

Statistical bulletin

Construction output price indices (OPIs), UK: July to September 2017

A summary of the construction output price indices (OPIs) for Quarter 3 (July to September) 2017. Data in this release are Experimental Statistics.

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Table of contents

1. [Main points](#)
2. [Things you need to know about this release](#)
3. [All construction price inflation summary](#)
4. [The annual rate of inflation for new work fell slightly in September, however, prices were flat on the month](#)
5. [The annual rate of inflation for repair and maintenance fell 0.1 percentage points in September 2017, after reaching its peak the previous month](#)
6. [How have the new work, and repair and maintenance sectors influenced the annual rate since March 2015?](#)
7. [Impact of improvements to construction statistics on output price indices](#)
8. [Quality and methodology](#)

1 . Main points

- The Construction Output Price Index (OPI) for all construction rose 2.0% in the year to September 2017, falling from an increase of 2.3% in the year to August 2017.
- Prices increased in the year to September 2017 for all work types within new work, and repair and maintenance, for the third consecutive month.
- The OPI for all new work was up 2.2% in the year to September 2017, down from an increase of 2.4% in the year to August 2017; housing showed the largest movement, an increase of 3.7%.
- The OPI for all repair and maintenance increased 1.6% in the year to September 2017, down from an increase of 1.7% to August 2017; the housing repair and maintenance sector showed the largest increase, up 1.7% over the period.

2 . Things you need to know about this release

Due to the improvements made to the construction output price indices publication, this output is now published as a statistical bulletin. Link to [previous articles](#).

Since taking responsibility for the Construction Price and Cost Indices (CPCIs) on 1 April 2015, Office for National Statistics (ONS) has developed the Construction Output Price Indices (OPIs). The indices use our existing data sources, all of which are [National Statistics](#), so that users can be assured of the quality of the source data.

The results for the OPIs were published for the first time on 12 June 2015. This bulletin provides a quarterly update to these results and includes data to September 2017.

Further improvements to the OPIs were made more recently and have been published in the article [Construction development: impact of improvements to construction statistics](#).

Weights that were previously used to aggregate the new work, repair and maintenance and all construction indices were last updated in 2015. In order to ensure that data are as representative as possible, these weights will be updated annually in the future.

Prior to the Quarter 3 (July to Sept) 2017 release, the OPIs were calculated on a base year of 2010 (2010=100). As of the Quarter 3 2017 release, the base year has been updated to 2015 (2015=100).

In addition, the following improvements have now also been implemented in this release:

- new weights for the labour, materials and plant combinations
- revised methodology of the labour component for the new work indices
- review of the processes used in the materials component for the new work indices
- a new method for calculating the materials component for the housing repair and maintenance series
- the introduction of a plant component for repair and maintenance indices
- incorporation of a mark-up for profit margin, following collaboration with Dr. Xuxin Mao of University College London (UCL)

As a result of these changes, although further improvements are still planned, we no longer consider the OPIs to be an interim method.

Further details on these improvements can be found in section 5 of the [construction development](#) article released on 29 September 2017.

An impact assessment of the improvements has been conducted and is published in [section 7](#) of this release.

As part of an ongoing effort to engage with users of our construction statistics, we invite you to provide [feedback](#) on the steps we have taken to improve the quality and accessibility of these statistics.

3 . All construction price inflation summary

Overall, prices in the construction industry, as estimated by the Construction Output Price Index (OPI), rose 3.8% between January 2014 and September 2017 (Figure 1). The peaks and troughs seen in the all new work index between January 2014 and September 2017 are mostly the result of the movements within the earnings component of the OPI, which is sourced from the Average Weekly Earnings (AWE) index for construction.

Table 1: Construction output price, index values, growth rates and percentage points change to the 12-month rate, September 2016 to September 2017

