendix A. This question is asked to firms on a quarterly basis.

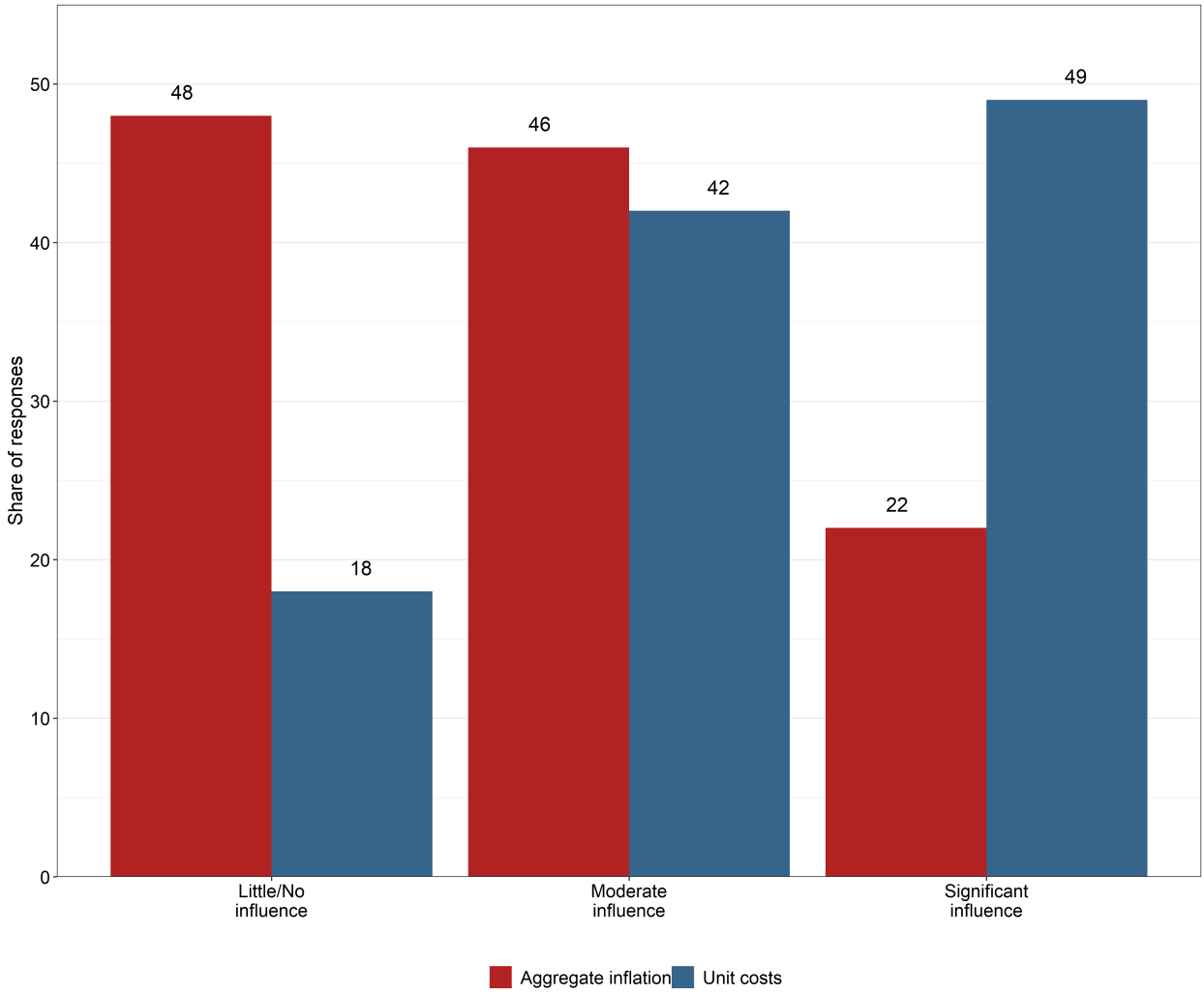
Appendix E Influence of inflation and unit costs on pricing

Figure 23: Sticky price questions from March 2019



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey*, March 2019.
Notes: The histograms are calculated as the share of all responses.

