

Statistical bulletin

International Comparisons of Productivity - Final Estimates: 2014

Labour productivity across the G7 nations in terms of GDP per hour worked and per worker, and growth in GDP per hour worked.



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Release date:
18 February 2016

Next release:
23 September 2016 (provisional
date)

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1. Main points

Output per hour in the UK was 18 percentage points below the average for the rest of the major G7 advanced economies in 2014, the widest productivity gap since comparable estimates began in 1991. On an output per worker basis, UK productivity was 19 percentage points below the average for the rest of the G7 in 2014.

Across the G7 as a whole, labour productivity as measured by real (inflation adjusted) output per hour and output per worker grew modestly in 2014. Output per hour was lower in all G7 countries in 2014 than would have been the case if pre-downturn trends had continued since 2007. The UK's "productivity gap" of about 14% is about twice as large as the gap for the rest of the G7.

Revisions to source data have led to extensive revision since the last release, including upward revisions to productivity estimates for Germany and downward revisions to US productivity.

This release also includes productivity comparisons with some of the UK's major trading partners outside the G7. In 2014, UK output per hour was 5 percentage points lower than Spain and considerably lower than productivity in Ireland, Belgium and the Netherlands.

For the first time this release includes indicative productivity comparisons for sub-sectors of the economy between the UK, the US, Germany, France and Italy. These comparisons employ the same methodology as the estimates for the whole economy, but are not wholly consistent with the whole economy estimates.

The results show that UK labour productivity trails behind the US in all sub-sectors and particularly in manufacturing. Comparisons with other European countries are more mixed. For manufacturing, UK output per hour is estimated to be above that of Italy, and UK output per worker is a little higher than equivalent estimates for Germany and France.

In financial services, the UK's comparative productivity has deteriorated sharply since 2009 and trails France and Italy as well as the US. For private non-financial services (easily the largest component), the UK's comparative productivity has also deteriorated since 2009 and UK output per hour trails well behind France, Germany and the US.

2. About this release

This bulletin contains annual estimates of labour productivity for the G7 developed countries (Canada, France, Germany, Italy, Japan, UK and USA) up to 2014. Labour productivity measures the amount of economic output that is produced by a unit of labour input, and is an important measure of economic performance.

Output is measured by gross domestic product (GDP). Labour input is measured in 2 ways – by total hours worked and by numbers of workers in employment. These 2 measures of labour input can yield different results, reflecting differences in working patterns across countries and compositional movements over time, such as a shift towards part-time working.

Comparability across countries is achieved by using estimates of GDP and labour inputs from a common source (the Statistics Directorate of the Organisation for Economic Co-operation and Development (OECD)) as far as possible and by converting local currency based measures of GDP using purchasing power parity (PPP) exchange rates. PPP exchange rates (usually referred to simply as PPPs) attempt to equalise the cost of a representative basket of goods and services in countries with different national currencies. An article explaining the [uses and limitations of PPPs](#) is available on our website.

The estimates in this release update [those published on 18 September 2015](#). This release cycle reflects the publication and revision cycles of the component data series.

We are currently undertaking a review of our productivity publications and are consulting with you on publishing the estimates currently included in this release alongside other productivity estimates to create a more unified presentation of productivity metrics and enable a richer analysis to be presented. Your opinions and views would be appreciated and can be sent by email to productivity@ons.gsi.gov.uk

3. Interpreting these statistics

The labour productivity measures in this bulletin are presented in terms of "current prices", suitable for cross-country comparison of levels of productivity for a single year, and "constant prices", suitable for analysis of productivity performance over a number of years. The current price estimates in [the international comparisons of productivity final estimate dataset tables 1 and 2 \(256 Kb Excel sheet\)](#) should be read horizontally, while the constant price estimates in [the international comparisons of productivity final estimate dataset tables 3 and 4 \(256 Kb Excel sheet\)](#) should be read vertically¹.

Current price productivity estimates are indexed spatially to UK=100 for each year and show each country's productivity relative to that of the UK in that year. Since productivity is an important determinant of living standards, these estimates also provide an indication of living standards relative to the UK.

In interpreting these estimates users should bear in mind that PPPs provide only an approximate conversion from national currencies and may not fully reflect national differences in the composition of a representative basket of goods and services. Additionally, care should be taken in interpreting movements in current price productivity estimates over time. For example, an increase in UK productivity relative to another country could be due to UK productivity growing faster, or falling less, or due to changes in relative prices in the 2 countries, or some combination of these movements.

Constant price productivity estimates are indexed to a particular year. For each single country, these estimates are almost identical to national labour productivity series (minor differences from national sources are described in the background notes to this bulletin). The index year is set at 2007 in order to focus on movements in labour productivity over the economic downturn.

Constant price productivity estimates show the evolution of productivity for each country and for the G7 (and G7 excluding the UK) aggregates, but should not be used to compare productivity across countries at a point in time. Productivity growth can be decomposed into growth of output minus the growth of labour input, and these components can move in different directions within and across countries. This should be borne in mind in interpreting the constant price productivity estimates in this release.

More information on methodology and interpretation is available in the background notes to this bulletin. Additionally, the [Quality and Methodology Information paper \(123.8 Kb Pdf\)](#) for this release provides information on the quality of the estimates in this release, as well as providing a summary of methods used in compiling the estimates.

Notes for interpreting these statistics

1. All estimates are also available in hard copy at the back of the PDF version of this statistical bulletin.

4. Current price productivity

Current price productivity estimates allow for comparison of how much economic output, measured in common currency terms, is produced by each hour worked and by each worker across countries in a particular year, relative to the UK=100. Further information is available in the [international comparisons of productivity final estimate dataset tables 1 and 2 \(256 Kb Excel sheet\)](#).

