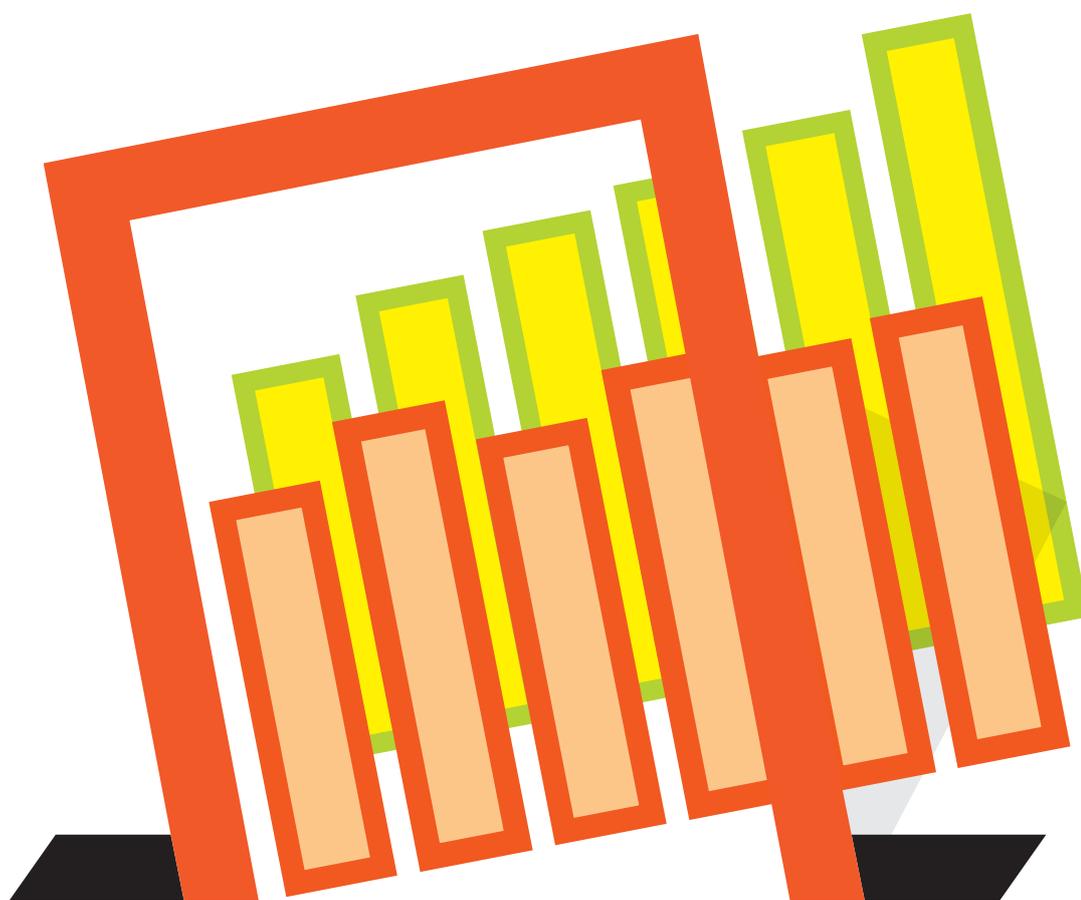


A series of background briefings on the policy
issues in the May 2015 UK General Election

Productivity and Business Policies

Anna Valero and
Isabelle Roland



CEP ELECTION ANALYSIS

Productivity and Business Policies

- UK productivity (GDP per hour) and income grew faster than in France, Germany and the United States between 1979 and 2008, reversing a century of relative decline. Increases in higher education, tougher product and labour market competition, the adoption of information and communication technologies, and innovation policies all contributed.
- UK productivity stagnated after the Great Recession of 2008-09 and remains about 15% below historical trends. This ‘productivity puzzle’ is due to a mixture of cyclical and structural effects – the fall is not entirely permanent.
- The poor performance in recent years has widened a longstanding productivity gap between the UK and other countries. UK GDP per hour is currently around 17% below the G7 average. This is due to low investment especially in infrastructure and innovation, poor management and weak intermediate skills.
- Tax credits for research and development (R&D) have been successful. The ‘patent box’, however, is an expensive form of tax competition that does not aid innovation. The real terms decline in the science budget will chill innovation in the longer run.
- Weak competition, short-termism and bad debts in the banking sector have hurt access to finance for productive businesses, especially innovative small and medium-sized enterprises (SMEs). Pro-competition policies in banking have delivered limited results.
- The myriad schemes for improving access to finance, expertise, and information for smaller and innovative firms are in principle valuable, but generally they have not been rigorously evaluated. This needs to change if we are to know whether they work.
- There are differences between the parties on corporate tax, regulation and corporate governance. It is important that the principle of independent regulation be protected without heavy handed intervention by politicians.

