The productivity puzzle

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When a country enters recession and output contracts we expect to see productivity fall, but that it will rise as the economy recovers.

At the onset of the economic crisis in 2008, productivity in the UK fell. However, it has remained weak and relatively unchanged since then.

This note looks at some of the suggested reasons why productivity in the UK has not recovered to its previous levels – the so called 'productivity puzzle'

A separate Library Standard Note *Labour productivity in the UK* contains statistics on productivity and an explanation of how productivity is measured.

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1 Background

Productivity generally refers to how efficiently inputs (labour and capital) are used to produce outputs (goods and services). Labour productivity (measured by output per hour worked) has a direct impact on the economic wealth of a country.[1] Productivity is directly linked to living standards – a country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.

The general equation used for calculating labour productivity is:[2]

$$\textbf{Labour productivity} = \frac{\text{real GVA}}{\text{number of jobs x number of average hours worked}}$$

Changes in any of these variables will affect productivity. For example, if GVA increases and all other variables remain constant, then productivity will also increase. However, if GVA were to remain constant and the number of jobs increased, the result would be a fall in productivity.

1.1 Productivity in a recession

In the initial stages of a recession, we expect productivity to fall as output contracts. However, this is not always accompanied by an immediate fall in employment levels. Over time, it is common for some people to lose their jobs or to reduce their hours of work. In a recession, the path of labour productivity is "determined by the relative sizes of the falls in output and total hours worked".[3]

2 The productivity puzzle

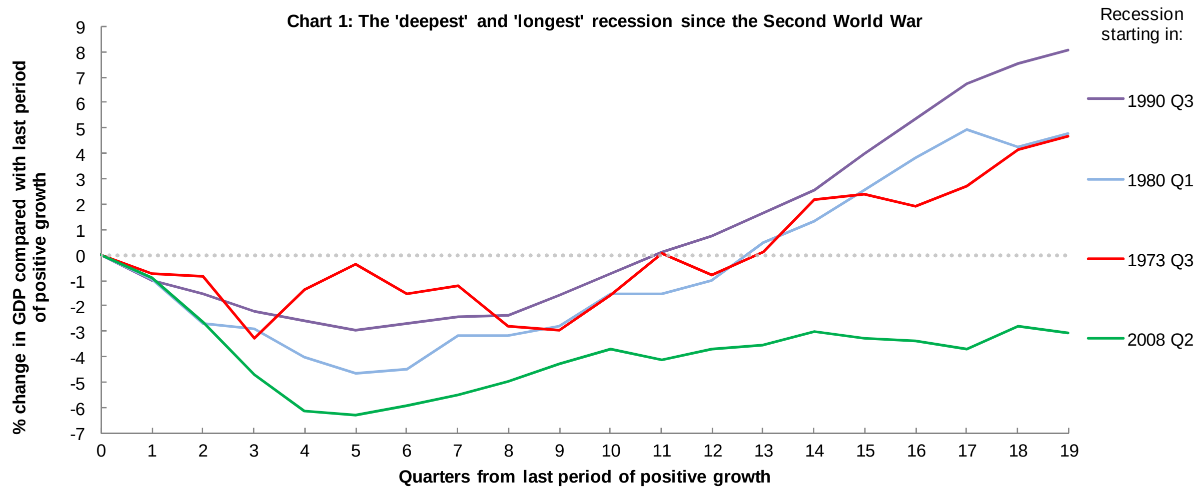
At the onset of the 2008 economic crisis, productivity in the UK fell.[4] The Bank of England has commented that productivity in the UK has remained relatively weak and unchanged since the end of 2008; despite output falling and the employment rate being stable. When compared to other recessions in the UK since 1972, productivity following the 2008 economic crisis has fallen further and has recovered less.

