Statistical bulletin

Earnings and employment from Pay As You Earn Real Time Information, UK: July 2014 to December 2019

Experimental monthly estimates of paid employees and their pay from HM Revenue and Customs' (HMRC's) Pay As You Earn (PAYE) Real Time Information (RTI) data. This is a joint release between HMRC and the Office for National Statistics (ONS).

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1 . Main points

- The number of paid employees in the UK in December 2019 grew by 1.1%, compared with the same period of the previous year.

- Median monthly pay grew by 3.8% in December 2019, compared with the same period of the previous year.

- Growth in median pay for employees in the three months to December 2019 was highest in Scotland (3.9%) and lowest in Wales (2.7%).

- Pay growth in the UK for employees was highest at the 25th percentile (4.2%) and lowest at the 10th percentile (2.5%) in the three months to December 2019, for the percentiles we have analysed.

2 . Individuals receiving pay

In December 2019, 29.1 million people were paid employees (Figure 1). This represents a 1.1% rise in paid employees when compared with the same period of the previous year.

Figure 1: The number of employees has been growing over the past five years

Paid employees, UK, July 2014 to December 2019, seasonally adjusted

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Paid employees, UK, July 2014 to December 2019, seasonally adjusted
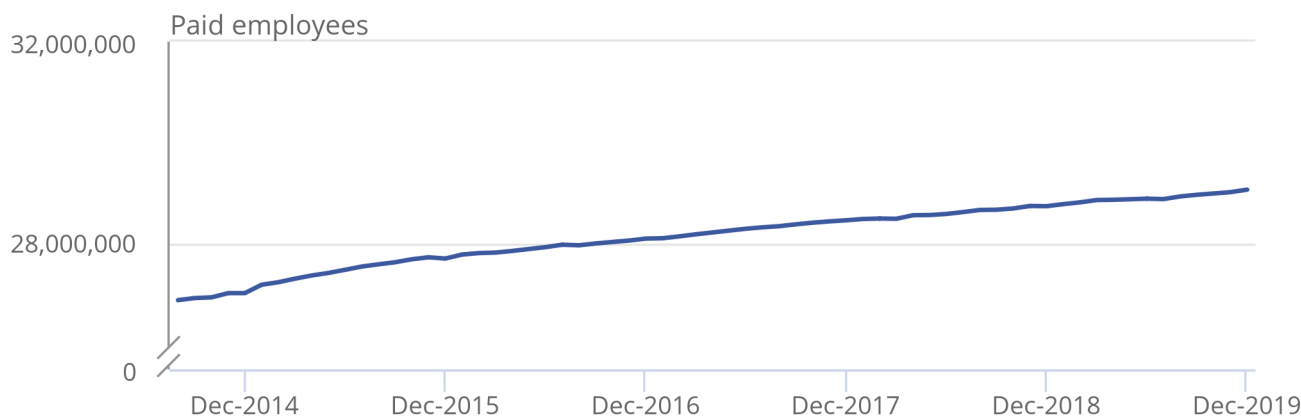
Source: HM Revenue and Customs – Pay As You Earn Real Time Information

Annual growth in the number of employees has remained broadly within a range of 0.9% to 1.4% over the past three years, following higher rates of growth prior to mid-2016 (Figure 2).

Figure 2: Growth in the number of paid employees has been fairly steady over the past three years

Annual percentage change, UK, July 2015 to December 2019, seasonally adjusted

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Annual percentage change, UK, July 2015 to December 2019, seasonally adjusted

Source: HM Revenue and Customs – Pay As You Earn Real Time Information

Notes:

1. Percentage change has been calculated using unrounded figures

3 . Median monthly pay

Median monthly pay for employees in December 2019 was £1,842 (Figure 3). This represents a 3.8% rise when compared with the same period of the previous year.

