

18 February 2009

**Coverage**  
United Kingdom

**Theme**  
The Economy



## International comparisons of productivity

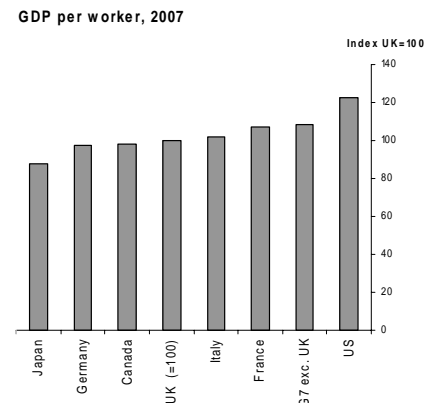
### Comparisons of productivity levels

Revised estimates for 2007 show little change in the ranking of G7 countries' productivity levels from previously published figures. In 2007 UK GDP per worker was:

- Above that of Japan;
- Similar to that of Italy, Canada and Germany;
- Lower than that of France and the US, which continues to lead the G7 countries with productivity 23 per cent higher than the UK;
- Lower than the average of G7 countries excluding the UK.

In 2007 Germany's and Canada's productivity levels were 3 per cent and 2 per cent respectively below that of the UK, while Italy's productivity was 2 per cent above the UK figure. However, given the measurement difficulties that exist when making international comparisons, such small differences between individual countries' productivity estimates should not be seen as significant.

Hence, the latest data continue to show the UK has similar levels of productivity to Italy, Canada and Germany.



Data for all countries have been revised in this release, largely due to revisions to the UK's Purchasing Power Parity (PPP), which impact upon productivity levels in the other G7 countries relative to the UK, but also due to revisions to employment data for France and the US. The revisions are most evident between 2005 and 2007.

The revision to the UK's PPP affects productivity estimates for all other G7 nations due to the relative indexation to the UK each year. This revision has the effect of improving the UK's productivity performance relative to all other G7 countries besides Germany, which also experienced a similar PPP revision.

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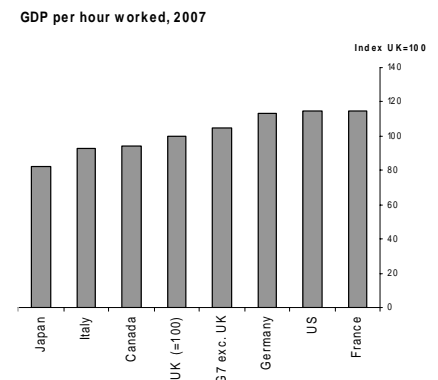
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In the previous release an alternative data source was used for employment in France, due to a delay in the provision of the relevant figures to the OECD. These data are now available. The figure for 2007 from the OECD is lower than that used in the previous release, which would be expected to increase productivity in France relative to the UK; however, this is more than offset by the effect of the revision to UK PPP.

Employment data for the US have also been revised throughout the time period, due to the use of a more appropriate method for measuring employment in the armed forces. This has had the effect of lowering total employment in the early 1990s, resulting in some small upward revisions to GDP per worker, while raising employment for 2005 onwards, which, in addition to the PPP revisions, has lowered US productivity relative to the UK.

International comparisons of GDP per hour worked are also published in this release. GDP per hour worked takes into account differences in working patterns across countries. Compared with the GDP per worker measure, the UK's performance using GDP per hour worked is better relative to those countries whose workers tend to work longer hours and worse relative to those where workers tend to work fewer hours.

Revised data for 2007 shows the ranking of countries, on a GDP per hour worked basis, has changed slightly since the previous release. The UK is still ahead of Japan and Italy, on a par with Canada and behind Germany, France and the US. However, the difference between the productivity performance of the UK and the average of the other G7 countries is no longer considered significant. France and the US continue to have the highest GDP per hour worked, both 14 per cent above the UK level.



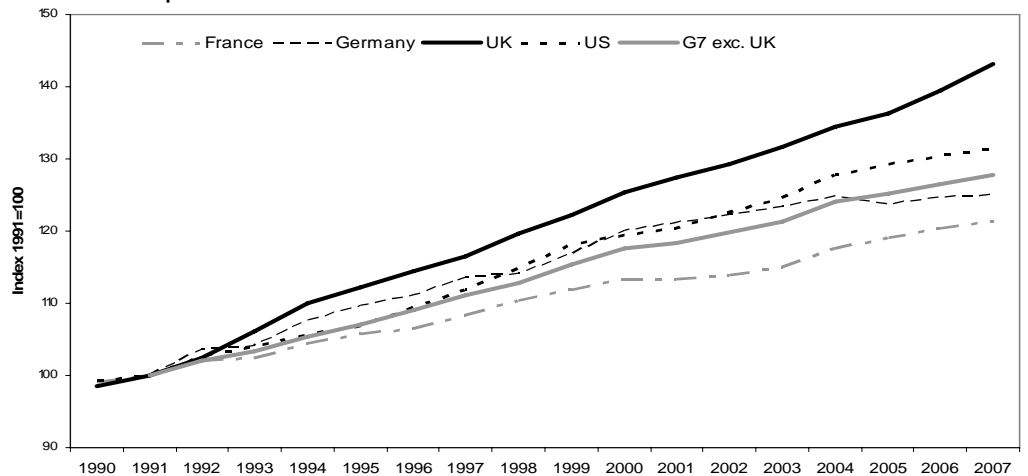
Revisions to GDP per hour worked estimates covering the period 1990-2007 are also presented in this release. As with the GDP per worker measure, these mostly occur between 2005 and 2007 and are the result of significant revisions to UK PPP for these years, as well as revisions to employment data for France and the US.

