

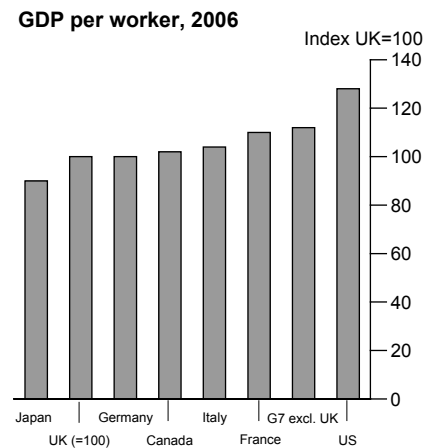
19 February 2008

Coverage
United Kingdom
Theme
The Economy

International comparisons of productivity

- The latest International Comparisons of Productivity (ICP) estimates show revisions to current price productivity levels for all G7 countries (Canada, France, Germany, Italy, Japan and the US). This is due to revisions by Eurostat and OECD to the purchasing power parity (PPP) conversion factors, particularly with respect to the US, Canada and Japan, as well as updated labour input data for France.

- Although the revisions are extensive, the relative position of each country has not significantly changed from the previous release – differences in productivity levels of a few percentage points are considered insignificant due to the difficulties that exist in making comparisons across different countries.



- The revised data shows that in 2006 the UK's productivity performance, in terms of current price PPP levels, is:
 - in output per worker terms, similar to that of Germany, Italy and Canada, ahead of Japan and behind France and the US;
 - in output per hour terms, similar to that of Canada and Italy, ahead of Japan and behind that of Germany, France and the US.
- The data also demonstrates that the UK has improved its position relative to other countries, in terms of productivity levels, compared to the early 1990s (Table 1 and 2). Whilst the current price PPP productivity levels data should not be used for time series analysis, comparison across countries at two fixed points in time are appropriate provided that there has been a significant change in productivity levels.
- The improvement in the UK's position relative to other countries over the last fifteen years is supported by the UK's productivity growth over that period as measured using constant PPPs, which remains above that of all other G7 economies.

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Next publication date
To be announced

Current PPP Approach

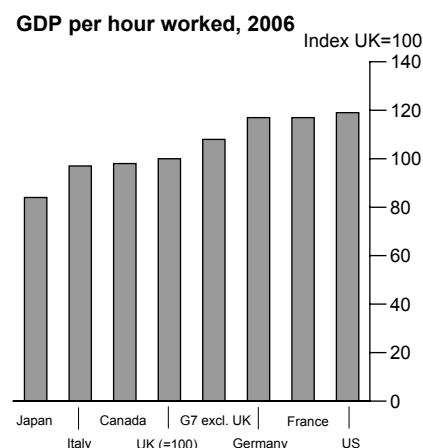
Revised data for 2006 continue to show the UK's labour productivity performance, on a GDP per worker basis, to be lower than that of the US and France, similar to that of Italy, Canada and Germany, and above that of Japan. UK productivity in 2006, as measured by GDP per worker, was behind the average of the other G7 countries as a group. The US continues to top the rankings, with productivity 28 per cent higher than that of the UK.

The productivity comparisons have been revised from the previous release. Revisions cover the period 1990 to 2006 and are principally the result of substantial revisions to PPP source data in line with the recent OECD-Eurostat triennial benchmarking exercise (see <http://www.statistics.gov.uk/cci/article.asp?id=1946> for details). The resultant revisions to GDP per worker estimates vary in magnitude; all other G7 nations have been revised upward compared to the UK, with the US and Canada in particular experiencing upward revisions of 5 and 6 percentage points respectively in 2006.

In the previous release employment numbers for France had to be estimated due to a delay in the provision of French employment data. These data are now available. The actual employment figure for 2006 is higher than previously estimated, with revisions also occurring to the series back to 2002. All other things being equal, this would be expected to lower GDP per worker relative to the UK, but it has been more than offset by the effects of the revision to PPP data.