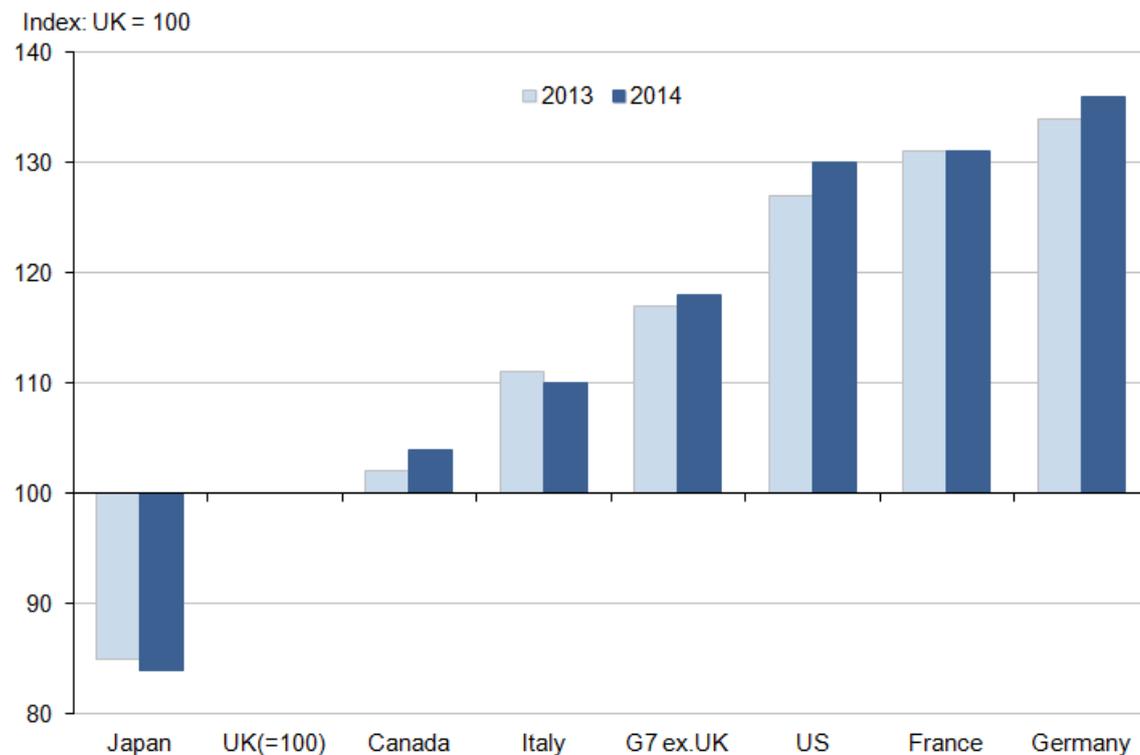
Current price GDP per hour worked (Table 1)

UK productivity measured as GDP per hour worked in 2014 was:

- above that of Japan by 16 percentage points
- lower than that of Canada by 4 percentage points
- lower than that of Italy by 10 percentage points
- lower than that of the US and France by 30 to 31 percentage points
- lower than that of Germany by 36 percentage points
- lower than that of the rest of the G7 by 18 percentage points

Figure 1: GDP per hour worked, G7 countries

2013 and 2014



Comparing 2014 with 2013, the UK productivity differences relative to Canada, Germany, and the US all widened, while the productivity difference relative to Italy narrowed and the productivity advantage over Japan widened. The UK's shortfall relative to the rest of the G7 countries as a whole widened to the largest shortfall since records began in 1991. The UK's shortfall to Germany increased by 2 percentage points and is the widest recorded against a G7 country.

The [datasets \(256 Kb Excel sheet\)](#) contain estimates of net domestic product (NDP) per hour worked (Table 9). NDP is GDP less consumption of fixed capital (CFC). Across the G7 countries the UK has the lowest share of CFC and Japan has the highest share. UK NDP per hour worked was 13 percentage points below the average across the rest of the G7 in 2014.

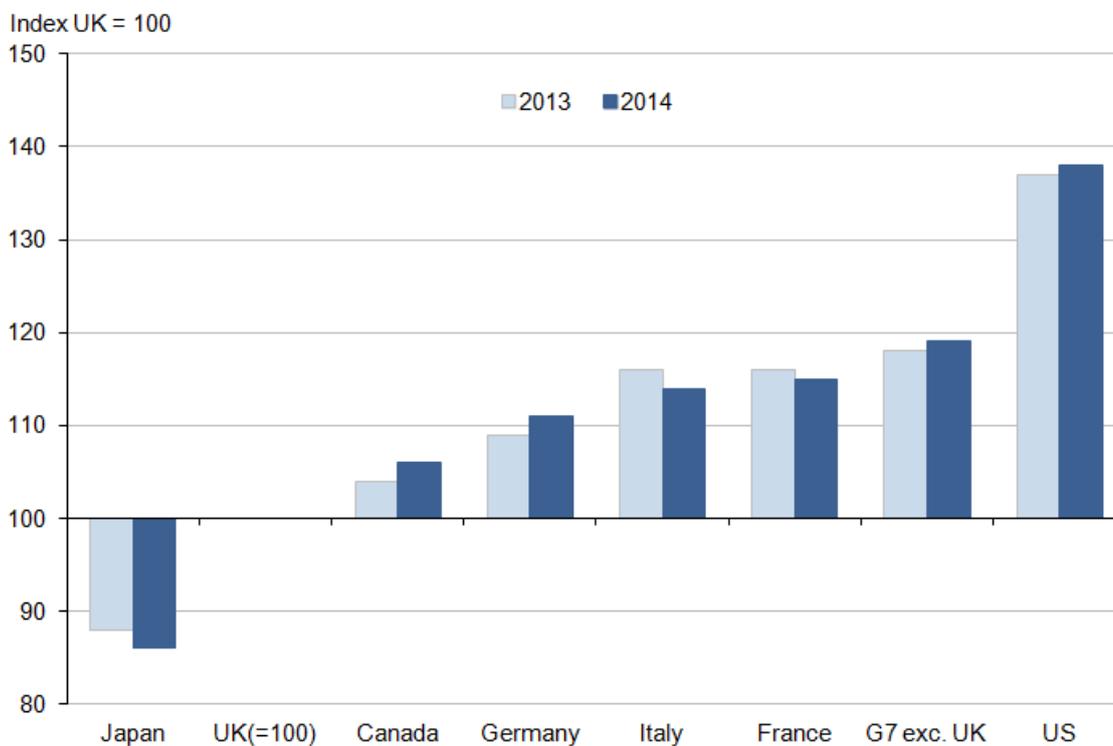
Current price GDP per worker (Table 2)

Final estimates for 2014 show that UK output per worker was:

- above that of Japan by 14 percentage points
- below that of Canada and Germany by 6 and 11 percentage points respectively
- below that of Italy and France by 14 and 15 percentage points respectively
- below that of the US by 38 percentage points
- below that of the rest of the G7 by 19 percentage points

