Office for National Statistics

Statistical bulletin

Unit labour costs, UK: July to September 2019

Unit labour costs and sectional unit labour costs estimates for the whole economy and a range of industries.

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1 . Main points

- This is the second stand-alone commentary focusing on Unit Labour Costs (ULCs) and experimental Sectional Unit Labour Costs (SULCs).

- ULCs increased by 3.6% in Quarter 3 (July to Sept) 2019, compared with the same quarter a year ago, as growth in labour costs outpaced the growth in labour productivity.

- SULCs in services grew by 3% in Quarter 3 2019, compared with the same period a year ago, as a result of labour costs per hour increasing faster than output per hour.

- Manufacturing SULCs grew by 4.3% in Quarter 3 2019, compared with the same quarter a year ago, as a result of a growth in labour costs and a fall in output per hour.

- Whole-economy unit wage costs (UWC) increased by 2% compared with Quarter 3 2018, while manufacturing UWCs grew 2.8% in the same period.

2 . Analysis of whole-economy unit labour costs in the post-downturn period

Compared with the same quarter a year ago, unit labour costs (ULCs) increased by 3.6% in Quarter 3 (July to Sept) 2019, which means growth has been above 2% for nine consecutive quarters. Figure 1 shows ULC quarter-on-year log growth since Quarter 3 2009. Holding other factors constant, increasing output per hour reduces ULCs and vice versa. As a result, output per hour growth has its sign reversed in Figure 1. In this presentation, positive output per hour growth has a negative effect on ULC growth, while negative output per growth has a positive effect on ULC growth.

While quarter-on-year growth in ULCs has been broadly positive since the onset of the economic downturn, averaging around 1.6% since Quarter 3 2009, there has been substantial variation during this period. During the 2008 economic downturn, ULCs began to grow at a relatively high rate, reaching a peak of 4.8% by Quarter 3 2009.

Figure 1 shows that in the initial post-downturn period, ULCs demonstrated strong growth, driven by large growth in labour costs per hour. From Quarter 1 2010 (Jan to March) to Quarter 2 (Apr to June) 2016, ULC growth fluctuated between positive and negative values. Since Quarter 2 2016, labour costs per hour have seen fairly stable growth, with no quarters experiencing a quarter-on-year growth rate lower than 1.9%, and an average quarter-on-year growth rate of 2.9%.

Figure 1: Whole economy unit labour costs increased by 3.6% compared with the same quarter a year ago

Whole economy unit labour costs, quarter-on-year growth rates, seasonally adjusted, UK, Quarter 3 (July to Sept) 2009 to Quarter 3 2019

Figure 1: Whole economy unit labour costs increased by 3.6% compared with the same quarter a year ago

Whole economy unit labour costs, quarter-on-year growth rates, seasonally adjusted, UK, Quarter 3 (July to Sept) 2009 to Quarter 3 2019
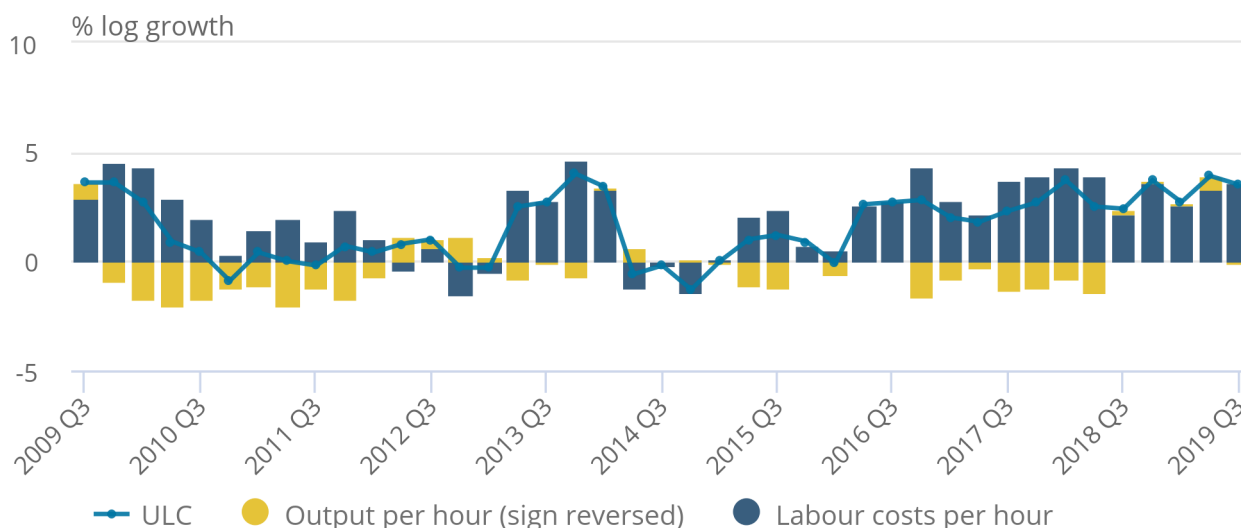
Source: Office for National Statistics