Introduction

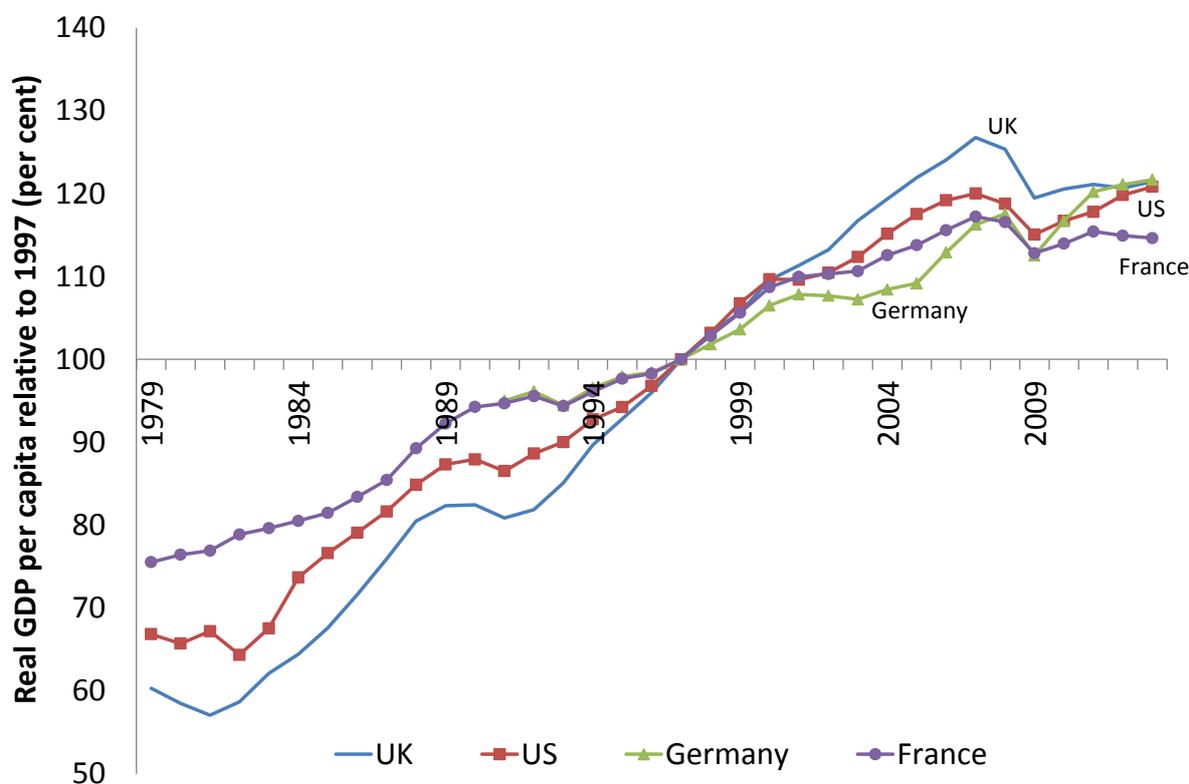
The policy stances of the main parties towards business have emerged as a major election issue. The Labour leader, with his many attacks on ‘predators’ vs. ‘producers’, is deemed by some to be ‘anti-business’; and there is much concern about the Conservatives’ promise of a referendum on the UK’s membership of the European Union (EU) and further restrictions on immigration (see CEP’s Election Analyses on the UK and Europe and on Immigration). This Election Analysis focuses on fundamental challenges over business policies that aim to boost productivity and innovation, probably the greatest challenge facing the UK economy.

The UK is slowly recovering from the Great Recession, but faces a productivity crisis. If the fall in productivity reflects permanent supply-side fractures, this poses a serious problem for long-term prosperity, especially since the UK has suffered lower productivity than its peers for many years. What are the problems, what can be done and how do the parties plan to make UK businesses more productive?

Productivity changes over the longer run

Since the late 1970s, the UK began to reverse a century of relative economic decline. In the post-war years, UK GDP per capita fell behind the United States, France and Germany, but from 1979 it was growing faster (see Figure 1) until the global financial crisis of 2008-09.

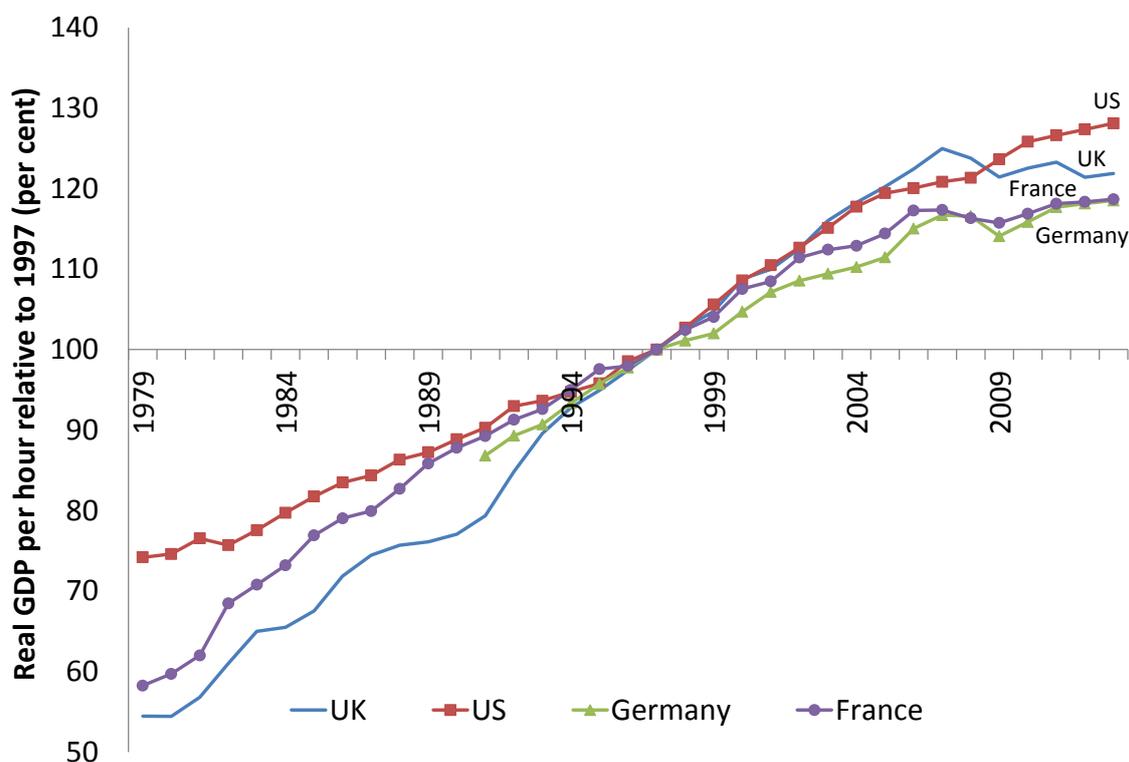
Figure 1: Trends in GDP per capita 1979 to 2013 (relative to 1997)