	All Construction				New work				Repair and		
	OPI Index (2015=100)	1-month rate	12-month rate	Change in the 12-month rate (percentage points)	OPI Index (2015=100)	1-month rate	12-month rate	12-month rate (percentage points)	OPI Index (2015=100)	1-month rate	12-month rate
2016											
Sept	102.1	0.2	2.1	0.1	102.5	0.2	2.6	0.2	101.3	0.1	1.2
Oct	102.4	0.3	2.0	-0.1	102.9	0.4	2.4	-0.2	101.6	0.3	1.2
Nov	102.8	0.4	2.0	0.0	103.5	0.6	2.4	0.0	101.6	0.0	1.1
Dec	102.5	-0.3	2.1	0.1	102.9	-0.6	2.6	0.2	101.7	0.1	1.1
2017											
Jan	103.0	0.5	1.7	-0.4	103.5	0.6	1.9	-0.7	102.0	0.3	1.2
Feb	103.1	0.1	1.7	0.0	103.5	0.0	1.7	-0.2	102.2	0.2	1.4
Mar	103.2	0.1	1.5	-0.2	103.6	0.1	1.5	-0.2	102.4	0.2	1.5
Apr	103.1	-0.1	1.4	-0.1	103.4	-0.2	1.2	-0.3	102.5	0.1	1.6
May	103.4	0.3	1.8	0.4	103.8	0.4	1.8	0.6	102.5	0.0	1.5
June	103.7	0.3	1.9	0.1	104.2	0.4	2.0	0.2	102.7	0.2	1.6
July	104.2	0.5	2.3	0.4	105.0	0.8	2.5	0.5	102.7	0.0	1.6
Aug	104.2	0.0	2.3	0.0	104.8	-0.2	2.4	-0.1	102.9	0.2	1.7
Sept	104.1	-0.1	2.0	-0.3	104.8	0.0	2.2	-0.2	102.9	0.0	1.6

Source: Office for National Statistics

Notes:

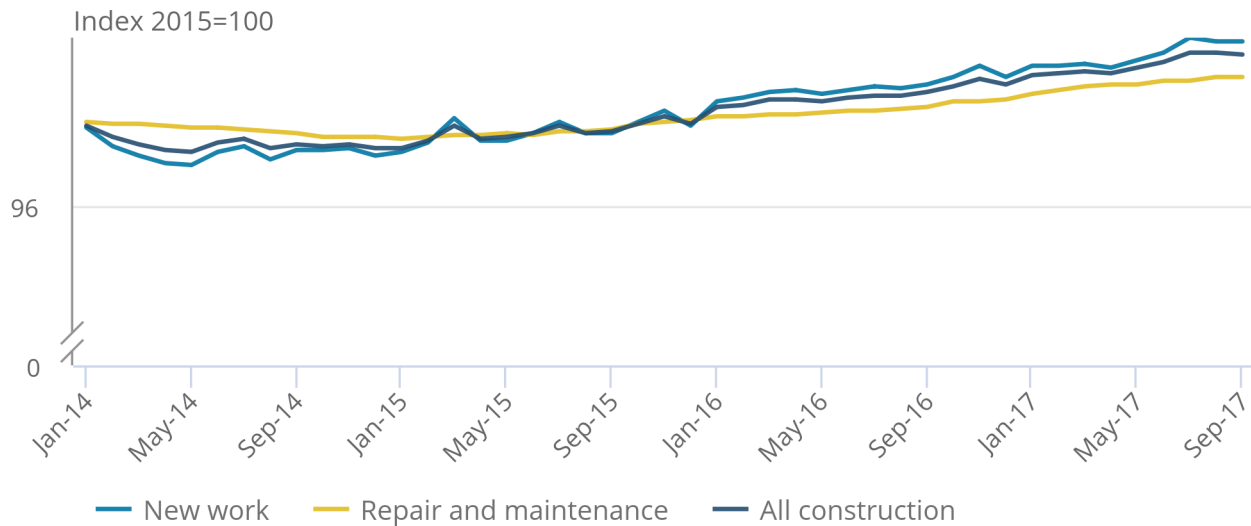
1. Data has been revised due to improvements in OPI methodology.

Figure 1: Construction Output Price Indices, UK

January 2014 to September 2017

Figure 1: Construction Output Price Indices, UK

January 2014 to September 2017



Source: Office for National Statistics

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1. Data has been revised due to improvements in OPI methodology.