Notes:

1. Labour costs per hour estimates will differ from those in our index of Labour costs per hour bulletin, due to differences in methodology.

2. Percent log growth used here will differ slightly from percent growth values in published datasets.

3 . Analysis of services and manufacturing sectional unit labour costs in the post-downturn period

Compared with the same quarter a year ago, sectional unit labour costs (SULCs) in services increased by 3%, with labour costs per hour growing faster than output per hour.

Figure 2 shows the growth in SULCs for services compared with the same quarter a year ago, since Quarter 3 (Jul to Sept) 2009. The performance of SULCs in services can be split into pre- and post-Quarter 2 (Apr to June) 2015. Since Quarter 2 2015, services SULCs grew at a faster pace, with average growth post-Quarter 2 2015 being more than double that of the pre-Quarter 2 2015 period, at 2.4% and 0.8% respectively.

The performance of SULCs in services closely mirrors whole-economy unit labour costs, as services accounts for nearly 80% of the hours worked and gross value added (GVA) generated in the whole economy.

Figure 2: Services sectional unit labour costs increased by 3% compared with the same quarter a year ago

Sectional unit labour costs, quarter-on-year growth rates, Quarter 3 (July to Sept) 2009 to Quarter 3 (July to Sept) 2019

Figure 2: Services sectional unit labour costs increased by 3% compared with the same quarter a year ago

Sectional unit labour costs, quarter-on-year growth rates, Quarter 3 (July to Sept) 2009 to Quarter 3 (July to Sept) 2019
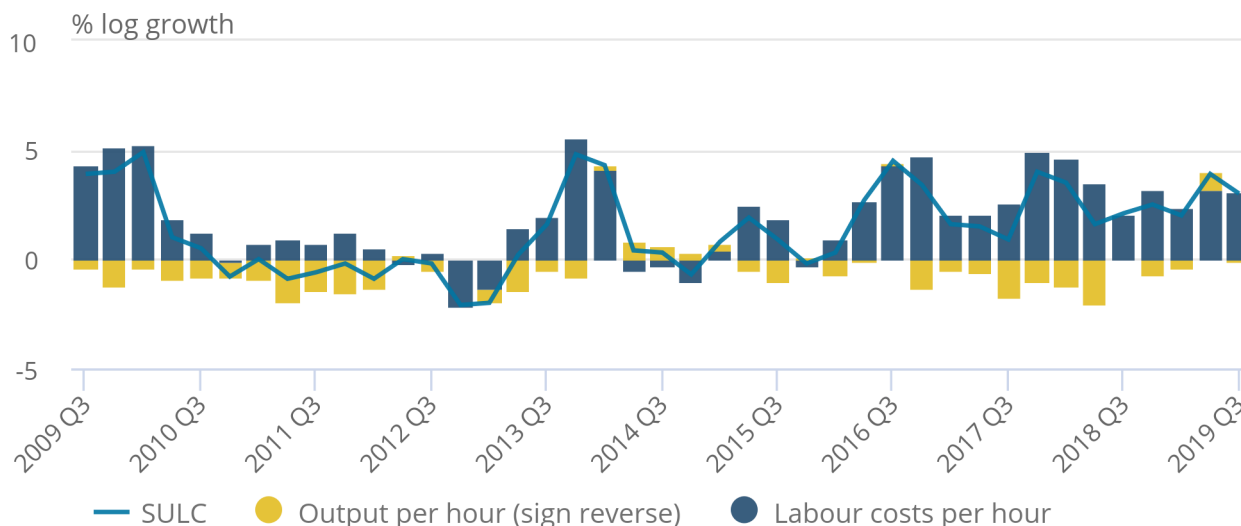
Source: Office for National Statistics

Notes:

1. Sectional unit labour costs estimates will differ from the National Statistic unit labour costs, due to differences in methodology.