Source: Conference Board data, January 2014 update, extracted 8 February 2015. Note: GDP is in US\$, constant prices, constant purchasing power parity, base year 2013. Data for unified Germany is from 1991. For each country the series is set to one hundred in 1997, so the level of the line in any year indicates the cumulative growth rate (for example, a value of 110 in 2001 indicates that the series has grown by 10% between 1997 and 2001). The steeper the slope of the line, the faster growth has been over that period.

GDP per capita depends on the employment rate (workers/population) and labour productivity (GDP per hour or GDP per worker). Before the crisis, the UK did well on both counts, with growth in productivity similar to the United States during its ‘productivity miracle’ phase (see Figure 2). This success can be attributed to tougher competition in product and labour markets, increases in higher education, faster adoption of information and communication technologies and innovation policies (Besley and Van Reenen, 2013).

Figure 2: Trends in GDP per hour 1979 to 2013 (relative to 1997)



Source: Conference Board data, January 2014 update, extracted 8 February 2015. GDP is measured in US\$, at constant prices and constant purchasing power parity, with a base year of 2013. Data for unified Germany is from 1991. Note: log scale is used, see notes to Figure 1 on interpretation.

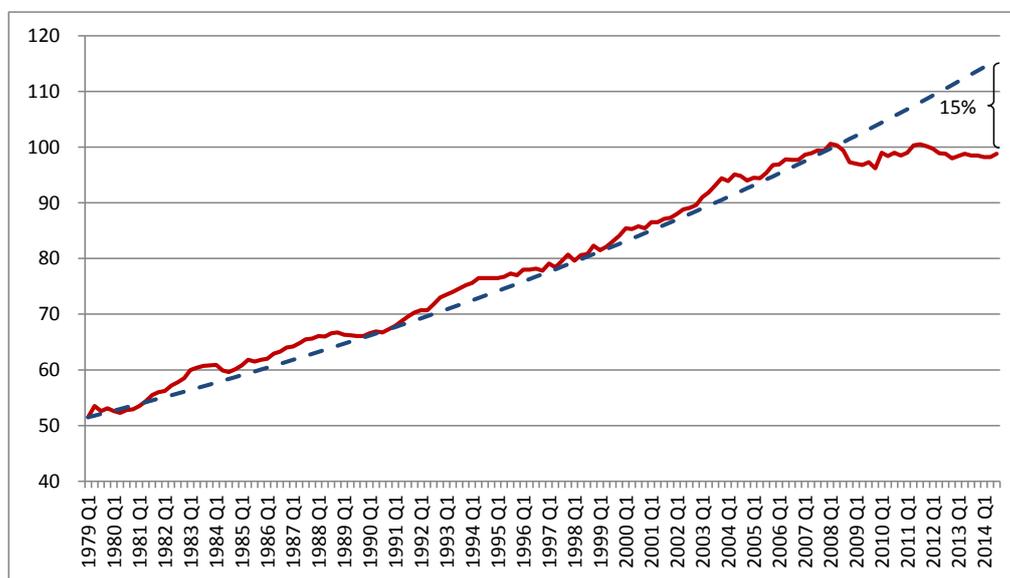
Recent productivity changes: the puzzle

Productivity fell in the crisis and has failed to pick up (see Figure 3). In the most recent data from 2014Q3, GDP per hour stands at 15% below its trend between 1979Q1 and 2008Q2. This dismal performance has been dubbed the ‘productivity puzzle’ because no single explanation seems to be able to account for it. Some have argued that the fall is a structural supply-side problem (and therefore permanent), while others argue that there is an important cyclical, demand-driven component (and therefore temporary).

It is very unlikely that supply is the *only* reason for these productivity woes. The idea of a long-term global productivity slowdown (Gordon, 2014) is simply not credible and reflects the same intellectual malaise felt after the Great Depression that global innovation was slowing. Nor was the UK’s pre-crisis productivity growth a statistical artefact driven by a finance ‘bubble’: between 1997 and 2007, finance contributed only 0.4% of the annual 2.8% growth in market sector output per hour (Corry et al, 2011). It is true that the dislocation of

the financial sector has meant fewer funds for new investment and less foreclosure of low-productivity ‘zombie’ projects. But this is unlikely to be a permanent effect as the financial system slowly returns to normal.

Figure 3: UK productivity growth – GDP per hour worked, 1979Q1 o 2014Q3



Source: Whole Economy GDP per hour worked, seasonally adjusted (2011=100). ONS Statistical Bulletin, Labour Productivity, Q3 2014, downloaded 6 February 2015.