Figure 2: GDP per worker, G7 countries

2013 and 2014

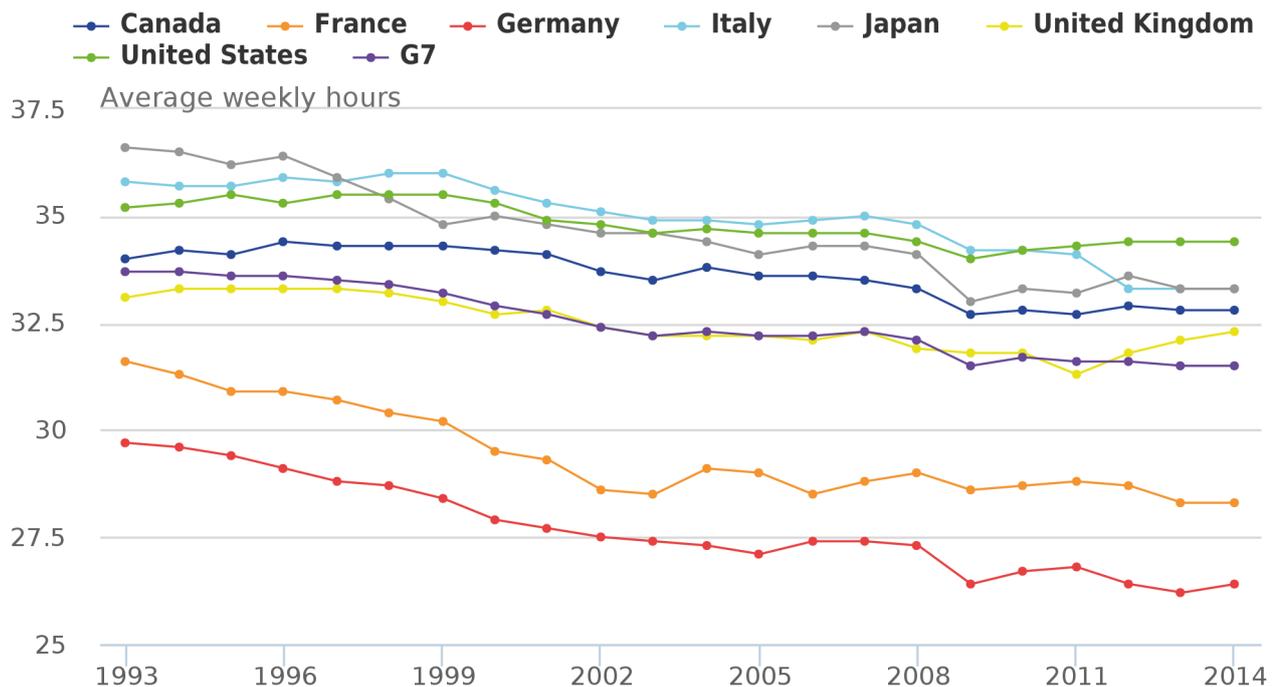


Comparing 2014 with 2013, UK productivity shortfalls increased relative to Canada, Germany and the US and narrowed relative to Italy and France. Japan's productivity shortfall relative to the UK increased by 2 percentage points over this period.

As illustrated in Figure 3, there are significant differences in average weekly hours worked across the G7, reflecting cultural and compositional differences between economies. Different movements in average hours across countries account for differences in the patterns of productivity shown in Figures 1 and 2. For example, the productivity gap between the UK and the US is wider in terms of output per worker than in terms of output per hour because, on average, US workers work more hours than UK workers. On the other hand, the productivity differential between the UK and Germany is wider in terms of output per hour than in terms of output per worker, as German workers work fewer hours than their UK counterparts.

Figure 3: Average weekly hours per worker, G7 countries

1993 to 2014



Source: Office for National Statistics

Generally there has been a trend across the G7 countries towards lower working hours, perhaps reflecting workers choosing more leisure time as productivity and living standards have increased over time. Figure 3 suggests that this trend has slowed or gone into reverse in a number of G7 countries, including the UK, since the economic downturn. Furthermore, the UK labour market has performed relatively strongly compared with the G7 countries, following the economic downturn. Since 2010, out of the G7 countries the UK has the second highest average employment growth rate, behind the US only. This along with a rise in average weekly hours worked has been a contributor to the UK's widening productivity differential against the rest of the G7.

5. Constant price productivity

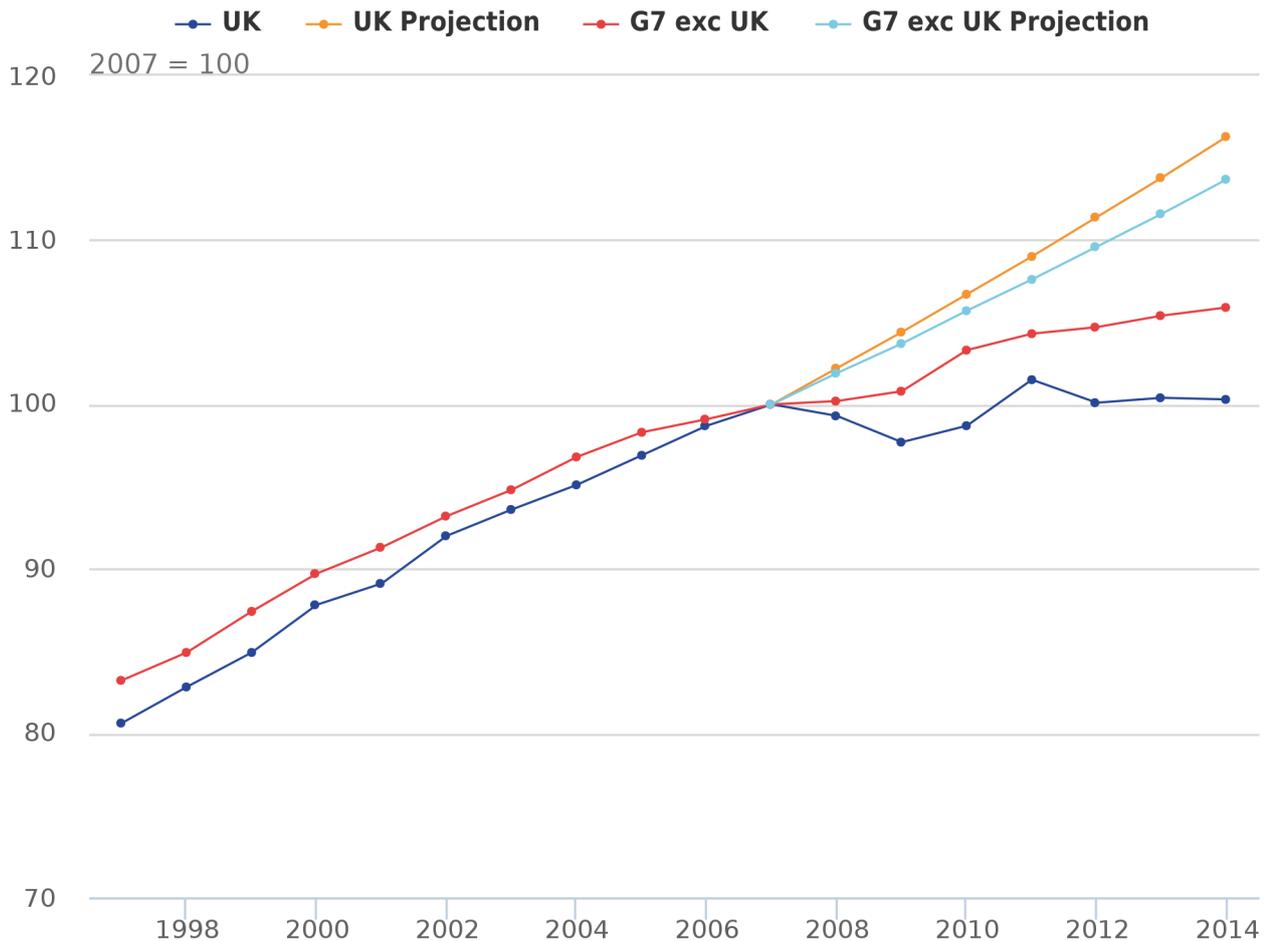
Constant price productivity estimates are indexed to 2007=100 and show the evolution of labour productivity for each country and group of countries over time. Further information is available in the [international comparisons of productivity final estimate dataset tables 3 and 4 \(256 Kb Excel sheet\)](#). The following commentary focuses on GDP per hour worked, which, by allowing for movements in average hours worked, provides a more comprehensive measure of movements in productivity than GDP per worker.