The overall ranking of countries has not changed significantly. Revised data for 2006 now show that the UK's productivity performance is on a par with Germany and marginally behind that of Canada and Italy. Given the measurement difficulties in making international comparisons, the figures still show that the UK has similar levels of productivity to Italy, Canada and Germany.

International comparisons of GDP per hour worked are also published in this release. GDP per hour worked takes into account how long workers in individual countries work on average as working patterns differ 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 more hours and worse relative to those nations where workers tend to work fewer hours.



As with the output per worker measure, there have been substantial revisions to GDP per hour worked figures covering the period 1990 to 2006, mainly due to significant revisions in PPP source data from the OECD-Eurostat benchmarking exercise. Again, all the other G7 nations have seen upward revisions compared to the UK, with Germany and the US showing a 5 percentage point increase and Canada showing a 6 percentage point increase.

The difference in per hour productivity levels between the UK and both Canada and Italy, at 2 and 3 per cent respectively, is no longer considered significant. UK GDP per hour worked is now considered to be ahead of Japan, similar to that of Italy and Canada, and behind the US, France and Germany. The per hour productivity gap between the UK and the average of other G7 countries is now estimated at 8 per cent.

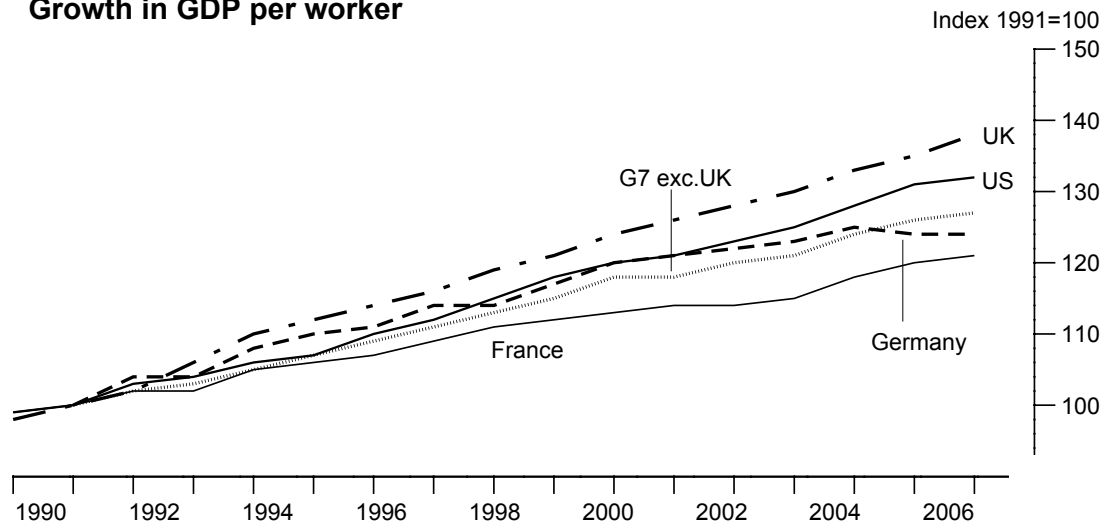
Constant PPP Approach

The estimates presented in the previous section make use of the current PPP approach, which should be used to measure differences in productivity levels between countries for any particular year. To compare productivity growth – i.e. changes over time – across the G7 countries, constant PPP based ICP estimates must be used. Details on the methodology and the recommended uses of both these approaches can be found at <http://www.statistics.gov.uk/cci/article.asp?id=1844>

