

International comparisons of productivity

New estimates for 2008



Date: 8 October 2009

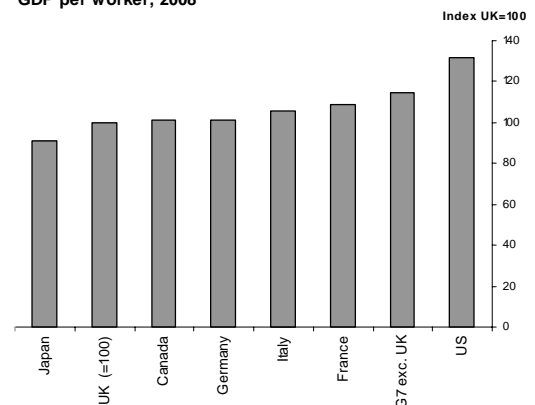
Coverage: United Kingdom Theme: The Economy

Comparisons of productivity levels

New estimates for 2008 show that UK Gross Domestic Product (GDP) per worker was:

- Above that of Japan;
- Similar to that of Canada and Germany;
- Lower than that of Italy, France and the US;
- Lower than the average of G7 countries excluding the UK.

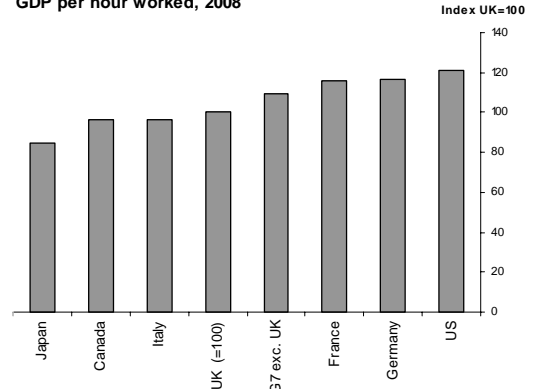
GDP per worker, 2008



International comparisons of GDP per hour worked are also published in this release. This approach yields different results from GDP per worker, taking into account differences in working patterns across countries.

On this basis, the UK is above Japan, on a par with Canada and Italy and below France, Germany and the US, which continues to lead the G7 countries.

