

United Kingdom

Investigating the productivity puzzle in manufacturing

A well-documented feature of the UK economy since the financial crisis is the collapse in labour productivity, whereby the UK needs far more workers to produce fewer goods than before the crisis. This includes a period over which official data suggest that firms took on a record number of staff at a time when output was falling, and had been falling for some time.

In this analysis we use PMI data to re-model the trend in UK employment since 2012, looking at manufacturing. The re-modelled data suggest that manufacturing productivity has reverted to its long term trend, and even pushed above trend in early 2013.

Output and employment

To gain a further insight into productivity, we consider the output and employment data for manufacturing, looking at the statistics used in the compilation of productivity data by the Office for National Statistics. We look specifically at 2012, when the deterioration in productivity appears to have been most prominent.

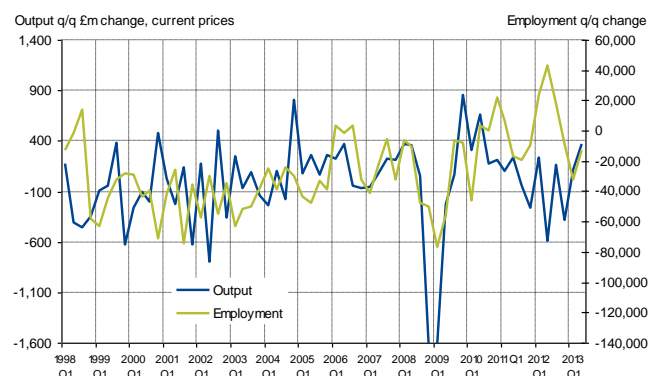
The data indicate that, over the course of 2012, UK manufacturers took on 75,000 extra staff to produce £1.539 billion fewer goods than the year before (or £2.412 billion fewer goods in constant prices).

The difference cannot be explained by the shift to part-time work, or reduced working hours: the ONS data show that 2.5 million more hours were worked in 2012 compared with 2011.

To put these numbers into context, the increase in employment and hours worked in 2012 stands in marked contrast to the continual decline seen over the previous 14 years (the full extent of the data history available). The 1.6% increase in employment and 1.4% rise in the number of hours worked in 2012 corresponded with a 1.1% drop in output during the year (or a 1.6% decline after allowing for inflation).

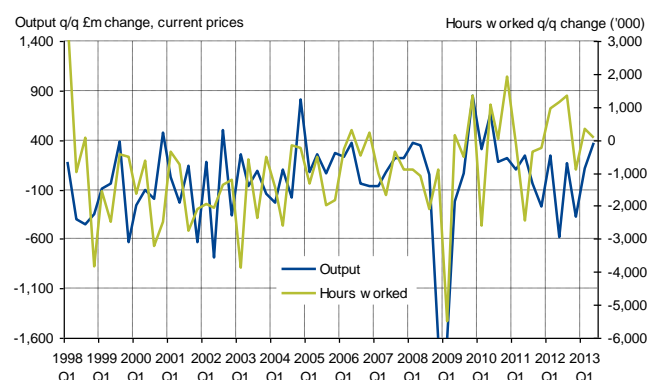
The data therefore suggest that 2012 saw the largest active annual net recruitment of staff by manufacturers on record at a time when output was falling, and had been falling throughout the latter half of the preceding year, in both current and constant prices. To see where the ONS data might be mis-recording either output or employment, we compared the data with business survey evidence.

ONS data on manufacturing output & employment



Sources: Markit, ONS

ONS data on manufacturing output & hours worked



Sources: Markit, ONS

ONS data on output and hours worked

	Change in output		Change in employment* '000	Change in hours worked '000
	Current prices £m	Constant prices £m		
1998	465	706	-154.4	-4,057
1999	-2,735	797	-163.5	-5,658
2000	-2,473	3,202	-116.7	-4,623
2001	-31	-2,547	-70.7	-3,824
2002	-2,893	-3,562	-34.1	-2,299
2003	-29	-731	-27.4	-255
2004	-513	2,790	-71.7	-969
2005	3,603	-287	-92.1	-2,929
2006	3,059	2,648	-100.9	-2,840
2007	712	1,182	-100.5	-3,968
2008	2,138	-4,184	-114.7	-5,032
2009	-10,603	-14,993	-146.1	-4,561
2010	6,237	5,520	-20.1	431
2011	2,389	2,499	-39.9	-3,143
2012	-1,539	-2,412	75.7	2,535
2012 breakdown				
Q1	237	4	23.7	962
Q2	-589	-498	42.7	1,144
Q3	158	128	18.1	1,325
Q4	-381	-557	-8.7	-896

Comparisons with survey data

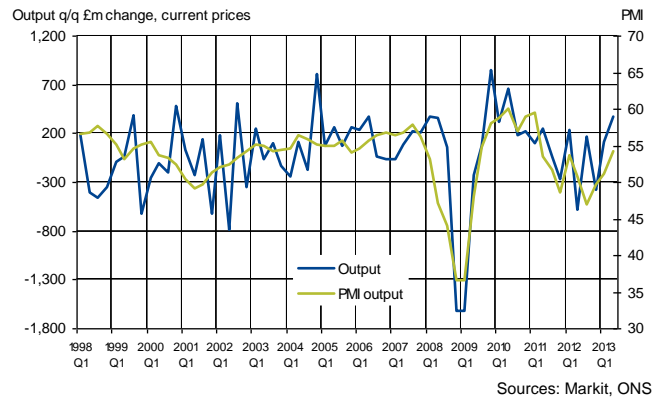
Comparisons with the PMI survey indices relating to output show that the official data and survey data exhibit broadly similar trends over the 15 years for which comparisons are possible, albeit with the official data showing greater volatility (and perhaps being slightly stronger than the survey data over the past year).

