WHY SHOULD WE CARE ABOUT PRODUCTIVITY?

Vicky Pryce*

The 'productivity puzzle' – the substantial drop in productivity in the UK since the onset of the financial crisis in 2008 – has exercised economists and policymakers alike. The loss in productivity levels, mainly output per hour, should have been restored by now and the trend growth should have been recovered, or even exceeded. Instead after a very sharp fall, much faster than many of our competitors, it has only recently started to rise again, but at a stubbornly slow rate and at the time of writing stood some 2 per cent below its pre-recession levels. So although we are likely to get back to where we were pretty soon, it is possible that the gap, with where we should have been on pre-recession trends, continues. The Bank of England calculates this gap could stay as high as 16 per cent or even widen if the rate of productivity increase does not return to normal. This is bad for the economy and especially bad for innovation, investment, growth and competitiveness. This paper examines possible explanations and offers some possible answers. It sides, in the end, more with those that argue that demand deficiency looks like being at least a part of the explanation, but acknowledges that changes in the structure and destination of employment, since the recession started, have also played a role.

Keywords: productivity; investment; wages

JEL Classifications: O25; O4

The issue

The Coalition government took over after the UK had gone through an extraordinary recession (often referred to as the Great Recession, to put it almost on a par with the Great Depression of the late 1920s). The repercussions for the economy were enormous; GDP fell sharply, and only last year returned to and finally exceeded pre-recession levels. The deficit is still about 5 per cent of GDP, one of the highest in the developed world, and the debt to GDP ratio now over 80 per cent. But, for the long term, perhaps the most worrying development is the 'productivity puzzle'; productivity plummeted in the crisis, and although now recovering slowly, is well below its pre-recession level. Growth has not returned to where it was before the crisis. In normal recessions any loss in productivity is quickly recovered as employment is cut back faster than output declines, and growth during recovery is at or above trend. The question for this paper is why this hasn't happened this time.

The potential long-term consequences are severe. Particularly worrying would be not just a one-off (but permanent) fall in the level of productivity, but a fall in future trend levels of productivity growth. Some analysts are concerned that a permanent shift in production and employment to less productive sectors may have permanently affected the economy's capacity to grow, with serious implications for policy. It makes tackling the increased deficit and debt more difficult to contain without raising taxes or even more draconian spending cuts. And as the Bank of England (2014) acknowledges, "measures of productivity are also important for the conduct of monetary policy, since they can be used to infer the economy's ability to grow without generating excessive inflationary pressure".

There are many competing explanations with different implications. One possibility is labour hoarding during the recession when output fell; once demand fully recovers productivity returns to its pre-recession trend. Another is that this recession was caused by a financial crisis of a particular type, which hit the UK harder than other countries due to the relative importance of banking and finance in the economy. Investment became expensive to finance and this has reduced new productive capacity in the economy and the capital stock has been depleted, thus affecting productivity negatively and permanently. Or that this recession is of a particular type that may be doing permanent long-run damage to productivity not only in the UK but also abroad and reducing both short-term and long-term productivity growth. Or it could be that we were simply overestimating where we were before and we are just reverting to norm. Or that there has been a general structural shift which is leaving the UK dependent on inherently less productive sectors for growth in the future.

*Chief Economic Adviser, CEBR and former Joint Head of the UK Government Economic Service. E-mail: Vicky.Pryce@cebr.com.

Of course it could be a mix of all these things – and more! That is quite likely. The productivity puzzle is a major part of what we need to understand to ensure sustainable growth. The implications for the economy and for employment and prosperity are inextricably linked to that. This paper attempts to touch on some of the explanations. It also argues that it is vitally important for the economy to get it right. Developing a proper policy response will be crucial to ensuring that the recovery we are seeing is sustainable – beyond the May elections.