Figure 3: Median pay has grown over the past five years

Median pay per month, UK, July 2014 to December 2019, seasonally adjusted

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Median pay per month, UK, July 2014 to December 2019, seasonally adjusted
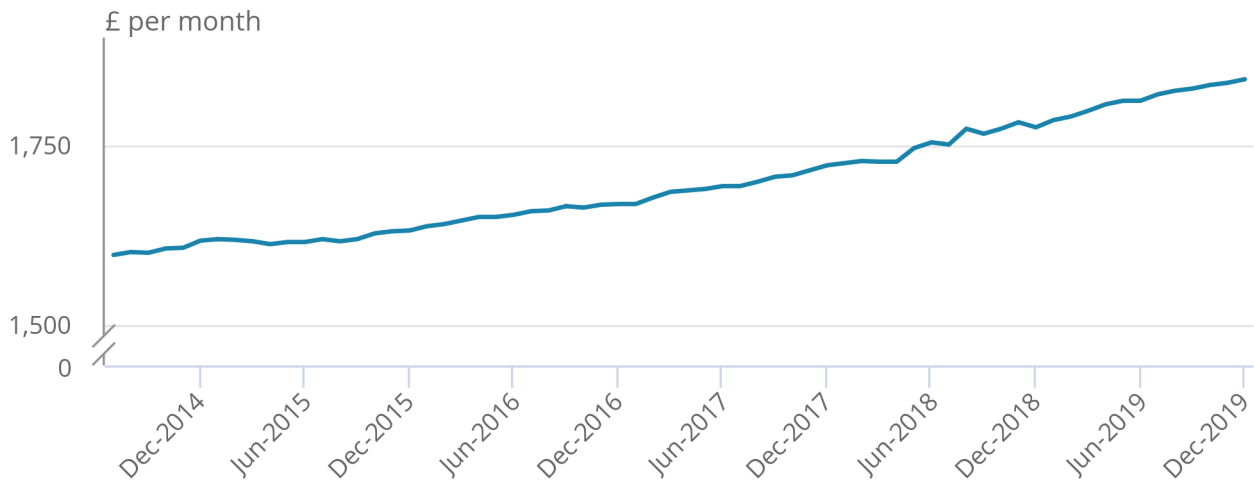
Source: HM Revenue and Customs – Pay As You Earn Real Time Information

Growth in median pay has generally increased over the past four years, although there have been periods of deviation from this trend (Figure 4). Following a relatively stable period at around 2.3% between mid-2016 and mid-2017, pay growth generally increased. While pay growth has fallen from its peak of 4.6% in April 2019, it is not yet clear whether this marks a break from its previous upwards, but volatile, trend.

Figure 4: The rate of growth in median pay has generally increased over the past five years

Percentage change on same month in previous year, UK, July 2015 to December 2019, seasonally adjusted

Figure 4: The rate of growth in median pay has generally increased over the past five years

Percentage change on same month in previous year, UK, July 2015 to December 2019, seasonally adjusted

Source: HM Revenue and Customs – Pay As You Earn Real Time Information

**Notes:**

1. Percentage change has been calculated using unrounded figures

The regional figures in this bulletin are based on where employees live and not the location of their place of work. They are also based on three-month moving averages. Median pay across regions and nations of the UK in the three months to December ranged from £1,691 in Northern Ireland to £2,228 in London (Figure 5).