Research on the 'productivity puzzle' has suggested that there may be several factors that have contributed to weak productivity in the UK. These are looked at below

2.1 GDP

At the height of the 2008 recession, UK GDP fell by 2.3% in a single quarter (Q1 2009) – a similar percentage by which the economy expanded during the whole of 2005. Prior to the latest revisions of UK GDP, this drop was the largest recorded quarterly contraction of the economy since records began in 1955. Subsequent revisions to UK GDP have suggested that GDP growth in this quarter can now only be considered 'amongst' the highest.

[1] Institute for Fiscal Studies, *UK Productivity in the Recession*, 2010, p 1
[2] Gross Value Added (GVA) is GDP excluding taxes and subsidies on production.
[3] Institute for Fiscal Studies, *UK Productivity in the Recession*, 2010, p 1
[4] See Library Standard Note *Labour Productivity in the UK* for more information



For simplicity, using the technical definition of a recession suggests that the UK economy moved into recession in the third quarter of 2008 as GDP fell for a second successive quarter. Following four more quarters of negative growth – a total of six consecutive quarters of negative growth - the UK economy finally moved out of recession in the last quarter of 2009. This was the longest of the UK recessions since the Second World War in terms of the number of consecutive periods of negative growth.

In terms of the amount of actual output (GDP) lost during UK recessions, the last recession was indeed the deepest with UK GDP falling by a total of 6.3% between the first quarter of 2008 and the third quarter of 2009. This was a loss of output of almost two percentage points more than in the next deepest recession of the 1980s (-4.6%) and almost six percentage points more than during the short recession of the 1960s (-0.5%).

Following a period of positive growth (with the exception of 2010 Q4) the economy re-entered recession (a so called 'double-dip' recession) in 2012 Q1. The economy again exited recession in 2012 Q3 but real GDP remains 3.1% below its pre-recession level.[5]

2.2 Labour Market

In Q1 2008, the last quarter of growth prior to the UK entering recession, the UK employment rate was 73.0% (28.8 million people were in employment) and the unemployment rate was 5.3% (1.6 million people were unemployed). Data for Q4 2012 shows the rate of employment was 71.5% (28.8 million) and an unemployment rate of 7.8% (2.5 million).

The Bank of England's Monetary Policy Committee (MPC) commented that it was "difficult to reconcile [the employment figures] with [the] persistent weakness in output".[6]

The stable employment rate can partially be explained by the number of people in part-time employment rising by 7.4% since Q1 2008 to 8.1 million. The Office for National Statistics (ONS) states that since the start of 2008, the number of hours worked has fallen by around 2.0%. This switch to part-time working means that the number of hours worked has

[5] The latest real GDP data can be found in the ONS publication *Gross Domestic Product: Preliminary Estimate* (Series ABMI)

[6] Bank of England, *Minutes of the monetary policy committee meeting 5 & 6 September 2012*, 20 September 2012, p 5

decreased; in turn productivity per hour worked is estimated to have fallen. Part of the recent fall in productivity could be attributed to the increase in part-time employment.[7]

The proportion of people who are self-employed has also been rising – increasing from 3.9 million (13.1% of total employment) to 4.2 million (14.2%).[8]

The MPC minutes from September 2012 state that the resilience of the labour market could be attributed to the fact that businesses have retained a "certain minimum level of staff to continue operating, while the difficulty in recruiting labour with specialist skills may have led others to hold on to some employees currently underemployed".[9] This implies that businesses are retaining labour for the future,[10] as they have been reluctant to lose skilled staff who they have trained in anticipation of an upturn.[11]

Composition of the Labour market

The Office for Budget Responsibility (OBR) has suggested that following the 2008 economic downturn there was a shift from high productivity to low productivity jobs. It estimates that this shift could account for "around 1 percentage point of the shortfall in productivity on a per job basis".[12]

A report by the University of Cambridge also states that weak productivity is a "symptom of an economy with weak demand and cheap labour". The report suggests that most of the jobs created since the end of 2009 have been in "low-productivity trades—in hotels, restaurants, office-cleaning and the like".[13]

