

Nailing down the price of new nonresidential building construction: expanding the PPI to include indexes by region and type of contractor

By Joseph Kelley

In the early 2000s, the Bureau of Labor Statistics (BLS) Producer Price Index (PPI) program began developing price indexes to cover the new nonresidential construction segment of the U.S. economy. This event was precipitated by feedback from industry analysts, economic agencies, and trade associations indicating that there was a lack of regularly available construction data based on a clearly defined methodology. In particular, the

Bureau of Economic Analysis needed price indexes for the calculation of the nonresidential construction segment of the nominal gross domestic product. As a result, five new nonresidential building PPIs were created:

- [New warehouse building construction](#)
- [New school building construction](#)
- [New office building construction](#)
- [New industrial building construction](#)
- [New healthcare building construction](#)

The types of buildings mentioned in these indexes were selected because they covered a majority of the new, nonresidential building construction segment of the economy.¹

The new nonresidential building construction indexes were introduced into publication piecemeal between 2005 and 2013. Although these indexes represented a significant accomplishment in terms of expanding PPI coverage, some data users were looking for more detailed price index information for the construction sector.

In December 2016, in response to the requests for regional data, BLS created two additional index structures that reflected more detailed data:

- New nonresidential building construction by contractor type and region (236400)
- New nonresidential building construction by region (236500)

This **Beyond the Numbers** article explains how these indexes are calculated, what their structures are like, and how analysts can use the data to better understand price movements in the nonresidential building construction sector of the U.S. economy.

New regional indexes

The new regional indexes are calculated by reaggregating existing PPI pricing data on the construction of warehouses, schools, office buildings, industrial buildings, and healthcare buildings. The data that are used consist of material and installation cost information provided by a cost-estimating firm, as well as overhead and profit information provided by respondents to the PPI survey. The material and installation cost information is combined with the overhead and profit information to calculate output prices for construction activities. Thus, BLS was able to introduce these new index structures without the need to further burden survey participants.

The overall indexes, new nonresidential building construction by contractor type and region (236400) and new nonresidential building construction by region (236500), are equivalent, with both representing price changes for new nonresidential building construction at the national level; however, their detailed components provide price breakdowns from different perspectives.

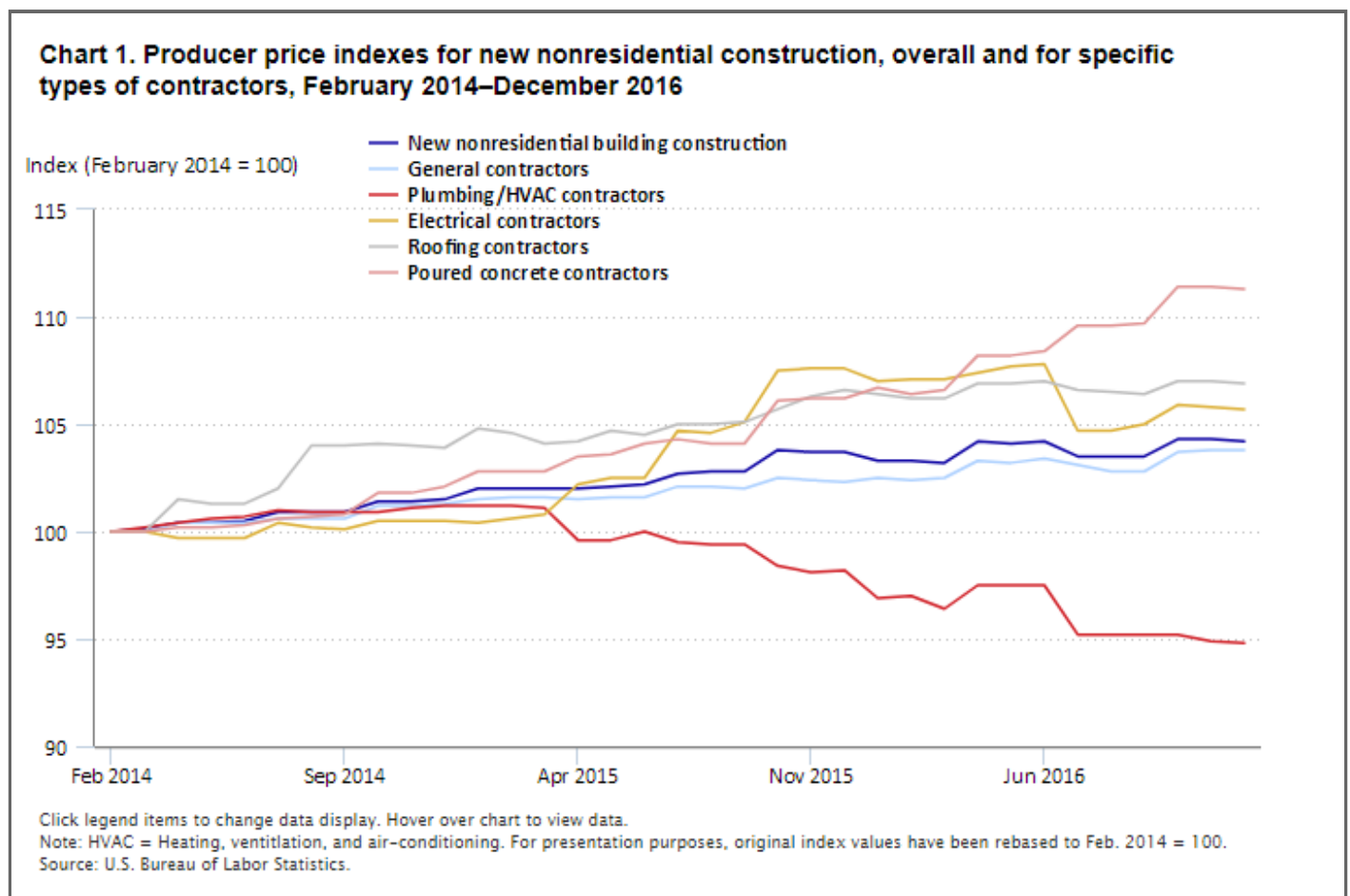
The new index structure, new nonresidential building construction by contractor type and region ([236400](#)), is organized first by type of contractor (general, plumbing/HVAC,² electrical, roofing, and concrete) and then by region (Northeast, South, Midwest, and West). This aggregation structure is intended for data users who are seeking to obtain regional PPI data by type of contractor.