Figure 5: Median pay varies across the UK

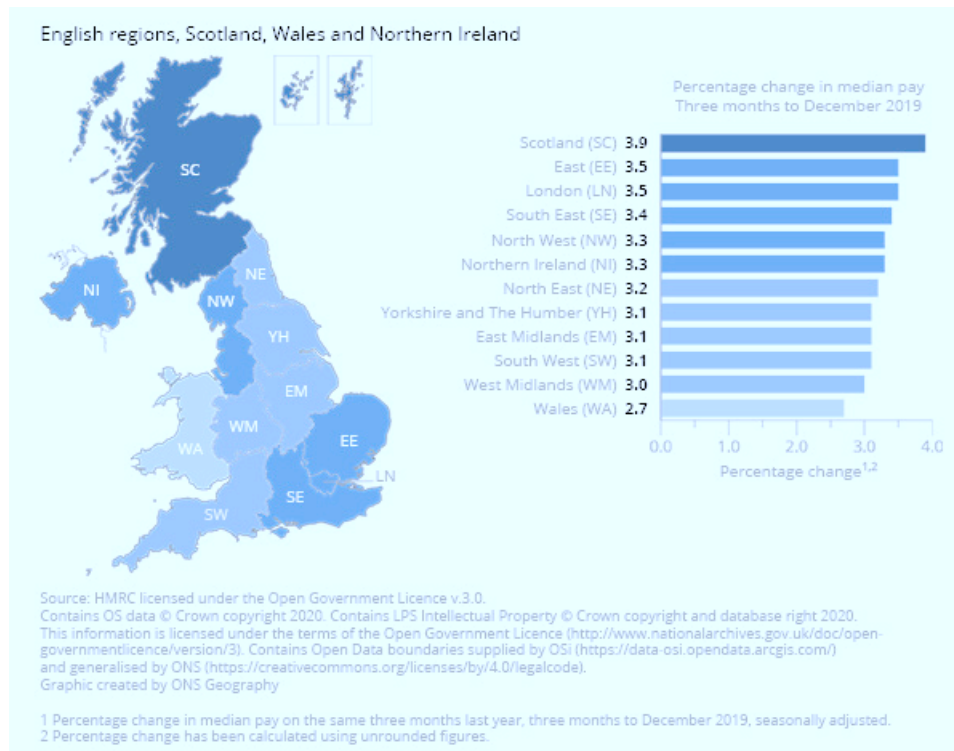**Pounds per month, UK, three months to December 2019, seasonally adjusted**
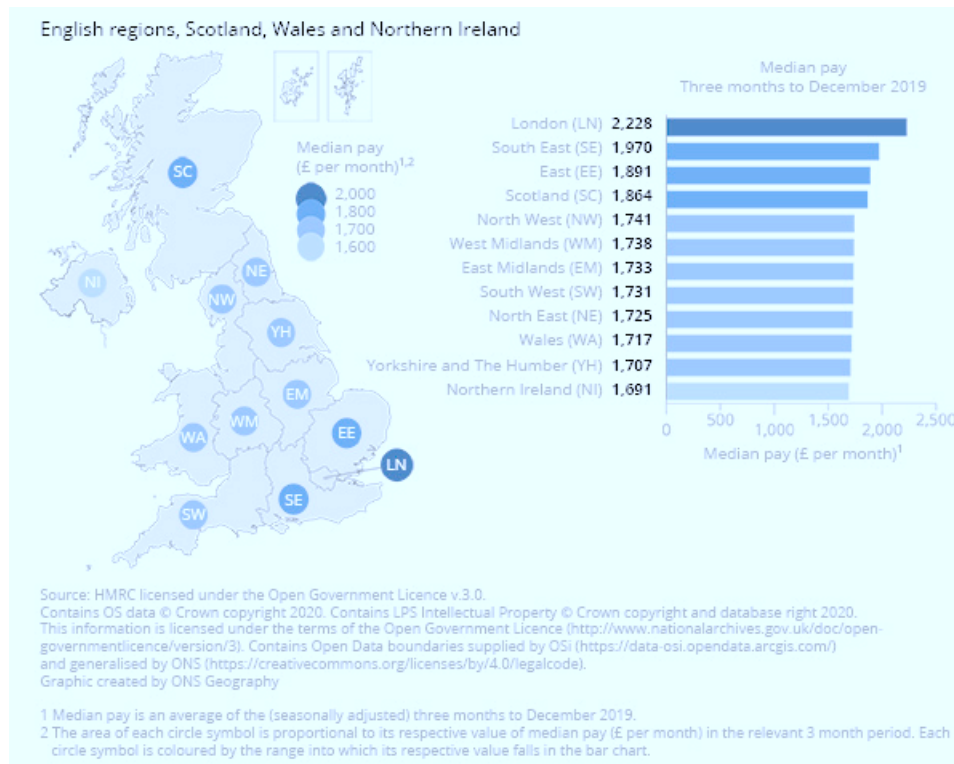
Source: HM Revenue and Customs – Pay As You Earn Real Time Information