Constant price GDP per hour worked (Table 3)

Figure 4 shows GDP per hour worked for the UK and an aggregated series for the rest of the G7, together with simple projections based on average productivity growth over 1997 to 2007, that is, before the global economic downturn. On this basis, the combination of strong UK productivity growth up to 2007 and weak productivity performance since 2007 implies a productivity gap (measured as actual below trend) of around 14% in 2014. That is, under a counterfactual scenario where UK productivity had continued to grow at its pre-downturn trend since 2007, output per hour in 2014 was around 14% lower and average living standards were commensurately lower too.

Figure 4: Constant price GDP per hour worked, actuals and projections

1997 to 2015



Source: OECD, Office for National Statistics

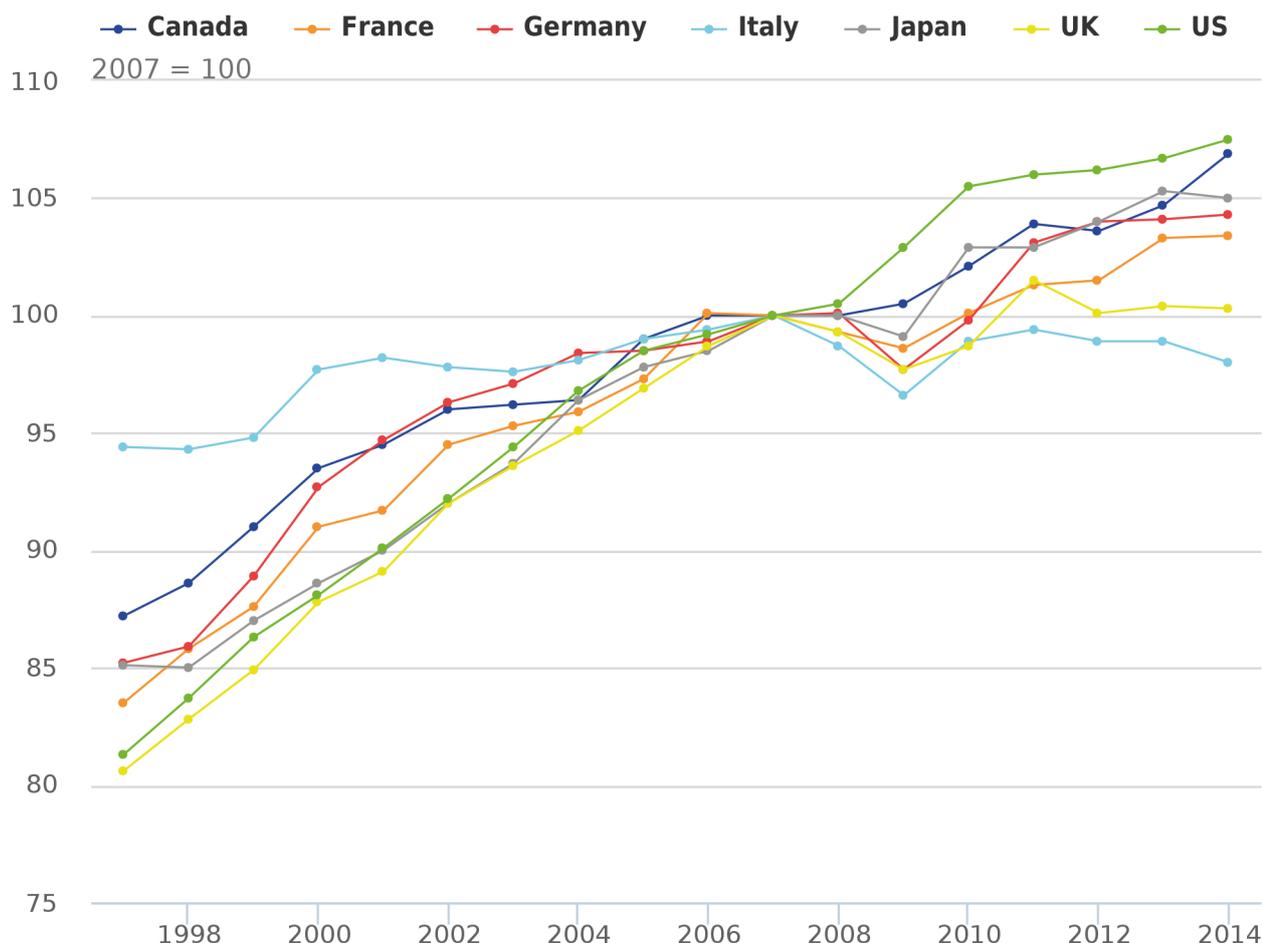
Average annual productivity growth between 1997 and 2007 for the rest of the G7 was lower than in the UK (around 1.9% per year, about 0.3% per year lower than average productivity growth in the UK). Since 2007, productivity growth across the rest of the G7 has been stronger. This implies a narrower productivity shortfall for the rest of the G7 of around 7% in 2014.