The UK experience

Following an initial rise in unemployment after the coalition came to power in May 2010, we have seen the headline number of people seeking work fall to below 2 million for the first time since late 2008, when Lehman's collapse triggered the financial crisis. It was only a year and a half ago that the new Governor of the Bank of England, Mark Carney, issued his 'forward guidance' suggesting that he would be prepared to keep interest rates unchanged and would review only if unemployment fell to below 7 per cent. We are now, only a year on, already down to 6 per cent and further falls are confidently being predicted for the coming year. Despite the UK currently growing faster than almost any other large industrial nation, roughly on a par with the US, there is no evidence of a re-emergence of inflation. Lower commodity prices, particularly for oil and gas, have contributed to this, while wages have been rising below the rate of inflation. As a result, pressures to raise interest rates from their record low of 0.5 per cent have been postponed. Output in the economy has now finally exceeded its pre-recession levels and on the newly calculated and revised GDP estimates is now some 3.4 per cent above pre-crisis levels, though not in per capita terms.

But in the process productivity has suffered. Both the amount of output produced for a unit of labour input, measured either per worker employed or per hour worked, fell sharply in the early part of the recession and has only started to rise again recently, though at a slow pace. Revised ONS data suggest that the initial fall may not have been as large as was first indicated and the output recovery since may have been slightly faster. Still, in terms of output per hour, we are 2 per cent below where we were before 2009.

In contrast to previous recessions, as output fell companies seemed to have at first hoarded labour, to avoid the costs of firing and then re-hiring; workers accepted pay freezes or even reductions to retain their jobs. That was in sharp contrast to countries like the US, where companies shed labour very fast indeed at the first signs of trouble; it was closer to the experience in a number of countries in continental Europe, most notably Italy but also Germany, where short-time working and low real wages seem to have contributed to keeping employment rates higher on balance since the 2008–9 recession than before. The flexibility of the UK labour market appears to have increased with the decline in unionisation. In addition, as real wages fell, labour became relatively cheaper than capital, so there may have been some substitution from capital to labour.

So what is the problem – is it the jobs?

As noted above, the downturn caused by the financial crisis has not been accompanied by the usual sharp rise in unemployment seen in previous cycles. Since mid-2010 the market sector has been creating new jobs at the same time as output was rising very slowly. And now that output is recovering strongly job creation continues. The employment rate has gone up to 73 per cent, with a record 30.76 million people in work. As just under half a million jobs have been lost in the public sector since 2010 as part of the austerity programme, the private sector has added 1.7 million jobs in the past three years, completely against the odds.

On the surface this is good news. But what sort of jobs are they? Martin and Rowthorn (2012) have suggested that the trend to lower wages may in fact have encouraged private service firms to create low-productivity jobs, profitable because of the lower wages available. An explanation may be that workers have taken up, or remained in, lower productivity jobs, including for many part-time, zero-hour contract jobs and self-employment with lower pay, less training and poor skill utilisation. Some full-time jobs turned part-time early on in the recession, while many of the new jobs created as the economy started to recover were also part-time. This has since changed, and average hours worked now exceed pre-recession peak levels. But the result is that not only did output per worker fall but, worryingly, so did output per hour worked.

Self-employment is a particular issue. The self-employed have accounted for a third of the increase in employment since the recession. Compared to 2007, the average worker, across the private and public sector, has seen an 8 per cent decline in real weekly earnings; for the self-employed, real incomes have fallen 22 per cent (ONS, 2014). Both the incomes (output) of the self-employed and the hours they work are more volatile than for employees working for conventional firms; the

self-employed may have less capital (and thus be less productive) than employees in industries where capital is important. The Chartered Institute of Personnel and Development (CIPD) suggests that the self-employed on the whole are more satisfied with their work, value freedom and independence and thus might be prepared to accept a lower income in return (which is measured in GDP whereas satisfaction from independence isn't). But for many of the increased numbers of self-employed it may well have been a case of Hobson's choice, and for many what counts as self-employment may in reality mean very little actual employment. And it may in fact mean that they are producing very little output. This would not explain a huger proportion of the gap: the Bank of England has estimated that assuming the self-employed produce no output at all would explain some 2 per cent of the current gap in productivity levels with respect to the pre-crisis trend. But clearly it is a matter of concern if self-employment reflects a move from productive employment to doing not very much.