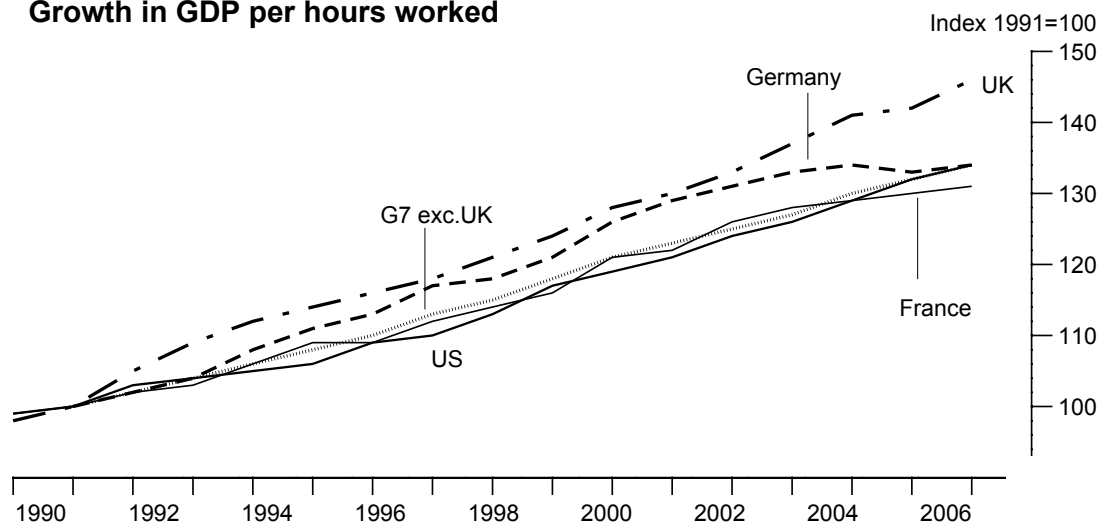
Revised data for 2006 shows that the UK has experienced faster productivity growth as measured by GDP per worker since 1991 compared to all other G7 countries. The figures show that by 2006 UK output per worker had grown by 38 per cent relative to 1991, compared with the G7 average (excluding the UK) of 27 per cent. On the alternative productivity measure, GDP per hour worked, the UK has experienced the fastest growth of all G7 countries between 1991 and 2006, at 46 per cent, compared to 34 per cent for the G7 countries excluding the UK.

Revisions to both the GDP per worker and per hour worked series cover the period 1990 to 2006. Under the constant PPP approach, PPPs are fixed to a base year, so they can have no effect on the growth rate of either productivity measure – only volume changes to GDP or labour inputs can cause revisions. Given that there have been no significant revisions to GDP data, and there are no new employment data available (except for France), these revisions are negligible. This has held true despite the recent change in base year for constant PPPs from 2002 to 2005.

Growth in GDP per worker



Growth in GDP per hours worked



BACKGROUND NOTES

1. Further information about the ICP can be found on the National Statistics website at <http://www.statistics.gov.uk/cci/nugget.asp?id=160>
2. ONS publish ICP biannually, in September and February, providing comparisons of GDP per worker and GDP per hour worked across the G7 countries. These dates reflect the publication and revision cycles of the component data series.
3. All these productivity measures are National Statistics.
4. ICP estimates are published to the nearest whole number. However, as advised in previous releases, differences of a few percentage points between the productivity estimates from 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 group of seven (G7) countries, 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 of Business Enterprise and Regulatory Reform Public Service Agreement productivity target.
6. It should be noted that Italy has a larger than average informal economy. Italy makes an upward adjustment to its GDP data to account for this. However all the extra employment may not be captured by the Labour Force Survey, which would imply that Italy's productivity performance may be overstated.
7. A technical note, which provides further detail about the international comparisons of productivity methodology, the compilation process, and a detailed analysis of past revisions, can be found on the National Statistics website at <http://www.statistics.gov.uk/cci/article.asp?ID=1069>
8. GDP data for each country in local currency prices are adjusted 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. Eurostat produces annually benchmarked PPP data to ensure consistency and continuity of PPPs for EU countries from 1995 and from 1999 for non-EU countries. OECD integrates these annual benchmark results with its own triennial benchmarking process. More details of this can be found at www.statistics.gov.uk/cci/article.asp?ID=1120