An important point to flag in relation to Figure 4 is that the projections are extrapolated from 2008. However, when one reviews the performance of the G7 excluding the UK (G7xUK), there is a plausible case to be made that the slowdown in productivity growth began in 2005, preceding the economic downturn, rather than commencing as a result of this event. Commencing the extrapolation from 2005 would deliver a larger gap for the G7xUK than that shown in this figure.

Figure 5 illustrates the difference in productivity trajectories over recent years between the main European economies on the one hand, and North America on the other hand. Output per hour fell in most countries during the downturn in 2008 to 2009, before rebounding sharply in Japan, Canada and the US. But a slowdown in productivity growth can be observed in several countries before this; with German productivity growth slowing from 2004, whilst Italy has demonstrated no substantive productivity growth since 2000. Comparing average productivity growth rates since 2007 the UK ranks second bottom: only Italy has a weaker average productivity growth rate over this period.

Figure 5: Constant price GDP per hour worked, selected G7 countries

1997 to 2015



Source: OECD, Office for National Statistics

Converting the time series in Figure 5 into productivity gaps in 2014 relative to extrapolations of pre-downturn trends (as in Figure 4) would yield gaps of around 10% for France, around 7% for the US and Germany, around 6% for Italy and Japan and around 3% for Canada. The reason why the productivity gap for Italy is much narrower than that for the UK, despite a similarly weak trajectory since the economic downturn, is that the UK productivity trajectory prior to the downturn was much stronger than Italy's.

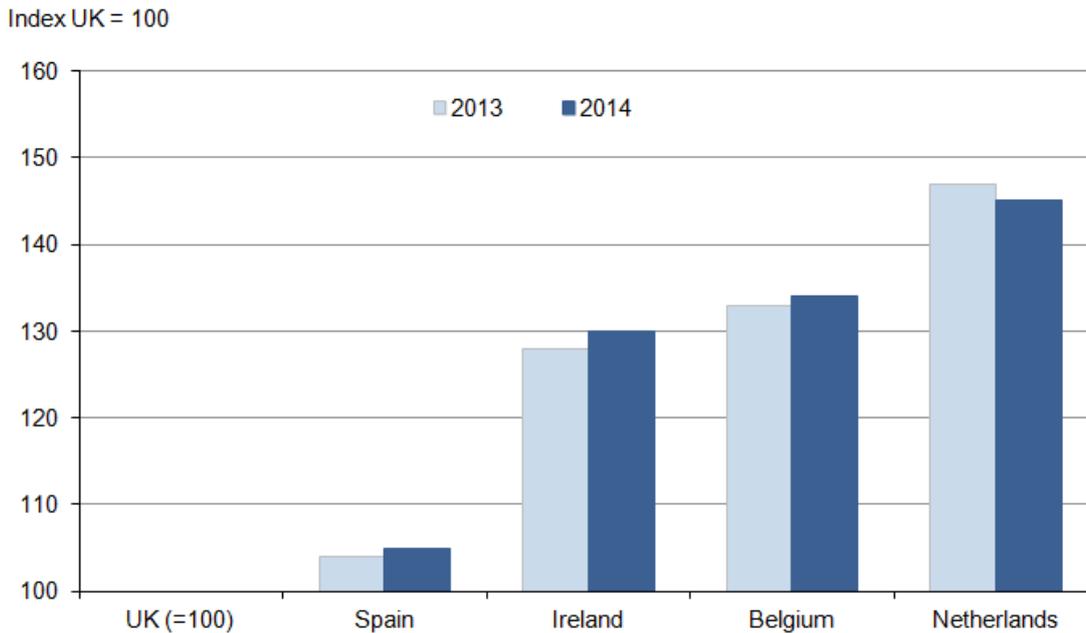
6. Comparisons with other countries (not National Statistics)

In this section we update estimates for productivity comparisons between the UK and a group of smaller European countries last published in February 2015. These estimates are compiled using the same methods and sources as for the G7 estimates in this release but have not yet been assessed by the UK Statistics Authority and therefore do not have National Statistics status.

Current price comparisons of GDP per hour worked are shown in Figure 6 for 2013 and 2014. Longer time series are available in Table 5 (GDP per hour) and Table 6 (GDP per worker) in the [datasets \(256 Kb Excel sheet\)](#) component of this release. In 2014, Spain, Ireland and Belgium all saw a widening of their productivity differentials over the UK to 5, 30 and 34 percentage points respectively. The Netherlands' productivity advantage over the UK is estimated to have narrowed by 2 percentage points between 2013 and 2014, but was still the largest of these smaller countries.