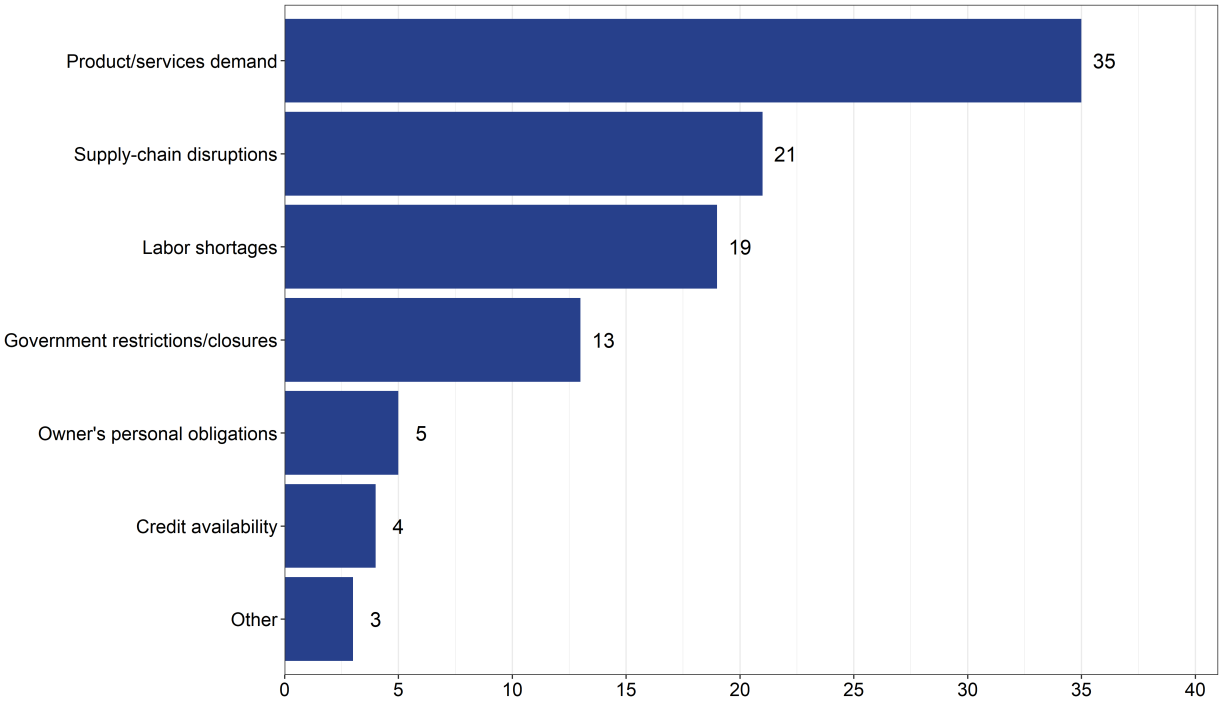
Figure 24: Importance of aggregate inflation and unit costs on pricing decisions



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey*, September 2015.
Notes: For both aggregate inflation and unit costs, firms were asked "On a scale from 1 to 5, with 1 being "no influence", please indicate what level of influence, if any, your expectations regarding the economy's overall rate of inflation have on your pricing decisions?" The y-axis is defined by: No influence = 1; Moderate influence = 2 or 3; Significant influence = 4 or 5.

Appendix F Firms' biggest challenge over the next year due to COVID-19

Figure 25: Expected biggest challenge from September 2020 to September 2021



Source: Federal Reserve Bank of Atlanta's *Business Inflation Expectations Survey*, September 2020.
Notes: The y-axis reports the share of firms citing a reason as their biggest expected challenge. The histograms are based on 153 responses to a special question. More precisely, firms were first asked "Over the next 12 months, what challenges do you expect your business will face as a result of COVID-19, if any?" Those who selected anything other than "No significant challenges" were then given a menu of the challenges they selected and asked which of the following would be their biggest challenge. Approximately 5% of firms sampled cited "No significant challenges".

Appendix G Household "inflation" expectations

The following wording is taken from the Cleveland Fed's *Consumers and COVID-19* survey question about inflation expectations.