### Comparisons of productivity growth

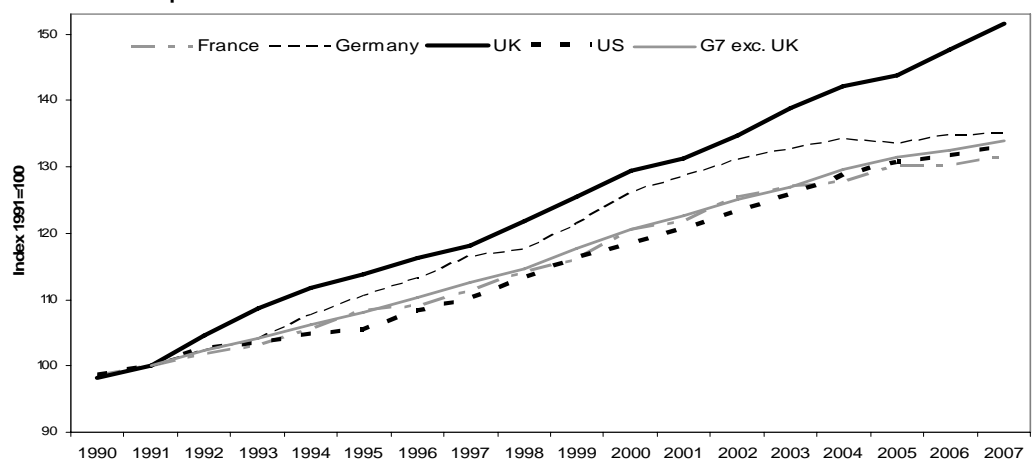
Revised data for 2007 continue to show that the UK has experienced faster productivity growth than all other G7 countries since 1991, as measured by GDP per worker. The figures show that by 2007 UK GDP per worker had grown by 43 per cent since 1991, compared with the G7 average (excluding the UK) of 28 per cent. In terms of GDP per hour worked, UK productivity increased by 52 per cent between 1991 and 2007. This represents the fastest rate of growth of any G7 country over the period, far above the average (excluding the UK) of 34 per cent.

Revisions to both the GDP per worker and GDP per hour worked series cover the period 1990 to 2007. The revisions are small in magnitude, and are the result of the aforementioned revisions to employment data for France and the US. As PPPs are fixed to a base year when measuring productivity growth across countries, they can have no effect on the growth rate of either GDP per worker or GDP per hour worked – only volume changes to GDP or labour inputs can cause revisions.

Growth in GDP per worker



Growth in GDP per hour worked



## BACKGROUND NOTES

1. Further information about ICP can be found on the National Statistics website at <http://www.statistics.gov.uk/cci/nugget.asp?id=160>
2. All these productivity measures are National Statistics.
3. ONS publishes ICP biannually, in spring and autumn, providing comparisons of GDP per worker and GDP per hour worked across the G7 countries, in both levels (current prices) and growth rates (constant prices). This release cycle reflects the publication and revision cycles of the component data series.
4. ICP estimates are published to the nearest whole number. However, differences of a few percentage points between the productivity estimates for individual countries should not be seen as significant because of the difficulties in obtaining directly comparable data across countries.
5. Results are presented for the UK relative to the USA, France, Germany, Japan, Canada and Italy and the G7 in aggregate, including and excluding the UK (UK=100). These countries are included in the ICP because they are key competitors of the UK. Additionally, France, Germany and the USA are listed in the joint HM Treasury and Department for Business, Enterprise and Regulatory Reform Public Service Agreement productivity target.
6. Data sources for this release are as follows: GDP from the OECD Main Economic Indicators, January 2009; PPP estimates from the OECD PPP website (last updated in December 2008); employment from the OECD Annual Labour Force Statistics, September 2008; average hours worked from OECD Employment Outlook, July 2008.
7. It should be noted that Italy has a larger than average informal economy, and as a result makes upward adjustment to its GDP data to account for this. However all the extra employment may not be captured by Italy's Labour Force Survey, which would imply that Italy's productivity performance may be overstated.
8. GDP data for each country in local currency prices are converted using PPPs to make them internationally comparable. GDP at purchasing power parity is effectively a relative volume measure of GDP. For each country, GDP at purchasing power parity is divided by either an employment or total hours worked measure to produce a labour productivity estimate.
9. The PPP data for European countries has been of a higher quality since 1995 compared to earlier years, because for 1995 onwards Eurostat produces annually benchmarked PPP data to ensure consistency and continuity of PPPs across EU countries. The OECD integrates these annual benchmark results with its own triennial benchmarks. More details of this can be found at [www.statistics.gov.uk/cci/article.asp?ID=1120](http://www.statistics.gov.uk/cci/article.asp?ID=1120)
10. International comparisons of productivity levels make use of current PPPs, which measure the relative price across countries of a basket of goods and services in a specific year. Since this representative basket of goods and services changes over

