

# Deconstructing Construction Costs

Clare Losey  
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Labor and materials typically make up the biggest costs of single-family home construction, and those costs increased significantly during the COVID-19 pandemic. Cost increases tend to be reflected in higher sales prices, making homes less affordable.

Before the pandemic, the Producer Price Index, or PPI (see sidebar), for construction services and goods (in other words, labor and materials) increased steadily, with services facing more upward pressure than goods (Figure 1).

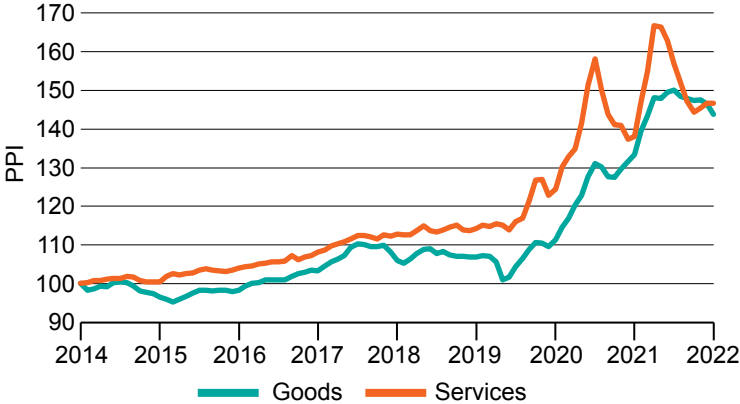
After a brief downturn in the initial stages of the pandemic, the PPI for construction goods increased rapidly starting in early 2021, reaching double digit year-over-year (YOY) growth in March 2021 (Figure 2). While growth moderated in the latter half of 2022, falling to single digits in December 2022, the index remains well above its long-term average.

The PPI for construction services moderated in the initial stages of the pandemic, then increased sharply in the first half of 2021 before declining. It increased again in the

**Takeaway**

Higher construction costs impact housing affordability by increasing the sales price of new homes. This reduces the percentage of potential buyers able to purchase those homes.

**Figure 1. PPI Net Inputs to Single-Family Residential Construction**



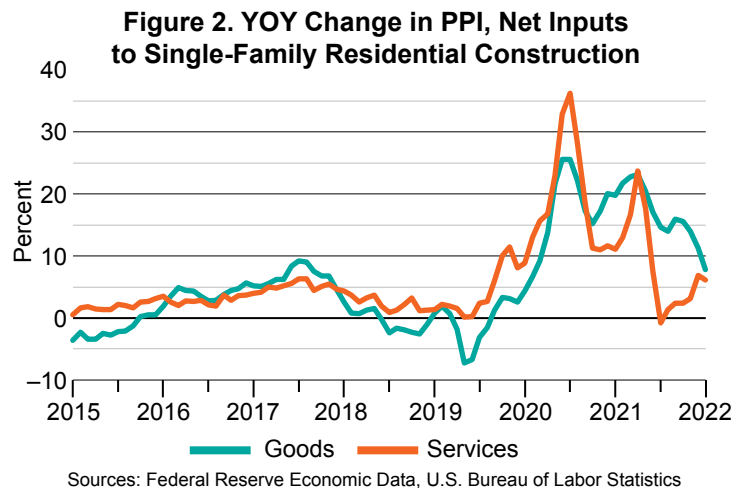
Sources: Federal Reserve Economic Data, U.S. Bureau of Labor Statistics

first half of 2022, then fell. YOY PPI growth for services peaked at over 36 percent in June 2021. The deviation between the PPI for construction services and the PPI for construction goods moderated considerably by the second half of 2022.

## How Higher PPI Impacts Home Prices

Table 1 shows the percent increase in home sales price by the PPI and the proportion of construction costs to sales price. For example, if the PPI increased by 10 percent and construction costs equaled 60 percent of the sales price, the home's sales price would increase 6 percent.

Using the same parameters, a new home that otherwise would have sold for \$250,000 would



**Table 1. Price Increase by PPI and Proportion of Construction Costs to Sales Price**

Increase in PPI	Construction Costs (Labor & Materials) as Percent of Sales Price					
	50%	55%	60%	65%	70%	75%
2%	1.0%	1.1%	1.2%	1.3%	1.4%	1.5%
5%	2.5%	2.8%	3.0%	3.3%	3.5%	3.8%
7%	3.5%	3.9%	4.2%	4.6%	4.9%	5.3%
10%	5.0%	5.5%	6.0%	6.5%	7.0%	7.5%
15%	7.5%	8.2%	9.0%	9.7%	10.5%	11.3%
20%	10.0%	11.0%	12.0%	13.0%	14.0%	15.0%
25%	12.5%	13.8%	15.0%	16.3%	17.5%	18.8%
30%	15.0%	16.5%	18.0%	19.5%	21.0%	22.5%
35%	17.5%	19.3%	21.0%	22.8%	24.5%	26.3%
40%	20.0%	22.0%	24.0%	26.0%	28.0%	30.0%