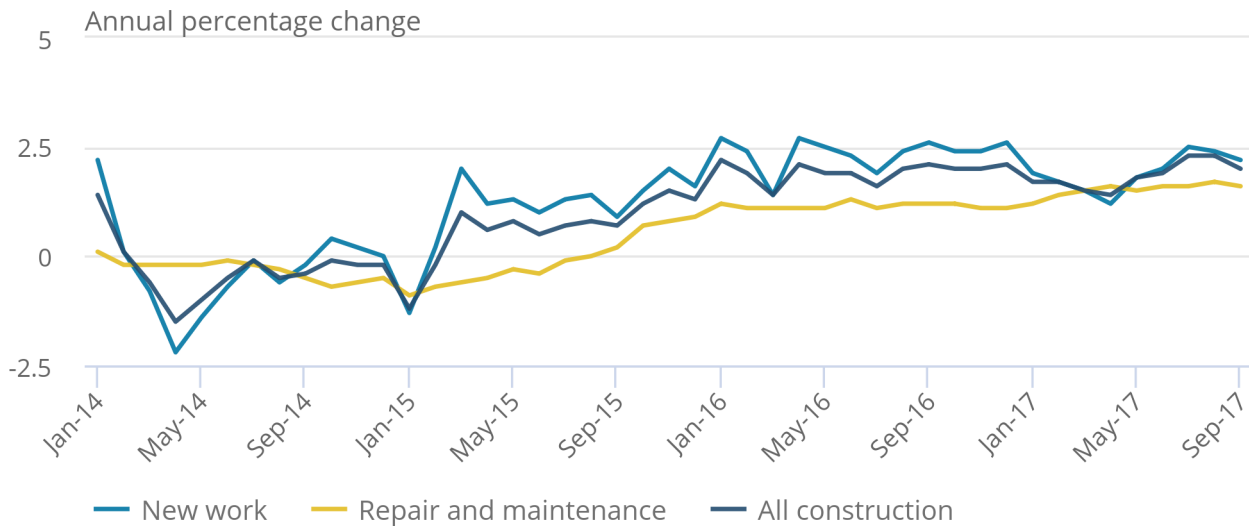
The annual rate of inflation for all construction was 2.0% in September 2017 (Table 1). Annual growth for repair and maintenance was 1.6% in September 2017. Despite a 0.1 percentage points fall in the annual rate from August, September's annual rate remains above the average for the past 12 months. Annual growth for new work was 2.2% in September 2017, down from 2.4% in August 2017. Annual growth rates for the three main construction OPIs have remained positive since September 2015 (Figure 2).

Figure 2: Construction output price annual percentage change, UK

January 2014 to September 2017

Figure 2: Construction output price annual percentage change, UK

January 2014 to September 2017



Source: Office for National Statistics

Notes:

1. Data has been revised due to improvements in OPI methodology.

4 . The annual rate of inflation for new work fell slightly in September, however, prices were flat on the month

The Construction Output Price Index (OPI) for all new construction work increased 2.2% on the year to September 2017 (Table 2). This increase was as a result of strong annual growth in output prices across all sectors, despite prices falling on the month for infrastructure, public non-housing and private commercial. Housing showed the largest annual increase at 3.7%, the highest rate of inflation seen in the index in 2017.

Table 2: New work output price, index values, growth rates and percentage point change to the 12-month growth rate, September 2017

UK

	New Work			
	OPI Index (2015=100)	1-month rate	12-month rate	12-month rate (percentage points)
Housing (public and private)	106.8	0.5	3.7	0.3
Infrastructure	101.1	-0.3	1.1	-0.3
Public (other than housing)	104.4	-0.5	1.2	-0.9
Private Industrial	106.9	0.0	2.5	-0.3
Private Commercial	104.4	-0.5	1.2	-0.9
All New Work	104.8	0.0	2.2	-0.2

Source: Office for National Statistics

Notes:

