

# The Philly Manufacturing Business Outlook Survey Turns 50!

Does everything improve with age?

Beyond the Numbers - *The Economic Data Ecosystem*

November 8, 2018

|  
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FEDERAL RESERVE BANK  
OF PHILADELPHIA

*\* The views expressed today are my own and not necessarily those of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.*



# Keeping at it for 50 years

## Advantages of aging and learning

- Consistent and continuous reporting
- Statistical advantages
- Business cycle experience
- Trust and reputation
- Fed credibility
- Adapting new technology



- The original ideals of the survey
- Simple design and timing
- Survey's quantitative measures of activity
- Business cycle performance and statistical evidence
- The spread of business surveys and current forecasting
- What 50 years has taught us--age, longevity, and maintenance
- Publication, data availability, and data education
- Challenges (participation, trust, and cybersecurity)
- Lessons learned
- Other FRB-Philly regional data



# Origin and Ideals

- Manufacturing is a bellwether industry
- Monthly survey of large manufacturers
- Both current and outlook characteristics
- Timing of collection was most important feature



# Overview

- A monthly manufacturing survey started in 1968.
- Now 50 years of continuous monthly collection
- No change in core characteristic of the survey since 1968
- A relatively stable and sizable sample of manufacturing firms in the Third Federal Reserve District (DE, PA, and NJ)
- Achieved prominence as a useful regional economic indicator, use in national forecasting has grown in the past decade.
- Continues to be a valuable source of regional information (Beige Book, Policy analysis)



# Common FAQs

- **Who is surveyed?**
- **What sectors are covered and what is coverage?**
- **How is data collected?**
- **What is a diffusion index?**
- **How is the headline index constructed?**
- **What is the survey time period?**



# Who, How, & What

- CEOs, CFOs, Plant Managers
- Respond to web-based survey form
- Qualitative questions—no company information is required.
- Confidentiality guaranteed





# Sample Design and Industry Mix

- Not a strict probability sample – criteria includes consideration of industry mix
- Broad coverage of District across all SIC/NAICS industries
- Continually updated and replenished as needed
- Current Sample is comprised of 120 participating firms and an average response rate of > 60 percent



# Industry Composition

- Broad coverage across all SIC/NAICS
- A significant percentage of non-final goods producers
  - Final consumer goods (26%)
  - Final business goods (18%)
  - Materials producers (20%)
  - Equipment parts and components (18%)
  - Intermediate goods (11%) & other (7%)



# Recruiting History

Directory services like Hoovers for sampling frame

Targeted invitations by mail



Targeted invitations by e-mail and mail



Harvested contacts through other surveys



Handshakes and meetings



# Recruiting



# Questions for 11 indicators

General Activity

New Orders

Unfilled Orders

Shipments

Delivery Times

Inventories

Prices Paid

Prices Received

Employment

Average Workweek

Capital Spending (6  
month forecast only)



# Sample Web Form

## Simple Radio Button Choice

	July vs. June			
	No Response	Decrease	No Change	Increase
General Business Conditions				
What is your evaluation of the level of general business activity?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Company Business Indicators				
New Orders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shipments	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unfilled Orders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Voluntary comments represent a very valuable source of information. Over 75 percent of firms provide comments.*

General comments about current manufacturing business conditions and prospects for growth.

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2018

# OCTOBER

Mo	Tu	We	Th	Fr	Sa	Su
1	2	3	4	5	6	7
8 Collect	9 Collect	10 Collect	11 Collect	12 Collect	13 Collect	14 Collect
15 Collect	16 Collect	17	18 PUBLISH MBOS	19	20	21
22	23	24	25	26	27	28
29	30	31	1 PMI National Manuf.	2	3 US Employment	4
5	6	7	8	9	10	11
12	13	14	15	16 US Industrial Production		