Figure 6: Current price GDP per hour worked, additional countries

2013 and 2014

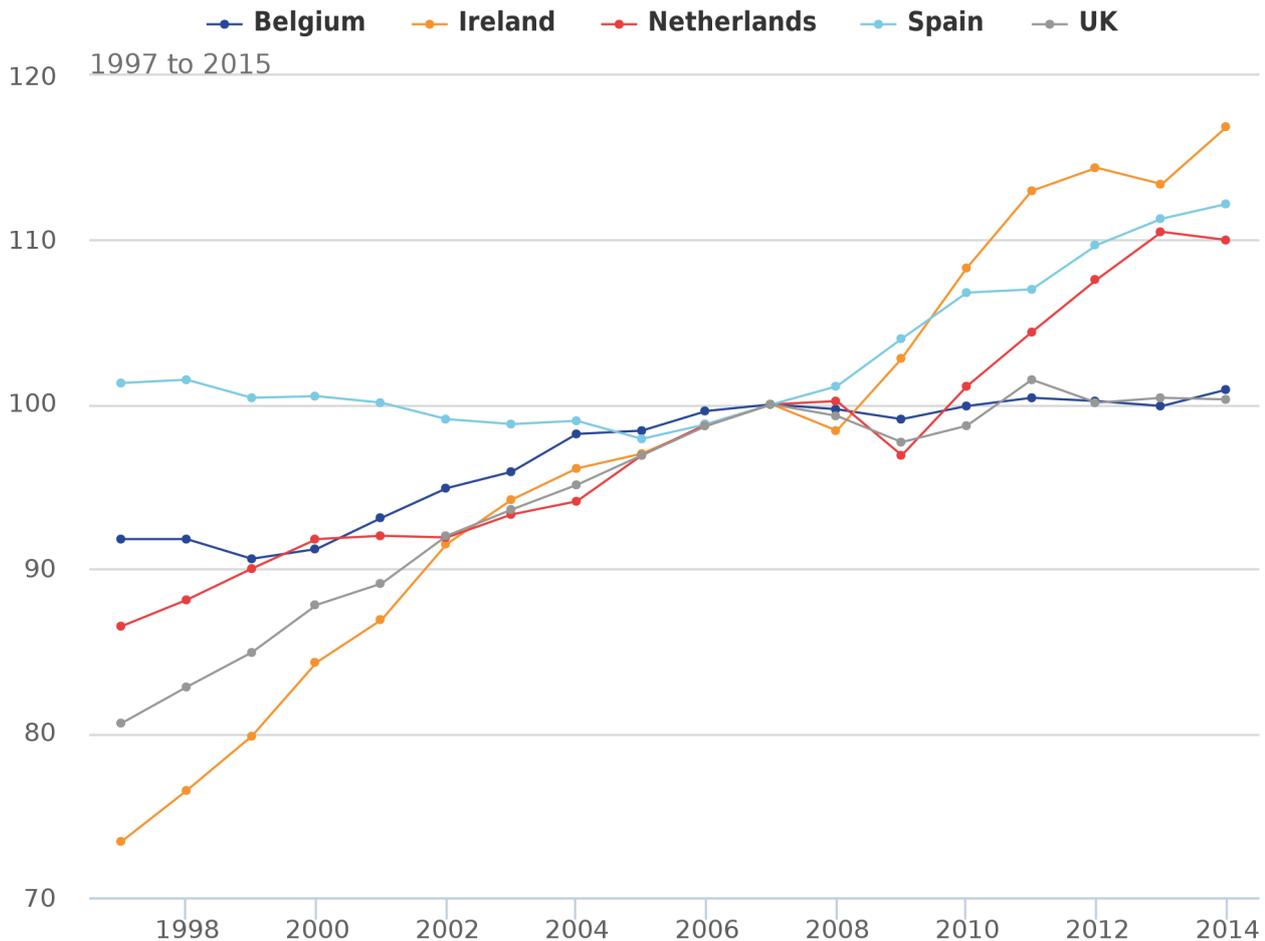


Constant price estimates of output per hour for these additional countries are shown in Figure 7, with UK estimates included for comparison. These series can be compared with the G7 estimates in Table 3. Figure 7 shows that since the economic downturn, Ireland, Spain and the Netherlands have all experienced relatively rapid growth of output per hour.

In the case of Spain this is in sharp contrast to a trend decline in labour productivity prior to the economic downturn. Indeed, the Spanish productivity gap in 2014 calculated on the same simple extrapolation as for the G7 countries above was minus 13% (that is, productivity in 2014 was 13% above an extrapolation of the pre-downturn trend).

Figure 7: Constant price GDP per hour, additional countries

1997 to 2015



Source: OECD, Office for National Statistics

7. Revisions

Historical data used in this publication are subject to revision between publications. The [international comparisons of productivity final estimate dataset tables R1 to R4 \(256 Kb Excel sheet\)](#) compare the latest estimates with estimates from the previous release on 18 September 2015. Note that because Tables 1 and 2 are indexed to UK=100, revisions to the UK are zero by definition in Tables R1 and R2.

The main revisions since the previous edition published on 18 September 2015 are as follows:

- Since 2011, Germany's level of employment is now estimated to be about 2.5% lower than previously estimated. The reason for this revision is that from 2011, a new extrapolation factor for the Labour Force Survey is used. It is based on the Census 2011 in Germany. Because of this, results of the Labour Force Survey have been revised downwards retrospectively. This creates a break in the German employment time series between 2010 and 2011 and accounts for most of the upward revisions to German productivity estimates.
- Similarly, Italy's employment has been revised downwards every year since 2004. From 2004, weights are based on the population estimates derived from the 2011 Census. In the new survey, the coefficients used to estimate the population from the sample were modified.
- PPPs have been revised as part of the triennial benchmarking exercise, since the last edition of this release. The largest revisions occur from 2012. The effect of the recent revisions is broadly to reduce the

value of US output relative to other countries and raise the value of the rest of the G7 GDP in dollar terms (thus narrowing the level of the US productivity differential over the UK since the last release).

- In 2014, PPPs of the G7 European economies are between 1.1% and 1.4 % higher than previously estimated. Canada has the largest upward revision to its PPP at 2.2%.
- Since the previous edition of this release, upward revisions to UK GDP have been incorporated into OECD. More information on [revisions introduced in Blue Book 2015](#) is available on our website.
- The national accounts from [Statistics Canada](#) have been revised in December 2015. These comprehensive revisions have generated GDP revisions back to 1990. As such, the average level of current price GDP was revised upward between 1990 and 2009 and downward between 2010 and 2014. However, the average revision to growth of real GDP is zero.
- UK employment has been revised upwards since 2003.
- Among the additional countries, revisions (since our February 2015 edition) include upward revisions to Irish real GDP growth and upward revisions to Dutch and Spanish average hours. PPPs for all 4 additional countries have been revised in line with the PPP revisions for Germany, France and Italy noted above.

8. Appendix: Productivity comparisons by industry (not National Statistics)

This section reports results of some analysis of comparisons of labour productivity for sub-sections of the economy using basically the same methodology as the current price whole economy comparisons reported above. These estimates have not been assessed by the UK Statistics Authority and therefore do not have National Statistics status.

Estimates are shown for Germany, France, Italy and the US relative to the UK, and for 4 industry sectors:

- manufacturing
- construction
- financial services
- private non-financial services

Source data on industry level output, employment and hours worked are taken from Eurostat for the European economies. For the US, source data are taken from the Bureau of Economic Analysis (BEA) and the Bureau of Labour Statistics (BLS). Component level PPPs are published by Eurostat for the European economies, although these do not map exactly to the industries considered here. We have used total goods PPPs for manufacturing, construction PPPs for construction and total services PPPs for financial services and private non-financial services. No component level PPPs are available for the US so we have used the OECD whole economy PPPs for each US industry. Industries covered in this analysis are not exhaustive: we do not present estimates for agriculture, extractive industries, utilities and government services.