An unintended consequence for policy of a general shift to lower-paid jobs is that it has reduced the ability of people to survive unaided. Welfare-to-work, housing support and other benefits have increased as a result, while income and other taxes have been way below expectations. It also means that even during the recovery, while wages stay low, revenues are failing to increase as expected, threatening the public finances. The Coalition parties will be going to the electorate in 2015 with a fiscal position considerably worse than that forecast in 2010.

A demand side problem?

Bill Martin and Robert Rowthorn (2013) interpret the post-2007 productivity shortfall as being caused by a "persistent effective demand failure" which, over time, depressed the economy's productive capacity through cuts in investment and depressed technological progress. But things may not be so simple. Demand deficiency is a good explanation for the period of the actual recession and perhaps some of the subsequent stagnation, i.e. up to 2012. But with growth likely to come in at around 3 per cent in 2014 and unemployment at 6 per cent and falling, demand deficiency seems unlikely to be the only issue. Looking at recent data, a Bank of England paper in the second quarter of 2014 dismisses any cyclical explanation for the fall in productivity and finds little evidence of spare capacity and hence a demand shortfall (Bank of England, 2014). Admittedly this is based mostly on business survey data and may be wrong. But if they are right there are other deeper issues going on that a cyclical improvement may not solve.

The pessimistic line has been well outlined by Nick Oulton and María Sebastiá-Barriel in a Bank of England paper in 2013. They looked at the impact of a banking crisis of the type defined by Reinhart and Rogoff, which approximates what the West has been through, and calculated that "on average such a crisis reduces the short-run growth rate of labour productivity by between 0.6 per cent and 0.7 per cent per year and the long-run level by between 0.84 per cent and 1.1 per cent (depending on the method of estimation), for each year that the crisis lasts. A banking crisis also reduces the long-run level of capital per worker by an average of about 1 per cent." (Oulton and Sebastiá-Barriel, 2013). That effectively means that, even if the productivity growth rate manages to get back to its pre-crisis value, the level will remain significantly below the path which it would have followed if the crisis hadn't happened and previous trends had continued.

Measurement and mis-measurement

A major concern is that we may indeed have miscalculated the rise in productivity in the past. The same Bank of England paper (Oulton and Sebastiá-Barriel, 2013) attributes up to 4 per cent of the 16 per cent productivity shortfall to measurement and mis-measurement issues.

One of the possible explanations for the slow productivity growth since the crisis is that a large part of the financial sector gross value-added, which contributed significantly to measured productivity growth, was illusory and therefore what has happened now is a reversal to the norm – i.e. a possible realisation that we were never that productive after all and that the large salaries paid in the financial sector were in fact not a sign of high productivity but a gross misallocation of resources to 'unproductive' and economically 'useless' sectors, as Lord Adair Turner has termed the over-exposure of banks to property lending at the time. And in the process, of course, instead of investing in productive capacity we were engaged in what Lord Mandelson famously termed 'financial engineering' rather than 'real engineering'.

This theory has some attractions. Output and productivity in the sector were growing very rapidly between 1997 and 2009. Was it all a chimera? Not so, according to Nick Oulton (2013). He acknowledges that the value-added of the banking sector rose sharply during the boom years 2000–2007, so by the end of the period it stood at 5.2 per cent of GDP at basic prices. Total final expenditure (TFE) net of imports was 5.25 per cent of GDP; intermediate consumption was 3.26 per cent of GDP (Supply and Use Tables, 1997–2009). But he rebuts the proposition that output and productivity

in financial services consequently overestimated GDP in the boom. By assuming that any miscalculation in the sector's output only covered the part not bought by domestic households, who account for around 70 per cent of purchases, any over-statement of banking output to cover what he terms the "toxic rubbish", would have been small, representing the part of financial services provided mainly to foreign-based corporations, including banks, net of imports (payments by UK resident banks and corporations to foreign-based banks). By his calculations, such sales accounted for just 0.45 per cent of GDP at basic prices in 2000, rising to 1.29 per cent at the peak of the boom in 2007. If you recalculate that part of the financial services on the assumption that it had grown only at the same rate as the rest of the GDP in the economy, any overstatement of GDP growth as a result is unlikely to have been more than 0.13 per cent per annum over 2000–2007.