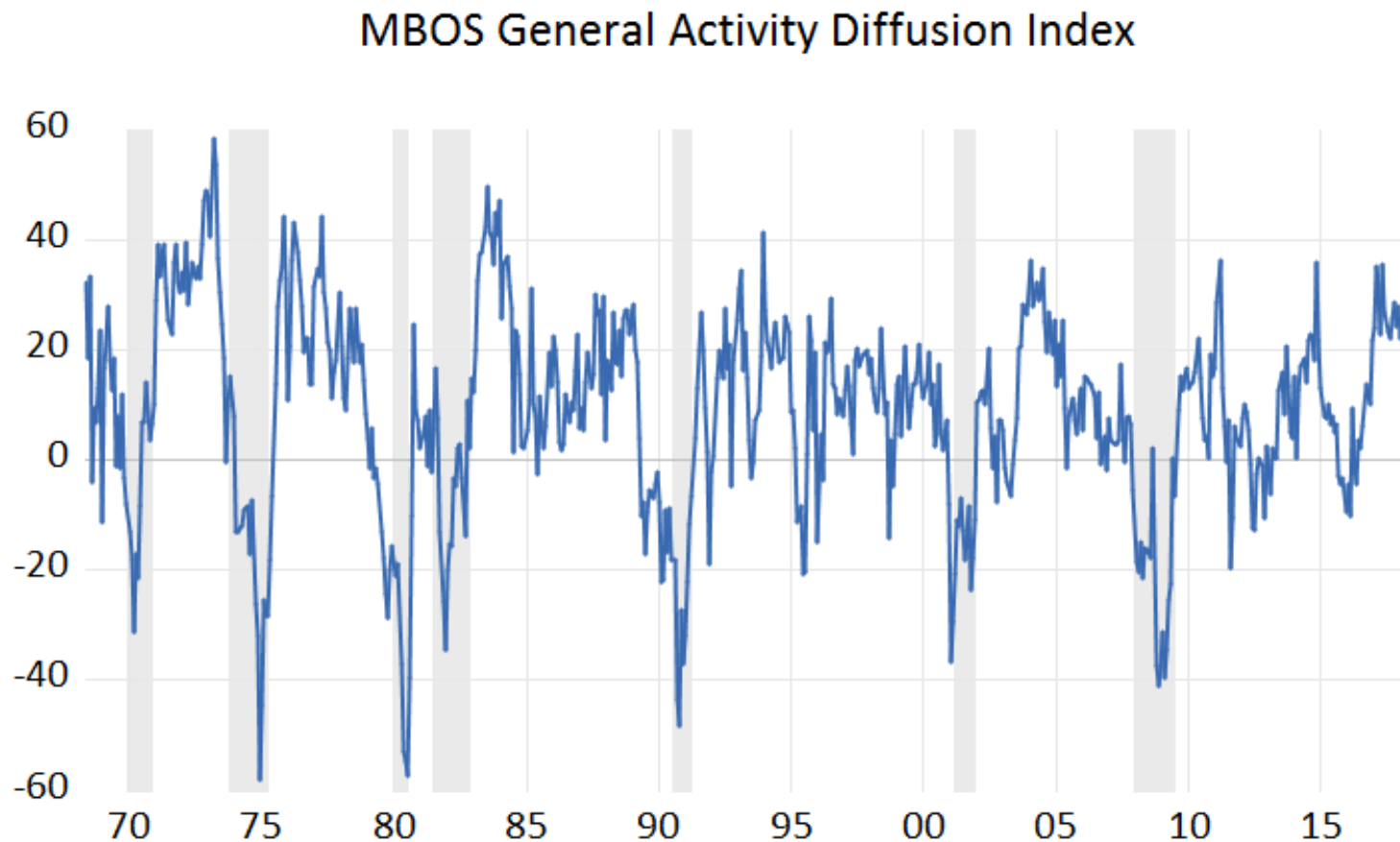
# The Quantification of Qualitative Data—Diffusion Index Primer

- What is the simplest way to summarize the central tendency of the underlying responses?
- Diffusion Index: “The Percentage of firms reporting increases minus the percentage of firms reporting decreases”
- Range of index is -100 to +100