Some caveats should be borne in mind in interpreting these estimates. First, component output series are measured by gross value added (GVA) rather than GDP. As explained in the background notes to this bulletin, the main difference between these concepts is that GVA is measured at basic prices, while GDP is measured at market prices. To the extent that PPPs are based on market prices, this creates an inconsistency, although basic prices and market prices normally move similarly over time. Additionally, component level GVA series are not wholly consistent with GDP used in the whole economy estimates. And US component GVA estimates reflect the US interpretation of the UN System of National Accounts 2008 (SNA08), whereas the European estimates reflect ESA 2010.

Component level PPPs for the European economies are generally fairly close to the whole economy PPPs used earlier in this release, but there are some exceptions. For example, the German construction PPP depreciates by over 20% relative to the whole economy PPP between 2003 and 2014. This implies that a euro of German construction output would buy 20% fewer other German goods and services in 2014 than in 2003. By contrast, Italy's construction PPP is on average around 20% higher than the whole economy estimate, which implies that a euro of Italian construction output would buy more than a euro of goods and services (a) in Italy and (b) across

the rest of Europe. Component PPPs are only available back to 2003. Estimates prior to then have been back-cast using movements in whole economy PPPs.

Component level annual estimates are much more volatile than the whole economy estimates presented above. For this reason, the following commentary focuses on 5-year averages.

Manufacturing

Table A1: Current price GVA per hour worked, Manufacturing

UK = 100

Period Average	Germany	France	UK	Italy	US
2000 - 2004	127	129	100	95	135
2005 - 2009	127	126	100	88	145
2010 - 2014	124	118	100	83	145

Source: Office for National Statistics: Eurostat, Organisation for Economic Co-operation and Development, Bureau of Economic Analysis, Bureau of Labour Statistics

Notes:

1. This table should be read horizontally.

For manufacturing, there are marked differences in comparisons based on output per worker and those based on output per hour worked. This reflects wide differences in average hours worked in manufacturing, with UK manufacturing workers putting in around 20% more hours on average than their French and German counterparts, but around 12% fewer hours than US manufacturing workers.

The outcome is that, over the 5 year period 2010 to 2014, German output per hour in manufacturing is estimated to be 24 percentage points above the UK, French manufacturing output per hour 18 percentage points higher and US manufacturing output per hour 45 percentage points higher. However, Italian manufacturing productivity is estimated to be 17 percentage points below the UK over this period.

Table A2: Current price GVA per worker, Manufacturing

UK = 100

Period Average	Germany	France	UK	Italy	US
2000 - 2004	100	105	100	94	148
2005 - 2009	99	102	100	85	159
2010 - 2014	94	95	100	75	161

Source: Office for National Statistics: Eurostat, Organisation for Economic Co-operation and Development, Bureau of Economic Analysis, Bureau of Labour Statistics

Notes:

1. This table should be read horizontally.

The comparison with the US is exacerbated in terms of output per worker: US manufacturing workers generate 61% more output than their UK counterparts. However, the gap reverses when comparing the UK with Germany and France and the UK's productivity lead over Italy widens to 25 percentage points over 2010 to 2014. Estimates for earlier 5-year periods suggest a trend deterioration in Italian productivity relative to the UK, but a trend for the US productivity advantage in manufacturing to widen.

Construction

Table A3: Current price GVA per hour worked, Construction

UK = 100

Period Average	Germany	France	UK	Italy	US
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2000 - 2004	86	99	100	117	146
2005 - 2009	79	116	100	116	152
2010 - 2014	76	100	100	101	136

Source: Office for National Statistics: Eurostat, Organisation for Economic Co-operation and Development, Bureau of Economic Analysis, Bureau of Labour Statistics

Notes:

1. This table should be read horizontally.

Construction estimates are rather volatile even when averaged over 5-year periods. They consistently show UK labour productivity in construction well above that of the German construction industry and more pronounced in terms of output per worker than in terms of output per hour worked. Construction output per hour over 2010 to 2014 is estimated to have been similar to the UK in France and Italy, although for Italy and as for manufacturing there is evidence of a trend deterioration in relative productivity. UK construction productivity trails that of the US by a considerable margin on both metrics and all time periods.

Table A4: Current price GVA per worker, Construction

UK = 100

Period Average	Germany	France	UK	Italy	US
2000 - 2004	74	90	100	117	150
2005 - 2009	70	107	100	119	160
2010 - 2014	65	89	100	96	141

Source: Office for National Statistics: Eurostat, Organisation for Economic Co-operation and Development, Bureau of Economic Analysis, Bureau of Labour Statistics

Notes:

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Financial services

Comparative productivity in financial services is also volatile and shows a sharp deterioration in the UK's relative standing before and after the economic downturn. Over the pre-downturn period 2005 to 2009, UK output per hour in financial services was above that of all 4 comparator countries including the US (although UK output per worker was a little below that in the US, reflecting the familiar pattern of relatively high US average hours worked).

Table A5: Current price GVA per hour worked, Financial services

UK = 100

Period Average	Germany	France	UK	Italy	US
2000 - 2004	101	110	100	120	149
2005 - 2009	77	71	100	81	95
2010 - 2014	95	106	100	108	122

Source: Office for National Statistics

Notes:

1. This table should be read horizontally.

In the more recent period however, the picture is almost completely reversed, with UK output per hour estimated to be lower than the US, Italy and France and the UK lead over Germany narrowing sharply. A similar picture is apparent in terms of output per worker (Table A6).

Table A6: Current price GVA per worker, Financial services

UK = 100

Period Average	Germany	France	UK	Italy	US
2000 - 2004	92	96	100	127	165
2005 - 2009	68	61	100	83	104
2010 - 2014	78	85	100	105	129

Source: Office for National Statistics: Eurostat, Organisation for Economic Co-operation and Development, Bureau of Economic Analysis, Bureau of Labour Statistics

Notes:

1. This table should be read horizontally.

Private non-financial services

Estimates for private non-financial services (the largest of the industries considered here, accounting for around half of all GVA and employment in all 5 countries) also suggest a deterioration in the UK position after the economic downturn, and from a weaker starting point.