Compared with the same time last year, pay grew fastest in Scotland (3.9%) and slowest in Wales (2.7%) (Figure 6). Over the longer term, on average over the past five years, pay growth was highest in London (at an annualised rate of 2.8%) and slowest in the North East (2.3%).

Figure 6: Median pay increased most in Scotland and least in Wales

Percentage change on same three months last year, UK, three months to December 2019, seasonally adjusted

English regions, Scotland, Wales and Northern Ireland

Percentage change in median pay
Three months to December 2019

Region	Percentage change[1,2]
Scotland (SC)	3.9
East (EE)	3.5
London (LN)	3.5
South East (SE)	3.4
North West (NW)	3.3
Northern Ireland (NI)	3.3
North East (NE)	3.2
Yorkshire and The Humber (YH)	3.1
East Midlands (EM)	3.1
South West (SW)	3.1
West Midlands (WM)	3.0
Wales (WA)	2.7

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and generalised by ONS (https://creativecommons.org/licenses/by/4.0/legalcode).
Graphic created by ONS Geography

1 Percentage change in median pay on the same three months last year, three months to December 2019, seasonally adjusted.
2 Percentage change has been calculated using unrounded figures.

Source: HM Revenue and Customs – Pay As You Earn Real Time Information

Notes:

1. Percentage change has been calculated using unrounded figures.

4 . Pay distribution

In the three months to December 2019, the 10th percentile of the monthly pay distribution was £614, the 90th percentile was £4,413, and the 99th percentile was £12,536 (Figure 7). This means that 10% of paid employees earnt equal to or less than £614 per month, 90% earnt equal to or less than £4,413, and 99% earnt equal to or less than £12,536.

Figure 7: 10% of employees earn less than £614 per month and 90% earn less than £4,413 per month

£ per month, UK, three months to September 2014 to three months to December 2019, seasonally adjusted

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£ per month, UK, three months to September 2014 to three months to December 2019, seasonally adjusted
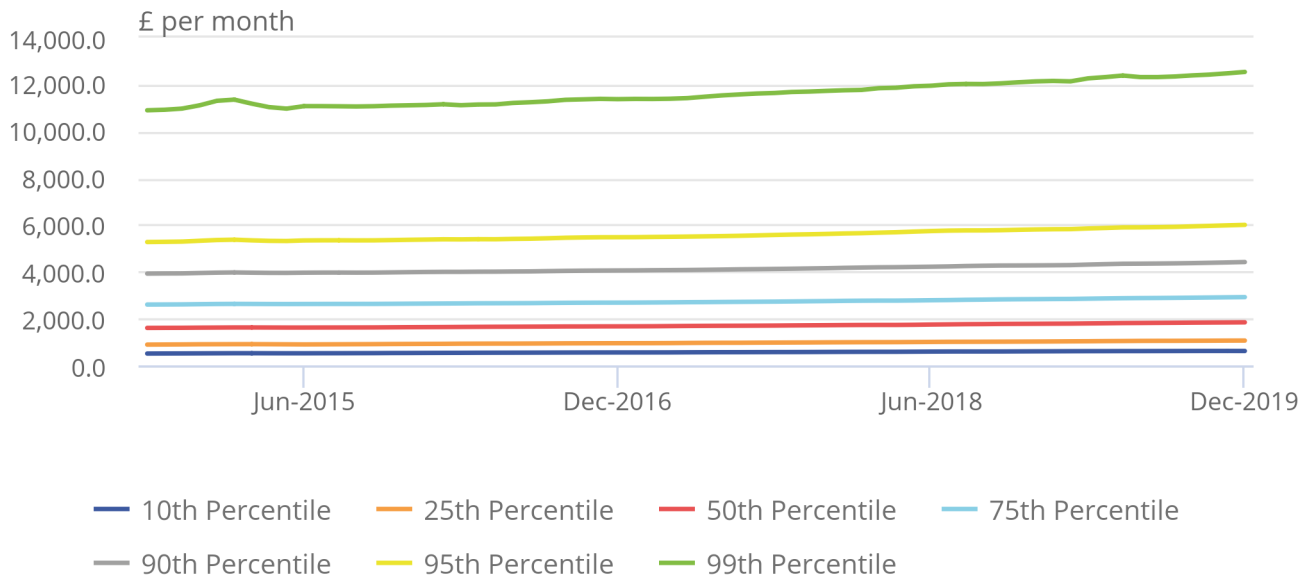
Source: HM Revenue and Customs – Pay As You Earn Real Time Information

