Index of labour costs per hour QMI

Contact:	Release date:	Next release:
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Table of contents

1 . Methodology background

Frequency	Quarterly
How compiled	Sample survey based
Geographic coverage	UK

2 . Executive summary

The Index of Labour Costs per Hour (ILCH) is a measure of the cost of having an employee for an hour of work. It represents the total cost of employing an individual, which is primarily the earnings of the employee, but also includes non-wage costs. It is relabelled the Labour Costs Index (LCI) for Eurostat as the index is produced by all member countries of the EU. It was developed based on the recommendations from the Office for National Statistics's (ONS's) Quality Review of the Distribution of Earnings Statistics and European legislation that requires a harmonised index of labour costs for all member states.

ILCH was first published in 2005 and is published quarterly. It reflects changes in wages and salaries, non-wage costs and the quantity of hours worked over the quarter and is important for monitoring inflationary pressures in the labour market. Four versions of ILCH are calculated for each aggregate:

- average total labour costs per hour worked

- average wages and salaries per hour worked

- average other labour costs, primarily National Insurance contributions and occupational pensions, as well as sickness, maternity and paternity pay, per hour worked

- average total labour costs, excluding bonuses and arrears, per hour worked

The labour cost component of ILCH is drawn mainly from the Monthly Wages and Salaries Survey (MWSS), which is also used to produce the Average Weekly Earnings (AWE) measure; other costs are estimated using a range of other sources. The hours worked component of ILCH is drawn from the Labour Force Survey (LFS).

The ILCH index goes beyond other earnings indicators to include non-wage costs (sickness, maternity and paternity costs, pensions contributions, benefits in kind and National Insurance contributions), as well as the wages and salaries component. ILCH is currently published as an Experimental Statistic. Further development work is required before ILCH is submitted for assessment as a National Statistic by the Office for Statistics Regulation.

This report contains the following sections:

- Output quality

- About the output

- How the output is created

- Validation and quality assurance

- Concepts and definitions

- Other information, relating to quality trade-offs and user needs

- Sources for further information or advice

3 . Output quality

This report provides a range of information that describes the quality of the data and details any points that should be noted when using the output.

We have developed Guidelines for Measuring Statistical Quality; these are based upon the five European Statistical System (ESS) Quality Dimensions. This report addresses these quality dimensions and other important quality characteristics, which are:

- relevance

- timeliness and punctuality

- coherence and comparability

- accuracy

- output quality trade-offs

- assessment of user needs and perceptions

- accessibility and clarity

More information is provided about these quality dimensions in the following sections.

4 . About the output

Relevance

(The degree to which statistical outputs meet users' needs.)

ILCH is the only short-term earnings per hour indicator in the UK. It is an important gauge, as it can provide early indications of economic performance. This is because businesses will generally reduce the overtime and regular hours worked by existing staff before they consider reducing employment.

The EU and particularly its economic, employment and monetary authorities, need to have regular and timely labour cost indices for the purpose of monitoring changes in labour costs. A timely and consistent Labour Costs Index (LCI) is also of utmost importance for the European Central Bank (ECB) to monitor inflation in the European and Monetary Union and for European partners to use it in negotiating pay deals.

ILCH is primarily based on the Monthly Wages and Salaries Survey (MWSS) and the Labour Force Survey (LFS). The MW SS sample is drawn from the Inter-Departmental Business Register (IDBR), which is also used to weight the data. The LFS provides estimates of total hours worked based on average total hours worked in first and second jobs by employees. The Annual Survey of Hours and Earnings (ASHE) provides estimates of pay for employees of small businesses and the data are also used to produce factors to estimate Northern Ireland's wages and salaries. The Labour Costs Survey (LCS) and the Annual Business Survey (ABS) are also inputs to ILCH, providing estimates of non- wage labour costs.

ILCH is currently produced as an Experimental Statistic and as such may be subject to change due to methodological development. Users have commented on the volatility of ILCH.

However, this issue is more significant for the lowest level industry aggregates, where sample sizes are smaller and individual businesses can have a substantial impact.

Timeliness and punctuality

(Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the gap between planned and actual publication dates.)

ILCH is published quarterly. There is a delay of approximately 10 weeks between the publication date and the end of the period to which the data refer. This means that only the third month of earnings data is still provisional when the first estimate of ILCH is published. However, there have been occasional instances where wages data are revised a year later due to late information on bonus payments.

There have been no recent instances of publication of ILCH being delayed.

For more details on related releases, the GOV.UK release calendar provides 12 months' advance notice of release dates. If there are any changes to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the Code of Practice for Official Statistics.