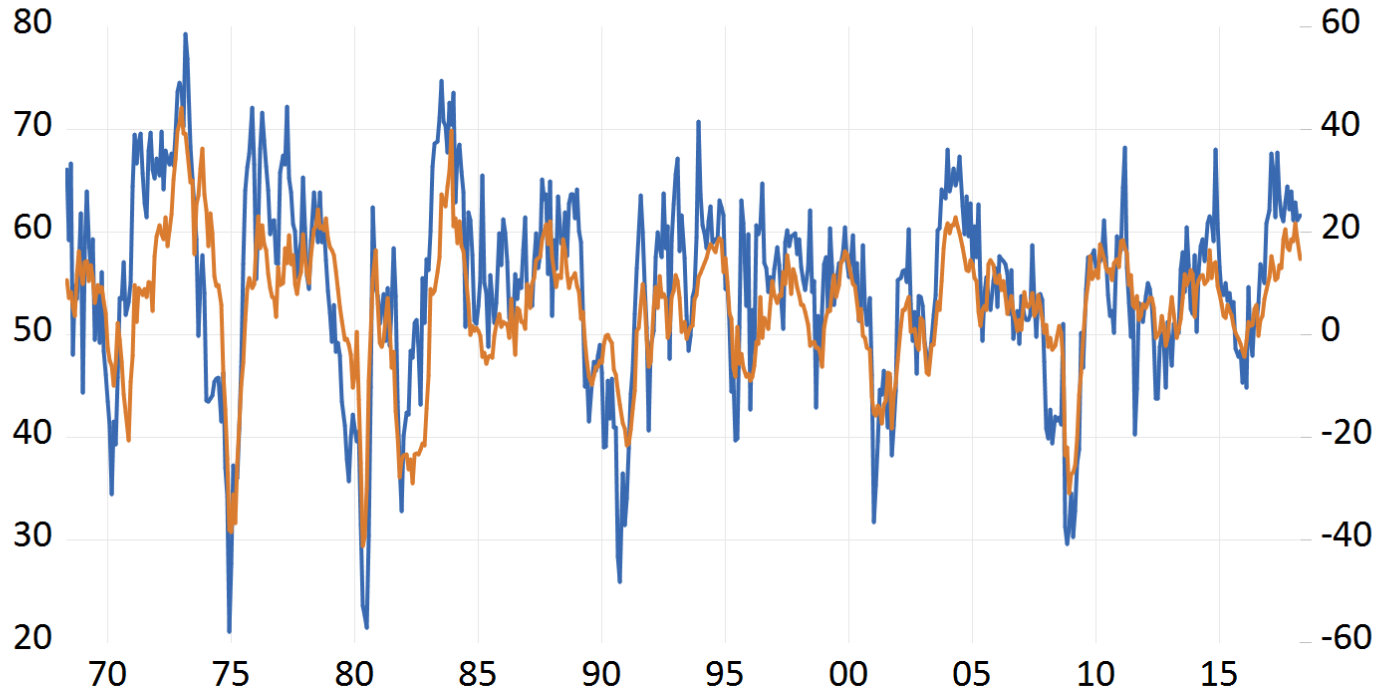
# 50 years of history (600 obs)



PMI Scale  
(0 to 100)