1. Data has been revised due to improvements in OPI methodology.

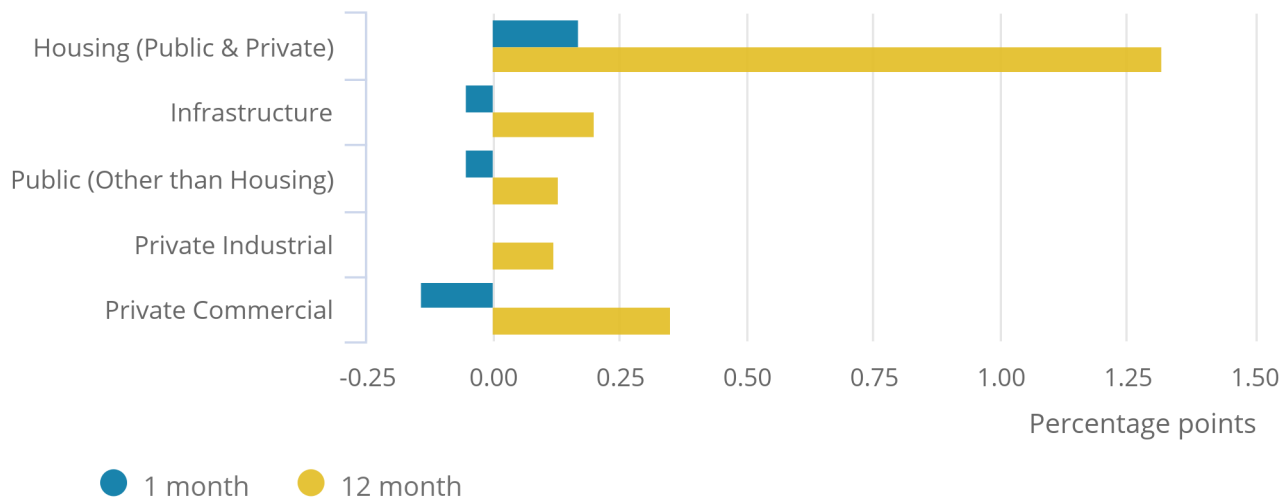
Housing also provided the largest upward contribution to the new work annual rate in September at 1.32 percentage points (Figure 3). Infrastructure, public non-housing and private commercial provided small downward contributions on the month whilst private industrial provided no contribution.

Figure 3: New work output price indices, contribution to 1-month and 12-month growth rate, UK

September 2017

Figure 3: New work output price indices, contribution to 1-month and 12-month growth rate, UK

September 2017



Source: Office for National Statistics

Notes:

1. Contributions to the rate may not add up to the rate exactly due to rounding.
2. Data has been revised due to improvements in OPI methodology.

5 . The annual rate of inflation for repair and maintenance fell 0.1 percentage points in September 2017, after reaching its peak the previous month

The Construction Output Price Index (OPI) for all repair and maintenance increased 1.6% in the year to September 2017, down from 1.7% in August 2017 (Table 3). Housing repair and maintenance showed the largest annual increase of 1.7%, unchanged from August 2017.

Table 3: Repair and maintenance output price, index values, growth rates and percentage points change to the 12-month rate, September 2017

UK

Repair and Maintenance				
	OPI Index (2015=100)	1-month rate	12-month rate	Change in the 12-month rate (percentage points)
Housing R and M	102.9	0.0	1.7	0.0
Non-housing R and M	102.9	0.0	1.5	-0.1
All Repair and Maintenance	102.9	0.0	1.6	-0.1

Source: Office for National Statistics

Notes:

1. Data has been revised due to improvements in OPI methodology.

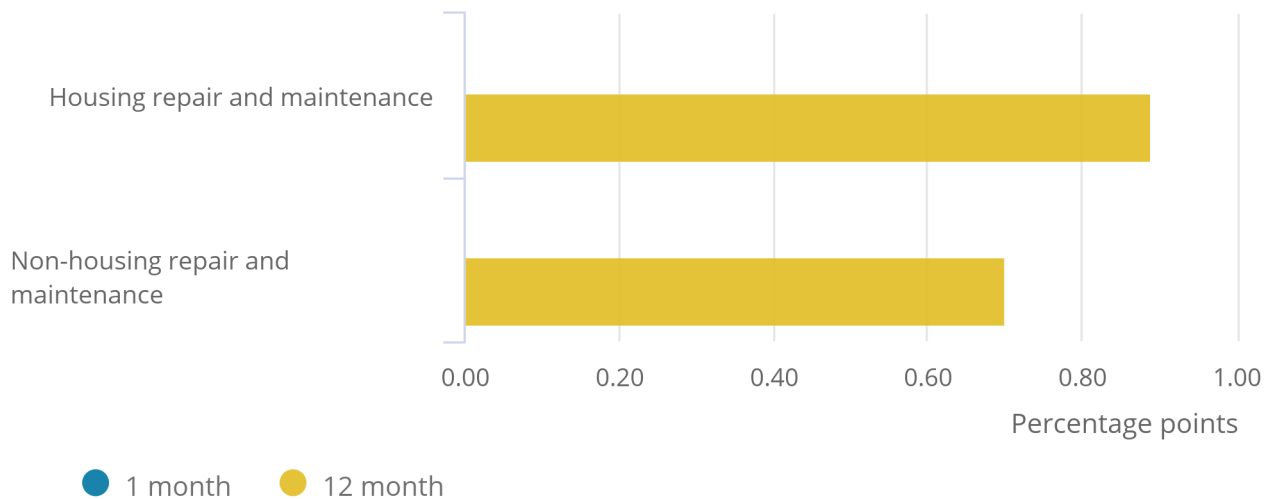
Housing repair and maintenance provided the largest upward contribution to the repair and maintenance annual rate at 0.89 percentage points (Figure 4). Both housing and non-housing repair and maintenance had no contribution on the month as prices for all new work remained flat between August and September 2017.