Note: Predicted value after 2008 Q2 is the dashed line calculated assuming a historical average growth of 2.3% per annum (the average over the period 1979 Q1 to 2008 Q2).

Labour productivity usually falls in a recession, and most countries have had sharp productivity slowdowns in the unusually deep downturn of recent years. For example, of the 27 OECD countries examined by Weale (2014), 24 have experienced slower productivity growth post-crisis than pre-crisis. Compared to G7 countries, UK productivity growth since the crisis is no worse than that of Germany or Italy (see Figure 4), but it is below the OECD average.

Low productivity in recessions is partly due to underutilisation of resources as firms hold on to workers (or ‘hoard labour’) even if they are under-worked. Usually, this is temporary – as normal times resume, productivity should rise rapidly. But this recession has been unusually long-lasting, which could explain the longer period of depressed productivity. Labour hoarding cannot account for this.

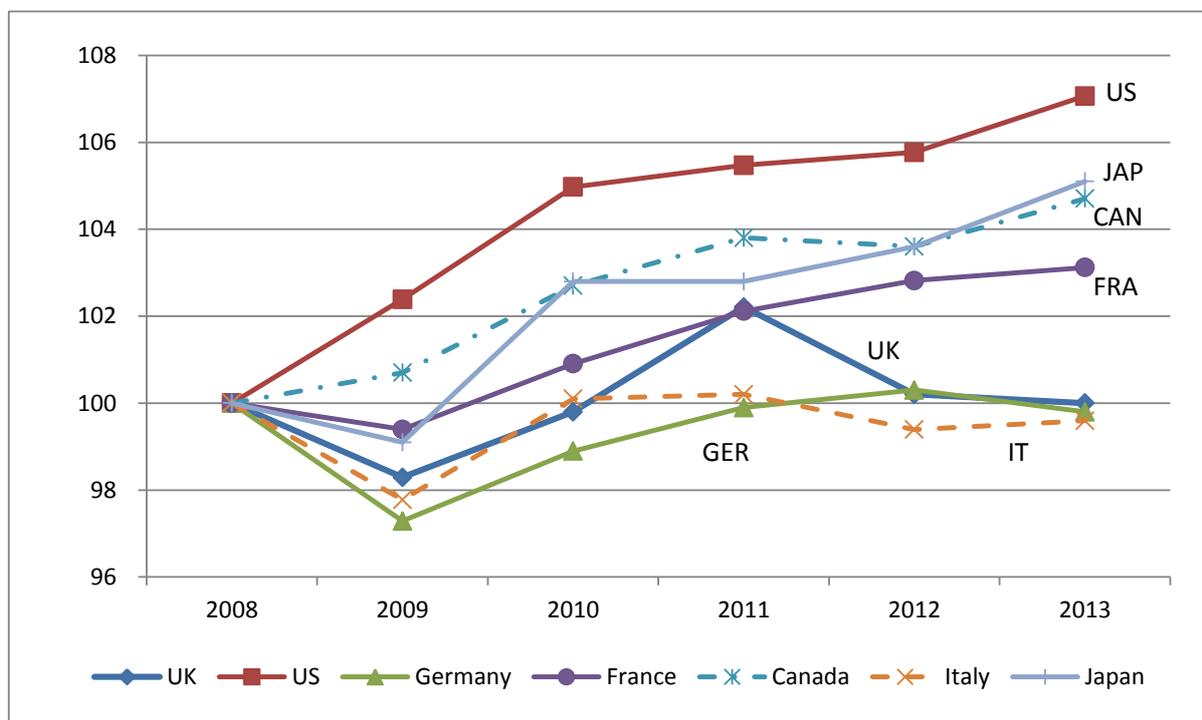
The UK’s Great Recession is also different from other post-war downturns because unemployment did not rise as much as would be expected from the fall in GDP. Employment rates are now 73%¹, back to pre-crisis levels. A reason for this is that real wages have fallen by 8-10% since 2008 (see CEP’s Election Analysis on Real Wages and Living Standards), which did not happen in other post-war recessions.

A lower price of labour coupled with a higher cost of capital dampened investment incentives, which has held back labour productivity. Pessoa and Van Reenen (2014) show that the 2008-12 period was not so different in terms of total factor productivity growth (GDP

¹ ONS employment (16-64 year olds), 2014Q4.

per hour growth corrected for changes in the capital stock) from other post-war recessions. Annex 1 contains some more discussion of the productivity puzzle.

Figure 4: GDP per hour in UK compared to other G7 countries, 2008=100



Source: Constant price GDP per hour worked from ONS data, International Comparisons of Productivity, First Estimates, 2013 (downloaded 6 January 2015).