Compared with the same time a year ago, of the percentiles we have analysed, pay growth was highest at the 25th percentile (4.2%) and lowest at the 10th percentile (2.5%).

When interpreting changes in the distribution over time, it can be useful to compare the level of percentiles relative to the median (that is, the amount of earnings in the middle of the distribution so that half of employees earn more and half earn less).

Figure 8 divides each percentile by the median, and then indexes these to 100 at the start of the series to better focus on their movements over time. Growth in these series reflects a percentile growing faster than median pay, while a fall in these series reflects a percentile growing slower than median pay.

Figure 8: Since 2014, employees' pay has generally grown fastest at the low end of the pay distribution

Ratio of selected percentiles relative to the median, rolling three-month average, UK, three months to September 2014 to three months to December 2019 seasonally adjusted

Figure 8: Since 2014, employees' pay has generally grown fastest at the low end of the pay distribution

Ratio of selected percentiles relative to the median, rolling three-month average, UK, three months to September 2014 to three months to December 2019 seasonally adjusted
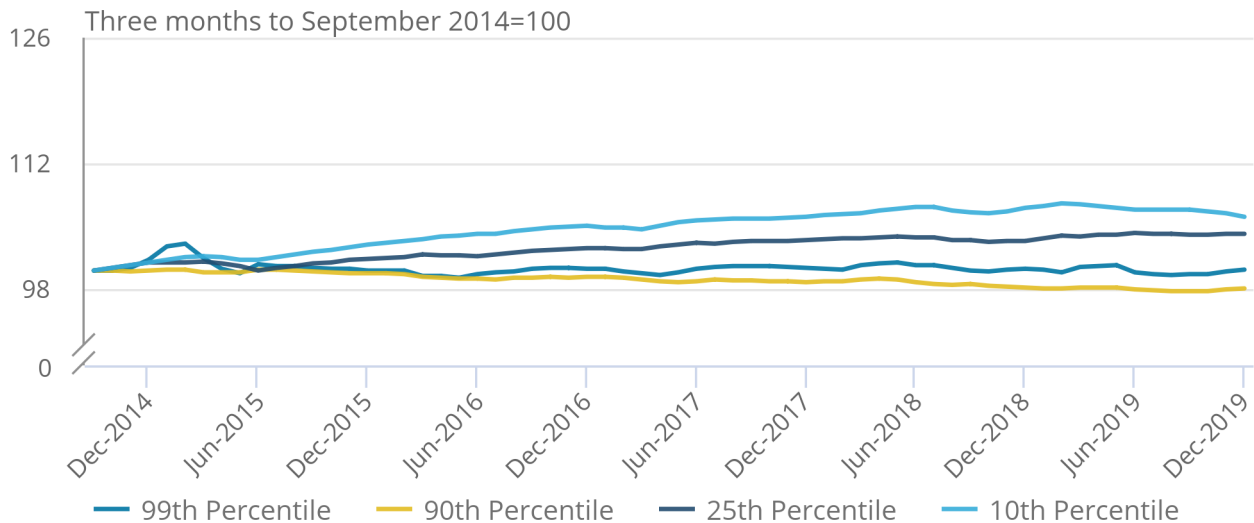
Source: HM Revenue and Customs – Pay As You Earn Real Time Information