2. Growth is measured as percentage log changes. Please see section 6 for further information.

In Quarter 3 (July to Sept) 2019, SULCs in manufacturing increased by 4.3%, compared with the same quarter in the previous year. This was the result of labour costs per hour growing 2.3% compared with the growth in output per hour falling 1.9% respectively.

Figure 3 shows quarter-on-year growth rates for SULCs for manufacturing during the post-downturn period, since Quarter 3 2009. Growth in SULCs for manufacturing has shown more volatility than that of services, particularly during the period up to Quarter 2 2015. Between Quarter 1 (Jan to Mar) 2010 and Quarter 2 2011, SULCs in manufacturing show consecutive negative growth rates averaging negative 1.4% which then reversed during 2012 and 2013, where it recorded the highest growth for the period, 9.5%, in Quarter 1 2013. Growth in subsequent quarters continued to decrease entering a period of negative growth from Quarter 2 2014 to Quarter 1 2015 during which the average growth rate was negative 2.4%.

The drivers of the changing growth rates for sectional unit labour costs in manufacturing are the result of labour costs per hour increasing at a faster pace than output per hour, and in some periods output per hour is showing negative growth.

Figure 3: Manufacturing sectional unit labour costs increase by 4.3% compared with the same quarter a year ago

Sectional unit labour costs, quarter-on-year growth rates, Quarter 3 (July to Sept) 2009 to Quarter 1 (Jan to Mar) 2019

Figure 3: Manufacturing sectional unit labour costs increase by 4.3% compared with the same quarter a year ago

Sectional unit labour costs, quarter-on-year growth rates, Quarter 3 (July to Sept) 2009 to Quarter 1 (Jan to Mar) 2019
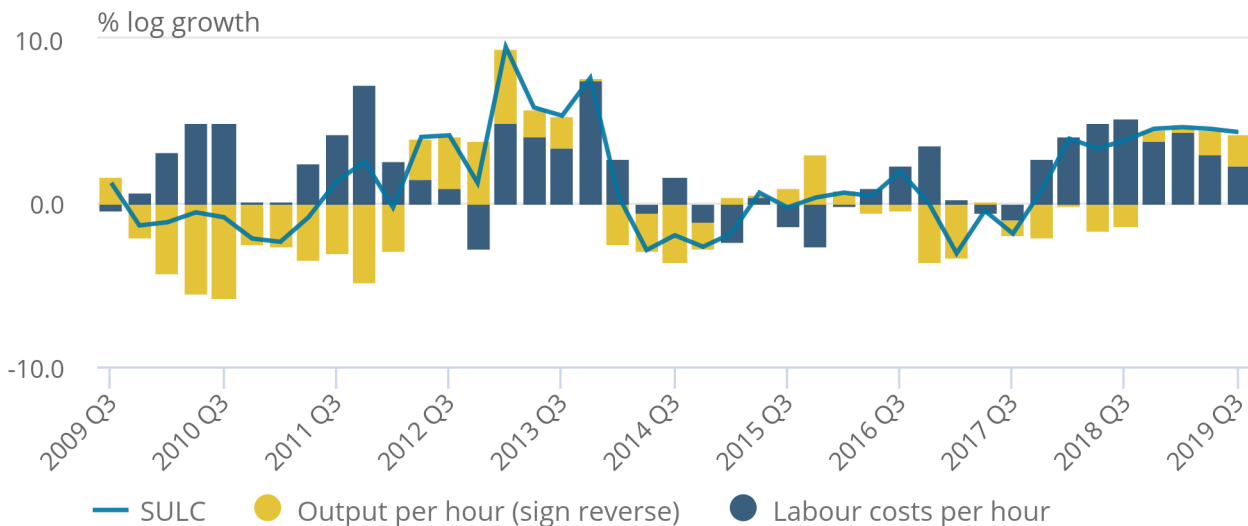
Source: Office for National Statistics

Notes:

1. Sectional unit labour costs estimates will differ from the National Statistic unit labour costs, due to differences in methodology.