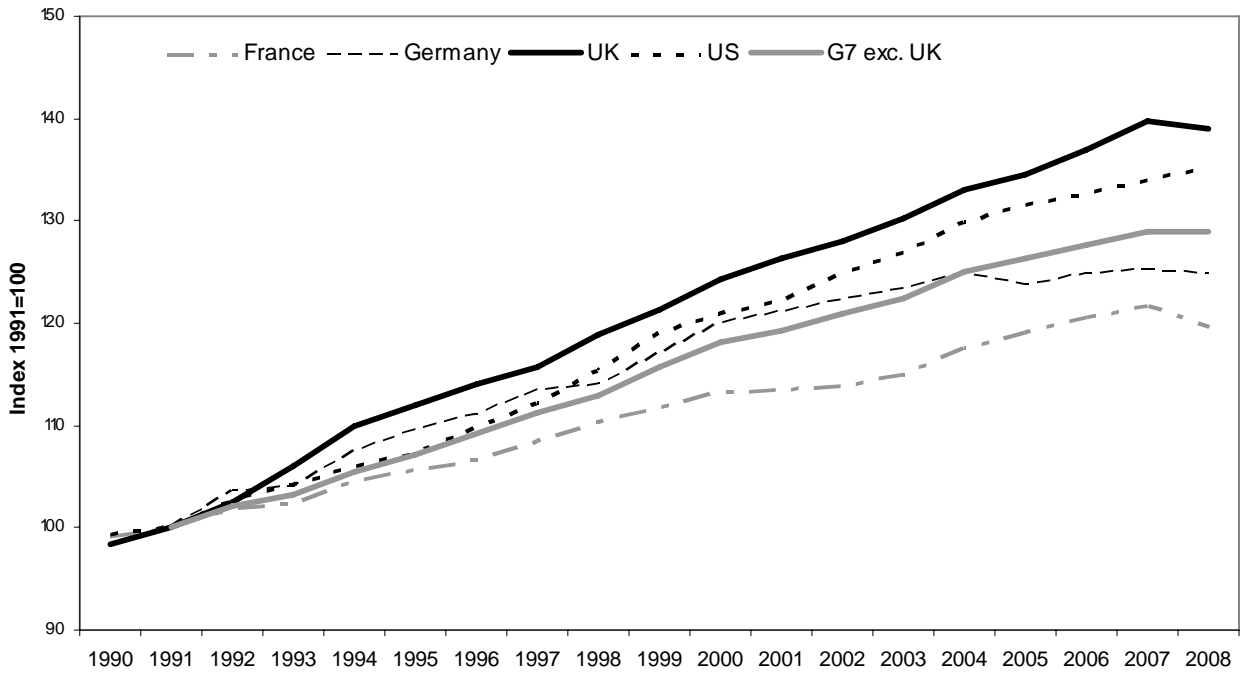
GDP per hour worked, 2008



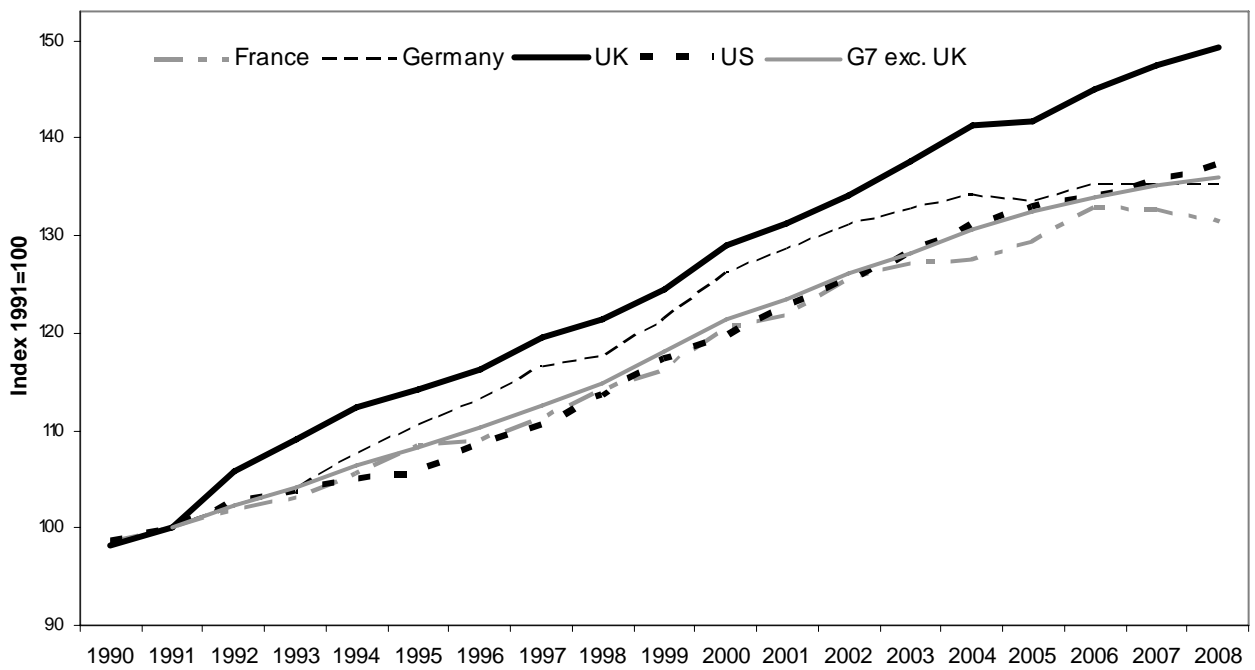
Comparisons of productivity growth

New data for 2008 continue to show that the UK has experienced faster productivity growth than all other G7 countries since 1991, as measured by GDP per worker. By 2008, UK GDP per worker had grown by 39 per cent since 1991, compared with the G7 average (excluding the UK) of 29 per cent. In terms of GDP per hour worked, UK productivity increased by 49 per cent between 1991 and 2007. This represents the fastest rate of growth of any G7 country over the period, well above the average (excluding the UK) of 36 per cent.