The 10th and 25th percentiles of employees' pay have generally grown faster than median pay over the past five years, coinciding with the introduction of and increases to the National Living Wage (NLW). However, since mid-2018, the 10th percentile and the median have grown at broadly the same pace, so their ratio has remained broadly constant. In line with the rest of this bulletin, Figure 8 includes only employees' pay and not other income such as from self-employment.

The ratio of the 90th percentile to the median has generally fallen, reflecting pay towards this high end of the distribution growing slightly slower than median pay. When focusing even further towards the high end of the distribution, pay at the 99th percentile has grown at a broadly similar pace to median pay.

5 . Earnings and employment data

Real Time Information statistics reference table, seasonally adjusted
Dataset | Released 18 February 2020
Employee counts and earnings data, including geographic and distributional breakdowns, from Pay As You Earn (PAYE) Real Time Information (RTI), seasonally adjusted.

Real Time Information statistics reference table, non-seasonally adjusted
Dataset | Released 18 February 2020
Employee counts and earnings data, including geographic and distributional breakdowns, from PAYE RTI, non-seasonally adjusted.

6 . Glossary

Median monthly pay

Median monthly pay shows what a person in the middle of all employees would earn each month. The median pay is generally considered to be a more accurate reflection of the "average wage" because it discounts the extremes at either end of the scale.

National Minimum Wage and National Living Wage

The National Minimum Wage (NMW) is a minimum amount per hour that most workers in the UK are entitled to be paid. There are different rates of minimum wage depending on a worker's age and whether they are an apprentice. The NMW applies to employees aged between 16 and 24 years. The government's National Living Wage (NLW) was introduced on 1 April 2016 and applies to employees aged 25 years and over.

On the Annual Survey of Hours and Earnings (ASHE) reference date in April 2019, the NMW and NLW rates were:

- £8.21 for employees aged 25 years and over

- £7.70 for employees aged 21 to 24 years

- £6.15 for employees aged 18 to 20 years

- £4.35 for employees aged 16 to 17 years

- £3.90 for apprentices aged 16 to 18 years and those aged 19 years or over who are in the first year of their apprenticeship

Pay As You Earn (PAYE)

PAYE is the system employers and pension providers use to take Income Tax and National Insurance contributions before they pay wages or pensions to employees and pensioners. This publication relates to employees only and not pensioners. It was introduced in 1944 and is now the way most employees pay Income Tax in the UK.

7 . Measuring the data

Data source and collection

The data for this release come from HM Revenue and Customs' (HMRC's) Pay As You Earn (PAYE) Real Time Information (RTI) system. It covers the whole population rather than a sample of people or companies, and it will allow for more detailed estimates of the population. The release is classed as Experimental Statistics as the methodologies used to produce the statistics are still in their development phase. As a result, the series are subject to revisions.

Coverage

This publication covers employees paid by employers only. It does not cover self-employment income or income from other sources such as pensions, property rental and investments. Where individuals have multiple sources of income, only income from employers is included.

The figures in this release are for the period July 2014 to December 2019 and are seasonally adjusted.

Upcoming changes

Future bulletins are planned to include additional statistics, such as more detailed geographic breakdowns. The focus and timing of these will be informed by user feedback. Please email rtistatistics.enquiries@hmrc.gov.uk if you would like to offer feedback on how the contents can be improved in the future.