5 . How the output is created

ILCH is calculated as a Laspeyres (or base weighted) index, chain-linked annually. A Laspeyres index is a fixed base index whose component index numbers are weighted arithmetic means of, in this context, the ratio of the labour cost per hour in the current period to the labour cost per hour in the base period (the base period for the year 2000), using weights derived from aggregate labour costs in the base period. Annual chain-linking means that the base period changes from year to year and the indices for the different base periods are linked together.

To calculate the ILCH:

Formula to calculate the Index of Labour Costs per Hour

E.g. 2011Q4

$$LCI_{2011Q4} = \frac{\sum_{s=1}^{g} \left(x_{2000,s} \left(\frac{y_{2001,s}}{x_{2001,s}} \right) \right)}{\sum_{s=1}^{g} y_{2001,s}} \times \ldots \times \frac{\sum_{s=1}^{g} \left(x_{2009,s} \left(\frac{y_{2010,s}}{x_{2010,s}} \right) \right)}{\sum_{s=1}^{g} y_{2009,s}} \times \frac{\sum_{s=1}^{g} \left(x_{2010,s} \left(\frac{y_{2011Q4,s}}{x_{2011Q4,s}} \right) \right)}{\sum_{s=1}^{g} y_{2010,s}}$$

For a set of g SIC sections,s , the total returned wages and salaries and the calculated non-wage costs of the SIC section in a period

where

$x_{year,quarter,s}$ = Quantity weights (hours worked) calculated over quarter

$x_{year,s}$ = Quantity weights (hours worked) calculated over the whole year $y_{year,quarter,s}$ = Cost weights (labour costs) calculated over quarter

$y_{year,s}$ = Cost weights (labour costs) calculated over the whole year

Total wage costs are taken from the Monthly Wages and Salaries Survey (MWSS). The data are weighted to be representative of all employee jobs. These weights are derived from the employment at sampled businesses, as a proportion of total employment in that stratum, as derived from the Inter-Departmental Business Register. These weights might be further affected by non-responses that cannot be imputed for and businesses designated as outliers. Details of this and other estimation techniques required to ensure that the estimates are as accurate and comprehensive as possible are described in the Average Weekly Earnings Quality and Methodology Information Report.

The non-wage costs are calculated by applying a factor to wage costs. There are three main reasons for this approach:

- it is not practical to obtain non-wage costs data directly that are coherent with wage costs and they must therefore be collected from other data sources. To make these coherent with the MWSS (the data source for wage costs), relative proportions are used rather than direct estimates of non-wage costs the proportion of total wage costs attributable to non-wage costs is usually around 15% every quarter, so a robust but simple method for estimation is appropriate

- ILCH is designed to measure growth in labour costs, so the impact of non-wage costs is only important if their proportionate contribution to labour costs changes over the short-term; any such changes are likely to be small

ILCH relates to employees only and so the total hours worked by them include those worked and paid at both ordinary time and at premium rate, together with those worked for no payment (typically unpaid overtime). The total excludes time not worked because of sickness, annual leave, statutory holidays, special leave, meal breaks and part-time working. Some of these components will be paid while others will not. The ONS pilot business survey of hours worked indicated that businesses were unable to provide this information at the aggregate level required. We use data from both household and business surveys to generate a total hours worked series. The use of an employer survey would ensure that the sample is consistent with the numerator, both in terms of sample business composition and the classifications of the employees to their industrial sector, although this places burden on businesses and there is an inability to assess the accuracy and consistency.

Thus, the methodology used for the ILCH denominator combines average quarterly total hours worked, from the Labour Force Survey (LFS), with the number of employees from the MWSS for each industrial classification. This approach ensures consistency between the employment estimates that drive total hours worked, in the denominator and wages and salaries estimates that drive total labour costs, in the numerator. This same principle, of combining average total hours worked from the LFS, with employment estimates from a business survey, is used by Statistics Canada.

The LFS is a household survey that is our primary source for hours worked information in the UK. The data for the total number of hours worked are typically presented for an average week in the quarter, rather than the total number of hours worked in the quarter itself. The LFS is important because it allows us to capture information on actual hours worked rather than usual hours worked or actual hours paid. This has the advantage of providing information on changing working patterns, for example, the amount of unpaid overtime being worked, and the affect of paid and unpaid leave, which can have important impacts on the ILCH. Further details on the LFS are available from the LFS Quality and Methodology Information Report.

ILCH estimates hours worked by using estimates of average total hours worked by employees, as measured by the LFS, together with estimates of gross employment produced using data from the MWSS. Thus the average earnings per hour worked is then the ratio of two, independent, self-consistent terms:

$$\left(\frac{Earnings_{MWSS}/Employees_{MWSS}}{Hours_{LFS}/Employees_{LFS}} \right)$$

This method ensures that the LFS is used in a way that best brings the business (MWSS) and household (LFS) data onto a similar footing. The estimation of total hours worked is undertaken on a continuous basis in the LFS and so the production of the denominator for the ILCH can be accomplished for each calendar quarter.