Growth in GDP per worker



Growth in GDP per hour worked



Revisions

Data covering the period 1990 to 2007 have been subject to revision in this release. These revisions come from two sources:

- Revisions to UK employment data to reflect more recent population estimates
- Revisions to US GDP as a result of changes to the estimation methodology

The revisions to UK employment have increased the level throughout the time period, most significantly in recent years. This has led to a downward revision to UK productivity, and hence an upward revision to productivity levels in all other countries relative to the UK. Growth in UK productivity has also been revised downwards as a result.

The change in estimation methodology for US GDP has resulted in an upward revision to the level and growth rate of GDP for most of the time period, which has caused upward revisions to US productivity levels and growth relative to the UK.

Background Notes

1. Further information about International Comparisons of Productivity 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 US, 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, Innovation and Skills Public Service Agreement productivity target.
6. Data sources for this release are as follows: GDP from the OECD Main Economic Indicators, September 2009; Purchasing Power Parity (PPP) estimates from the OECD PPP website (last updated in December 2008); employment from the OECD Annual Labour Force Statistics, September 2009; average hours worked from OECD Employment Outlook, July 2009.
7. Due to a break in the series currently available from the OECD, UK employment and hours data have been derived directly from the latest Labour Force Survey data, following the OECD method of compilation. These have not yet been submitted to OECD.
8. The 2008 productivity estimate for France presented here may not be entirely consistent with figures for the other G7 countries, due to a delay in the provision of French employment data to the OECD. The use of an estimate provided by Eurostat in this release leaves employment and therefore productivity figures liable to future revision.

9. Italy has a larger than average informal economy, and makes an 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.
10. 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.
11. International comparisons of productivity levels use 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.
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 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>
13. 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. 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.

14. 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.
15. 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 consistent comparisons across countries.
16. 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>
17. 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.
18. **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.

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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	137	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	99	100	133	119	120
1995	112	120	114	133	99	100	132	119	120
1996	109	117	112	130	97	100	130	117	118
1997	107	116	109	127	94	100	129	115	116
1998	107	116	107	128	91	100	130	115	116
1999	108	115	108	125	90	100	132	115	117
2000	105	114	104	123	90	100	129	113	115
2001	103	113	103	121	88	100	126	111	113
2002	99	113	102	114	88	100	126	110	111
2003	100	109	104	112	88	100	127	111	112
2004	98	107	103	106	87	100	126	110	111
2005	101	109	103	106	89	100	129	112	113
2006	101	109	101	105	89	100	128	111	112
2007	101	110	100	105	90	100	128	111	112
2008	101	109	101	106	91	100	132	113	114

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	95	100	134		
1991	117	133	133	125	96	100	134	121	122
1992	113	128	129	119	92	100	130	117	118
1993	111	125	127	121	91	100	127	116	117
1994	111	125	127	122	90	100	125	115	116
1995	110	126	129	124	91	100	124	115	116
1996	107	123	128	120	89	100	123	113	115
1997	104	121	124	117	87	100	119	110	111
1998	105	123	123	118	85	100	121	111	112
1999	105	122	125	115	86	100	123	112	113
2000	101	122	121	112	84	100	119	110	111
2001	99	122	120	112	83	100	118	109	109
2002	96	124	119	105	82	100	117	107	108
2003	96	119	121	102	82	100	118	107	108
2004	93	114	118	97	81	100	116	105	106
2005	98	118	121	98	84	100	120	108	109
2006	98	119	118	97	84	100	119	108	109
2007	97	119	117	97	85	100	120	108	109
2008	96	116	116	97	85	100	121	109	109

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	99	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	106
1995	108	106	110	114	102	112	107	108	107
1996	108	107	111	115	105	114	110	110	109
1997	111	108	114	116	105	116	112	112	111
1998	112	110	114	117	104	119	115	113	113
1999	116	112	117	117	104	121	119	116	116
2000	119	113	120	119	108	124	121	119	118
2001	120	113	121	119	108	126	122	120	119
2002	120	114	122	118	110	128	125	121	121
2003	120	115	123	117	112	130	127	123	122
2004	121	118	125	117	115	133	130	126	125
2005	123	119	124	117	116	134	132	127	126
2006	124	121	125	117	118	137	133	128	128
2007	124	122	125	118	120	140	134	130	129
2008	123	120	125	116	120	139	135	130	129