10. The revisions to current price ICP data presented in this release were predominantly driven by revisions to purchasing power parity data as a result of the triennial OECD-Eurostat benchmarking exercise, revisions to the US implied GDP deflator and revisions undertaken by Eurostat. Details are available at <http://www.statistics.gov.uk/cci/article.asp?id=1946>
11. Current price PPP-based ICP are a comparison of levels of productivity across countries and should not be used in any time series analysis. The methodology of current PPPs is not designed for intertemporal analyses to be made. Current price PPPs can only be viewed as point in time estimates of the relative prices between two countries. They 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 should not be presented as a time series but only as point in time estimates.
12. 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 of 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>
13. For the current PPP based ICP data, 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 the other countries than the UK. Numbers below 100 indicate that productivity is higher in the UK. For the constant PPP based ICP data, data for all countries are indexed to 100 for the year 1991 enabling comparisons of productivity growth relative to this reference period.
14. The constant price PPP data used in the second part of this ICP analysis takes 2005 as its base year, instead of 2002 as per the previous release. This is due to the triennial Eurostat-OECD benchmarking process which established 2005 as the new benchmark year. Benchmarks are chosen as base years because the quality of price data is of a more reliable nature than non-benchmark years. 2005 has replaced 2002 as base year because the more recent data is likely to more accurately reflect contemporary expenditure patterns.
15. 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 employment data is based on countries' Labour Force Surveys, whereas the OECD recently decided to move to 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.

16. Data sources for this release are as follows: GDP from the OECD Main Economic Indicators, January 2008; PPP estimates from the OECD PPP website (last updated in November 2007); employment from the OECD Annual Labour Force Statistics, September 2007; Average Hours Worked from OECD Employment Outlook, July 2007.
17. The French ICP results are more robust compared to those published in October 2007, as the employment data that was previously unavailable has been included in this release.
18. Following the methodological change in the compilation of the UK official productivity estimates, with effect from September 2004, the definition of our headline productivity measure, i.e. Gross Value Added (GVA) per worker, for the whole economy is now closer to that used in ICP.
19. Details of the policy governing the release of new data are available from the press office.
20. **National Statistics** are produced to high professional standards set out in the National Statistics 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 2008.

International Comparisons of Productivity

Table 1: GDP per worker - Current PPPs

Year	Canada	France	Germany	Italy	Japan	UK	USA	G7	G7 exc. UK
1990	120	130		134	109	100	140		
1991	118	129	118	133	109	100	139	125	127
1992	117	128	120	132	106	100	139	124	127
1993	115	124	116	132	103	100	136	122	124
1994	114	122	115	133	99	100	134	120	122
1995	113	121	115	135	99	100	132	119	121
1996	110	119	113	132	98	100	131	118	120
1997	109	117	110	129	95	100	129	116	117
1998	108	117	108	129	92	100	130	115	117
1999	109	116	109	127	91	100	132	116	117
2000	106	115	105	124	91	100	128	114	115
2001	104	114	104	122	89	100	125	112	113
2002	100	114	103	114	88	100	124	110	111
2003	100	110	105	113	89	100	125	111	112
2004	98	107	103	106	88	100	124	109	110
2005	104	111	102	107	90	100	130	113	114
2006	102	110	100	104	90	100	128	111	112

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	119	135		125	95	100	135		
1991	118	135	135	124	97	100	135	122	124
1992	116	131	132	121	94	100	132	119	121
1993	113	128	129	123	93	100	128	117	118
1994	112	127	130	124	91	100	126	116	117
1995	111	128	131	126	92	100	125	116	117
1996	108	125	130	122	91	100	124	115	116
1997	107	124	127	120	89	100	122	113	114
1998	106	124	124	119	87	100	122	112	113
1999	107	123	126	116	87	100	123	113	114
2000	103	123	122	114	85	100	119	110	111
2001	101	124	122	114	84	100	118	109	110
2002	97	126	121	106	83	100	116	108	108
2003	97	120	122	103	83	100	116	107	108
2004	93	115	119	97	82	100	115	105	106
2005	100	120	119	99	85	100	121	109	110
2006	98	117	117	97	84	100	119	107	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 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	105	108	110	101	110	106	106	105
1995	108	106	110	114	103	112	107	108	107
1996	108	107	111	114	105	114	110	110	109
1997	111	109	114	116	105	116	112	112	111
1998	112	111	114	116	104	119	115	113	113
1999	116	112	117	117	105	121	118	116	115
2000	119	113	120	119	108	124	120	118	118
2001	120	114	121	119	109	126	121	119	118
2002	120	114	122	118	110	128	123	121	120
2003	120	115	123	117	112	130	125	122	122
2004	121	118	125	117	115	133	128	125	124
2005	123	119	124	116	117	135	131	127	126
2006	124	120	124	116	119	138	132	128	127