## MBOS Current Activity Index vs. PMI Over 50 Years

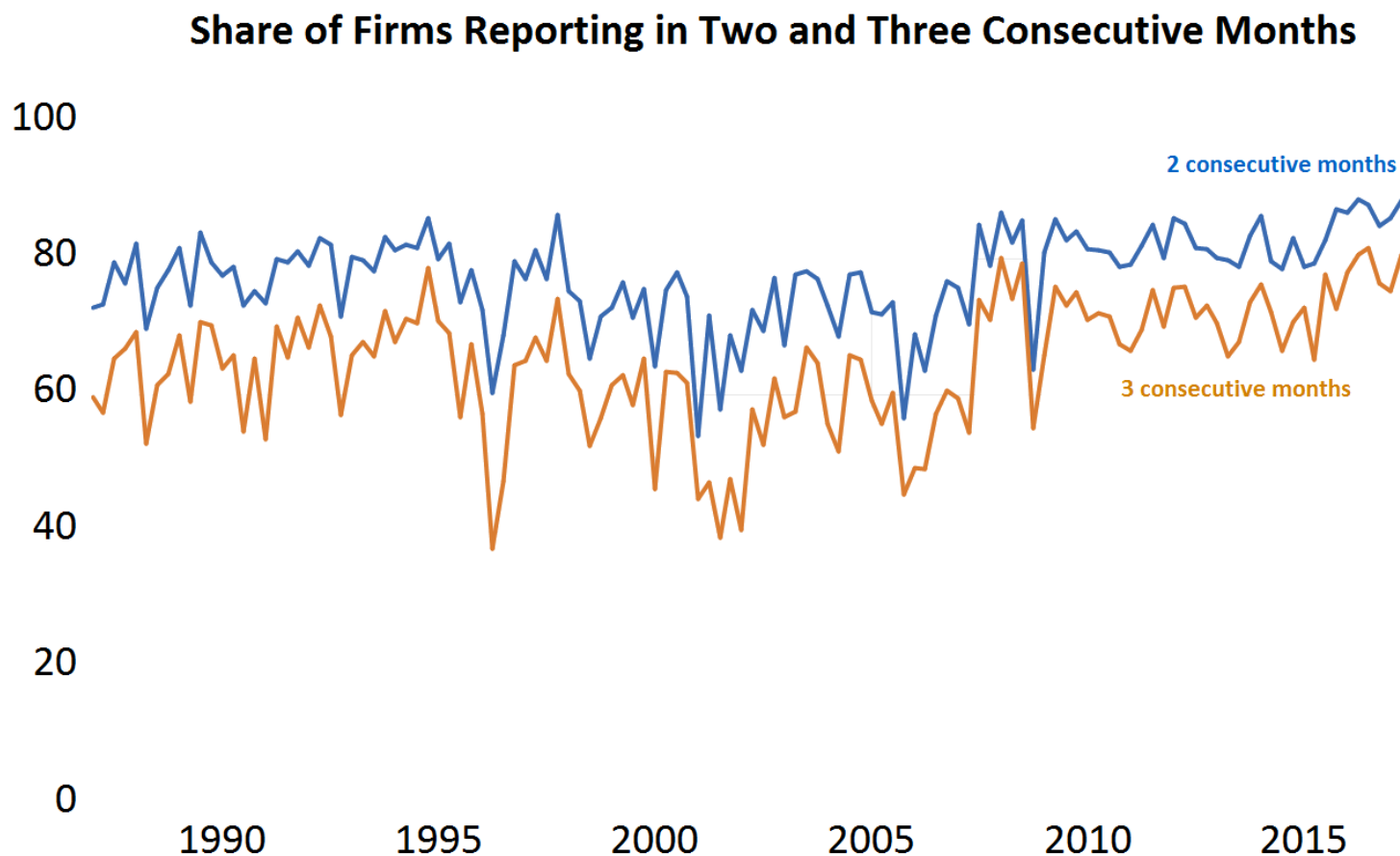
MBOS Scale  
(-100 to +100)



— MBOS Current Activity Diffusion Index  
— PMI Index



# Participants have been consistent frequent reporters



# Publication Details

- Released 3<sup>rd</sup> Thursday (CURRENT MONTH)  
8:30 am
- Report (pdf, txt, and html)
- Data files in multiple formats (txt, csv, xls)
- Charts
- E-mail notification service
- Press conference



# Published Data Each Month

- Summary table and data files
- Special question tabulations
- Links to updated historical data
- Podcast of press conference following release (until last year)