The productivity gap in levels

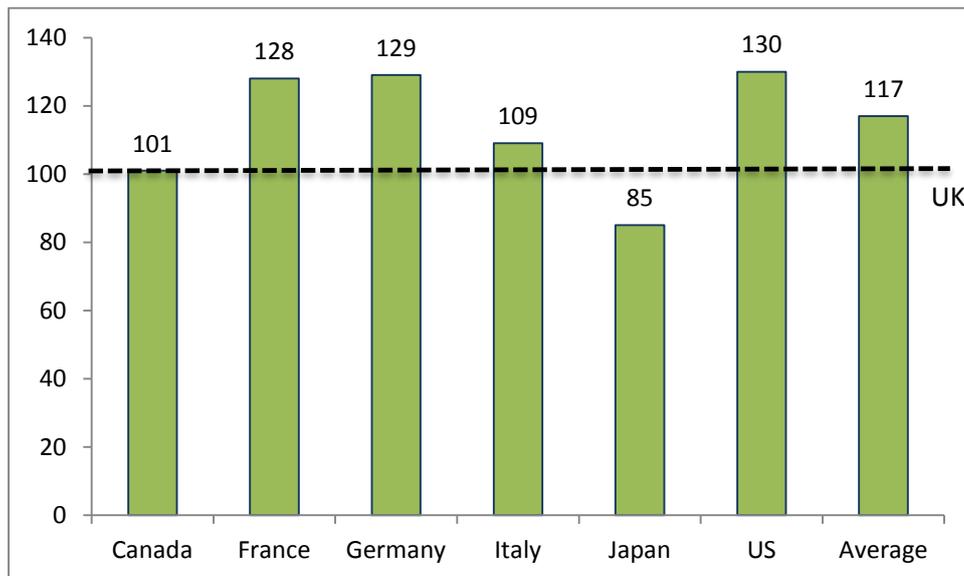
Although there was improvement in the decades pre-crisis, the UK's productivity *level* still lagged behind its peers. Figure 5 shows the most recent numbers, with GDP per hour 17% below the G7 average. What are the causes of this long-run problem?

Investment: poor levels of investment have been a persistent problem in the UK with consistently lower levels than in France and Germany. Many longstanding factors play a role in this, including political uncertainty and short-termism in financial markets and businesses (for example, Kay Review, 2012; Besley and Van Reenen, 2013).

Innovation: innovation is a major driver of productivity (for example, Bloom et al, 2013). One indicator of innovation inputs is business research and development (R&D), which as a fraction of GDP has been lower than in other advanced countries (see Figure 6). As with fixed capital investment, short-termism in financial markets is a factor in shortfalls in R&D (Crafts, 2015). Government outlays on R&D are also low by international standards and have been falling as a fraction of GDP in recent years.

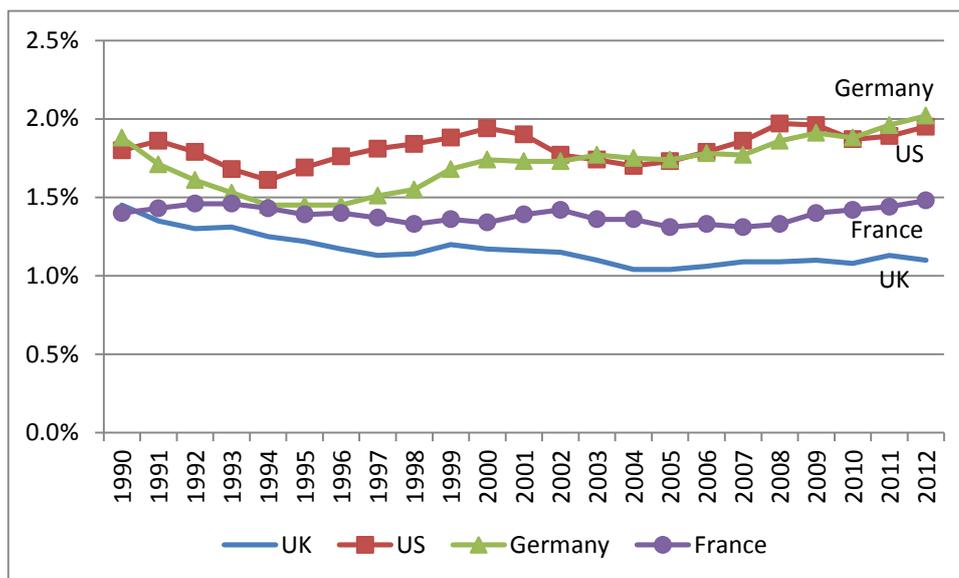
By contrast, the UK does well in basic science. With only 0.9% of the world's population and 4.1% of its researchers, the UK accounts for 15.9% of the world's most highly cited scientific publications (BIS, 2013). Investment in intangibles like information and communication technologies is also relatively high (Goodridge et al, 2013).

Figure 5: Output per hour worked, G7 Countries (UK=100)



Source: Current price GDP per hour worked from ONS data, International Comparisons of Productivity, First Estimates, 2013 (downloaded 6 January 2015). Average refers to G7 average, excluding UK.

Figure 6: Business expenditure on R&D as a percentage of GDP (BERD)



Source: OECD MSTI, data extracted 14 January 2015.

Management quality: the UK scores much worse than the United States, Germany, Japan and Sweden in terms of management quality. Bloom et al (2014) estimate that about a quarter of the UK's productivity gap with the United States could be down to poor management. Poor skills, weak competition, and a greater preponderance of family firms appear to be the major factors holding the UK back.