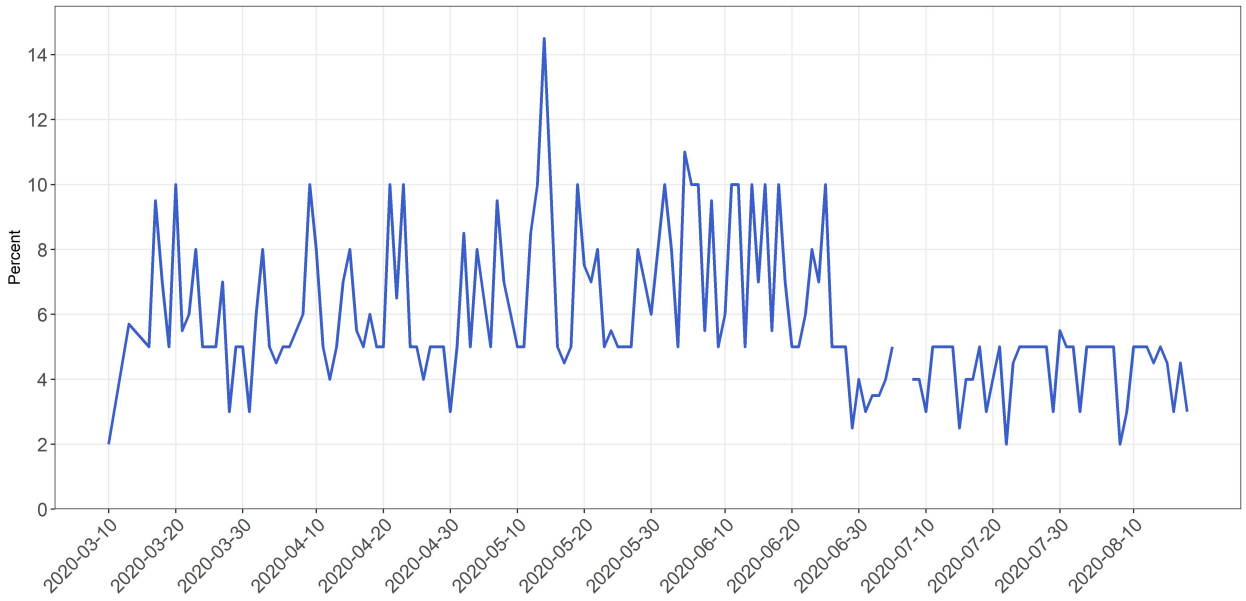
Over the next 12 months, do you think that the coronavirus will cause inflation to be higher or lower? Higher/Lower

Depending on the answer (Higher/Lower), we ask respondents to fill in their point estimates according to:

How much [higher/lower] do you expect the rate of to be over the next 12 months because of coronavirus? Please give your best guess.

I expect the rate of inflation to be _____ percentage points [higher/lower] because of coronavirus.

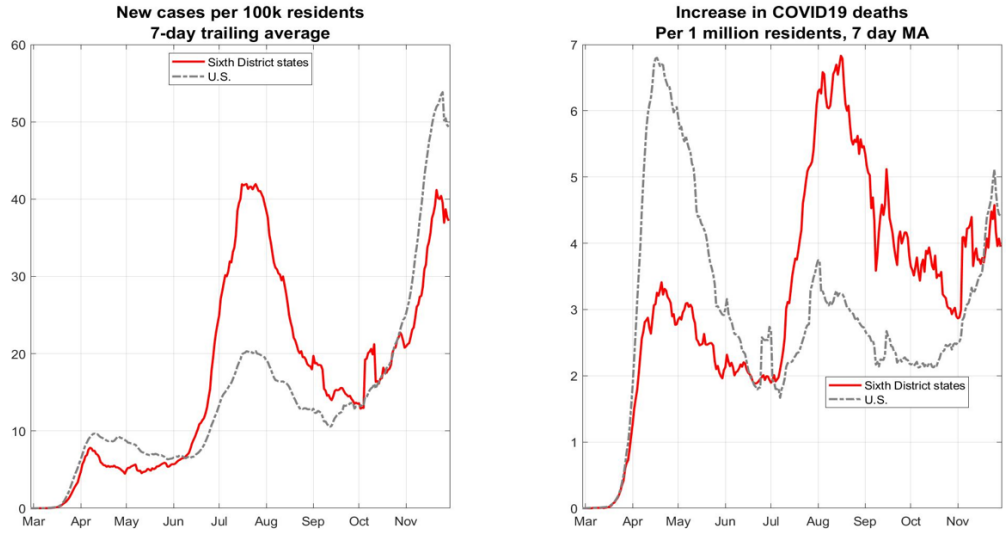
Figure 26: Household's expected impact of COVID-19 on inflation – results