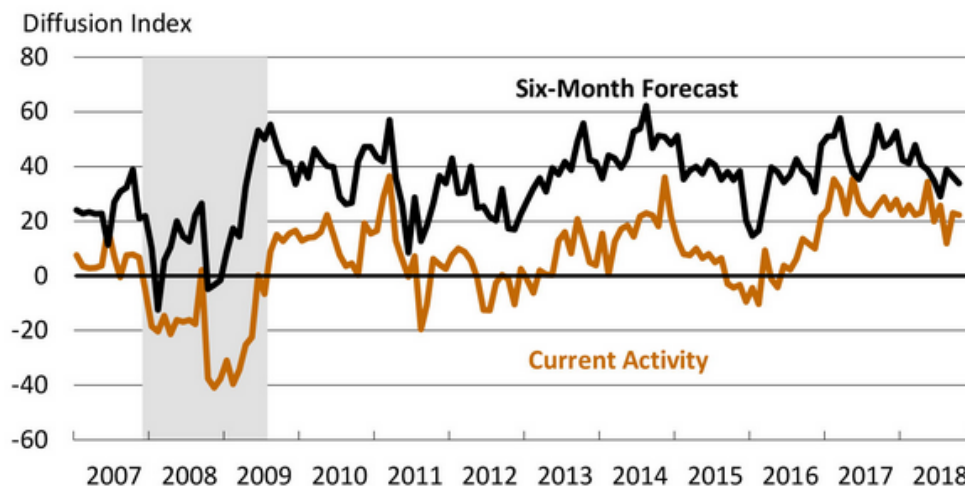
# October 2018 Manufacturing Business Outlook Survey

Regional manufacturing activity continued to grow in October, according to results from this month's *Manufacturing Business Outlook Survey*. The survey's broad indicators for general activity, new orders, shipments, and employment remained positive and near their readings in September. The firms reported continued growth in employment and an increase in the average workweek this month. Expectations for the next six months remained optimistic.

## Survey Indexes Suggest Steady Growth

The diffusion index for current general activity edged down slightly, from 22.9 in September to 22.2 this month (see Chart 1). Nearly 36 percent of the manufacturers reported increases in overall activity this month, while 14 percent reported decreases. The new orders index decreased 2 points to 19.3, while the current shipments index increased 5 points to 24.5. The firms reported nearly no change in levels of inventories during October, as well as unfilled orders and delivery times (all of the indexes were near zero).

**Chart 1. Current and Future General Activity Indexes**  
January 2007 to October 2018



A complete writeup of this survey, including all tables, is available in PDF format.

[October 2018](#) 📄

## Tables, Data & Charts

- [Summary of Returns Table](#)
- [Chart of General Activity](#)
- [Current Prices Paid and Prices Received Indexes](#)
- [Special Questions](#)
- [Text version](#) 📄
- [Survey Charts](#)
- [Historical Data](#)

## E-Mail Notification


Subscribe to the survey through our e-mail notification system.

[Sign Up](#)

## Questions?

Questions about the Business Outlook Survey and its historical data can be addressed to [Mike Trebing](#). ✉

