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Fifth District Manufacturing and the Recession: An Analysis of Subsector Performance

By Robert H. Schnorbus and Judy R. Cox

Over several decades, the relative rise of consumer durables manufacturing and the relative decline of consumer nondurables manufacturing in the Fifth District may have hindered the region's ability to weather the recession of 2007–09. Decomposing the Fifth District Survey of Manufacturing Activity into four subsectors confirms that this new mix of industries contributed to a slightly deeper recession and a slower, weaker recovery in the Fifth District.

From an industrial perspective, any analysis of the economic impact of recessions at a national or regional level begins with a review of industrial structure, and few sectors are more vulnerable to recessions than manufacturing. Indeed, during the recession of 2007–09, the nation's manufacturing sector accounted for nearly half of the peak-to-trough decline in total economic output, even though the sector represented only about one-eighth of gross domestic product when the recession began. In terms of timing, the decline in manufacturing led the nation into the recession by up to six quarters. In fact, the sector incurred nearly 20 percent of its total employment losses before the recession officially began.

Tracking employment data is often the only way to monitor regional economic activity on a monthly or quarterly basis, but focusing exclusively on employment ignores the recession's impact on output. This article examines the performance of the Fifth District's manufacturing sector based on both employment and output during the most recent recession. To do this, the composite diffusion index and four subsector indexes, derived from the Fifth District Survey of Manufacturing Activity, are used as proxies for output measures of manufacturing performance.[1] These indexes track monthly survey responses regarding shipments, orders,

Manufacturing Subsectors

Consumer Durable Goods:
- Lumber and Wood Products
- Furniture and Fixtures
- Computer and Electrical Equipment Components
- Miscellaneous Manufacturing Products

Consumer Nondurable Goods:
- Food and Kindred Products
- Tobacco Products
- Textile Mill Products
- Apparel and Other Textile Products

Industrial Durable Goods:
- Primary Metal Products
- Fabricated Metal Products
- Industrial Machinery and Equipment
- Transportation Equipment

Industrial Nondurable Goods:
- Chemicals and Allied Products
- Rubber and Miscellaneous Plastics Products
- Nonmetallic Minerals
- Paper and Allied Products
- Printing and Publishing

and employment. They divide the District's manufacturing sector into four broad subsectors, allowing comparisons of the recession's impact on different categories of manufacturing.[2]

Historical Perspective

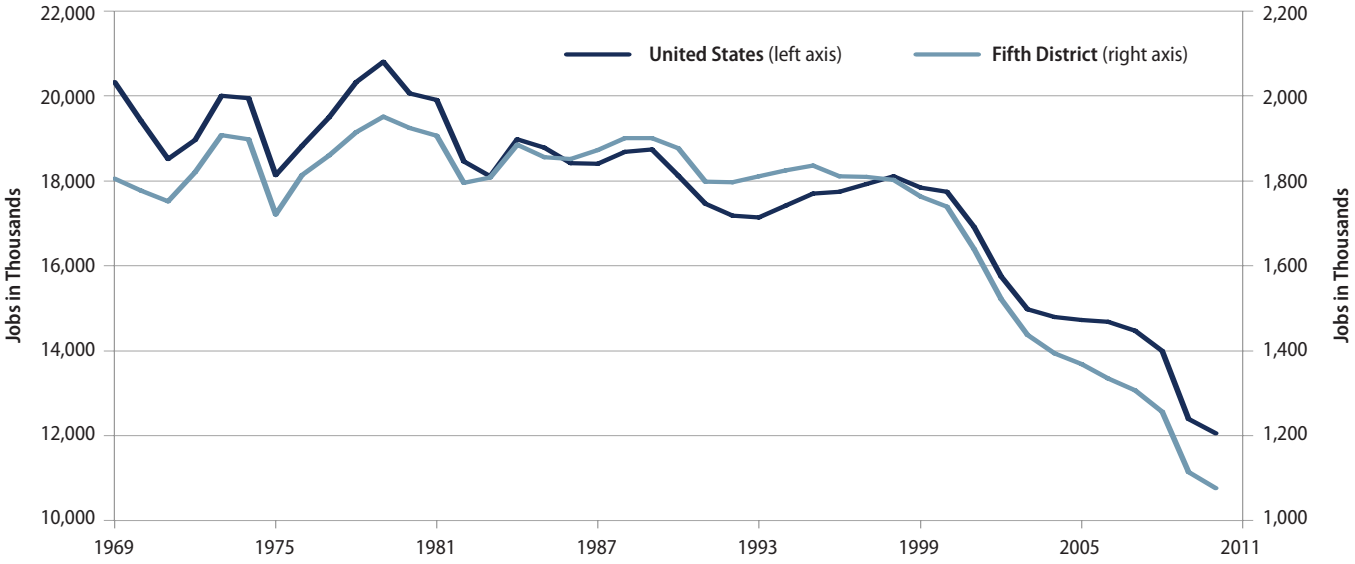
The national manufacturing sector has been declining, both in terms of employment and as a percent of total output, for at least four decades. During much of that time, many industries migrated from the Midwest to the South, increasing the importance of manufacturing in the Fifth District. The District attracted new manufacturers that provided—until the mid-1990s—some degree of underlying employment growth in a sector that was declining in most other regions of the nation. But the District's ongoing transition from older industries (such as tobacco and textiles) to newer industries (such as auto parts) may have made it more vulnerable to cyclical declines. Demand for auto parts, for example, is highly sensitive to business cycles, while demand for tobacco products once was considered nearly recession-proof.