The new index structure, new nonresidential building construction by region ([236500](#)), aggregates PPIs by type of contractor for each region.³ These indexes are intended for data users who are interested in the overall price movement for new nonresidential building construction within a specific region.

Analysis

The new index structures allow for analysis beyond the building-type indexes that entered publication from 2005 through 2013. For instance, using the contractor-type indexes provides a useful comparison of the overall nonresidential construction industry (236400) against the five specific types of contractors to see how each type contributes to price movement in the overall index. Chart 1 shows that prices in the plumbing/HVAC area have been falling since the beginning of 2015. The declines are due largely to declining prices for materials in the category of pipe- and plumbing-related items. For example, the PPI for [steel pipe and tube](#) declined 11.9 percent from February 2014 to December 2016, and the PPI for [copper and brass mill shapes](#) declined 6.9 percent over the same timeframe.

In contrast, chart 1 also highlights the fact that the index for poured concrete contractors has shown some of the largest increases in recent months relative to the other indexes. The increases are mainly the result of rising prices for concrete and concrete input materials. For example, the PPIs for both [ready-mix concrete](#) and [concrete ingredients and related products](#) rose 11.1 percent from February 2014 to December 2016.



The contractor-type indexes also can be used to compare regional price movements for a specific type of contractor activity with price movements at the national level overall. The indexes presented in chart 2 show that, over recent years, general contractors in the Midwest and Northeast have had slower price increases than general

contractors at the national level. The South has seen the greatest increases over the period from February 2014 to December 2016.