# Release Table with **Headline** General Activity Diffusion Index

 <b>MANUFACTURING BUSINESS OUTLOOK SURVEY October 2018</b>	October vs. September					Six Months from Now vs. October				
	Previous Diffusion Index	Increase	No Change	Decrease	Diffusion Index	Previous Diffusion Index	Increase	No Change	Decrease	Diffusion Index
What is your evaluation of the level of general business activity?	22.9	35.9	48.6	13.7	22.2	36.3	47.7	33.7	13.9	33.8
Company Business Indicators										
New Orders	21.4	34.6	49.2	15.4	19.3	34.7	54.4	32.6	11.0	43.4
Shipments	19.6	36.4	50.5	11.9	24.5	35.5	47.5	36.8	10.6	36.9
Unfilled Orders	12.6	11.0	73.8	13.3	-2.3	10.5	21.5	55.9	18.1	3.4
Delivery Times	11.1	12.5	75.2	12.3	0.2	5.2	8.2	74.3	13.1	-4.9
Inventories	-3.5	17.0	62.7	17.8	-0.8	0.4	24.2	57.8	11.8	12.4
Prices Paid	39.6	42.0	47.5	3.8	38.2	49.6	57.7	35.3	3.7	54.1
Prices Received	19.6	26.7	66.9	2.6	24.1	44.2	56.3	34.2	5.2	51.1
Number of Employees	17.6	30.1	58.3	10.6	19.5	31.7	41.7	43.2	11.5	30.2
Average Employee Workweek	14.6	28.7	61.7	7.9	20.8	10.8	25.8	61.0	8.2	17.6
Capital Expenditures	--	--	--	--	--	26.7	32.8	53.3	7.7	25.2
<b>NOTES:</b> (1) Diffusion indexes represent the percentage indicating an increase minus the percentage indicating a decrease. (2) All data are seasonally adjusted. (3) Percentages may not sum to 100 percent because of rounding, omission by respondents, or both. (4) Survey results reflect data received through October 16, 2018.										



# Publication Evolution

- Before 1990 (mailed reports to subscribers)
- Telephone hotline
- Web provided immediate user access  
BUT created new challenges:
  - Preventing early release
  - Securing site and providing simultaneous access
  - Web traffic, data security, web robots





# How is MBOS Used?

- Addresses a DATA GAP---data not available on regional manufacturing sector for years
- National Industrial Production estimated monthly
- ISM produces early survey results for the U.S.
- MBOS is used to forecast both
- Results are used in our regional District economic analysis and for Beige Book preparations.



# Distinguishing Between Forecasting & Nowcasting

“We define nowcasting as the prediction of the present, the very near future and the very recent past.”

Source: (Baibura, et.al, ECB WP, 2010)



# Regional Data:

Current-period forecasting is particularly relevant for those key REGIONAL economic variables which are collected at low frequency, often on an ANNUAL basis, and released with a VERY substantial lag.

Examples of lagged data: state GDP, state employment, metro statistics.



# Surveys like the MBOS also improve “current- period” forecasts

- Policy, for example, is often said to be data driven
- Measurements of current conditions won't be known until data is available.
- However, data on the current period is published with considerable lag
- Current-period forecasting (using all available data) fills gap until more complete and formal data is available.



# Imitation and Flattery

A total of 5 Fed manufacturing surveys now exist (Phil, Richmond, New York, Kansas City, Dallas)

Nonmanufacturing surveys have been added to cover the growth of services (Richmond, New York, Dallas, Chicago & Phil.)

Specialty surveys covering energy are recent additions



# Fed Surveys:

## MANUFACTURING SURVEYS:

- 5 current surveys
- Philadelphia is longest running – 50 years

## NON-MANUFACTURING SURVEYS:

- 9 current surveys
- Richmond is oldest NBOS – 25 years



# Manufacturing Surveys

FRB	Survey	Start date	Years
<b>Philadelphia</b>	<b>Business Outlook Survey</b>	1968:05	50
<b>Richmond</b>	<b>Fifth District Survey of Manufacturing Activity</b>	1993:11	25
<b>New York</b>	<b>Empire State Manufacturing Survey</b>	2001:07	17
<b>Kansas City</b>	<b>Survey of Tenth District Manufacturers</b>	2001:07	17
<b>Dallas</b>	<b>Texas Manufacturing Outlook Survey</b>	2004:06	14