2.3 Real wages

It has also been suggested that employees may have been accepting lower pay rises or taking pay cuts, and as a result of this, growth in average earnings was around 1% in 2009 compared to an average growth of around 4% a year in the years up to 2007.[14]

This fall in real wages has made it cheaper for businesses to hold onto labour and substitute it for capital. Rather than "investing in plant and machinery which [takes] a long time to come on stream" and could turn out to be more costly if "demand turned out to be insufficient", businesses have 'hoarded' labour who are underemployed.[15]

An article in the *Financial Times* has suggested that if growth in real wages had not been subdued over the past 4 years it is possible that workforces may have been cut and the employment rate would have fallen.[16]

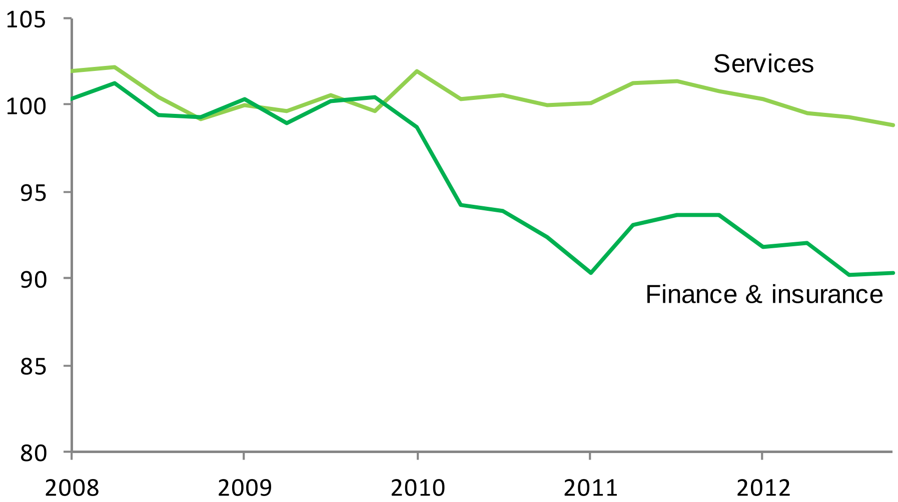
7 ONS, *The productivity conundrum, interpreting the recent behaviour of the economy*, 24 August 2012
8 ONS, *Labour Market Statistics Bulletin*, February 2013
9 Bank of England, *Minutes of the monetary policy committee meeting 5 & 6 September 2012*, 20 September 2012, p 5
10 "*Puzzle of falling UK labour productivity*", Financial Times, 20 September 2012
11 Bank of England, *Minutes of the monetary policy committee meeting 5 & 6 September 2012*, 20 September 2012, p 5
12 OBR, *Economic and fiscal outlook*, December 2012, Box 3.2, p 44
13 The Economist, *More work, less stuff*, 30 June 2012
14 Centre for business research, *Is the British economy supply constrained II? A renewed critique of productivity pessimism,* May 2012
15 Bank of England, *Minutes of the monetary policy committee meeting 5 & 6 September 2012*, 20 September 2012, p 5
16 *ibid.*

2.4 Financial crisis

Some commentators have has suggested that the 2008 economic crisis being a 'financial' crisis may also be a cause of the current low levels of productivity (across many developed economies).

The chart below shows experimental data published by the ONS for the output per hour worked in the finance and insurance service sectors from Q3 2008 to Q2 2012:

Chart 2: Output per hour worked
Seasonally adjusted (2009=100)



The data is seasonally adjusted and indexed (2009=100). Since Q3 2008, the productivity of the services sector as a whole has remained relatively stable. However, the productivity of the finance and insurance services sector has fallen significantly. In Q3 2012, it was 10.5 points lower than its 2009 Q4 peak.