6 . Validation and quality assurance

Accuracy

(The degree of closeness between an estimate and the true value.)

Like all statistics derived from sample-based surveys, ILCH is subject to sampling error. The only way to avoid sampling error entirely would be to obtain data for every business in the UK. As this would be costly and impractical, ILCH growth for the whole economy is estimated by taking a random sample. This estimate can be different from the "actual" rate of ILCH growth, depending on which businesses are selected.

Confidence intervals are not currently published alongside this index. This is because ILCH is constructed from a wide variety of data sources, including administrative data. It is a long-term goal to investigate how confidence intervals can be calculated for this index. However, the Office for National Statistics (ONS) ILCH production team uses a variety of procedures to try to ensure that the estimate is of high quality.

The ILCH data on wages and salaries are subject to revision. They are revised primarily to reflect late data or corrections to provisional data. Wages and salaries information for ILCH is drawn from the Monthly Wages and Salaries Survey (MWSS), which is also the basis for the Average Weekly Earnings (AWE) statistic, the UK's lead measure relating to short- term changes in earnings.

There are two distinct types of revisions that arise from MWSS:

- returned responses are accepted up to approximately 10 working weeks after the end of the month they relate to; the same month of data is revised the following quarter to allow for late and amended data returns from respondents

- methodological changes to the way the data are processed; in the past, ILCH has been revised to keep its use of the underlying MW SS data consistent with AWE – changes of this nature will be rarer in future, since AWE is no longer an Experimental Statistic

The ILCH dataset sent to Eurostat is seasonally adjusted. The seasonal adjustment parameters are updated annually, in line with ONS policy on seasonal adjustment. This update can lead to revisions to the historic time series extending back at least 3 years and possibly throughout the entire time series.

Revisions may also include changes to the source data on non-wage labour costs. This may be caused by up-to-date data being made available. For instance, there were relatively large revisions to the National Insurance Contributions component of ILCH when the Quarter 2 (Apr to June) 2010 figures were produced; due to switching to the much more up-to-date ASHE data.

All revisions are managed in line with the National Statistics Protocol on Revisions and in the same way as the National Statistic, AWE. These will be monitored and assessed before the index will be published as a National Statistic. The ILCH will also be subject to revision as part of the annual review of seasonal and working day adjustment and this will be clearly explained. In addition, there may be other methodological changes carried out to the index before it is submitted for assessment as a National Statistic by the Office for Statistics Regulation and this will also be clearly documented and explained.

Comparability and coherence

(Comparability is the degree to which data can be compared over time and domain e.g. geographic level. Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar.)

Comparability

ONS provides a comprehensive ILCH series from 2000, consistent in data sources and methodology. The ILCH is comparable with other Labour Cost Index numbers produced by other EU member states. Eurostat regularly publishes a news release detailing the main results in each quarter.

There has been one major change to ILCH since it was first published in 2005. This was the move in October 2010 to the use of the Standard Industrial Classification 2007: SIC 2007 from the previous 2003 classification. Other minor methodological improvements were made at the same time as the SIC 2007 transition. Firstly, the method for calculating monthly and quarterly pay was altered slightly to simplify the ILCH production process. Secondly, the method for estimating the labour costs for Northern Ireland was slightly improved. As a result, changes in the structure and level of employment in Northern Ireland are now taken into account in a more timely fashion. These two changes have had very little impact on the published ILCH figures.

To provide some confirmation of the quality of the hours data produced by the LFS and particularly the classification to industry, work was undertaken to assess the main differences in data produced by the LFS and ASHE. Comparisons were made between paid hours information from the two surveys, as ASHE does not collect information on actual hours worked. The data from the two sources were shown to be similar, with little difference in the mean and distribution of hours worked (Ormerod C and Ritchie F, 2007).

Coherence

There are other sources of earnings data produced by ONS.

The Average Weekly Earnings: AWE is an important economic indicator designed to capture changes in average earnings of employees in Great Britain. It is used by the Bank of England (BoE) and HM Treasury (HMT) to measure the inflationary pressure emanating from the labour market.

AWE is designed to measure the level of weekly earnings per job, that is, the ratio of earnings to employment and the growth in the earnings per job for different sectors and the whole economy. ILCH, however, attempts to capture the changes in the total cost of labour per hour, that is, the ratio of labour costs to hours worked. Another difference between the two indicators is that ILCH also includes non-wage costs which AWE does not account for.

It is possible to compare sector level growth rates between ILCH and AW E. The main difference stems from measuring earnings per job and measuring earnings per hour. An article comparing the differences between ILCH and AWE is available.