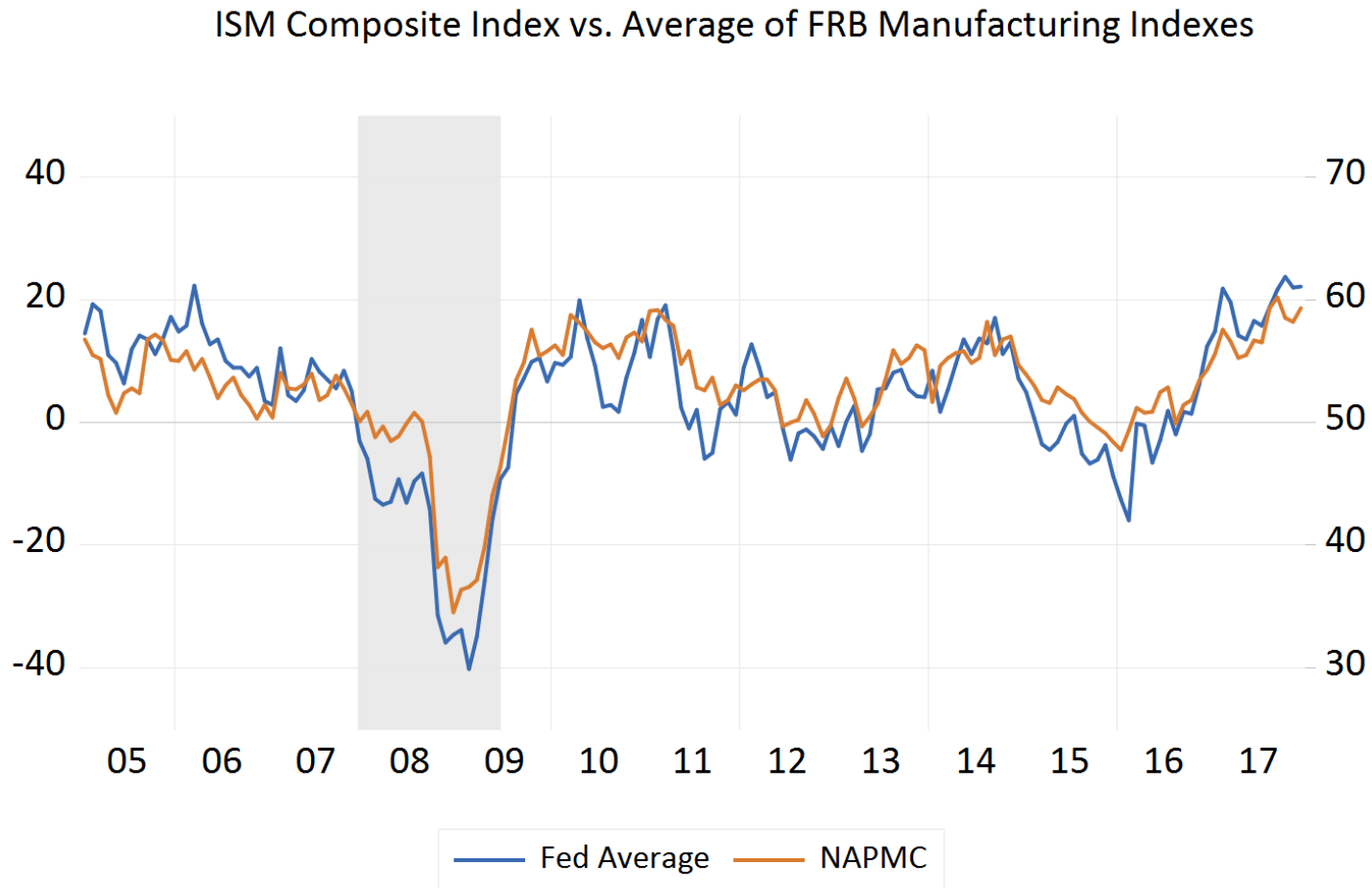
# Non-Manufacturing Surveys

FRB	Survey	Start date	Years
<b>Richmond</b>	<b>Fifth District Survey of Service Sector Activity</b>	1993:11	25
<b>New York</b>	<b>Business Leaders Survey</b>	2004:07	17
<b>Dallas</b>	<b>Texas Retail Outlook Survey</b>	2007:01	11
<b>Dallas</b>	<b>Texas Service Sector Outlook Survey</b>	2007:01	11
<b>Philadelphia</b>	<b>Nonmanufacturing Business Outlook Survey</b>	2011:03	7
<b>Chicago</b>	<b>Chicago Fed Survey of Business Conditions</b>	2013:03	5
<b>New York</b>	<b>Supplemental Survey Report</b>	2014	4
<b>Kansas City</b>	<b>Tenth District Energy Survey</b>	2014:Q1	4
<b>Dallas</b>	<b>Dallas Fed Energy Survey</b>	2016:Q1	2