Table A7: Current price GVA per hour worked, Private non-financial services

UK = 100

Period Average	Germany	France	UK	Italy	US
2000 - 2004	119	130	100	100	109
2005 - 2009	126	130	100	93	109
2010 - 2014	143	148	100	109	121

Source: Office for National Statistics: Eurostat, Organisation for Economic Co-operation and Development, Bureau of Economic Analysis, Bureau of Labour Statistics

Notes:

1. This table should be read horizontally.

In terms of output per hour UK productivity is estimated to be below all 4 comparator countries in 2010 to 2014, and in each case the shortfall has widened since 2005 to 2009.

Table A8: Current price GVA per worker, Private non-financial services

UK = 100

Period Average	Germany	France	UK	Italy	US
2000 - 2004	99	118	100	114	112
2005 - 2009	104	118	100	106	113
2010 - 2014	117	136	100	120	128

Source: Office for National Statistics: Eurostat, Organisation for Economic Co-operation and Development, Bureau of Economic Analysis, Bureau of Labour Statistics

Notes:

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Bearing in mind the weight of private non-financial services in the whole economy, and subject to the caveats around these indicative estimates noted above, the estimates in Tables A7 and A8 would seem to account for a significant part of the differences in comparative labour productivity identified in the whole economy estimates in this release.

9. Background notes

1. This statistical bulletin

We publish annual estimates of international comparisons of productivity twice a year. Initial estimates are published approximately 9 months after the reference year, with final estimates published approximately 5 months later. Exact publication dates vary according to availability of the source datasets.

2. Quality and methodology

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs
- are well explained and readily accessible
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

A [Quality and Methodology Information paper \(123.8 Kb Pdf\)](#) for this release was published on 20 July 2012, describing the intended uses of the statistics presented in this publication, their quality, and the sources and methods used to produce them. The paper also provides information on the uses and limitations of international comparisons of productivity.

For this release the base year for PPPs is 2011.

The output measure used here (GDP) differs from that used for our headline measure of productivity (Gross Value Added (GVA)). In the national accounts, GDP is valued at market prices and GVA is valued at basic prices. The principal difference is that basic prices exclude taxes and subsidies on products, such as VAT and excise duties. For further information on the relationship between GVA and GDP see Chapter 4 of the [ONS Productivity Handbook](#).

GVA is the preferred measure of output for productivity purposes. However, as the OECD does not produce output level series using basic prices over the necessary time period, and PPPs are based on market prices, GDP is used in this bulletin. Differences between growth rates of GVA and GDP are not normally significant.

Estimates of labour inputs (employment and hours worked) are taken from OECD where available, supplemented in a small number of cases by other sources. Differences between OECD estimates and national sources reflect adjustments made by OECD to achieve greater consistency between national estimates. There may also be timing differences as national sources are updated outside the OECD revision cycle.

3. Future developments

As outlined in “Economics at the ONS: Increasing Openness, Improving Capability”, we will shortly publish the Economic Statistics and Analysis Strategy for consultation. This will articulate the department’s research priorities and it will include details of several important strands that make up a prospective productivity work programme.

- understanding the causes of the productivity slowdown – creating a standardised framework for the analysis of the reasons for the slowdown in growth and analysis at the UK micro-data and international levels to identify the main causal drivers of the UK’s performance

- improving input measurement – ensuring the input measures used in the denominator of the productivity equation have been correctly measured, particularly in relation to the inclusion of intangibles and “missing capitals”
- improving output measurement – ensuring the output measures used in the numerator of the productivity equation have been correctly measured through incorporating the latest changes and improvements in the national accounts

This will build on the previous productivity work plan, Productivity measures and analysis: ONS work plan, published in February 2015.

The programme will also include important steps aimed at improving the measurement of public sector productivity, with an aim to produce quarterly estimates. To that end, we are assessing the benefits of publishing a single quarterly productivity bulletin that will include labour productivity, public sector productivity measures and other productivity statistics including international comparisons.

We welcome your views on these developments and feedback can be sent to productivity@ons.gsi.gov.uk.

4. Other data on productivity

We publish a quarterly [Labour Productivity statistical release](#), which provides much more detailed information regarding UK labour productivity than this ICP release. As noted above, our labour productivity estimates use GVA rather than GDP as the numerator. Our measures of employment and average hours also differ slightly from OECD measures in terms of coverage, timing and seasonal adjustment.

We publish annual [Multi-factor productivity](#) estimates for the UK, which decompose output growth into contributions due to changes in labour and capital inputs, and a residual component reflecting “disembodied technical change”.

We also publish a range of [public sector productivity measures](#) and related articles. These measures define productivity differently from that employed in the ONS Labour Productivity and MFP estimates. Further information can be found in [Phelps \(2010\) \(252.5 Kb Pdf\)](#) and in [Gill and Kliesmentyte \(2015\) \(433.2 Kb Pdf\)](#).

More information on the range of our productivity estimates can be found in the [ONS Productivity Handbook](#).

The [OECD](#) publishes its own estimates of current and constant price GDP per hour worked for member countries, the G7 and 2 other aggregates: the EU and OECD. The OECD current price estimates can easily be indexed to UK=100 and can then be compared with the estimates in [international comparisons of productivity final estimate dataset table 1 \(256 Kb Excel sheet\)](#). While there are some differences between the two sets of estimates, the overall picture is very similar.

The OECD constant price estimates use a different base period to the estimates in [international comparisons of productivity final estimate dataset table 3 \(256 Kb Excel sheet\)](#) and are best compared in terms of growth rates. Again, while the 2 sets of growth rates are not identical, the overall picture is very similar.

Differences between the estimates in this release and the OECD productivity series can be explained by the different sources used for the component data. In particular, our estimates use employment data that are based on countries’ labour force surveys, whereas the OECD estimates use the national accounts as the main source of employment data for most countries. There can also be differences in the GDP data due to timing, as the OECD productivity estimates use annual national accounts whereas we use the quarterly national accounts for GDP data.

International estimates of productivity are also available from Eurostat and the Conference Board.

5. User engagement

We are keen to develop a greater understanding of the use made of ICP and other productivity statistics, and organises annual user group workshops. For more information on the most recent user event held on 3 February 2016 or if you would like to be kept informed of future workshops and other productivity-related information please email Productivity@ons.gsi.gov.uk.

You can follow ONS on [Twitter](#) and [Facebook](#). This publication can be commented upon on social media using the hashtag #UKproductivity.

6. Publication policy

A list of the job titles of those given [pre-publication access](#) to the contents of this statistical bulletin is available on the website.

7. Get all the tables for this publication in the [data section of this publication](#).

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Next publication: 23 September 2016 (provisional date)

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8. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

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