In the mid-1990s, the Fifth District began losing manufacturing jobs more quickly than the rest of the nation. This shift has accelerated despite widespread publicity about high-profile manufacturers, such as Boeing and BMW, building plants in the District. Between 1990 and 2007, District manufacturing employment declined 50 percent faster than national manufacturing employment. Then, during the recession, District manufacturing employment declined at about the same rate as national manufacturing employment, which fell 14 percent. The most adversely affected state in the District was North Carolina, where manufacturing employment fell 17 percent. This may have resulted from a more pronounced shift from older industries to newer industries in North Carolina compared to other states in the District.[3]

During the recession, further manufacturing job losses in the District were not just concentrated in older industries that were no longer competitive in the global economy. Job losses also were evident in newer, more globally competitive industries. This, too, was caused partly by the arrival of long-term structural decline in the District—something that had begun decades earlier in other regions when manufacturers started migrating to lower-cost countries.

In the decades leading up to the most recent recession, even though newer industries were replacing

Figure 1: Manufacturing Employment Trends



Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Haver Analytics, and authors' calculations

older ones in the Fifth District, the manufacturing mix was becoming more sensitive to cyclical downturns. During this time, consumer durables, the subsector that is typically most strongly affected by recessions, grew substantially as a percentage of the District's manufacturing base, while consumer nondurables, a subsector that is typically more resistant to recessions, declined dramatically as a percentage of the District's manufacturing base. Consumer durables, such as the power tools made in Maryland, tend to cost more and last longer than consumer nondurables, such as the cookies baked in Virginia. During a recession, the typical consumer is more likely to satisfy his sweet tooth than expand his home workshop.

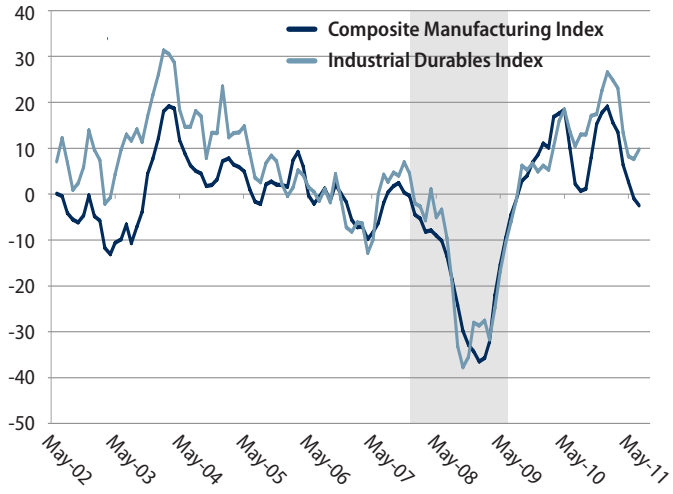
Subsector Analysis

If productivity were rising, which might be expected in the transition from older to newer industries, then output could increase despite employment declines. Yet gross state product data show that the District's manufacturing output grew more slowly than the nation's during the past decade. However, gross state product data offer limited observations of cyclical behavior because they are calculated only annually and thus obscure the monthly changes by which recessions are more often measured. To clarify the underlying cyclical patterns, the Federal Reserve Bank of Richmond uses a monthly composite diffusion index derived from the Bank's Fifth District Survey of Manufacturing Activity. The index is based on weighted averages of survey responses about increases and decreases in employment, shipments, and new orders, making it a viable proxy for monthly output. This index, decomposed into four major subsectors, reveals richer insights than gross state product data into the impact—both timing and relative magnitude—of the recession on the District's manufacturing sector.