# When combined a Fed Index average tracks the ISM Purchasing Manager Index (PMI)



# Special Questions Add Value

- Supplemental questions were added in 2001
- Addresses a variety of subjects—labor market and wage trends, health care, taxes, international trade, price trends...
- Questions are often repeated providing historical comparisons
- In 2015 we added quarterly forecasts for one-year-ahead inflation, own-firm prices, and compensation (PIES)



# PIES

For the next year (2018:Q3 to 2019:Q3), please list your expected annual percent change with respect to the following:

1. For your firm:

📌 Only numbers may be entered in these fields.

Prices your firm will receive (for its own goods and services sold)

%

Compensation your firm will pay per employee (for wages and benefits)

%

2. For your employees:

📌 Only numbers may be entered in these fields.

Prices your employees will pay (for goods and services where they live)

%

3. For U.S. consumers:

📌 Only numbers may be entered in these fields.

Prices U.S. consumers will pay (for goods and services)

%

For the next 10 years (2018 through 2027), what is your expected annual average percent change with respect to the following (for example, if you think prices will increase 10 percent every year for the next 10 years, then record 10%):

4. For U.S. consumers:

📌 Only numbers may be entered in these fields.

Prices U.S. consumers will pay (for goods and services)

%

# Our readers and users

- Financial analysts
- Regional, national, and international media
- Forecasters

# Data literacy strategy

- Media FAQs
- Focus on new users
- Press conferences



# Other Notable Philly Fed Data

## REGIONAL

- MBOS
- NBOS & South Jersey Business Survey

## NATIONAL (Real-Time Data Research Center)

- Coincident Indicators for 50 States
- Survey of Professional Forecasters (also 50 this year!)
- Livingston Survey
- GDP Plus
- Real-time “vintage” datasets
- **Other:** partisan conflict index, green book datasets, Aruoba-Diebold-Scotti Business Conditions Index, anxious index,....





## Regional Economy

- Manufacturing Business Outlook Survey  
**LATEST:** October 18, 2018
- Nonmanufacturing Business Outlook Survey  
**LATEST:** October 23, 2018
- South Jersey Business Survey  
**LATEST:** October 11, 2018 
- State Coincident Indexes  
**LATEST:** October 25, 2018 
- State Leading Indexes  
**LATEST:** October 4, 2018 
- Data Analysis, Employment Statistics, and Historical Data
- Regional Research

## Economists & Research Contacts

- Contacts by Publication
- Economists' Home Pages
- Research Contacts' Home Pages
- Visiting Scholars
- Working as a Research Economist at the Federal Reserve Bank of Philadelphia 

## Real-Time Data Research Center

A source of knowledge and expertise about real-time macroeconomic data, surveys of macroeconomic forecasts, and macroeconomic modeling.

- Aruoba-Diebold-Scotti Business Conditions Index  
**LATEST:** November 2, 2018 
- Aruoba Term Structure of Inflation Expectations  
**LATEST:** October 31, 2018 
- GDPplus
- Greenbook Data Sets
- Livingston Survey  
**LATEST:** June 15, 2018 
- Partisan Conflict Index
- Philadelphia Research Intertemporal Stochastic Model (PRISM)
- Projections for the Semiannual Monetary Policy Report to the Congress
- Real-Time Data Set for Macroeconomists
- Survey of Professional Forecasters  
**LATEST:** August 10, 2018





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For more information about the region's economy:  
<http://philadelphiafed.org/research-and-data/regional-economy/>



Extra Credit  
beyond this point





“I grow old ... I grow old ...”

--T.S. Eliot, *Prufrock*



# Fed Business Survey Timeline

