

## The Richmond Fed Manufacturing and Service Sector Surveys: A User's Guide

By David A. Price and Aileen Watson

The Richmond Fed conducts monthly surveys of business conditions in the manufacturing and service sectors of the Fifth Federal Reserve District. This article provides background information on these surveys and on other manufacturing and service sector surveys.

The Research Department of the Federal Reserve Bank of Richmond collects and disseminates two sector-specific surveys of business conditions each month: the Fifth District Survey of Manufacturing Activity (commonly called “Richmond Fed Manufacturing”) and the Fifth District Survey of Service Sector Activity. To assist researchers, analysts, and others who employ these surveys in assessing and forecasting economic conditions, this article provides background information on these surveys and their relationship to similar surveys conducted by other institutions.

### The Landscape of Monthly Sector Surveys

For current data on manufacturing activity, there are numerous sources. Five of the 12 Federal Reserve Banks administer monthly manufacturing sector surveys, three of them district-wide and two of them state-specific. In addition to the Richmond Fed's, the district-wide manufacturing surveys are the Philadelphia Fed Business Outlook Survey and the Kansas City Fed Manufacturing Survey; the state-specific manufacturing surveys are the New York Fed Empire State Manufacturing Survey and the Dallas Fed Texas Manufacturing Outlook Survey. (Historically, the Chicago Fed has published the Midwest Manufacturing Index, which is based on hours-worked data rather than surveys; it was suspended in late

2013 but is expected to resume publication in 2014.) In addition, the Federal Reserve Board of Governors releases a monthly national survey on industrial production and capacity utilization.

The Institute for Supply Management (ISM), an organization of procurement and supply chain managers, releases two national economic surveys of samples of its members. The ISM contacts approximately 350 of its members for each survey. Because the ISM manufacturing survey is released on the first business day of the following month and the ISM non-manufacturing survey is released on the third business day—earlier than other sector surveys—both surveys offer a timely foreshadowing of possible findings in official data.

The Census Bureau also conducts a monthly manufacturing survey, formally known as “Manufacturers’ Shipments, Inventories, and Orders” or M3. This voluntary survey contacts a much larger number of companies than those of the Reserve Banks or the ISM, approximately 4,300; on the other hand, the M3 contact list is limited to establishments with \$500 million or more in annual shipments, plus a minor number of smaller establishments. Also, the bureau does not release the report that includes both durable and non-durable manufacturing until four or five weeks

after the end of the month. (There is also an advance report covering only durable goods.)

The predictive value of the various manufacturing surveys has been assessed in a number of articles and papers, which generally found movements in the surveys well correlated with subsequently announced movements in gross domestic product (GDP) and employment.<sup>1</sup>

Even though services dwarf manufacturing in their overall contribution to GDP and employment, there is far less coverage of services than manufacturing. Among Reserve Banks, apart from the Richmond Fed service sector survey, there is only the New York Fed Business Leaders Survey—which covers service firms in New York State, northern New Jersey, and southwestern Connecticut—and the Dallas Fed Texas Service Sector Outlook Survey (which also breaks out retail as the Texas Retail Outlook Survey). The Census Bureau does not conduct a monthly services survey, but it does conduct a quarterly services survey covering some 5,000 businesses.

The disparity in coverage of services and manufacturing may seem puzzling at first glance since manufacturing represents a much smaller share of the econo-