time, current PPP-based ICP estimates are suitable only for point in time estimates, and should not be used for time series or growth analysis.

11. To compare growth rates of productivity between countries, constant PPP-based ICP estimates are used. These measures fix GDP at purchasing power parities to a base year for each country, then extrapolate forwards and backwards by applying annual volume growth rates for each country to produce comparable measures of output for each year. This allows for intertemporal analysis as the price structure of constant PPPs does not vary over time – only volume changes are captured in the ICP data. Further details on the methodology can be found on the National Statistics website at <http://www.statistics.gov.uk/cci/article.asp?id=1844>
12. To derive an index for each country relative to the UK (=100) in current PPP terms, the derived labour productivity measure for each country in each year is then divided by the UK estimate for that year and multiplied by one hundred to produce an index relative to the UK. Numbers in excess of 100 indicate that productivity is higher in that country compared to the UK. Numbers below 100 indicate that productivity is higher in the UK. For constant PPP-based ICP estimates, data for all countries are indexed to 100 in 1991, enabling comparisons of productivity growth relative to this reference period for any given year.
13. The OECD also publishes international comparisons of GDP per hour worked. The differences between the ONS and OECD series are not large. They can be explained by the different sources used for the component data. In particular, ONS estimates use employment data that is based on countries' Labour Force Surveys, whereas the OECD uses the National Accounts as the main source of employment data for most countries. There are also slight differences in the GDP data, as the OECD uses the Annual National Accounts, whereas the ONS uses the Quarterly National Accounts for GDP data.
14. The indicators of productivity used here (GDP per worker and per hour worked) differ from those used for the ONS headline measure (Gross Value Added (GVA) per worker and per hour worked) because of the need to use PPPs when making international comparisons. The basket of goods on which PPPs are based is weighted according to each good's expenditure share of GDP. Thus, ICP figures use GDP rather than GVA to ensure consistency with PPPs and enable more meaningful comparisons across countries.
15. Further details about the international comparisons of productivity methodology, the compilation process, and a detailed analysis of past revisions, can be found at <http://www.statistics.gov.uk/cci/article.asp?ID=1069>
16. Details of the policy governing the release of new data are available from the press office. Also available is a list of the names of those given pre-publication access to the contents of this release.
17. **National Statistics** are produced to high professional standards set out in the UK Statistics Authority Code of Practice. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from political interference. ©Crown Copyright 2009

## International Comparisons of Productivity

**Table 1: GDP per worker - Current PPPs**

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	119	128		132	108	100	139		
1991	116	127	117	131	108	100	138	123	126
1992	116	127	118	130	105	100	138	123	125
1993	114	123	114	131	101	100	135	120	122
1994	113	121	114	131	98	100	132	118	120
1995	112	120	114	133	98	100	131	118	120
1996	109	117	111	130	97	100	129	116	118
1997	107	115	108	126	94	100	127	114	115
1998	106	116	106	127	90	100	128	114	115
1999	107	114	107	124	90	100	130	114	115
2000	104	113	103	122	89	100	126	112	113
2001	102	112	102	120	87	100	123	110	111
2002	98	112	101	112	87	100	122	109	109
2003	98	108	103	111	87	100	123	109	110
2004	97	105	102	105	86	100	123	108	108
2005	100	108	102	105	87	100	124	109	110
2006	100	107	99	103	88	100	124	109	109
2007	98	107	97	102	88	100	123	108	108

Note: index, UK = 100. Data for all years and all countries have been subject to revision in this release.