Source: Federal Reserve Bank of Cleveland's *Consumers and COVID-19*

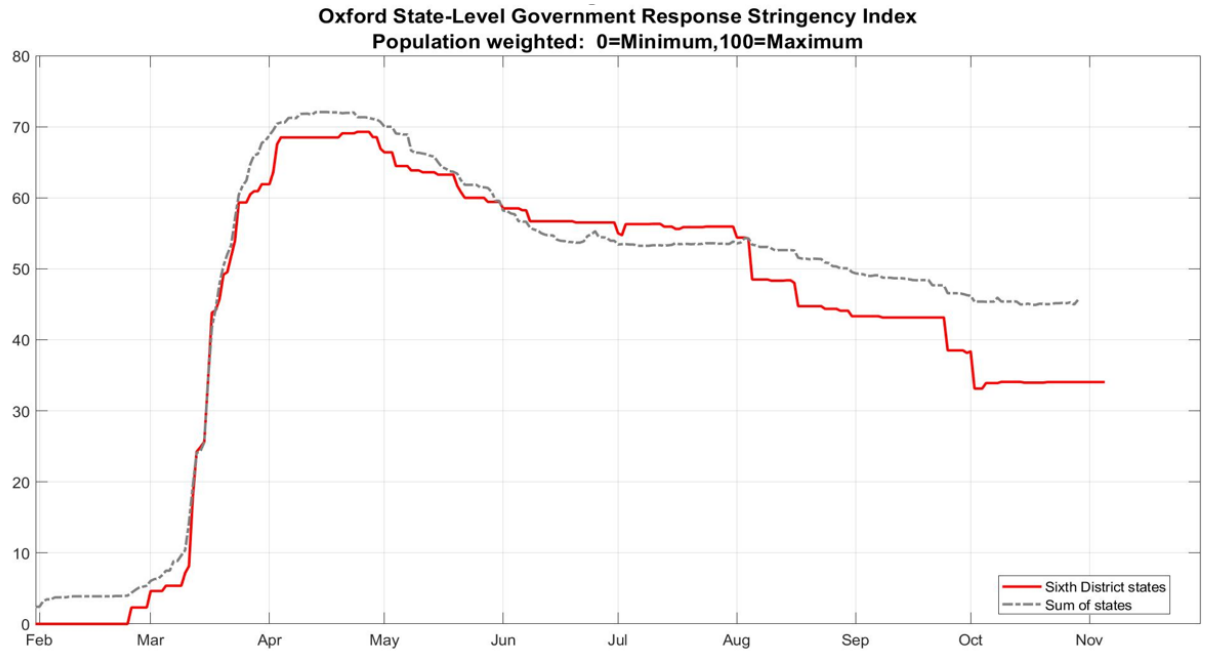
Appendix H Evolution of COVID-19 in the Sixth Federal Reserve District vs. the U.S.

Figure 27: Time Series of COVID-19 Cases and Deaths



Source: New York Times
Note: The data used are through November 29.