Figure 4: Repair and maintenance output price indices, contribution to 1-month and 12-month growth rate, UK

September 2017

Figure 4: Repair and maintenance output price indices, contribution to 1-month and 12-month growth rate, UK

September 2017



Source: Office for National Statistics

Notes:

1. Contributions to the annual change rate may not add up to the rate exactly due to rounding.
2. Data has been revised due to OPI methodology.

6 . How have the new work, and repair and maintenance sectors influenced the annual rate since March 2015?

Figure 5 shows the annual rate of inflation for the all construction Output Price Index (OPI), along with percentage point contributions to the rate by sector. The all construction index is composed of two sectors: new work, and repair and maintenance.

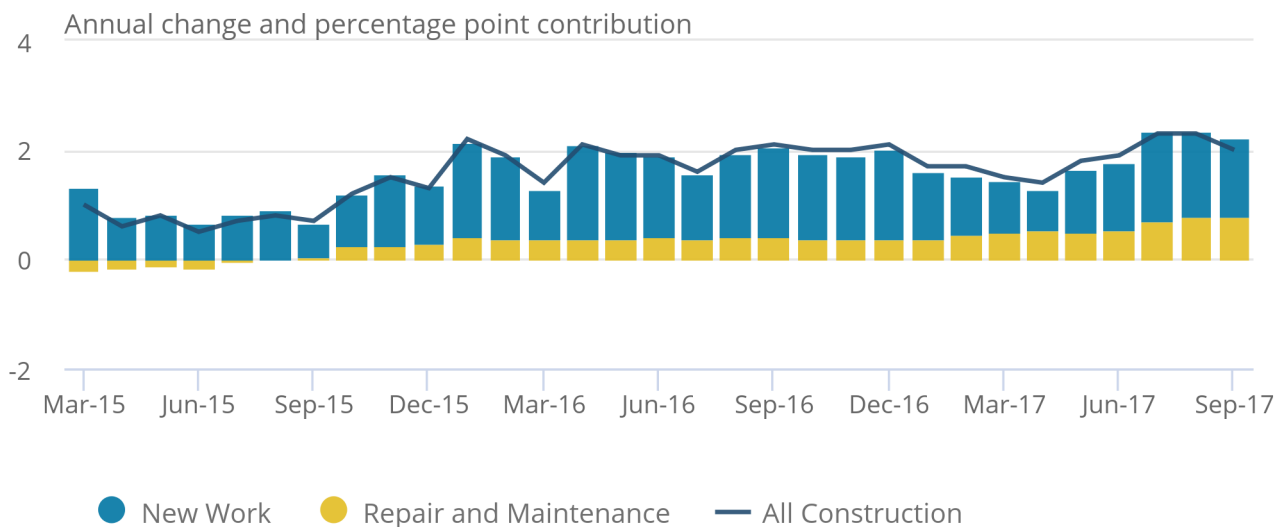
The annual rate of inflation, as measured by the all construction OPI, has been positive since March 2015. This was following 12 consecutive months of negative inflation. Over the period, new work has generally been the biggest driver to the rate, this is mainly down to new work accounting for a larger proportion of the construction industry and the weights used to calculate the all construction OPI reflecting this. Despite this, it is noticeable that as of January 2017, the contribution from the repair and maintenance sector has increased and now contributes to around one-third of the all construction inflation rate.

Figure 5: Annual rate of inflation for all construction and contributions to the annual rate by sector, UK

March 2015 to September 2017

Figure 5: Annual rate of inflation for all construction and contributions to the annual rate by sector, UK

March 2015 to September 2017



Source: Office for National Statistics

Notes:

1. Contributions to the annual change rate may not add up to the rate exactly due to rounding.
2. Data has been revised due to improvements in OPI methodology.