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	102	102	105	103	103	102
1993	104	103	104	108	105	109	104	105	104
1994	106	106	108	112	106	112	105	107	106
1995	107	109	111	116	109	114	106	109	108
1996	107	109	113	115	111	116	109	111	111
1997	111	112	117	118	113	118	110	113	113
1998	112	114	118	117	113	121	113	115	115
1999	116	116	121	118	115	124	117	119	118
2000	119	121	126	121	118	128	119	122	121
2001	120	122	129	122	120	130	121	123	123
2002	122	126	131	122	123	133	124	126	125
2003	122	127	133	121	125	137	126	128	127
2004	122	128	134	121	129	141	129	131	130
2005	125	130	133	121	131	142	132	133	132
2006	126	130	134	122	133	146	134	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	3	-1		1	3	0	3		
1991	3	-2	5	1	3	0	3	3	3
1992	3	-2	6	1	3	0	3	3	3
1993	3	-1	5	1	3	0	3	3	3
1994	3	-1	5	1	3	0	3	3	3
1995	3	-1	5	1	3	0	3	3	3
1996	2	-2	4	0	2	0	3	2	2
1997	2	-3	4	1	2	0	2	2	2
1998	2	-3	4	1	2	0	3	2	2
1999	1	-2	5	0	1	0	2	1	2
2000	1	-2	2	-1	1	0	1	1	1
2001	1	-2	3	2	1	0	1	1	1
2002	3	3	5	0	2	0	3	3	3
2003	4	2	1	2	2	0	3	2	2
2004	3	0	2	1	1	0	3	2	2
2005	7	2	4	3	3	0	6	4	5
2006	6	1	4	3	4	0	5	4	4

Note: Revisions refer to the difference in index points between the data released on 19 February 2008 and the data released on 01 October 2007.

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	3	-1		1	3	0	3		
1991	3	-2	6	1	3	0	3	3	3
1992	3	-2	6	1	3	0	3	3	3
1993	3	-1	6	1	3	0	3	3	3
1994	3	-1	6	1	2	0	3	3	3
1995	3	-1	6	1	3	0	3	3	3
1996	2	-2	5	0	2	0	2	2	2
1997	2	-3	4	1	2	0	2	2	2
1998	2	-3	4	1	2	0	2	2	2
1999	1	-3	5	0	1	0	2	1	1
2000	1	-3	2	-1	1	0	1	0	1
2001	1	-2	3	2	1	0	1	1	1
2002	3	3	5	0	2	0	3	3	3
2003	4	2	2	2	1	0	3	2	2
2004	3	0	2	1	1	0	2	2	2
2005	7	2	4	3	3	0	6	4	5
2006	6	1	5	3	4	0	5	4	4

Note: Revisions refer to the difference in index points between the data released on 19 February 2008 and the data released on 01 October 2007.

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	0	0	0
2006	0	-1	0	0	0	0	0	0	0

Note: Revisions refer to the difference in index points between the data released on 19 February 2008 and the data released on 01 October 2007.

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	-1	0	0	0	0	0	0	0
2006	0	-1	0	0	0	0	0	0	0

Note: Revisions refer to the difference in index points between the data released on 19 February 2008 and the data released on 01 October 2007.

Source: Office for National Statistics