Comparisons of the composite index to similar national and regional measures indicate that most of the District's manufacturers felt the recession's effects much sooner than their national counterparts. Indeed, the District's manufacturing sector was beginning a steep descent while the national manufacturing sector still was edging upward.[4] The District's composite index began signaling a decline in manufacturing activity in mid-2006—a year and a half before the recession officially started.

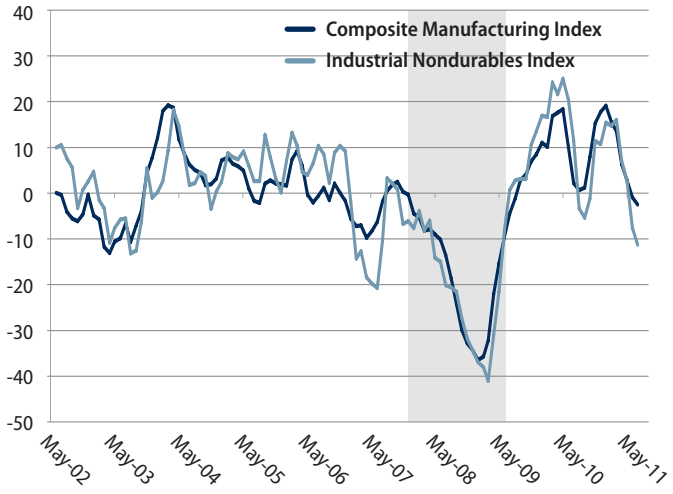
In addition to experiencing the early onset of contraction, each manufacturing subsector behaved somewhat differently before, during, and after

Figure 2: Industrial Durables Subsector Index Compared to Composite Manufacturing Index



Source: Fifth District Survey of Manufacturing Activity, Federal Reserve Bank of Richmond
Note: Monthly data have been converted to three-month, centered moving averages to more clearly capture underlying cyclical patterns. Gray area denotes recession.

Figure 3: Industrial Nondurables Subsector Index Compared to Composite Manufacturing Index



Source: Fifth District Survey of Manufacturing Activity, Federal Reserve Bank of Richmond
Note: Monthly data have been converted to three-month, centered moving averages to more clearly capture underlying cyclical patterns. Gray area denotes recession.

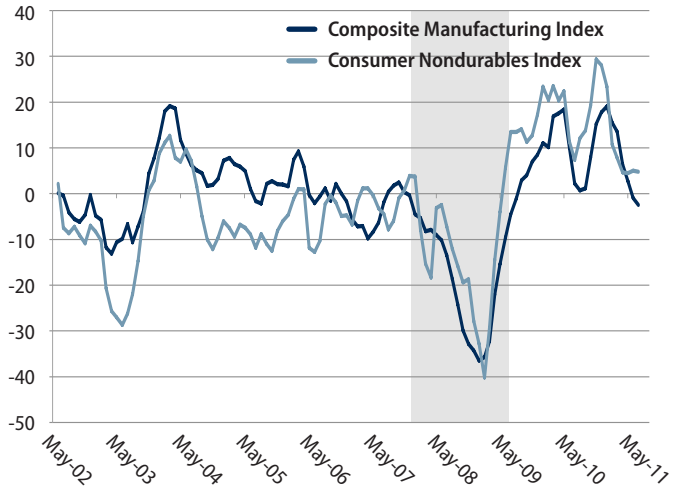
the recession. The subsector indexes for industrial durables and industrial nondurables tracked the District's composite index fairly closely during the recession. However, the indexes diverged from the composite somewhat, both before and after the recession. Most notably, industrial durables consistently outperformed the District's composite index during the cycle's early phase from 2002 through 2005. (See Figure 2.) Industrial nondurables outperformed the composite index for most of 2005 and 2006 and then fell sharply below the composite index in early 2007. (See Figure 3.) Since May 2010, however, the two industrial manufacturing subsectors have returned to their pre-recession patterns, with durables consistently outperforming the composite index and nondurables roughly tracking it.

In contrast to the indexes for the two industrial manufacturing subsectors, the two consumer manufacturing indexes diverged noticeably from the composite index during the recession and even more so during the recovery. The consumer nondurables index outperformed the composite index somewhat during the vast majority of the recession and recovery. (See Figure 4.) Meanwhile, the consumer durables index lagged below the composite index during nearly all of the recession and recovery. (See Figure 5.)