Source: Texas Real Estate Research Center at Texas A&M University

**Table 2. Price Increase by PPI and Proportion of Construction Costs to Sales Price, \$250,000 Home**

Increase in PPI	Construction Costs (Labor & Materials) as Percent of Sales Price					
	50%	55%	60%	65%	70%	75%
2%	\$2,500	\$2,750	\$3,000	\$3,250	\$3,500	\$3,750
5%	\$6,250	\$6,875	\$7,500	\$8,125	\$8,750	\$9,375
7%	\$8,750	\$9,625	\$10,500	\$11,375	\$12,250	\$13,125
10%	\$8,750	\$9,625	\$10,500	\$11,375	\$12,250	\$13,125
15%	\$12,500	\$13,750	\$15,000	\$16,250	\$17,500	\$18,750
20%	\$18,750	\$20,625	\$22,500	\$24,375	\$26,250	\$28,125
25%	\$25,000	\$27,500	\$30,000	\$32,500	\$35,000	\$37,500
30%	\$31,250	\$34,375	\$37,500	\$40,625	\$43,750	\$46,875
35%	\$37,500	\$41,250	\$45,000	\$48,750	\$52,500	\$56,250
40%	\$43,750	\$48,125	\$52,500	\$56,875	\$61,250	\$65,625

Source: Texas Real Estate Research Center at Texas A&M University

**Table 3. Price Increase by PPI and Proportion of Construction Costs to Sales Price, \$350,000 Home**

Increase in PPI	Construction Costs (Labor & Materials) as Percent of Sales Price					
	50%	55%	60%	65%	70%	75%
2%	\$3,500	\$3,850	\$4,200	\$4,550	\$4,900	\$5,250
5%	\$8,750	\$9,625	\$10,500	\$11,375	\$12,250	\$13,125
7%	\$12,250	\$13,475	\$14,700	\$15,925	\$17,150	\$18,375
10%	\$17,500	\$19,250	\$21,000	\$22,750	\$24,500	\$26,250
15%	\$26,250	\$28,875	\$31,500	\$34,125	\$36,750	\$39,375
20%	\$35,000	\$38,500	\$42,000	\$45,500	\$49,000	\$52,500
25%	\$43,750	\$48,125	\$52,500	\$56,875	\$61,250	\$65,625
30%	\$52,500	\$57,750	\$63,000	\$68,250	\$73,500	\$78,750
35%	\$61,250	\$67,375	\$73,500	\$79,625	\$85,750	\$91,875
40%	\$70,000	\$77,000	\$84,000	\$91,000	\$98,000	\$105,000

Source: Texas Real Estate Research Center at Texas A&M University

sell for an additional \$10,500, for a total of \$260,500 (Table 2); a \$350,000 new home would sell for an additional \$21,000, for a total of \$371,000 (Table 3); and a \$450,000 new home would sell for an additional \$31,500, for a total of \$481,500 (Table 4).

### Implications on Long-Term Affordability

All else being equal, every increase in the PPI reduces the proportion of homeowners who could afford the new home sales price. Tables 5, 6, and 7 estimate how much PPI increases would reduce the proportion of Texas homeowners who could afford a \$250,000, \$350,000, or \$450,000 home, respectively, in 2022.

For example, assuming the PPI increased by 10 percent and construction costs made up 60 percent of the sales price, 53.1 percent of Texas homeowners could have afforded a new home with a \$250,000 base price in 2022. If the PPI measured 25 percent, 49.2 percent could have afforded that home. (This analysis assumes the average 30-year fixed mortgage rate in 2022 of 5.34 percent.)

The substantial increase in construction costs over the past several years has significant implications on the

**Table 4. Price Increase by PPI and Proportion of Construction Costs to Sales Price, \$450,000 Home**

Increase in PPI	Construction Costs (Labor & Materials) as Percent of Sales Price					
	50%	55%	60%	65%	70%	75%
2%	\$4,500	\$4,950	\$5,400	\$5,850	\$6,300	\$6,750
5%	\$11,250	\$12,375	\$13,500	\$14,625	\$15,750	\$16,875
7%	\$15,750	\$17,325	\$18,900	\$20,475	\$22,050	\$23,625
10%	\$22,500	\$24,750	\$27,000	\$29,250	\$31,500	\$33,750
15%	\$33,750	\$37,125	\$40,500	\$43,875	\$47,250	\$50,625
20%	\$45,000	\$49,500	\$54,000	\$58,500	\$63,000	\$67,500
25%	\$56,250	\$61,875	\$67,500	\$73,125	\$78,750	\$84,375
30%	\$67,500	\$74,250	\$81,000	\$87,750	\$94,500	\$101,250
35%	\$78,750	\$86,625	\$94,500	\$102,375	\$110,250	\$118,125
40%	\$90,000	\$99,000	\$108,000	\$117,000	\$126,000	\$135,000

Source: Texas Real Estate Research Center at Texas A&M University

long-term affordability of new single-family homes. Generally speaking, as the PPI for single-family residential construction increases, so does the sales price for a new home. This reduces the proportion of homeowners who can afford these homes. Coupled with higher

## What is the Producer Price Index?

The Producer Price Index (PPI) for net inputs to single-family residential construction is the data series most often used to track changes in construction costs for single-family homes.