4 . Revisions to unit labour costs and unit wage costs

Since this bulletin was last published on 5 July 2019, revisions to the current data reflect the impact of improvements introduced into the UK National Accounts in Blue Book 2019, as well as further improvements to national accounts published on 20 December 2019. Indicative impacts of these changes on unit labour costs (ULCs) and unit wage costs (UWCs) were published on 3 December 2019 in Unit labour costs, UK: April to June 2019. Revisions to the current data also reflect revisions to jobs data resulting from an annual benchmarking to the Business Register and Employment Survey, and other revisions to workforce jobs estimates affecting all time periods. Revisions resulting from seasonal adjustment affect all periods.

Figure 4 shows revisions to growth rates of unit labour costs published on 5 July 2019, covering the period from Quarter 3 (July to Sept) 2009 onwards. Revisions to individual periods have fluctuated, with the largest absolute revision of 2.0 percentage points. Substantial revisions are seen particularly during the period 2012 to 2014.

Figure 4: Revisions to individual periods have fluctuated, with the largest absolute revision of 2.0 percentage points

Whole-economy unit labour costs, previously published and revised quarter-on-year growth rates, seasonally adjusted, UK, Quarter 3 (July to Sept) 2009 to Quarter 3 2019

Figure 4: Revisions to individual periods have fluctuated, with the largest absolute revision of 2.0 percentage points

Whole-economy unit labour costs, previously published and revised quarter-on-year growth rates, seasonally adjusted, UK, Quarter 3 (July to Sept) 2009 to Quarter 3 2019
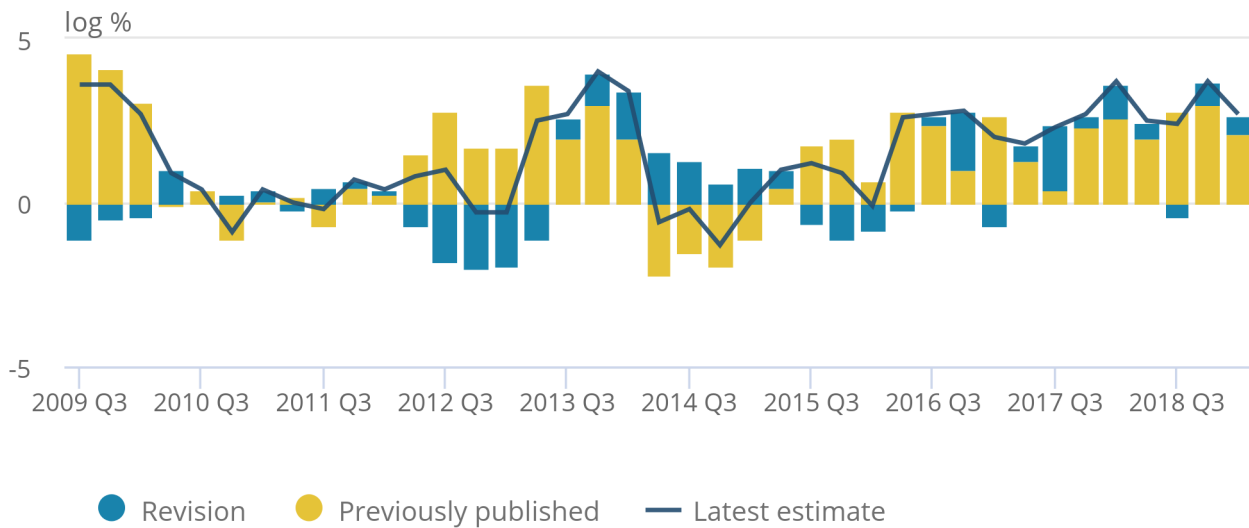
Source: Office for National Statistics

Revisions to growth of unit wage costs (UWCs) are roughly comparable to the revisions in ULCs. For UWC growth compared with the same quarter the previous year, the largest absolute revision was 2.4 percentage points.

Further information on revisions to ULCs can be found in the unit labour costs and unit wage costs: revisions triangles (UCSTREV) dataset.