Business and productivity policies

Innovation and taxes

The major tax change affecting innovation was the introduction of the UK's first R&D tax credits in 2000.² International evidence shows that fiscal incentives are an effective way to increase research (for example, Bloom et al, 2002). Bond and Guceri (2012) show that this policy helped arrest the decline in R&D shown in Figure 6. R&D tax credits have been increased under the coalition government, in particular for small and medium-sized enterprises (SMEs).³

Introduced in 2013, the 'patent box' costs about £1 billion per year and is a tax incentive to locate intellectual property rights in the UK. Profits generated from a patent will be subject to a reduced corporation tax rate of 10% (by 2017-18). This is a poorly targeted policy since it gives tax breaks on royalties from existing innovations, rather than providing incentives for new innovation. The European Commission has labelled the scheme harmful tax competition as it fosters the ability of large, high-tech multinationals to reduce their corporate tax bills.⁴

Corporate taxes

The main rate of corporate tax was reduced from 33% in 1997 to 28% in 2008. Under the coalition government, it has been steadily reduced and will reach 20% in 2015-16 (so that it will be unified with the small companies rate). Although this represents the 'lowest rate in the G7', Bilicka and Devereux (2012) show that effective tax rates (accounting for capital allowances, which are less generous in the UK than for other countries) look much worse. In 2012, the UK ranked 37th among OECD and G20 countries combined on the effective marginal tax rate. Low corporate tax rates make the UK attractive for multinational headquarters but low capital allowances mean fewer incentives for industrial investment.

The corporate tax system favours debt over equity since interest payments are deductible from taxable profits. Equity finance, however, is more conducive to long-term investment, especially in innovation, since the value of shares is elastic, and dividends are discretionary so they can be paid once profits are being made (as opposed to interest, which must always be paid). An 'allowance for corporate equity', which would offer a tax break on issuing equity, could boost investment by around 6.1% according to the Mirrlees Review (2011). This is supported by the LSE Growth Commission and the British Chambers of Commerce.

There are numerous tax schemes to help small firms, none of them particularly well thought through. For example, there is 100% inheritance tax relief for business assets passed down through the family. But family firms have been shown to have worse management practices (Bloom and Van Reenen, 2007) and therefore such schemes dampen productivity in addition to distorting the tax system.

Tax avoidance and tax evasion

In the light of disappointing tax revenues, all parties have highlighted the need to clamp down on tax avoidance and evasion. Large corporations like Google, Starbucks and Amazon have been heavily criticised for shifting income to lower-tax jurisdictions. The coalition

² <http://cep.lse.ac.uk/pubs/download/cp346.pdf>

³ Finance Bill 2014 <https://www.gov.uk/government/collections/finance-bill-2014>

⁴ Following objections from the EU and Germany, the policy is to begin to be phased out after 2016 (Crafts, 2015), see also: <https://ipcopy.wordpress.com/2014/12/04/reports-of-the-death-of-the-uk-patent-box-are-greatly-exaggerated/>

government introduced a ‘general anti-abuse rule’ (GAAR) to prevent the use of ‘abusive’ tax avoidance schemes. It is too early to evaluate its success, but Bowler (2009) shows that GAARs in varying forms have had only mixed success and OBR (2014) finds that the anti-avoidance measures implemented between 2011 and 2014 were disappointing overall. A key issue appears to be that taxpayers are able to anticipate changes in the tax system.

The UK corporate tax gap has been estimated at £4.1 billion in 2010-11, nearly 10% of the total tax that should have been received (HMRC, 2012). Clearly, the extra tax income raised by tackling tax avoidance more effectively could translate into significantly reduced cuts in public spending.

The science budget

The science budget was £3.4 billion in 2007-08, more than double its 1997 level. Since the global financial crisis, this has been frozen in nominal terms. These *real* terms cuts have been larger than those experienced by the UK’s international peers and they are likely to have been harmful for productivity since public R&D leverages in private sector investment (Hughes et al, 2014; Moretti et al, 2014).

Targeted SME policies

There is a plethora of schemes, mainly targeted at SMEs, to help with finance, equipment and expertise, run by the Department for Business, Innovation and Skills (BIS) and Innovate UK. The rationale for such schemes is often unclear. Because SMEs have lower productivity and pay lower wages, a concern is that firms have incentives to stay small to take advantage of these subsidies (Garicano et al, 2012) and this could depress aggregate productivity. One area where there is a better rationale for support is providing finance for *innovative* SMEs. Financial constraints are likely to be particularly high for such companies.

There is a general paucity of high quality evaluations of these targeted SME schemes. This needs to change, and would require policy-makers to work with researchers to implement controlled policy experiments to allow robust evaluation.

Nevertheless, a few studies have found individual financing schemes to have positive effects – for example, the UK Small Firms Loan Guarantee Scheme (Cowling, 2010) and the Smart programme, which provides funding for R&D (PACEC, 2001 and 2003). But one recent high profile scheme – Funding for Lending (which offers incentives to banks and building societies to increase lending to SMEs) – is not considered to have made much of an impact (House of Commons, 2014).

Measures aimed at providing coaching and expertise are even less likely to have been evaluated (Ramlogan and Rigby, 2012), and it is unclear what difference they make. This is unfortunate as some of them are expensive (for example, the £200 million Growth Accelerator programme).

There are some international studies suggesting that schemes to promote collaboration between business and academia do help to stimulate investment and innovation (Cunningham and Gök, 2012). The *Catapult network* is a scheme of this type, so far considered a success (Hauser Review, 2014). Seven Catapult⁵ centres have been established to date, and these enable companies to access the equipment, expertise and information to develop and

⁵ <https://www.catapult.org.uk/>

commercialise innovative ideas by connecting them with research and academic communities. Each centre specialises in a different area of technology. A commitment has been made to invest in two new Catapults in 2015-16.