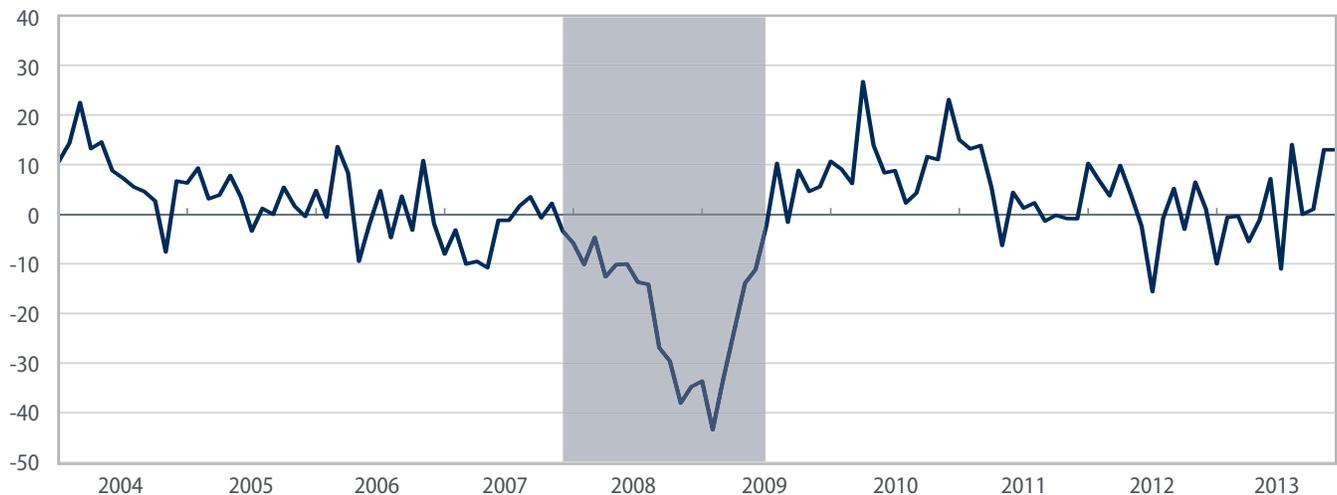
my; manufacturing value added was 12.5 percent of GDP in 2012, compared with 66.6 percent of GDP for service industries.<sup>2</sup> The likely reason for the disparity is that the manufacturing sector is believed to be far more sensitive, overall, to changes in the economy, and thus is of greater interest as a leading indicator of broader trends. In addition, when Reserve Banks began administering surveys of manufacturing, it was more difficult to define and measure the service sector than it is today.

### What the Richmond Fed Surveys Measure

The Richmond Fed sector surveys measure various types of economic activity at a representative sample of establishments within the Fifth District, which includes Washington, D.C., Maryland, North Carolina, South Carolina, Virginia, and most of West Virginia. Each survey reports on both current activity (the respondents' assessment of activity at their establishments during the current month compared with the previous month) and expected activity (the level of activity anticipated by the respondents at their establishments during the next six months compared with the current month).

The manufacturing survey began in June 1986 and took its current monthly form in November 1993. It

**Figure 1: Richmond Fed Manufacturing Survey Composite Index**



**Note:** Index values are a composite of seasonally adjusted survey results for current shipments (weighted 33 percent), new orders (40 percent), and employment (27 percent). Index values represent the percentage of responding establishments reporting an increase minus the percentage reporting a decrease. Shaded area represents the recession of 2007–09.

**Source:** Federal Reserve Bank of Richmond

reports indexes of both current and expected activity for shipments of finished products, new order volumes, order backlog volumes, capacity utilization (usage of equipment), lead times of suppliers, numbers of employees, average work week, and wages. In addition, the survey reports current conditions with respect to inventories of finished goods and inputs, as well as expectations with respect to capital expenditures. For each of these items, respondents are asked whether there has been (or will be) a decrease, no change, or increase. Results are reported as diffusion indexes that are calculated by subtracting the percentage of responses indicating a decrease from the percentage indicating an increase. (See Figure 1 on the previous page.)