7. Impact of improvements to construction statistics on output price indices

In September 2017, an article detailing the [impact of improvements to construction statistics](#) was published as part of the Blue Book 2017. As a result of these improvements, the Construction Output Price Indices (OPIs) have been revised back to the start of the current series in January 2014. The resulting impact of the changes to the OPIs is explained further in this section.

In addition to the improvements outlined in the article, further improvements have also been made to the aggregation method applied to the new work, repair and maintenance and all construction indices, specifically to update the weighting structures used in aggregation.

Previously, the weights underpinning the OPIs have been based on 2015 construction price value data. These weights have now been updated to reflect 2016 construction price value data, with the intention of making the weights update an annual process. Although the impact of this update is minimal over the year, updating the source data underpinning the weights will ensure that these indices will remain as representative as possible.

As well as updating the weights, a decision has been made to express the weights on a parts per thousand basis (Table 4), as opposed to parts per hundred as done previously. This decision has been made to reduce the possibility of any rounding issues.

In the future, these OPI weights will be updated annually, as the source data become available. There is a time lag to implementing the weights data as we intend to base the annual weights update on a whole calendar year's worth of value data.

The next update is likely to be in February 2018 where we will update the weights using 2017 value data.

Table 4: New weights used in the aggregation of the Construction Output Price Indices, UK, 2014 to 2017

Weight year	New Work Components					R&M Components		All Construction	
	Housing Public & Private Index	Infrastructure Index	Public Non-housing Index	Private Industrial Index	Private Commercial Index	Housing R&M Index	Non-housing R&M Index	New Work	R&M
2014	301	203	136	47	313	506	494	617	383
2015	345	180	122	49	304	508	492	627	373
2016	338	204	114	51	293	519	481	645	355
2017	357	185	113	46	299	528	472	655	345

Source: Office for National Statistics

Figure 6 shows the annual growth rates for the all construction OPI, before and after the improvements have been implemented. Generally the rates follow a similar trend, albeit at different levels during 2014 and 2015. During this period, the annual rate for the new 2015=100 series deviates into negative growth.

This deviation is due largely to the introduction of a mark-up into the new series. For more information on the mark-up, which accounts for the profit margins of construction businesses, see section 5 of the [Construction development: Impact of improvements to construction statistics article](#), published in September 2017.

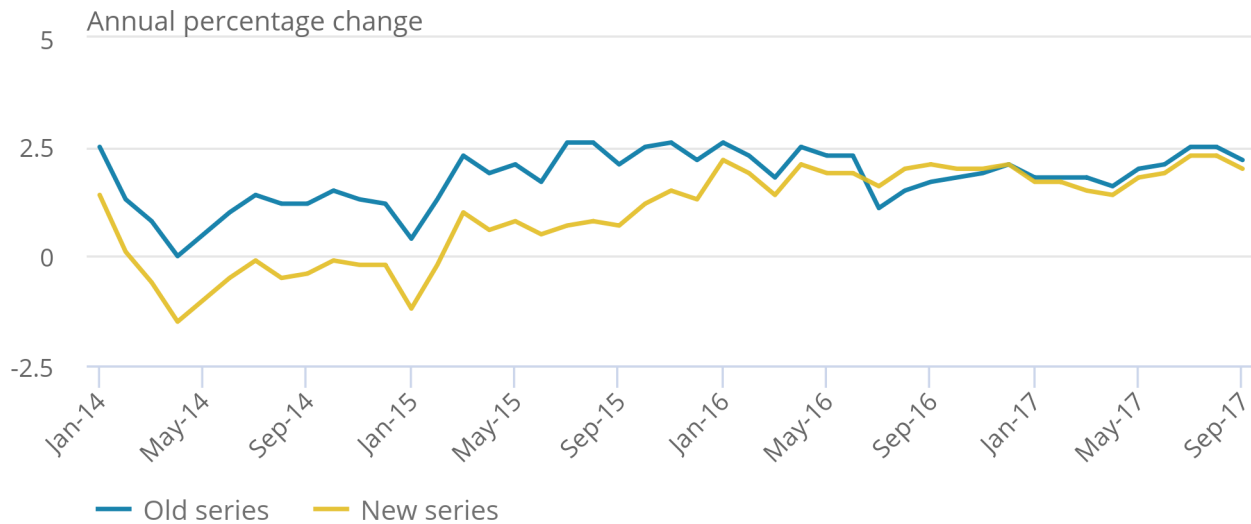
Apart from a six-month period between July 2016 and December 2016, the annual growth rate in the new series has remained below that of the old series. Between July 2016 and November 2016, the annual rate in the new series was higher, whilst the rates were equal in December 2016. After December 2016, the rates track each other fairly well.