Source: Office for National Statistics

**Table 2: GDP per hour worked - Current PPPs**

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	118	133		125	94	100	134		
1991	117	133	133	125	95	100	134	121	122
1992	114	129	130	121	93	100	132	118	120
1993	112	126	127	121	92	100	127	116	117
1994	111	125	128	123	90	100	126	115	116
1995	110	126	129	125	91	100	124	115	116
1996	107	123	128	120	89	100	123	113	114
1997	105	122	125	118	87	100	120	111	112
1998	104	122	122	117	85	100	121	111	112
1999	105	121	124	114	85	100	121	111	112
2000	101	121	120	112	84	100	118	109	109
2001	99	122	119	112	83	100	117	108	109
2002	95	123	118	104	82	100	115	106	107
2003	95	118	120	102	81	100	115	106	106
2004	92	113	118	96	81	100	114	104	105
2005	96	116	119	96	82	100	116	106	107
2006	96	114	116	95	82	100	115	105	105
2007	95	114	113	93	82	100	114	104	105

Note: index, UK = 100. Data for all years and all countries have been subject to revision in this release.

Source: Office for National Statistics

**Table 3: GDP per worker - Constant PPPs**

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	100	99		99	98	98	99		
1991	100	100	100	100	100	100	100	100	100
1992	102	102	104	101	100	102	103	102	102
1993	104	102	104	106	100	106	104	104	103
1994	107	104	108	110	101	110	106	106	105
1995	108	106	110	114	103	112	107	107	107
1996	108	107	111	115	105	114	109	110	109
1997	111	108	114	116	105	116	112	112	111
1998	112	110	114	117	104	120	115	113	113
1999	116	112	117	117	105	122	118	116	115
2000	119	113	120	119	108	125	119	118	118
2001	120	113	121	119	109	127	120	119	118
2002	120	114	122	118	110	129	123	121	120
2003	120	115	123	117	112	132	125	122	121
2004	121	118	125	117	115	134	128	125	124
2005	123	119	124	117	117	136	129	126	125
2006	124	120	125	117	119	139	130	127	127
2007	125	121	125	118	121	143	131	129	128

Note: index, 1991 = 100 for all countries. Data for all years and all countries have been subject to revision in this release.

Source: Office for National Statistics

**Table 4: GDP per hour worked - Constant PPPs**

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	99	99		99	97	98	99		
1991	100	100	100	100	100	100	100	100	100
1992	102	102	102	101	102	104	103	102	102
1993	104	103	104	106	105	109	103	105	104
1994	106	106	108	110	106	112	105	107	106
1995	107	108	111	114	109	114	105	109	108
1996	107	109	113	114	111	116	108	111	110
1997	110	111	117	116	113	118	110	113	113
1998	112	114	118	115	113	122	113	115	115
1999	115	116	121	116	115	125	116	118	118
2000	118	121	126	119	118	129	118	121	121
2001	119	122	129	120	120	131	121	123	123
2002	121	126	131	120	123	135	123	126	125
2003	121	127	133	119	125	139	126	128	127
2004	121	128	134	119	129	142	129	131	130
2005	124	130	133	120	131	144	131	132	131
2006	126	130	135	120	133	148	132	134	132
2007	126	132	135	120	135	152	133	135	134

Note: index, 1991 = 100 for all countries. Data for all years and all countries have been subject to revision in this release.

Source: Office for National Statistics

## International Comparisons of Productivity

Table R1: Revisions to GDP per worker - Current PPPs

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	0	0		0	0	0	1		
1991	0	0	0	0	0	0	1	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	-2	-2	1	-1	-2	0	-4	-2	-2
2006	-1	-2	0	0	-1	0	-2	-1	-1
2007	-3	-3	0	-1	-3	0	-5	-3	-3

Note: Revisions refer to the difference in index points between the data released on 18 February 2009 and the data released on 10 October 2008.

Source: Office for National Statistics

Table R2: Revisions to GDP per hour worked - Current PPPs

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	0	0		0	0	0	1		
1991	0	0	0	0	0	0	1	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	-2	-2	1	-1	-2	0	-3	-2	-2
2006	-1	-2	0	0	-1	0	-2	-1	-1
2007	-3	-3	0	-1	-2	0	-5	-3	-3

Note: Revisions refer to the difference in index points between the data released on 18 February 2009 and the data released on 10 October 2008.

Source: Office for National Statistics

**Table R3: Revisions to GDP per worker - Constant PPPs**

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	0	0		0	0	0	0		
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	-2	-1	-1
2006	0	0	0	0	0	0	-2	-1	-1
2007	0	1	0	0	0	0	-2	-1	-1

Note: Revisions refer to the difference in index points between the data released on 18 February 2009 and the data released on 10 October 2008.

Source: Office for National Statistics

**Table R4: Revisions to GDP per hour worked - Constant PPPs**

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	0	0		0	0	0	0		
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	-2	-1	-1
2006	0	0	0	0	-1	0	-2	-1	-1
2007	0	1	0	0	0	0	-2	-1	-1

Note: Revisions refer to the difference in index points between the data released on 18 February 2009 and the data released on 10 October 2008.

Source: Office for National Statistics