Methodology

An accompanying article contains more information on the calendarisation and imputation methodologies used in this bulletin, alongside comparisons with other earnings and employment statistics and possible quality improvements in the future.

8 . Strengths and limitations

HM Revenue and Customs (HMRC) grants pre-release access to official statistics publications. As this is a joint release, and in accordance with the HMRC policy, pre-release access has been granted to a number of people to enable the preparation of a ministerial briefing. Further details, including a list of those granted access, can be found on HMRC's website.

Experimental Statistics status

This is a joint experimental release between HMRC and the Office for National Statistics (ONS). The existing monthly publications produced by the ONS remain the primary National Statistics for the labour market. The intention is that these new statistics will also be updated on a monthly basis.

The release is classed as Experimental Statistics as the methodologies used to produce the statistics are still in their development phase. This does not mean that the statistics are of low quality, but it does signify that the statistics are new and still being developed. As the methodologies are refined and improved, there may be revisions to these statistics.

Rather than waiting until the development work has been completed, the statistics are being published now to involve potential users in developing the statistics. We hope that this encourages users to provide us with their thoughts and suggestions of how useful the statistics are and what can be done to improve them. Comments can be sent by email to rtistatistics.enquiries@hmrc.gov.uk.

More information about Experimental Statistics, including when they should be used and the differences between them and National Statistics, is available.

Strengths of the data

As Pay As You Earn (PAYE) Real Time Information (RTI) data cover the whole population, rather than a sample of people or companies, we will be able to use this to produce estimates for geographic areas and other more detailed breakdowns of the population. At the moment, the methods for producing such breakdowns are under development and we expect to include further statistics in a future release. These statistics can help inform decision-making across the country. They also have the potential to provide more timely estimates than existing measures.

These statistics also have the potential to replace some of those based on surveys, which could reduce the burden on businesses needing to fill in statistical surveys.

Imputation and revisions

A disadvantage of the calendarisation used is that the figures for pay and numbers of employees in month t depend on payments made in month t plus 1. This means only around 80% of the data used in the calculation on month t statistics are available at the end of each month.

Rather than wait until all those remaining payment returns have been received, we have decided to produce more timely measures of pay and numbers of employees by imputing the values for missing returns. The data on which the statistics are based were extracted at the end of January, which means around 1% to 2% of the pay in the latest month of these statistics is imputed. As a result, the figures in future releases will be updated as new payment returns are received, and the imputation payments can be replaced with actual data.

Differences compared with the Labour Force Survey and Average Weekly Earnings statistics

Further information about the methodology used and comparisons with the ONS's Labour Force Survey and average weekly earnings can be found in an accompanying article.

9 . Related links

Labour market overview: February 2020
Bulletin | Released 18 February 2020
Estimates of employment, unemployment, economic inactivity and other employment-related statistics for the UK.

Employment in the UK: February 2020
Bulletin | Released 18 February 2020
Estimates of employment, unemployment and economic inactivity for the UK.

Labour market economic commentary
Article | Released 18 February 2020
Additional economic analysis of the latest UK labour market headline statistics and long-term trends.

Regional labour market statistics in the UK: February 2020
Bulletin | Released 18 February 2020
Regional breakdowns of changes in UK employment, unemployment and economic inactivity.

Earnings and Employment Statistics from Pay As You Earn Real Time Information: Experimental Statistics
Bulletin | Released 18 February 2020
Previously published employee and earnings statistics from PAYE RTI, based on a different methodology.

Average weekly earnings in Great Britain: February 2020
Bulletin | Released 18 February 2020
Estimates of growth in earnings for employees before tax and other deductions from pay.