5 . Unit labour costs data

Unit Labour Cost and Unit Wage Cost time series
Quarterly unit labour cost (ULC) and unit wage cost (UWC) for the whole UK economy, and unit wage cost (UWC) for manufacturing industries.

Unit labour costs
Unit labour costs and revisions from previously published estimates, UK.

Sectional unit labour costs
Sectional unit labour costs and revisions from previously published estimates, UK.

We are reviewing agriculture mixed income data from 2008, which were subject to revision in Blue Book 19. Given the small weight of this sector we have suppressed these estimates whilst we complete this review. We therefore advise users of the agriculture series to refer back to those published in Unit labour costs, UK: January to March 2019 or contact productivity@ons.gov.uk for more information.

Labour productivity: sectional unit labour costs
Sectional unit labour costs and revisions from previously published estimates, UK.

Unit labour costs: revisions triangles
Revisions triangles for unit labour costs, unit wage costs and unit wage costs in manufacturing. Data present the first estimates of chosen statistics used in the unit labour costs publication (and for the quarter before Quarter 1 (Jan to Mar) 2019 in the Labour productivity publication) against later revised estimates. Includes first estimates and revisions.

6 . Glossary

Unit labour costs

Unit labour costs reflect the full labour costs, including social security and pension contributions paid by employers, which is incurred in the production of a unit of output.

Unit wage costs

Unit wage costs are a narrower measure of unit labour costs, as they exclude non-wage labour costs. They are the ratio of wages and salaries per employee to output per worker.

Unit wage costs for manufacturing

To measure unit wage costs for the manufacturing industry, average weekly earnings (AWE) for manufacturing are divided by manufacturing output per job.

7 . Measuring the data

Whole-economy unit labour costs (ULCs) are calculated as the ratio of total labour costs (that is, the product of labour input and costs per unit of labour) to gross value added (GVA). Further detail on the methodology can be found in Revised methodology for unit wage costs and unit labour costs: explanation and impact .

The equation for growth of ULCs can be calculated as:

$$ULC = \Delta \left(\frac{Labour\ Costs}{GVA} \right) \approx \Delta Labour\ Input - \Delta Labour\ \Pr oductivity$$

Manufacturing unit wage costs are calculated as the ratio of manufacturing average weekly earnings to manufacturing output per filled job. On 28 November 2012, we published Productivity measures: sectional unit labour costs, describing new measures of ULCs below the whole-economy level, and proposing to replace the currently published series for manufacturing unit wage costs with a broader and more consistent measure of ULCs.

Following a methodology review, revised whole-economy unit labour cost and unit wage cost estimates were implemented in the Quarter 2 (Apr to June) Labour productivity bulletin of October 2011. Details of the methodology review and its impact can be found in an article by Appleton (2011): Revised methodology for unit wage costs and unit labour costs: explanation and impact (PDF, 128.44).

The article on productivity measures: sectional unit labour costs, describes the methodology used to estimate ULCs below the whole-economy level, and proposes to replace the currently published series for manufacturing unit wage costs with a broader and more consistent measure of ULCs.

The equation for growth of SULCs can be calculated as:

$$\ln \Delta SULC = 100 \times \ln \Delta \left(\frac{Industry\ Labour\ Costs}{Industry\ Gross\ Value\ Added} \right)$$
$$= \ln \Delta Industry\ Labour\ Costs - \ln \Delta Industry\ Gross\ Value\ Added$$

This release reports estimates of unit labour costs (ULCs) and experimental sectional unit labour costs (SULCs), for Quarter 3 (July to Sept) 2019. ULCs capture the full costs of labour – including social security and employers' pension contributions – incurred in the production of a unit of economic output. Labour costs make up around two-thirds of the overall cost of production of UK economic output. Changes in labour costs are therefore a large factor in overall changes in the cost of production. If increases in labour costs are not reflected in the volume of output, this can put upward pressure on the prices of goods and services, therefore this is a closely watched indicator of inflationary pressure in the economy.

Although these estimates have been previously released in the quarterly Labour productivity bulletin, this is the second stand-alone bulletin focusing on ULCs and SULCs.

This first edition forms part of our quarterly productivity bulletin, which also includes quarterly labour productivity, an overarching commentary, quarterly estimates of public service productivity, quarterly estimates of multi-factor productivity and articles on productivity-related topics and data.