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	101	106	103	103	102
1993	104	103	104	106	105	109	104	105	104
1994	106	106	108	110	106	112	105	107	106
1995	107	109	111	114	109	114	106	109	108
1996	107	109	113	114	110	116	109	111	110
1997	110	111	117	116	113	119	110	113	113
1998	112	114	118	115	112	121	114	115	115
1999	115	116	121	116	115	125	117	119	118
2000	118	121	126	119	118	129	120	122	121
2001	119	122	129	120	120	131	123	124	124
2002	121	125	131	120	122	134	125	127	126
2003	121	127	133	119	124	138	128	129	128
2004	121	128	134	119	128	141	131	131	131
2005	124	129	134	120	131	142	133	133	133
2006	125	133	135	120	132	145	134	135	134
2007	126	133	135	121	135	147	135	136	135
2008	125	131	135	120	135	149	137	137	136

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	1	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	1	0	1	1	1
1996	0	0	0	0	0	0	1	1	1
1997	1	1	1	1	1	0	1	1	1
1998	1	1	1	1	0	0	1	1	1
1999	1	1	1	1	1	0	2	1	1
2000	1	1	1	1	1	0	3	2	2
2001	1	1	1	1	1	0	3	2	2
2002	1	1	1	1	1	0	3	2	2
2003	1	1	1	1	1	0	3	2	2
2004	1	1	1	1	1	0	3	2	2
2005	2	2	2	2	1	0	4	2	3
2006	2	2	2	2	2	0	4	3	3
2007	2	3	3	3	2	0	6	4	4

Note: Revisions refer to the difference in index points between the data released on 8 October 2009 and the data released on 18 February 2009.

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	1	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	-1	-2	-2	-1	-1	0	-2	-1	-2
1993	0	0	0	0	0	0	0	0	0
1994	-1	-1	-1	-1	0	0	-1	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	-1	-1	-1	-1	-1	0	-1	-1	-1
1998	0	0	0	0	0	0	1	1	1
1999	1	1	1	1	1	0	2	1	1
2000	0	0	1	0	0	0	2	1	1
2001	0	0	0	0	0	0	2	1	1
2002	0	1	1	1	0	0	2	1	1
2003	1	1	1	1	1	0	3	2	2
2004	1	0	1	1	0	0	2	1	1
2005	2	1	2	2	1	0	4	2	3
2006	2	5	3	2	2	0	4	3	3
2007	3	4	4	4	2	0	5	4	4

Note: Revisions refer to the difference in index points between the data released on 8 October 2009 and the data released on 18 February 2009.

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	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	-1	0	0	0
1998	0	0	0	0	0	-1	1	0	0
1999	0	0	0	0	0	-1	1	0	0
2000	0	0	0	0	0	-1	2	1	1
2001	0	0	0	0	0	-1	2	1	1
2002	0	0	0	0	0	-1	2	1	1
2003	0	0	0	0	0	-1	2	1	1
2004	0	0	0	0	0	-1	2	1	1
2005	0	0	0	0	0	-2	2	1	1
2006	0	0	0	0	0	-2	2	1	1
2007	0	0	0	0	0	-3	2	1	1

Note: Revisions refer to the difference in index points between the data released on 8 October 2009 and the data released on 18 February 2009.

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	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	1	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	1	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	1	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	-1	1	0	0
2000	0	0	0	0	0	0	1	1	1
2001	0	0	0	0	0	0	2	1	1
2002	0	0	0	0	0	-1	2	1	1
2003	0	0	0	0	0	-1	2	1	1
2004	0	0	0	0	0	-1	2	1	1
2005	0	-1	0	0	0	-2	2	1	1
2006	0	3	0	0	0	-3	2	1	1
2007	0	1	0	1	0	-4	2	1	1

Note: Revisions refer to the difference in index points between the data released on 8 October 2009 and the data released on 18 February 2009.

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