Since the global financial crisis, more targeted industrial policy aimed at specific sectors or technologies has made a comeback after decades of being out of favour. In 2012, the business secretary Vince Cable introduced support for key sectors and technologies seen as crucial for the success of the UK economy (see Annex 2). These measures seek to have long-term impacts, and it is therefore too early to evaluate their success.

Banking sector reform and the British Business Bank

A lack of competition in banking is seen as an impediment to firms accessing finance (Besley and Van Reenen, 2013). The coalition government has implemented a number of measures aimed at restructuring the market and increasing effective competition. In particular, the government has been focusing on removing barriers to entry in the sector, and implementing the Vickers Report (2013) recommendation to internally separate retail from investment banking. Measures to facilitate consumer switching across banks include a new seven-day current account switching service (see Annex 3 for more detail on policies to increase competition in banking).

The government has also entered the banking space directly, by establishing the British Business Bank (BBB), a publicly owned enterprise that aims to increase the supply of credit and other forms of finance via private sector partners to SMEs. In 2013, its programmes made £660 million of finance available to SMEs.

So far, these reforms have not injected substantial competition into the banking system. Indeed, since the merging of many banks during the crisis, the already highly concentrated UK banking sector has become even more concentrated. Moreover, the Financial Conduct Authority (FCA) has found that while the customer switching service is working well, there is a lack of awareness and confidence in the service, which severely limits its effectiveness.⁶

Corporate governance reforms

Can corporate governance structures be designed to encourage businesses to take a longer-term view of performance? The Financial Reporting Council has recently updated the UK Corporate Governance Code to get remuneration committees to design pay packages that promote the long-term success of the company. But evidence shows that CEOs are usually able to get around these (Bell and Van Reenen, 2012).

Proposals to link equity voting rights to investment duration – for example, restricting the voting power of short-term shareholders during takeover bids – have also been debated but have so far been rejected (for example, BIS, 2014). The main concern is that the differential treatment would allow incumbent majority shareholders to have too much control.

Competition policy

A number of studies have found that increases in product market competition boost productivity – for example, Blundell et al (1999). Pro-competitive reforms implemented after 1979 helped to drive productivity growth in the decades that followed (Crafts, 2012). The

⁶ See: <http://www.fca.org.uk/your-fca/documents/research/cass-report>

1998 Competition Act and the 2002 Enterprise Act strengthened competition further. Indices of product market liberalisation and the quality of competition enforcement regularly place the UK as the best in Europe and sometimes the OECD. Independent regulation and competition authorities (the new Competition and Market Authority) are designed to be more independent of the lobbying and media pressures faced by politicians.

Policies for business after 2015

There is consensus in many areas, but where do the parties differ?

Labour wants to do more to encourage long-term shareholding via corporate governance or tax changes and commissioned the Cox Review (which examined ways to overcome short-termism in British business) in 2013. They have indicated that they would restrict voting rights on a takeover to those already holding shares when a bid is made, and broaden the public interest test for takeovers to take into account the impact on the UK's science base. On taxes, Labour is considering reducing the bias towards debt by introducing an allowance for corporate equity – which would be a very welcome move – and the possibility of tapering capital gains tax on shares and dividends.

While the Conservatives would keep the main rate of corporate tax low, Labour has indicated that they would raise it (from 20% to 21%, although it would still be low relative to other G7 countries). Labour proposes using increased proceeds from corporation taxes to lower business rates.

All parties are highlighting the need to tackle tax avoidance and evasion. The coalition government introduced a proposal for a 'diverted profits tax' (DPT) in 2014. But the Treasury Committee has raised concerns about the unilateral character of this tax, and the decision to announce this type of tax ahead of the conclusion of the OECD's work on 'base erosion and profit shifting' (BEPS) may be undesirable.⁷ Labour are taking a tougher stance, and Ed Miliband has said he will demand that UK tax havens be put on an international blacklist within six months of a Labour government taking office unless they produce a public register of offshore company owners.⁸

There is agreement over the importance of targeted innovation policies, in particular for SMEs and key sectors or technologies. In general, there are differences in the detail (for example, to which sectors the industrial policy would be extended). Labour would establish a Small Business Administration modelled on the United States version, which would work with the British Business Bank and co-ordinate support for small businesses across government, reducing unnecessary regulation.

To promote more competition in banking, Labour would consider establishing a legal threshold for the market share of personal accounts and small business lending for any single bank. Both Labour and the Liberal Democrats would consider breaking up retail banking so that it is separate from riskier investment banking. All major parties agree that the British Business Bank should be further developed and play a central role in addressing the lack of

⁷ <http://www.publications.parliament.uk/pa/cm201415/cmselect/cmtreasy/870/87002.htm>.

⁸ Such a blacklist of non-cooperative countries with respect to tax evasion has been operated by the French government since January 2014. Those on the list face additional taxation on capital moving between them and France.

growth finance for SMEs, but Labour and the Liberal Democrats have plans to build on this with a regional banking network.

Finally, if elected, Labour would overturn aspects of the regulatory system where there are concerns over the effectiveness of competition. They would freeze gas and electricity bills until 2017 and introduce a tougher regulation regime so that if wholesale prices fall and this is not passed on fairly to consumers, the regulator would have the power to cut prices. There is nothing wrong in principle with delegating extra power to regulators, but ad hoc fixing of prices by ministers is undesirable. It undermines the principle of independent regulation. The much bigger problem is the security of supply of energy as UK generating capacity is running dangerously low (Besley and Van Reenen, 2013).