These statistics have been estimated using the latest data from the labour productivity statistics published on the same day.

The labour input measures used in this release are consistent with the latest labour market statistics.

Unless otherwise stated, all figures are seasonally adjusted.

We recently published an article detailing our plans to split the commentary we publish and associated datasets to help users more easily find the information relevant to them. This possibility was discussed at the productivity user forum on 13 March 2019 and user views were also invited in Labour productivity, UK: October to December 2018.

Details of where to find the ULC and SULC datasets can be found in our recent article Improving the presentation of the labour productivity release: July 2019.

Presentation of growth rates in log percentage changes

In this release, charts and associated text measure growth in terms of percentage log changes, and we will continue to use this presentation in future releases. The datasets will still contain the percentage growth rates and it is these statistics that hold the National Statistics status.

For typical rates of change for labour productivity and labour inputs, this change will not make much difference to the result. For example, a 2.0% percentage change translates to a 1.98% log change. We are adopting the approach because a log change between two observations has the same numerical value regardless of which observation is the starting point. This is not true for a percentage change. For illustrative purposes, in the following example, log changes are substantially different from percentage changes.

If a series starts at 7, doubles to 14, then halves back to 7. The log change from 7 to 14 is 69%, and the log change from 14 to 7 is negative 69%. But the percentage change from 7 to 14 is 100%, while the percentage change from 14 to 7 is negative 50%. The log change reflects the fact that the second change reverses the first (and so has the same value) while the percentage change series appears to be very different in the first period compared with the second.

This approach is the same as that used by the Office for National Statistics (ONS) to compile multi-factor productivity.

8 . Strengths and limitations

The Labour productivity Quality and Methodology Information report contains important information on:

- the strengths and limitations of the data and how it compares with related data

- uses and users of the data

- how the output was created

- the quality of the output including accuracy of the data

9 . Related links

Productivity economic commentary: July to September 2019
Article| Released 8 January 2020
Draws together the main findings from official statistics and analysis of UK productivity to present a summary of recent developments.

Labour Productivity, UK: July to September 2019
Article| Released 8 January 2020
The latest estimates of labour productivity for the whole economy.

Multi-factor productivity estimates: Experimental estimates July to September 2019
Article | Released 8 January 2020
Growth accounting estimates for the UK market sector and 10 industry groups.

Public service productivity: quarterly, UK, July to September 2019
Article | Released 8 January 2020
Contains the latest experimental estimates for quarterly UK total public service productivity, inputs and output.

Industry by region estimates of labour productivity: 2017
Article | Released 6 February 2019
Annual productivity estimates for 16 industries in Standard Industrial Classification 2007 section groups for each of the NUTS1 regions from 1997 to 2017. It compares annual productivity growth by region, as output per hour, relative to the UK and explains how manufacturing and services have grown across the regions.

Regional and sub-regional productivity in the UK: February 2019
Article | Released 6 February 2019
Estimates for measures of labour productivity using a balanced gross value added (GVA) approach for NUTS1, NUTS2 and NUTS3 sub-regions of the UK, selected city regions and English local enterprise partnerships (LEPs) up to 2017. Estimates are in both real and nominal terms.

Improving estimates of labour productivity and international comparisons
Article | Released 9 January 2019
Analysis of how the methodologies, data sources and adjustments used internationally to estimate the number of persons, jobs and hours worked affect our international comparisons of UK productivity statistics.

A simple guide to multi-factor productivity
Article | Released 5 October 2018
Explains the concept and measurement of multi-factor productivity through simple stylised examples.

Analysis of compositional changes in hours worked in the UK
Article | Released 7 August 2019
Analysis of the changes in the UK labour composition during and after the economic downturn, and international comparison over the last five years.

Public service productivity: total, UK, 2017
Article | Released 8 January 2020
Presents updated measures of output, inputs and productivity for public services in the UK between 1997 and 2015, in addition to new estimates for 2016.

Public service productivity: healthcare, UK, 2017
Article | Released 9 January 2019
Presents updated estimates of output, inputs and productivity for public service healthcare in the UK between 1995 and 2015, and new estimates for 2016.