The ONS has suggested that the effects on productivity due to the financial crisis could include:[17]

- The over-exuberant financial intermediation before the crisis and going in to it may have led to poor economic outcomes with capital and resources going into activities with poor potential returns

- In the aftermath of the crisis, the risk premium increased markedly. This would have meant that much of the existing capital stock would no longer be capable of generating the new return required at the higher rate. It would thus become unviable

- After the crisis, levels of financial intermediation declined sharply, again possibly hampering the formation of productive capacity

- To the extent that earlier poor financial intermediation had resulted in allocation of resources which was non-optimal, there would be negative effects on human capital, as well as physical capital, as the poor allocation was unwound.

The sector also affects the productivity of the rest of the economy, due to its role in providing finance for business investment. Minutes from the November 2012 MPC meeting state that

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[17] ONS, *The productivity conundrum, interpreting the recent behaviour of the economy*, 24 August 2012

there may still be a degree of risk aversion in the banking sector which was weighing on levels of productivity.[18]

Ben Broadbent, an external member of the MPC has said that his "own belief is that dearer finance probably has contributed to slower productivity growth" and the fact that the UK has relatively large banks and was a net borrower prior to the crisis has meant that "demand in purely domestic-facing sectors was always more vulnerable than others to the ensuing contraction in the supply of credit".[19]

In the December 2012 *Economic and Fiscal Outlook*, the OBR also suggests that weak investment growth as a result of the financial crisis in 2008 could have contributed to the downturn in productivity as it may have reduced the amount of capital that workers have to work with.[20]

The OBR also suggests that resources have not been reallocated efficiently in response to "uneven demand across sectors". The result of this is that firms with "high rates of return are credit constrained while zombie firms have kept operating thanks to low interest rates".[21]

Business investment

Ben Broadbent has also argued that that some businesses that have "high rate of returns are capital constrained, while other 'zombie firms' have kept operating despite lower returns".[22] This idea is supported by the low levels of insolvencies and liquidations, compared to previous recessions, there has also been a drop in company births also support this theory.[23]

It is thought that the lack of available capital is likely to hit smaller and medium sized firms (SMEs) more than large firms, who are able to access funds more easily. The OBR has stated that although large firms "account for the majority of investment in the economy, expansion of SMEs is particularly important for productivity growth". They go on to suggest that new SME's can have a "relatively large contribution to productivity growth possibly because they enter with a more efficient mix of capital and labour and new technology." [24]

The Bank of England has also carried out some analysis that supports the idea that SMEs have seen a larger decline in productivity than larger firms. Using data from company accounts, the Bank's analysis shows that most of the weakness in productivity growth is concentrated among SMEs.[25]

2.5 Statistics

There has been much debate that the statistics provided by the ONS are wrong, and while they have acknowledged that measurement error cannot be ruled out, the chief economist has stated that the GDP figures are "broadly in line with information from tax revenue and private sector business surveys".[26]

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18 Bank of England, *Minutes of the monetary policy committee meeting 7 & 8 November 2012*, 21 November 2012, p 7

19 Speech by Ben Broadbent, *Productivity and the allocation of resources*, 12 September 2012

20 OBR, *Economic and fiscal outlook*, December 2012, Box 3.2, p 43

21 OBR, *Forecast evaluation report*, October 2012, p 39

22 Speech by Ben Broadbent, *Productivity and the allocation of resources*, 12 September 2012

23 OBR, *Economic and fiscal outlook*, December 2012, Box 3.2, p 43

24 *ibid.*

25 Bank Of England, *Inflation report*, November 2012, p 20

26 BBC, *UK productivity puzzle baffles economists,* 18 October 2012

3 Further Reading

Bank of England, *UK labour productivity since the onset of the crisis – an international and historical perspective*, Quarterly Bulletin, Q2 2012

ONS, *The productivity conundrum, interpreting the recent behaviour of the economy*, 24 August 2012

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IMF, *From recession to recovery: how soon and how strong?* World Economic Outlook, 2009

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