The Annual Survey of Hours and Earnings: ASHE is a structured survey, designed to provide detailed information about the levels, distribution and make-up of earnings and paid hours worked for employees by different characteristics such as geographic location, industry and occupation.

ASHE is used to look at the distribution of employee earnings, while ILCH represents the total cost of employing an individual, not simply the earnings received by the employee. It reflects changes in wages and salaries, non-wage costs and the quantity of hours worked over the quarter.

The Labour Cost Survey: The LCS measures the level and structure of labour costs, or total expenditure borne by employers for the purpose of employing staff. It is governed by EU regulation and is conducted every 4 years by member states of the EU. Similar to ILCH, LCS is produced by compiling information from different sources like ASHE, the ABS and LFS.

Eurostat estimates the annual labour cost per hour by extrapolating the most recent LCS results using an annual Labour Costs Index developed from the quarterly LCI dataset; the results of which are published on their website. It is estimated that the LCI labour cost concept covers approximately 98.7% of the LCS labour concept .

7 . Concepts and definitions

(Concepts and definitions describe the legislation governing the output and a description of the classifications used in the output.)

The production of ILCH is driven by European legislation that requires a harmonised index of labour costs for all member states. Eurostat requests a standardised Labour Costs Index, whereby each National Statistics Institute (NSI) produces an estimate with a comprehensive numerator, defined in respect of labour costs, deflated by total hours worked. To adhere to these user requirements exactly, the ILCH index was developed in the UK to address the Eurostat regulation.

The main source for ILCH, Monthly Wages and Salaries Survey (MWSS) is a statutory survey carried out in accordance with the 1947 Statistics of Trade Act. The survey is stratified and weighted with respect to legal status (public or private sector). This classification follows the UK National Accounts Sector Classifications conventions. The survey is also stratified by and weighted with respect to industry. From April 2011, ILCH has been produced and published using SIC 2007. Prior to this, SIC 2003 was used for the same purpose. Details on the impact of the move from SIC 2003 to SIC 2007 are available.

8 . Other information

Output quality trade-offs

(Trade-offs are the extent to which different dimensions of quality are balanced against each other.)

As described under "Accuracy", ILCH data are subject to some revisions to reflect late data collections or corrections to provisional data. As mentioned earlier, all revisions will be managed in line with the National Statistics Protocol on Revisions and in the same way as the National Statistic, Average Weekly Earnings .

Based on information from the [UK's Labour Costs Survey (2000)](#), ILCH excludes only a small percentage of cost items. The structure of labour costs in the UK indicates that more than 95% of total labour costs would be captured by an estimate that included pay, payments for days not worked, employers' voluntary and statutory social contributions and benefits in kind. In light of this the ILCH development was confined to identifying suitable estimators for these components of labour costs. In doing so, we explicitly recognise that the indicator will approximate movements in total labour costs, but there is likely to be little value added from the inclusion of the less than 5% of non-wage labour costs that can only be imprecisely measured. Examples of non-wage costs that are not included in ILCH are redundancy payments and employee savings schemes, both of which have proven difficult for businesses to provide at the required frequency and aggregation level.

Assessment of user needs and perceptions

(The processes for finding out about users and uses, and their views on the statistical products.)

The main users of the ILCH are Bank of England and HM Treasury. ILCH is used to monitor inflationary pressures in the labour market. Regular meetings were held with these users during the development and subsequent use of the index, along with the Department for Work and Pensions and representatives from academia.

The MW SS was subject to a [Triennial Review process](#), part of which is a consultation of users. ILCH is covered by this review as the wages and salaries data used in the production of the index is collected from MW SS. The last review was carried out in 2011 and published in April 2012, when 60 users were consulted.

As part of development work to move ILCH to a National Statistic, we are currently exploring options to identify current users of the dataset to ensure that the ILCH tables are coherent and continue to meet user requirements.

9 . Sources for further information or advice

Accessibility and clarity

(Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the release details, illustrations and accompanying advice.)

Our recommended format for accessible content is a combination of HTML webpages for narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. Our website also offers users the option to download the narrative in PDF format. In some instances other software may be used, or may be available on request. Available formats for content published on our website but not produced by us, or referenced on our website but stored elsewhere, may vary. For further information please refer to the contact details at the beginning of this report.

For information regarding conditions of access to data, please refer to the following links:

- [Terms and conditions](#) (for data on the website)

- [Copyright and reuse of published data](#)

- [Pre-release access](#) ([ended from 1 July 2017](#))

- [Accessibility](#)

- Access to microdata via the [Virtual Microdata Laboratory](#)

In addition to this Quality and Methodology Information, Basic Quality Information relevant to each release is available in the quality and methodology section of the statistical bulletin.