However, the comparison with the PMI data on employment indicates that the survey and official data only show broadly similar correlations up to the financial crisis (albeit again with the official data showing greater volatility), after which the official data have signalled far stronger employment trends than the survey data. The divergence is particularly striking in 2012. In contrast to the strong employment growth signalled by the official data in 2012, the survey data are consistent with a marked drop in staffing levels.

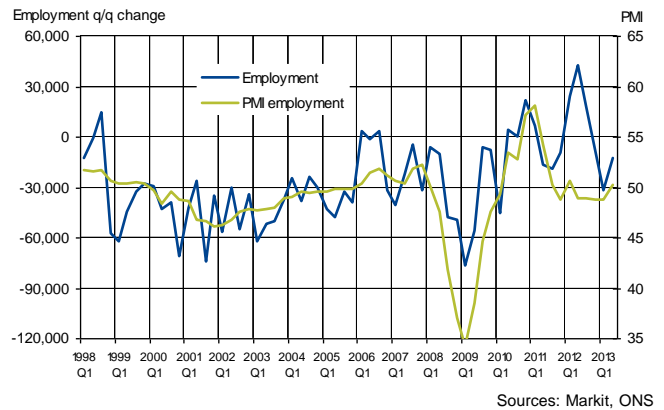
An even greater divergence is seen when comparing the official employment data on manufacturing employment with the British Chambers of Commerce survey on manufacturing. The two series exhibit a close relationship up to the financial crisis, after which the official data paint a far more buoyant picture of the labour market.

PMI comparisons

ONS & PMI manufacturing output compared

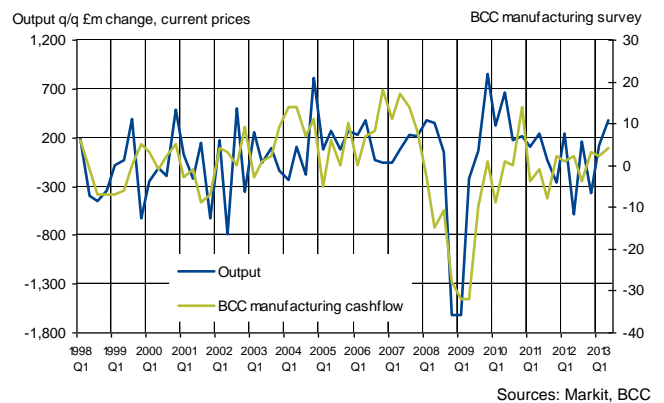


ONS & PMI manufacturing employment compared

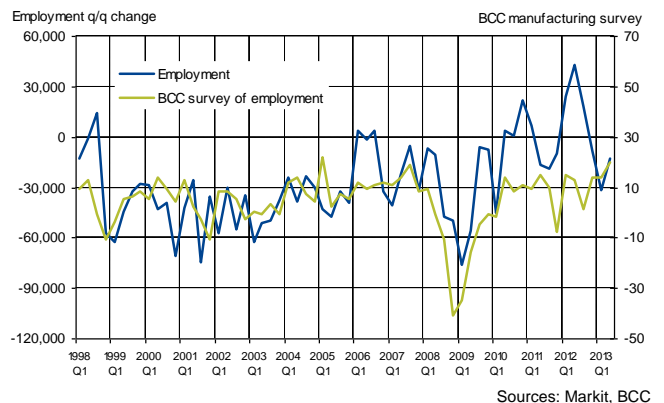


BCC comparisons

ONS & BCC manufacturing output compared



ONS & BCC manufacturing employment compared

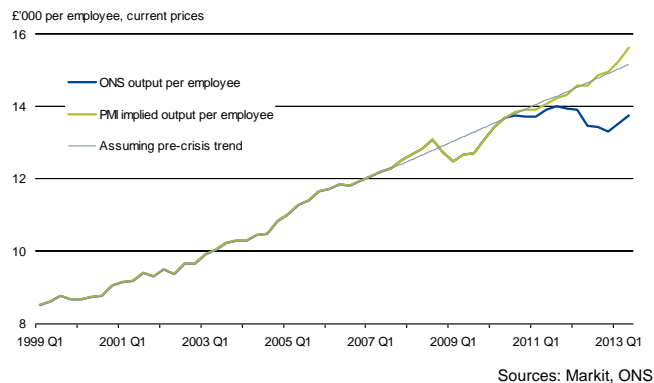


Impact on productivity

To get an idea of how a potential miscalculation of employment numbers in recent years would affect productivity, we have used regression analysis to model the change in manufacturing employment had the labour market followed the trend depicted by the PMI survey's employment index since mid-2010 (when the relationship between ONS output data appears to have started to diverge strongly from the employment and hours worked data).

While the ONS data suggest that output per head in UK manufacturing was running almost 11% below trend on average in 2012, the PMI-adjusted employment data suggest a shortfall of just 1%. Not only has output per head has reverted to its long-term trend, it has even pushed above trend in 2013.

UK manufacturing output per employee



APPENDIX

Sources:

ONS manufacturing output data [link](#)

ONS productivity jobs data [link](#)

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