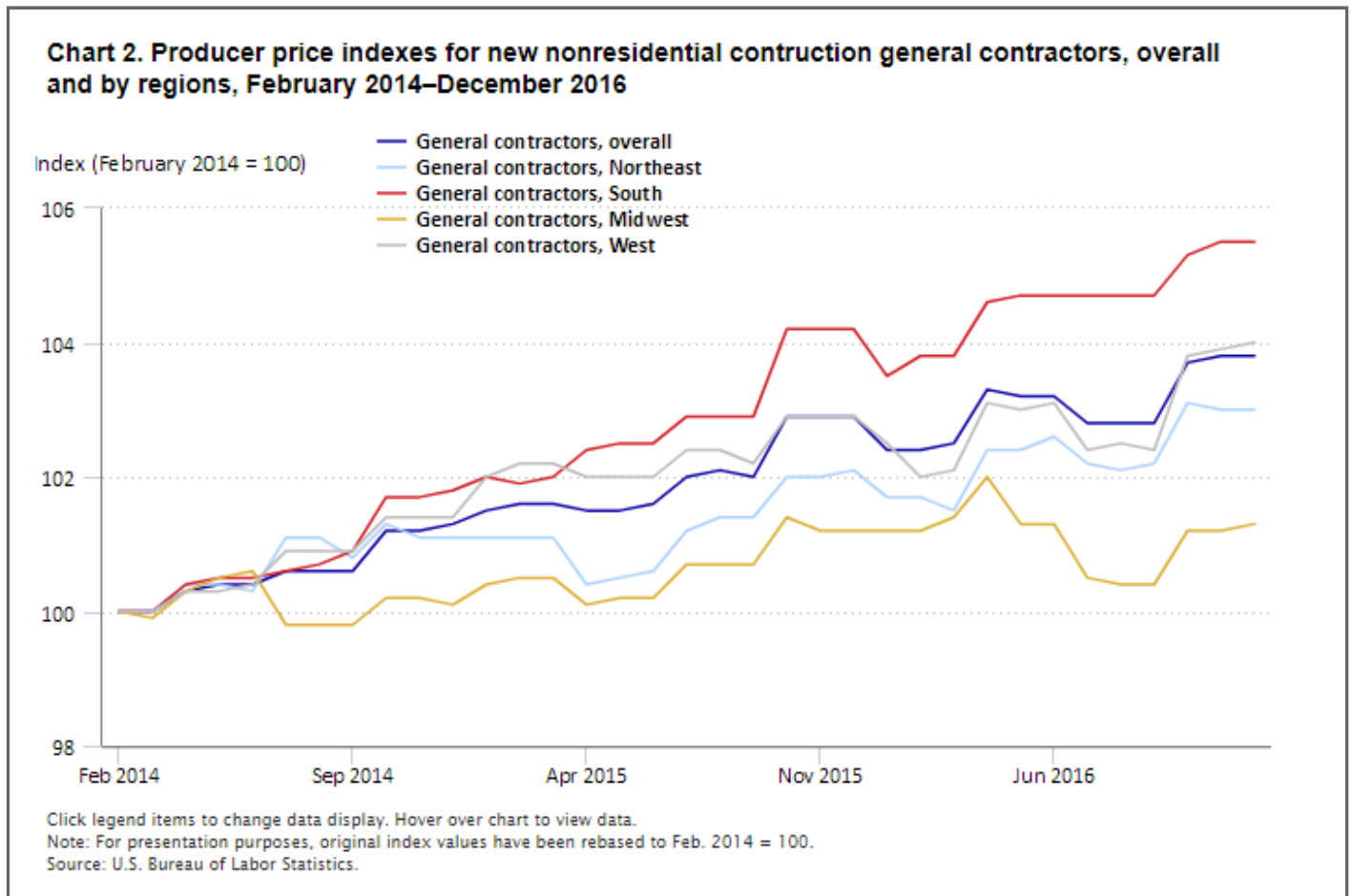
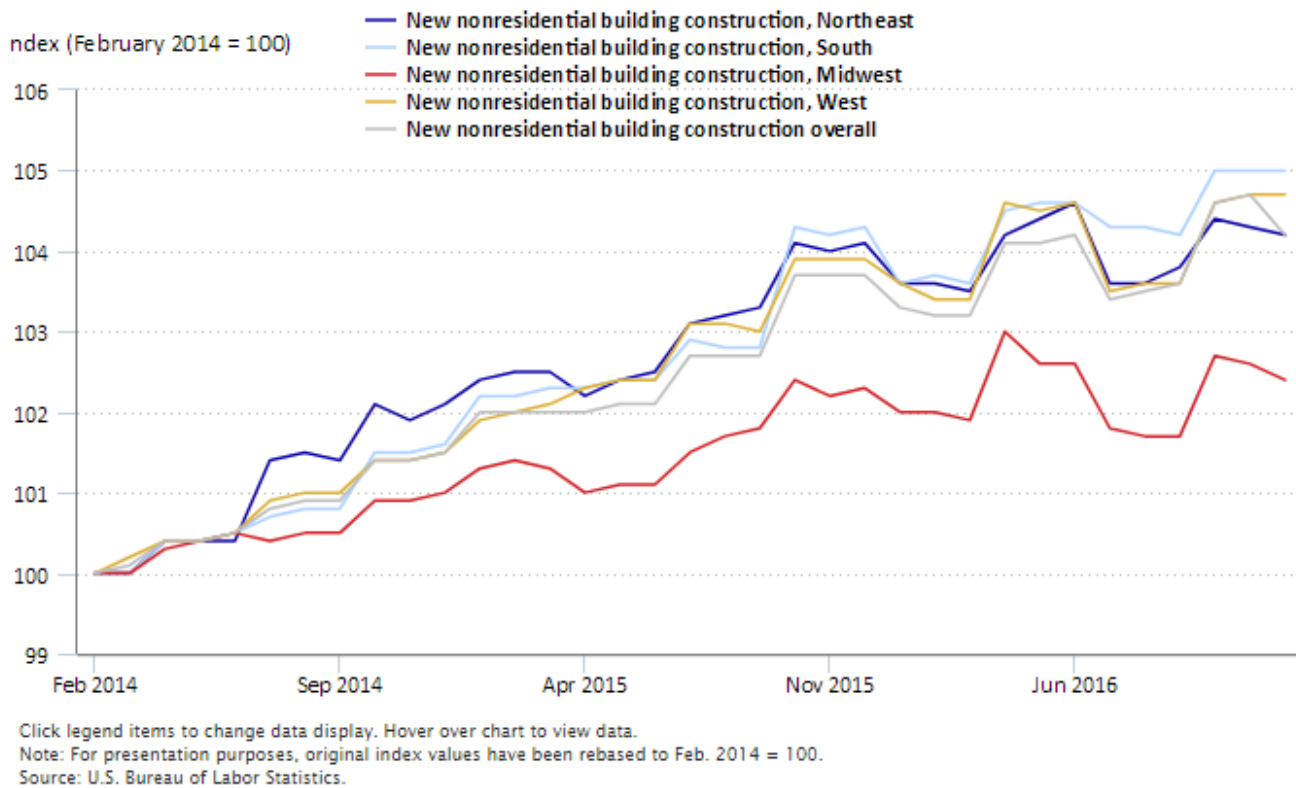