Figure 6: All construction, annual growth rate comparison, UK

January 2014 to September 2017

Figure 6: All construction, annual growth rate comparison, UK

January 2014 to September 2017



Source: Office for National Statistics

The all construction OPI comprises an all new work, and a repair and maintenance index. The improvements have had a small impact on the annual growth in each series.

In Figure 7, similar to the all construction index, the new work index witnesses similar trends in annual growth before and after the improvements, albeit at different levels. After December 2016, the annual growth rates track each other almost identically.

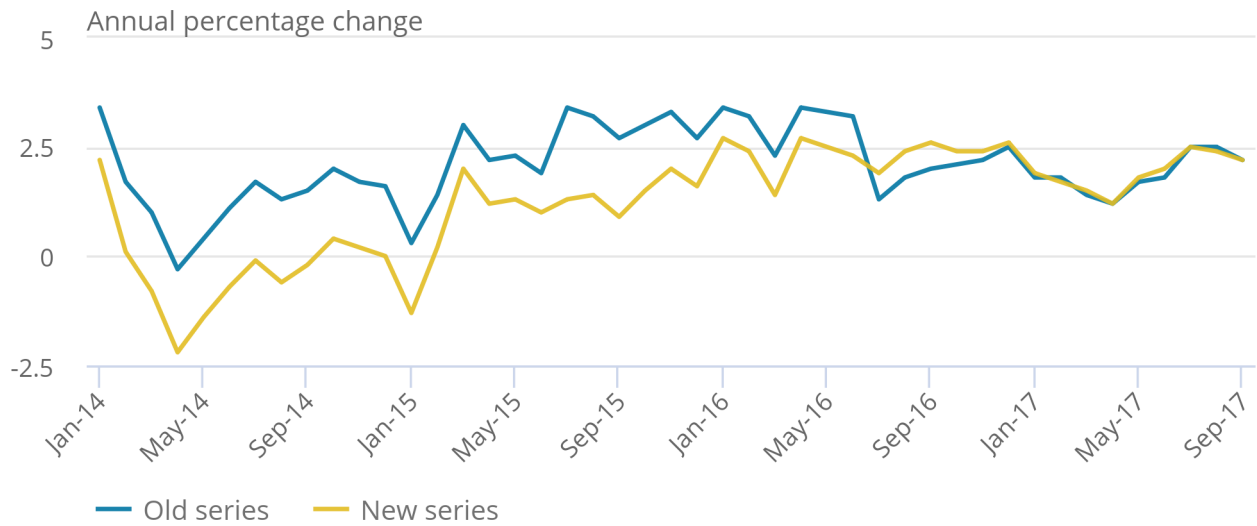
Figure 8 compares the annual growth rates in the repair and maintenance index, before and after the improvements. We have made the more significant improvements to this sector and as a result this is where we see the most noticeable differences between the rates, as explained in [things you need to know about this release](#). The annual growth in the new series remains below that of the old series in all but a 10-month period between January 2016 and October 2016.