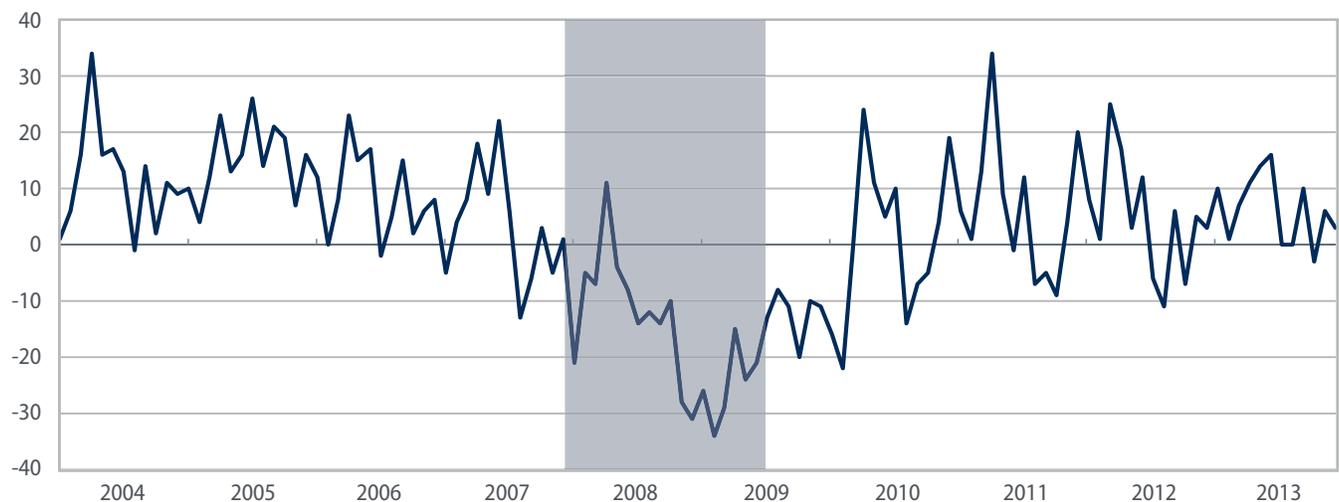
The survey also reports both current conditions and expectations regarding price trends, specifically the annualized percentage change in prices paid for inputs and in prices received for goods. Finally, the survey reports an overall manufacturing index, which is a seasonally adjusted composite of current shipments (weighted 33 percent), new orders (40 percent), and employment (27 percent). The survey collects, but does not yet report, information on spending in several categories: business services, equipment or software, and capital expenditures.

The services survey, which began in November 1993, was the first such survey by a Reserve Bank; it reports current activity for revenues, numbers of employees, average wages, and prices received, as well as expectations for product demand and pricing. (Figure 2 shows the revenues index.) In addition to reporting those measures for the service sector as a whole, the survey breaks them out for retailers and other service firms. For retail firms, the survey also reports current activity for inventories, “big-ticket” sales (items expected to last at least three years), and shopper traffic.

Seasonal adjustment factors based on the Census Bureau’s methodology are applied to the surveys’ diffusion indexes to arrive at seasonally adjusted index values. The seasonal adjustment factors are recalculated annually and historical survey results are revised accordingly. Survey results on price trends also are seasonally adjusted.

For the purpose of these surveys, the Richmond Fed defines manufacturing establishments as business establishments with a three-digit Census Bureau NAICS (North American Industry Classification System) code in the 300s, effectively including all manufacturing. The surveys treat all other firms as service establishments.<sup>3</sup>

**Figure 2: Richmond Fed Service Sector Revenues Index**



**Note:** Index values represent seasonally adjusted survey results of the percentage of responding establishments reporting an increase in revenues minus the percentage reporting a decrease in revenues. Shaded area represents the recession of 2007–09.

**Source:** Federal Reserve Bank of Richmond

The Richmond Fed releases the results on its website at 10 a.m. on the fourth Tuesday of every month.<sup>4</sup> When that day is a holiday, the Bank typically releases the results one day earlier.

The Richmond Fed also conducts two state-specific surveys of general business activity: the Carolinas Survey of Business Activity and the Maryland Survey of Business Activity.

### **Constructing the Panels**

Various sector surveys take different approaches to the issue of industry representation. The Richmond Fed seeks to balance its survey panels on a continuing basis as establishments drop out of any given panel for one reason or another. The objective is to represent industries in proportion to their employment within the Fifth District while maintaining a mix of firm sizes. The Quarterly Census of Employment and Wages (QCEW) from the Bureau of Labor Statistics is used to estimate employment by NAICS codes.