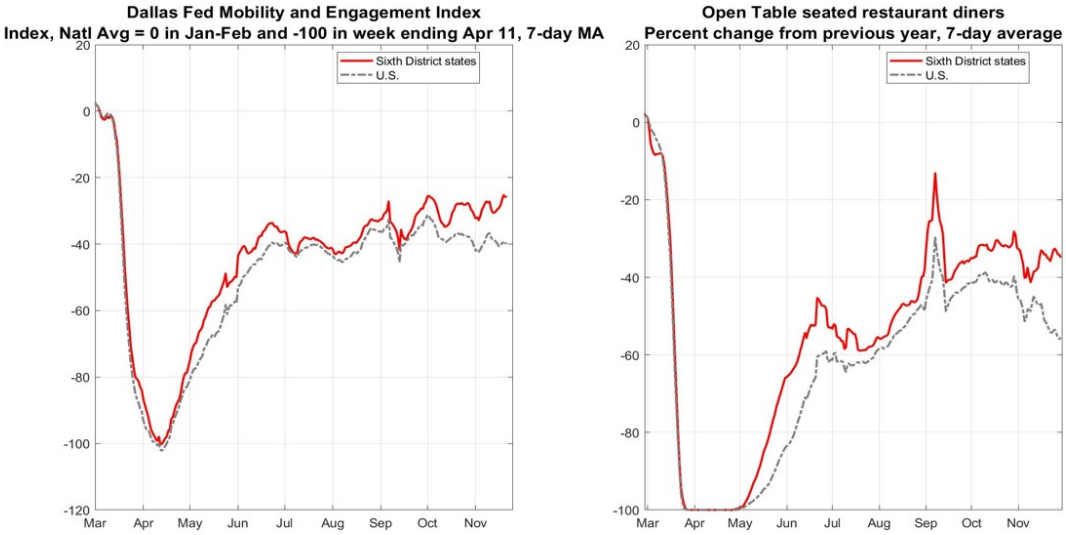
Figure 28: State-Level Government Response Stringency Index



Source: University of Oxford

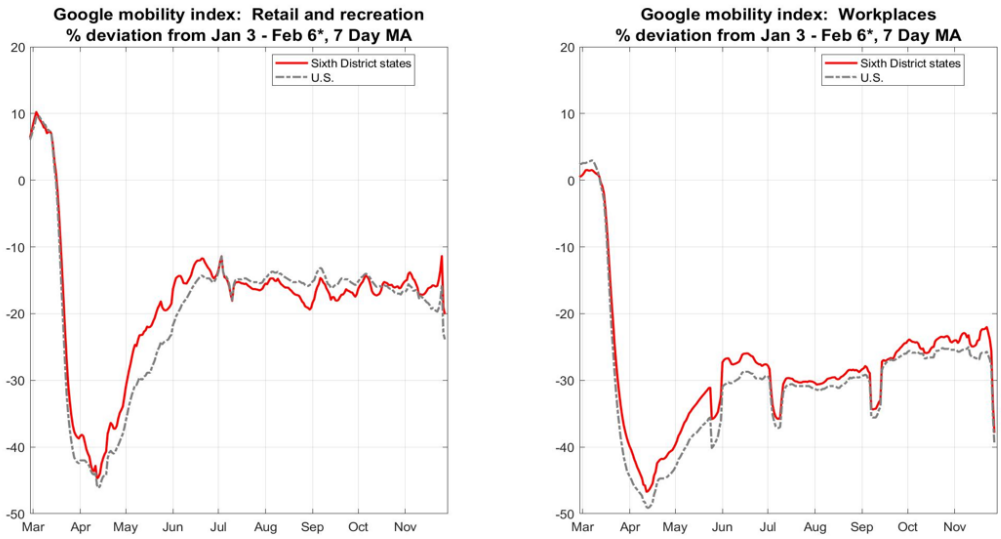
Note: The minimum possible value is 0 and the maximum is 100. State population sizes used to combine states.

Figure 29: Dallas Fed's Mobility and Engagement Index and Open Table Seated Restaurant Diners



Sources: Federal Reserve Bank of Dallas's *Mobility and Engagement Index;* Open Table
Note: State population sizes are used to aggregate Sixth District states in the Dallas Fed figure. 2018 State PCE spending on food services and accommodations are used to aggregate Sixth District states.

Figure 30: Google Mobility Indices



Source: Google COVID-19 Community Mobility Reports.
Notes: Mobility is compared with median mobility on the same day of the week over the period from January 3 to February 6 to account for day-of-the-week effects. The data end November 27. State population sizes are used to combine Sixth District state mobility measures.