However, it is certainly the case that the poor productivity of the business and financial sectors since the recession accounts for a significant piece of the puzzle. And the spillovers to other sectors are significant. Poorer availability of finance is an obvious constraining factor for investment and hence innovation and productivity. The sharp fall in business investment when the crisis hit was probably steeper as a result of the sharp cutback in lending.

A structural issue?

Does the fall in productivity reflect structural shifts towards lower productivity sectors? IFS research (2013), finds little evidence to support this. Instead, they note that by late 2012 almost half of the population was working in an industry which had seen a decline in productivity. Again, they point to capital–labour substitution: "Firms may also have been substituting labour for capital to the extent that labour is now relatively cheaper and is more flexible in the face of uncertain demand. Lower levels of capital per worker, especially if the capital is of a lower quality, will reduce labour productivity". The IFS paper also debunks another myth, that of persistently low if not at times negative productivity growth in the public sector. The public sector's productivity is difficult to measure but by and large falls in employment are traditionally accompanied, or at least expected to be accompanied, by proportionate declines in output and hence zero impact on productivity growth. The Coalition's rationale for rebalancing away from too high a public sector was that resources would be diverted to more productive manufacturing and other services. Yet, as the IFS (2013) reminds us, despite the sharp fall in public sector employment in the UK since 2009 of over 6 per cent and declining further by the year, "public sector output, as measured in the National Accounts, has slightly increased. This is somewhat surprising given that a large part of public sector output is measured based on the volume of inputs (such that a fall in employment would be expected to decrease output and leave productivity broadly unchanged). The evidence points to an overall increase in labour productivity in the government sector...".

The measurement here is in fact changing anyway in terms of indicators rather than on the old 'output equals input' basis. Health output for example is measured by visits to the doctor and surgical procedures, etc. Education output is measured by a weighted average of pupils passing through different stages of the system. This is far from perfect and no doubt quality improvements, particularly in health, are missed. But we should not be surprised about the improvement, more that the figures are not showing it fully yet.

There is even more controversy about whether public sector investment is important in defining productivity and whether the sharp cut, of almost 50 per cent in public capital spending implemented in 2010, can explain part of the decline in the UK's productivity performance. If it does, then the same demand deficiency argument that has been developed by Rowthorn and Martin holds here too. Research evidence directly links government infrastructure investment with benefits to manufacturing firms and their productivity performance (Morrison and Schwartz, 1992). Moreover, as much of public capital spending is procured from the private sector, the draconian cuts in public capital spending may have had the effect of stifling private sector investment and hence adversely affecting innovation and productivity. Also, in most cases, with modern financing arrangements, public sector investment tends to leverage private sector co-investment so the linkages are even stronger than they used to be. In her book, *The Entrepreneurial State*, Mariana Mazzucato (2013) stresses the interconnections and therefore the need to understand the important role that both the public sector and the private sector can play in promoting innovation-led growth.

Investment and innovation

This recession saw a sharper fall in business investment than in previous downturns. It is now on a recovery path, though with some ups and downs, but current levels are still low by international standards. The aftermath of the financial crisis may also have resulted in a misallocation of capital (IFS, 2013a) supporting not the most productive opportunities but keeping 'zombie'

firms, many of them small and not very productive, going for longer than would otherwise have been the case. Low wages and low interest rates encouraged firms to continue in business but at the expense of innovation and productivity across the economy, which suffered as fewer firms exited and opportunities for new entries were diminished. The Bank of England (2014) attributes the bulk of the productivity shortfall (in fact up to 6–9 per cent of the 16 per cent gap which developed over the recession and the years that followed), compared to where we would otherwise have been if earlier trends had continued, to an "impaired resource allocation" and reduced investment in physical and intangible capital. It is indeed inevitable that in an uncertain and capital constrained environment, there would be a reduction in the level and quality of capital.