The PPI is similar to the Consumer Price Index (CPI) in that it reflects the average change over time in the costs of goods and services. However, it deviates from

the CPI by measuring the costs incurred by producers, rather than consumers, for those goods and services.

Producers generally prefer to pass increases in input costs along to consumers, which means an increase in the PPI tends to lead to an increase in the CPI. In other words, when producers face inflation, consumers face inflation.

mortgage rates, the rise in construction costs adds yet another affordability constraint.

## Construction Costs and Sales Prices

An analysis conducted by the National Association of Home Builders found that, on average, slightly over 60 percent of the sales price of a new home can be attributed to construction costs (<https://www.nahb.org/-/media/8F04D7F6EAA34DBF8867D7C3385D2977.ashx>). The remaining 40 percent or so of the sales price is accounted for by components such as finished lot cost, financing cost, overhead and general expenses, marketing cost, sales commission, and profit. Construction costs as a proportion of the sales price of a new home varies by multiple factors, including geography, the size of the home, and the quality of materials and finishings.

This article assumes changes in construction costs do not affect other components of the sales price. However, that's not always the case, so the calculations in this article likely underestimate the effect of changes in construction costs on the sales price of a new home. 📌

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*Dr. Losey (clare\_losey@tamu.edu) is a former assistant research economist with the Texas Real Estate Research Center at Texas A&M University. She is now a housing economist with the Austin Board of Realtors.*

**Table 5. Texas Homeowners Who Could Afford New Home Sales Price, 2022 (\$250,000 Base Price)**

Increase in PPI	Construction Costs (Labor & Materials) as Percent of Sales Price					
	50%	55%	60%	65%	70%	75%
2%	55.3%	55.3%	55.2%	55.2%	55.1%	55.1%
5%	54.7%	54.5%	54.4%	54.3%	54.2%	54.1%
7%	54.2%	54.1%	53.9%	53.8%	53.6%	53.5%
10%	53.6%	53.4%	53.1%	52.9%	52.7%	52.5%
15%	52.5%	52.2%	51.8%	51.5%	51.2%	50.9%
20%	51.4%	51.0%	50.5%	50.1%	49.7%	49.2%
25%	50.3%	49.8%	49.2%	48.7%	48.2%	47.6%
30%	49.2%	48.6%	47.9%	47.3%	46.6%	46.0%
35%	48.2%	47.4%	46.6%	45.9%	45.1%	44.4%
40%	47.1%	46.2%	45.3%	44.5%	43.6%	42.9%

Source: Texas Real Estate Research Center at Texas A&M University

**Table 6. Texas Homeowners Who Could Afford New Home Sales Price, 2022 (\$350,000 Base Price)**

Increase in PPI	Construction Costs (Labor & Materials) as Percent of Sales Price					
	50%	55%	60%	65%	70%	75%
2%	39.3%	39.3%	39.2%	39.2%	39.1%	39.1%
5%	38.6%	38.5%	38.4%	38.3%	38.2%	38.1%
7%	38.2%	38.0%	37.9%	37.7%	37.6%	37.4%
10%	37.5%	37.3%	37.1%	36.9%	36.6%	36.4%
15%	36.4%	36.1%	35.7%	35.4%	35.1%	34.7%
20%	35.3%	34.9%	34.4%	34.0%	33.5%	33.1%
25%	34.2%	33.6%	33.1%	32.5%	31.9%	31.4%
30%	33.1%	32.4%	31.7%	31.1%	30.4%	29.7%
35%	31.9%	31.2%	30.4%	29.6%	28.8%	28.0%
40%	30.8%	29.9%	29.0%	28.2%	27.3%	26.4%

Source: Texas Real Estate Research Center at Texas A&M University

**Table 7. Texas Homeowners Who Could Afford New Home Sales Price, 2022 (\$450,000 Base Price)**

Increase in PPI	Construction Costs (Labor & Materials) as Percent of Sales Price					
	50%	55%	60%	65%	70%	75%
2%	26.4%	26.4%	26.3%	26.3%	26.2%	26.1%
5%	25.6%	25.4%	25.3%	25.1%	25.0%	24.9%
7%	25.0%	24.8%	24.6%	24.4%	24.2%	24.0%
10%	24.1%	23.9%	23.6%	23.3%	23.0%	23.0%
15%	23.0%	23.0%	23.0%	22.9%	22.9%	22.9%
20%	22.9%	22.9%	22.9%	22.8%	22.8%	22.7%
25%	22.8%	22.8%	22.7%	22.7%	22.6%	22.6%
30%	22.7%	22.7%	22.6%	22.6%	22.5%	22.5%
35%	22.6%	22.6%	22.5%	22.4%	22.4%	22.3%
40%	22.6%	22.5%	22.4%	22.3%	22.2%	22.2%

Source: Texas Real Estate Research Center at Texas A&M University