How productive is your business?
Article | Released 6 July 2018
An interactive tool that helps businesses to calculate their productivity and compare their performance with other businesses in Great Britain.

1 Unit labour costs and unit wage costs
United Kingdom

Seasonally adjusted (2016=100)

	Whole economy		Manufacturing
	Unit labour costs	Unit wage costs	Unit wage costs
Section	A-U	A-U	C
Indices			
	LNNL	LNNK	DIX4
2015	98.0[†]	98.4[†]	98.1[†]
2016	100.0	100.0	100.0
2017	102.3	101.9	101.3
2018	105.4	105.6	104.0
2015 Q4	97.8[†]	98.0[†]	99.2
2016 Q1	98.5	99.1	99.6
Q2	100.3	100.3	100.1[†]
Q3	100.7	100.5	100.7
Q4	100.5	100.2	99.6
2017 Q1	100.5	100.0	99.4
Q2	102.1	101.7	101.3
Q3	103.1	102.6	102.4
Q4	103.3	103.3	102.1
2018 Q1	104.3	104.9	103.1
Q2	104.7	105.0	103.9
Q3	105.6	105.7	104.3
Q4	107.2	107.0	104.8
2019 Q1	107.1	106.9	102.5
Q2	108.9	108.3	106.9
Q3	109.4	108.5	107.2
Per cent change on quarter a year ago			
	DMWN	LOJE	DJ4J
2015 Q4	0.9[†]	1.0[†]	3.0[†]
2016 Q1	−0.1	0.1	2.4
Q2	2.6	2.3	2.7
Q3	2.8	1.9	2.1
Q4	2.8	2.2	0.4
2017 Q1	2.0	0.9	−0.2
Q2	1.9	1.4	1.2
Q3	2.4	2.1	1.7
Q4	2.7	3.2	2.5
2018 Q1	3.7	4.9	3.8
Q2	2.5	3.3	2.6
Q3	2.5	3.0	1.8
Q4	3.8	3.5	2.6
2019 Q1	2.7	1.9	−0.6
Q2	4.0	3.1	2.9
Q3	3.6	2.7	2.8
Per cent change on previous quarter			
	DMWO	DMWL	DJ4I
2015 Q4	−0.2[†]	−0.6[†]	0.6[†]
2016 Q1	0.8	1.1	0.4
Q2	1.7	1.2	0.5
Q3	0.4	0.2	0.6
Q4	−0.2	−0.3	−1.0
2017 Q1	−	−0.1	−0.3
Q2	1.6	1.6	1.9
Q3	0.9	0.9	1.1
Q4	0.2	0.7	−0.3
2018 Q1	1.0	1.5	1.0
Q2	0.4	0.1	0.8
Q3	0.9	0.6	0.3
Q4	1.5	1.2	0.5
2019 Q1	−	−	−2.2
Q2	1.6	1.2	4.3
Q3	0.5	0.2	0.3

[†] indicates that estimates are new or have been revised. The period marked
is the earliest in the table to have been revised.

R1 REVISIONS ANALYSIS
Revisions since previously published estimates

	Whole economy		Manufacturing	
	Unit labour costs		Unit wage costs	
	Per cent change on quarter a year ago	Per cent change on previous quarter	Per cent change on quarter a year ago	Per cent change on previous quarter
	DMWN	DMWO	DJ4J	DJ4I
2015 Q1	1.1	1.7	0.1	−
Q2	0.5	−1.4	−0.2	−0.1
Q3	−0.6	−1.2	0.1	0.1
Q4	−1.1	−0.1	0.2	0.2
2016 Q1	−0.8	2.0	0.3	−
Q2	−0.3	−0.9	−0.1	−0.4
Q3	0.4	−0.7	0.2	0.4
Q4	1.8	1.2	0.4	0.5
2017 Q1	−0.8	−0.5	−	−0.5
Q2	0.6	0.5	0.8	0.3
Q3	2.0	0.8	0.3	−0.1
Q4	0.4	−0.3	−0.3	−0.2
2018 Q1	1.0	0.1	−	−0.1
Q2	0.4	−0.1	−0.4	−
Q3	−0.4	−	−0.5	−0.2
Q4	0.7	0.8	−0.3	0.1
2019 Q1	0.6	0.1	−0.6	−0.5