As might be expected—based on their performance nationally in previous recessions—consumer nondurables held up better than the other subsectors during the recession, and consumer durables deteriorated more than the other subsectors during the recession. Consumer durables, in particular, suffered the steepest and deepest decline of all the subsectors. And because this recession-sensitive subsector had become a larger part of the Fifth District's manufacturing sector in the decades leading up to the recession, its poor performance during the recession hurt the sector more than it did during previous recessions. Consumer nondurables provided some relative strength during the recession, but this less-cyclical subsector had become a smaller part of the District's manufacturing sector in the decades leading up to the recession. As a result, its stabilizing effect on the District's economy was diluted relative to previous recessions.

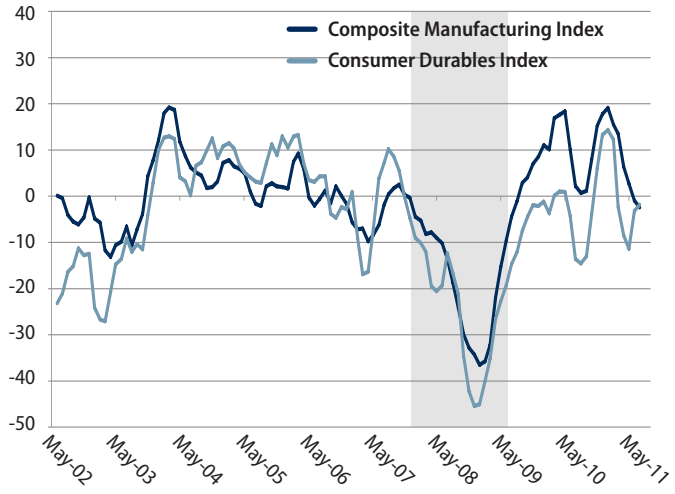
The effects of the consumer manufacturing subsectors on the District's manufacturing activity were even more pronounced during the recovery. Consumer durables continued to fall about six months longer than the other subsectors. Consumer durables also contracted sharply in mid-2010, while the other subsectors were merely slowing down.

Figure 4: Consumer Nondurables Subsector Index Compared to Composite Manufacturing Index



Source: Fifth District Survey of Manufacturing Activity, Federal Reserve Bank of Richmond
Note: Monthly data have been converted to three-month, centered moving averages to more clearly capture underlying cyclical patterns. Gray area denotes recession.

Figure 5: Consumer Durables Subsector Index Compared to Composite Manufacturing Index



Source: Fifth District Survey of Manufacturing Activity, Federal Reserve Bank of Richmond
Note: Monthly data have been converted to three-month, centered moving averages to more clearly capture underlying cyclical patterns. Gray area denotes recession.

After a brief and weak recovery, consumer durables declined again in the first half of 2011. In sharp contrast, consumer nondurables have been a consistent source of strength throughout the recovery.

Looking Ahead to 2012

Changes in the Fifth District's manufacturing mix during the past four decades clearly affected the region's ability to endure and recover from the most recent recession. Subsector indexes for consumer durables and consumer nondurables diverged noticeably from the District's composite manufacturing index, indicating that changes in these subsectors contributed to a slightly deeper recession and a slower, weaker recovery in the District.

Most recently, the composite manufacturing index is signaling another slowdown in activity, similar to what the District experienced in 2010, and the major subsectors are playing familiar roles in this most recent episode of weakness. All four have at least slowed down, and consumer durables, once again, is leading with a marked contraction. Whether this latest deceleration will reverse itself, as it did in late 2010, or become a prelude to further contraction is far from certain at this point. What is certain is that the mix of industries will continue to play a major role in determining how the District's manufacturing sector performs in 2012. ■

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Endnotes

[1] Diffusion indexes measure the difference between the percent of manufacturing survey respondents who report increases and the percent of those who report decreases. The indexes often are assumed to be reasonable proxies for measures of growth rates.

[2] For monthly updates on manufacturing activity in the Fifth District, go to https://www.richmondfed.org/research/regional_economy/surveys_of_business_conditions/manufacturing/index.cfm.

[3] For an overview of North Carolina's dramatic transition, see Michael L. Walden, *North Carolina in the Connected Age: Challenges and Opportunities in a Globalizing Economy*. Chapel Hill, N.C.: University of North Carolina Press, 2008.

[4] This analysis is based on comparisons of the District's composite manufacturing index to the Industrial Production Index (for manufacturing only) and the Institute for Supply Management Composite Manufacturing Index.