PAID EMPLOYEES

1 Paid Employee counts from PAYE RTI

Period	Paid employees
December 2014	27,004
December 2015	27,691
December 2016	28,088
December 2017	28,451
December 2018	28,731
January 2019	28,772
February 2019	28,808
March 2019	28,854
April 2019	28,858
May 2019	28,870
June 2019	28,880
July 2019	28,873
August 2019	28,925
September 2019	28,958
October 2019	28,983
November 2019	29,010
December 2019	**29,060**
Change on year	329
Change %	1.1

Source: PAYE RTI

1. The number of paid employees here is defined as the number of people receiving paid renumeration included in PAYE RTI for work done in the reference period. It also includes people receiving renumeration for the reference period who have not done work but are an employee - such as those on paid leave. Values for the month are an average of employee counts in each day of the month. It is a measure of people who are paid employees, as opposed to a measure of employee jobs.

2. These statistics include only individuals paid through PAYE and do not cover other sources of income such as from pensions, self-employment or investments.

3. PAYE covers occupational pension income as well as employment. In these tables pension income is excluded.

4. Incomes are allocated to regions and countries according to the residence of the recipient.

5. These data include imputation for payments not yet received by HMRC which would relate to the respective work periods

6. Figures have been rounded to the nearest unit. Change and growth calculations have been made on unrounded data, and then rounded.

7. These are experimental Statistics

MEDIAN PAY

2   Median monthly Pay from PAYE RTI

£ per month

UK, All industries, Seasonally adjusted

Period	Median Pay
December 2014	1,617
December 2015	1,631
December 2016	1,668
December 2017	1,722
December 2018	1,775
January 2019	1,785
February 2019	1,790
March 2019	1,798
April 2019	1,807
May 2019	1,812
June 2019	1,812
July 2019	1,821
August 2019	1,826
September 2019	1,829
October 2019	1,834
November 2019	1,837
December 2019	**1,842**
Change on year	67
Change %	3.8

Source: PAYE RTI

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REGIONAL PAY

3   Regional median monthly Pay from PAYE RTI

£ per month, 3 month moving average

UK, All industries, Seasonally adjusted

Area name	Three months to December 2019	Change on Year	Change %
North East	1,725	53	3.2
North West	1,741	55	3.3
Yorkshire and the Humber	1,707	52	3.1
East Midlands	1,733	53	3.1
West Midlands	1,738	51	3.0
East of England	1,891	63	3.5
London	2,228	74	3.5
South East	1,970	65	3.4
South West	1,731	53	3.1
Wales	1,717	46	2.7
Scotland	1,864	69	3.9
Northern Ireland	1,691	54	3.3

Source: PAYE RTI

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PAY DISTRIBUTION

4 Monthly Pay by Percentile from PAYE RTI

Three months to:	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile	99th Percentile
December 2014	512	900	1610	2613	3945	5322	11108
December 2015	528	914	1630	2634	3981	5363	11109
December 2016	551	946	1666	2679	4054	5474	11373
December 2017	573	983	1715	2745	4150	5615	11727
December 2018	599	1017	1776	2828	4271	5806	12132
January 2019	601	1021	1780	2834	4276	5816	12151
February 2019	604	1026	1783	2837	4283	5820	12133
March 2019	606	1030	1791	2848	4305	5848	12260
April 2019	607	1036	1798	2859	4323	5868	12316
May 2019	609	1040	1806	2868	4340	5894	12381
June 2019	609	1045	1810	2874	4344	5896	12316
July 2019	611	1047	1815	2878	4350	5906	12316
August 2019	612	1048	1819	2884	4358	5917	12342
September 2019	614	1051	1825	2891	4368	5938	12388
October 2019	615	1053	1829	2899	4382	5959	12423
November 2019	615	1057	1833	2907	4397	5981	12476
December 2019	**614**	**1059**	**1838**	**2915**	**4413**	**6002**	**12536**
Change on year	15	43	61	86	142	196	404
Change %	2.5	4.2	3.4	3.1	3.3	3.4	3.3

Source: PAYE RTI

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