Chart 3 reflects overall new nonresidential building construction cost trends by region and at the national level. The indexes present aggregate data for all (general and trade) types of contractors. Charts 2 and 3 show that the Midwest has had the lowest rate of price increases relative to the other regions during the period studied. This relationship is due largely to very moderate price increases for the plumbing/HVAC, concrete, general, and roofing contractors in the Midwest, compared with the other regions. The same general trend can be observed in the Consumer Price Index (CPI-U) for All Items, for each of the four Census regions. The [Midwest](#) shows the lowest rate of increase (1.5 percent) from February 2014 to December 2016. The [Northeast](#), [South](#), and [West](#) show increases of 2.1 percent, 2.4 percent, and 5.0 percent, respectively, over the same period.

Chart 3. Producer price indexes for new nonresidential building construction, overall and by region, February 2014–December 2016



A reading of the Federal Reserve’s Beige Book’s comments on the strength of the construction markets in the various districts anecdotally supports the information given in chart 3.⁴ Although all of the Federal Reserve regions reported overall positive price trends, the Midwest reported more incidents of steady or moderate growth while the other regions reported more robust growth.

Conclusion

In response to a lack of regularly available construction data based on a clearly defined methodology, as well as to comply with a specific request from the U.S. Bureau of Economic Analysis, the PPI program has introduced various index structures measuring price movements for much of the nonresidential building construction sector. PPI data users have shown substantial interest in obtaining price indexes for the construction industry. BLS has attempted to fulfill these requests by developing PPIs that measure price movement for specific types of buildings, for specific types of contractors, and for maintenance and repair construction. Although these indexes were well received, a desire for more detailed indexes led BLS to develop additional indexes that provide data by region and by type of contractor. BLS will continue to analyze pricing data to determine whether there are any further data aggregations that may be of interest to users.

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NOTES

¹ On the basis of 2016 U.S. Census Bureau data on the value of construction put in place, these five types of buildings cover 61.2 percent of nonresidential building construction. The majority of the BLS initiative was accomplished through an increase in funding for the express purpose of enhancing the nonresidential building construction indexes in the PPI.

² Heating, ventilation, and air-conditioning.

³ For example, the regional index for the Northeast combines the Northeast region indexes for general contracting, plumbing/HVAC, electrical, roofing, and concrete to obtain a single index for the Northeast region—and similarly for the other regions.

⁴ “Full report: summary of commentary on current economic conditions by Federal Reserve district,” *Beige Book - September 7, 2016* (Board of Governors of the U.S. Federal Reserve System, September 7, 2016), <https://www.federalreserve.gov/monetarypolicy/beigebook/beigebook201609.htm>.

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