Figure 7: New work, annual growth rate comparison, UK

January 2014 to September 2017

Figure 7: New work, annual growth rate comparison, UK

January 2014 to September 2017



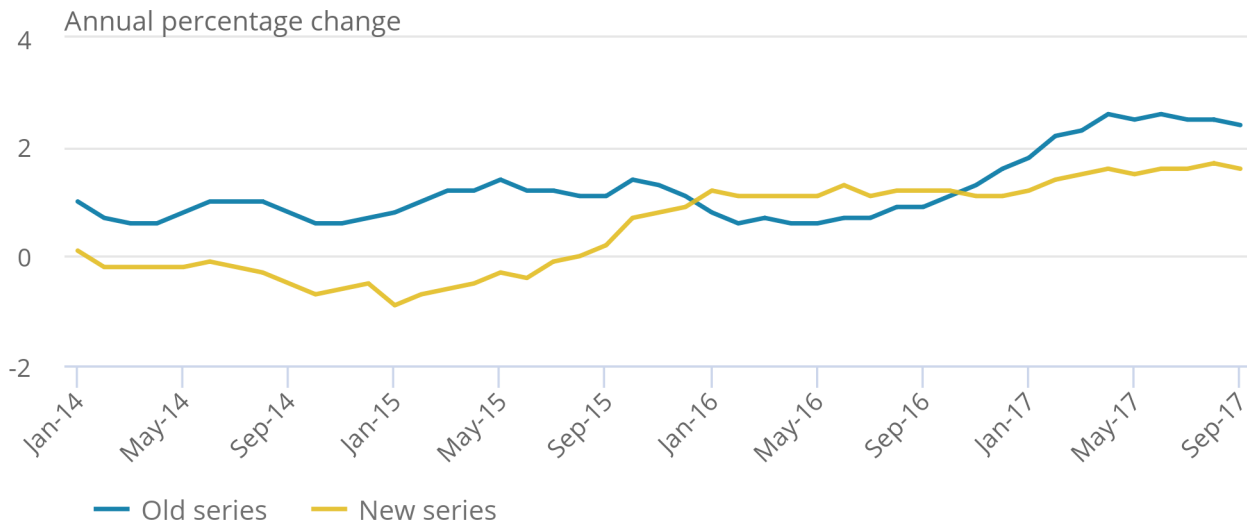
Source: Office for National Statistics

Figure 8: Repair and maintenance, annual growth rate comparison, UK

January 2014 to September 2017

Figure 8: Repair and maintenance, annual growth rate comparison, UK

January 2014 to September 2017



Source: Office for National Statistics

8 . Quality and methodology

1. Use within ONS

These construction OPIs were used to deflate [Output in the construction industry](#) for the first time in the April 2015 release, published on 12 June 2015. Further details on the [impact of using these indices](#) (PDF, 215KB) have been published in a separate article.

More recently, information on the impact of further improvements implemented in the Quarter 3 (July to Sept) 2017 release, including the impact of rebasing and the addition of annual updates to weights, are highlighted in [section 7](#) of the Quarter 3 2017 bulletin.

2. Linking to previous series

The [Construction Price and Cost Indices \(CPCIs\)](#) were previously published by the Department for Business, Innovation and Skills (BIS) now known as Department for Business, Energy and Industrial Strategy (BEIS) and were published for the last time in September 2014, with the release suspended in December 2014. [Responsibility for these statistics transferred to us on 1 April 2015](#), as previously announced. Since then these indices have been published as the Construction Output Price Index (OPI).

Users wishing to link the BIS CPCIs (prior to 2014) and our new construction OPIs (from 2014 onwards) to create longer-running time series, have many options. One approach would be to use a linking factor (based on a common time period). For example, users who are using the BIS (2005=100) indices in long-term contracts and wish to extend the series beyond Quarter 2 2014 (the last quarter for which CPI data are available), the following approach would be suitable.

To do this, select the nearest equivalent index published in the OPI (2005=100) series and then calculate a linking factor as follows:

$$\textit{Linking factor} = \frac{\textit{Index Value}_{BIS2005=100, \textit{Quarter 1 (Jan to Mar) 2014}}}{\textit{Index Value}_{ONS2005=100, \textit{March 2014 for nearest equivalent index}}}$$

Then multiply the Office for National Statistics (ONS) (2005=100) index values beyond March 2014 by this linking factor to extend the BIS (2005=100) time series.

The same principle can be used to extend the ONS (2005=100) series, which was published for the last time in the [August 2017 release](#), to the 2015=100 series, which will be published from Quarter 3 2017 onwards.

Further [guidance on using indices in indexation clauses](#) (PDF, 197KB) is also available.

3. De-designation as National Statistics

The Construction Price and Cost Indices were [de-designated as National Statistics](#) (PDF, 128KB) in December 2014, after their suspension, as detailed in a letter from Ed Humpherson, Director General for Regulation.

4. Experimental Statistics

These statistics have been published on an [experimental](#) basis to involve users in their development. As a result, improvements to methods may result in revisions to the series. Full details of any revisions will be released alongside the revised data.

5. Revisions policy

The construction OPIs are dependent on the [revisions policies](#) associated with their component series. For routine revisions, such as inclusion of late respondent data and monthly re-estimation of seasonal adjustment factors, the construction OPIs will be open to revisions for a period of five months, in line with Producer Price Indices (PPI), its main component.

Non-routine revisions may also occur, for example, as a result of reviews and updates of methodologies of component series. When historic changes to component series arise, their impact on the construction OPI series will be assessed and any changes highlighted to users.