Firms that match the criteria are selected from various publicly available sources. In addition, firms that have requested to participate through a link on the Bank's website are considered on the basis of their fit with current needs.

Once a company has been identified, a Richmond Fed researcher contacts its chief financial officer or another senior-level employee to request participation in the survey. Initial telephone contact is followed by an e-mail confirmation that explains the survey process.

Because the Richmond Fed sector surveys are voluntary (as are all the sector surveys referenced in this article), it may be necessary to contact multiple companies to recruit a new company that matches the criteria. Panel members remain in the survey panel until they decide to discontinue, either explicitly or implicitly (that is, through a prolonged period of not responding).

### **Taking the Survey to the Field**

The Richmond Fed sector surveys are conducted online. Two days after the release of the survey results for the previous month, members of the panels

receive an automatically generated e-mail containing a link to the next month's survey on a secure website. Panel members are not compensated for completing the survey. Each survey is sent to several hundred establishments, of which approximately 100 return responses in a typical month. Response rates tend to be somewhat lower in December and January and during summer factory shut-downs than during the rest of the year.

The names of contacts and their companies are not shared outside the Federal Reserve System. When participants choose to supplement their responses with open-ended comments, as they are invited to do, those comments may be incorporated in summary form (without identifying information) into the Richmond Fed's contribution to the Fed's national *Summary of Commentary on Current Economic Conditions by Federal Reserve District*, better known as the Beige Book.

While some Reserve Banks include monthly special, non-standard questions in sector surveys to solicit supplemental information on a topic of current interest, Richmond Fed surveys include special questions only infrequently. This policy is intended to minimize the burden of responding and thereby to encourage a higher response rate.

Like other Reserve Banks, the Richmond Fed continues to assess potential means of improving its survey programs, including possible provision of new data series that may aid public- and private-sector organizations in forecasting and analysis. ■

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### **Endnotes**

<sup>1</sup> Examples include: Owens, Raymond E., and Pierre-Daniel G. Sarte, "How Well Do Diffusion Indexes Capture Business Cycles? A Spectral Analysis," Federal Reserve Bank of Richmond *Economic Quarterly*, Fall 2005, vol. 91, no. 4, pp. 23–42; Deitz, Richard, and Charles Steindel, "The Predictive Abilities of the New York Fed's Empire State Manufacturing Survey," Federal Reserve Bank of New York *Current Issues in Economics and Finance*, January 2005, vol. 11, no. 1; Harris, Matthew, Raymond E. Owens, and Pierre-Daniel G. Sarte, "Using Manufacturing

Surveys to Assess Economic Conditions," Federal Reserve Bank of Richmond *Economic Quarterly*, Fall 2004, vol. 90, no. 4, pp. 65–92; Keeton, William R., and Michael Verba, "What Can Regional Manufacturing Surveys Tell Us?—Lessons from the Tenth District," Federal Reserve Bank of Kansas City *Economic Review*, Third Quarter 2004, pp. 39–69; Lacey, Robert L., "Gauging Manufacturing Activity: The Federal Reserve Bank of Richmond's Survey of Manufacturers," Federal Reserve Bank of Richmond *Economic Quarterly*, Winter 1999, vol. 85, no. 1, pp. 79–98. An exception is Bachman, Daniel, "The Information Content of the ISM Purchasing Managers' Survey," U.S. Commerce Department, August 3, 2010, which found "modest" predictive value in the ISM manufacturing survey.

<sup>2</sup> Bureau of Economic Analysis, "Value Added by Industry as a Percentage of Gross Domestic Product," January 24, 2014.

<sup>3</sup> Establishments with three-digit NAICS codes in the 900s—public administration—are, of course, not included in either survey.

<sup>4</sup> The Bank posts survey results and historical data at [www.richmondfed.org/research/regional\\_economy/surveys\\_of\\_business\\_conditions](http://www.richmondfed.org/research/regional_economy/surveys_of_business_conditions).

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