However, there is also evidence against this thesis. Firms have been hiring in both high and low skilled occupations and sectors of the economy (see IFS, 2013; Philpot, 2014). Capital use per hour worked has actually risen since the onset of the Great Recession (Oulton 2015; Oulton and Wallis (2014). While looking at firm-level data, two NIESR papers (Riley *et al.*, 2014a,b) in fact suggest that the evidence is not clear that "impaired resource allocation" has been particularly important in explaining recent productivity weakness. Most of the action seems to have been within firms and not in the birth-and-death process.

But is it just the loss of investment during the recession that matters? Capital investment in the UK has been traditionally low, both in the private and public sector. Goodridge, Haskel and Wallis (2013) attribute some of the poor productivity performance to a reduction in investment in intangibles in the early 2000s, which had an impact on productivity in later years. Intangibles are assets such as management training, marketing, branding, design, patenting, licences and market research, but also things like investment in software and in databases. According to a BIS report by its former Chief Economist, Tera Allas (2014), between 1998 and 2006 intangible assets are thought to have accounted for some 0.4 per cent of the productivity growth in that period.

The UK has also lagged on R&D spending. At some 1.8 per cent of GDP it is way behind the US (2.8 per cent), France (over 2 per cent), and places such as South Korea (4 per cent).

Private returns to innovation spending can be significant (Hall *et al.*, 2009); the benefits to the wider economy can be up to four times that. Although factors other than R&D spending matter, this is the best statistical proxy we have. A 2010 paper by Jonathan Haskel and Gavin Wallis suggests that, economy wide, the area where public investment makes the biggest difference in innovation and productivity is public investment in R&D through the research councils. If innovation is stifled, productivity suffers. The BIS report highlights the critical importance of science and innovation to growth in productivity and business investment and notes the sustained "long-term pattern of under-investment in public and private research and development and publicly funded innovation". Mariana Mazzucato (2013) argues that the state should go beyond just funding basic R&D and be more actively involved in commercialisation and risk taking which is where most of its contribution can be.

Need for policy focus

This brief review suggests that the productivity puzzle will in part remain that – a puzzle until the trend is really reversed. But it seems to me that at present most factors point to some sort of demand deficiency, some of it from abroad with the turbulent geopolitical environment and the problems in the Eurozone; much of it created by government policy and uncertainty about the future; exacerbated by the difficulties in tackling the deficit and debt problems; and finally also reflecting concerns about political instability and the implications of a referendum over Europe. All this has created the perfect conditions for risk aversion by businesses and willingness of people to hang on to their jobs despite low pay. This is now in the process of being reversed but it has left its mark. Confidence remains fragile. And innovation has been stifled.

What is more, the crisis has brought into sharp relief some of the underlying long-term weaknesses of the economy. It is not simply a question of rebalancing – the financial sector continues and will continue, properly regulated, to make a vital contribution to the economy. What is clear is that investment must become a crucial focus, for we have suffered from and accepted for too long a poor record of investment which is holding us back and is keeping GDP per capita lower than it should be. In terms of output per hour worked we are now lagging some 30 per cent or more behind countries such as the Netherlands, Germany and the US, even though they have similar or better employment rates than us.

This all has clear implications for government policy. R&D matters; keeping science and research financed by the public sector has serious spillovers. Government policy should, especially at a time of record low interest

rates, be encouraging public sector investment to allow for public sector capital spending in tangibles and intangible assets. Without investment there is no innovation and without innovation there is little productivity growth. And without productivity growth, wages will rise too slowly to make a dent in the fiscal position, which will otherwise hang round the necks of whoever forms a government after the May 2015 elections.

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