Conclusions

A key policy challenge is to address the UK's chronic productivity underperformance, an issue that has been heightened since the global financial crisis. To achieve this, the UK needs a long-term framework for investment and innovation. This ties in with many other policy areas, not least ensuring that there is an adequate supply of skills and a strong infrastructure network.

All parties agree on the importance of improving the UK's productivity performance, and that business policies to boost innovation and investment are key, in particular through improving firms' access to finance, information and expertise. There is also consensus for support for key industries via the new form of industrial policy.

The parties appear to be committed to ring-fencing the science budget, but no party has so far committed to protecting it in real terms, which is a concern since government-financed R&D is important both in its own right and through spillovers to the private sector.

Differences in policy are emerging on taxation structures, regulation and corporate governance, with Labour taking a more interventionist stance.

March 2015

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Further reading

Adonis Review (2014) *Mending the Fractured Economy* (<http://www.policy-network.net/publications/4695/Mending-the-Fractured-Economy>).

Bank of England (2014) 'The UK Productivity Puzzle', *Quarterly Bulletin* 114-128, (<http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q201.pdf>).

Bell, B and J Van Reenen (2012) "Firm Performance and Wages: Evidence from Across the Corporate Hierarchy" Centre for Economic Performance Discussion Paper No. 1088, (<http://cep.lse.ac.uk/pubs/download/dp1088.pdf>).

Besley, T and J Van Reenen (2013) *Investing for Prosperity: A Manifesto for Growth*, LSE Growth Commission.

Bilicka, K and M Devereux (2012) 'CBT Corporate Tax Ranking', Oxford University (http://www.sbs.ox.ac.uk/sites/default/files/Business_Taxation/Docs/Publications/Reports/cbt-tax-ranking-2012.pdf).

BIS (2013) 'International Comparative Performance of the UK Research Base, 2013' (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263729/bis-13-1297-international-comparative-performance-of-the-UK-research-base-2013.pdf).

BIS (2014) 'Building a Culture of Long-term Equity Investment, Implementation of the Kay Review: Progress Report', October 2014, Department for Business, Innovation and Skills.

Bloom, N, R Griffith and J Van Reenen (2002) 'Do R&D Tax Credits Work? Evidence from a Panel of Countries 1979-1997' *Journal of Public Economics* 85: 1-31.

Bloom, N and J Van Reenen (2007) 'Measuring and Explaining Management Practices across Firms and Countries', *Quarterly Journal of Economics* 122, 1351-1408.

Bloom, N, M Schankerman and J Van Reenen, J (2013) 'Identifying Technology Spillovers and Product Market Rivalry', *Econometrica* 81(4): 1347-93.

Bloom, N, R Sadun and J Van Reenen (2014) 'Management as a Technology', mimeo.

Blundell, R, R Griffith and J Van Reenen (1999) 'Market Share, Market Value and Innovation in a Panel of British Manufacturing Firms', *Review of Economic Studies* 66: 529-54.

Bond, S and I Guceri (2012) 'Trends in UK BERD after the Introduction of R&D Tax Credits', Oxford University CBT Working Paper Series 2012-2013.

Bowler, T (2009) 'Countering Tax Avoidance in the UK: Which Way Forward?', Tax Law Review Committee Discussion Paper No, 7 (<http://www.ifs.org.uk/comms/dp7.pdf>).

Corry, D, A Valero and J Van Reenen (2011) 'UK Economic Performance since 1997: Growth, Productivity and Jobs', Centre for Economic Performance Special Paper No. 24, December (<http://cep.lse.ac.uk/pubs/download/special/cepsp24.pdf>).

The Cox Review (2013) ‘Overcoming Short-termism’ (<http://www.yourbritain.org.uk/agenda-2015/policy-review/tackling-short-termism-the-cox-report>).

Cowling, M (2010) ‘Economic Evaluation of the Small Firms Loan Guarantee (SFLG) Scheme’.

Crafts, N (2012) ‘British Relative Economic Decline Revisited: The Role of Competition’, *Explorations in Economic History* 49(1): 17-29.

Crafts, N (2015) ‘UK Economic Growth since 2010: Is it as Bad as it Seems?’, *National Institute Economic Review*, 231: R17-R29.

Cunningham, P and A Gök (2012) ‘The Impact and Effectiveness of Policies to Support Collaboration for R&D and Innovation, Compendium of Evidence on the Effectiveness of Innovation Policy’.

Garicano, L, C Lelarge and J Van Reenen (2012) ‘Firm Size Distortions and the Productivity Distribution: Evidence from France’ Centre for Economic Performance Discussion Paper No. 1128, March (<http://cep.lse.ac.uk/pubs/download/dp1128.pdf>).

Goodridge P, J Haskel and G Wallis (2013) ‘Can Intangible Investment Explain the UK Productivity Puzzle?’, Imperial College Business School, 2013/02.

Gordon, R J (2014) ‘The Demise of US Economic Growth: Restatement, Rebuttal, and Reflections’, NBER Working Paper No. 19895.

Hauser Review (2014) ‘Review of the Catapult Network: Recommendations on the Future Shape, Scope and Ambition of the Programme’, (<https://www.gov.uk/government/publications/catapult-centres-hauser-review-recommendations>). .

HMRC (2012) ‘Measuring Tax Gaps 2012, Tax Gap Estimates for 2010-2011’, 18 October 2012.

House of Commons (2014) ‘Improving Access to Finance for Small and Medium Sized Enterprises’, HC775, published 21 January 2014.

Hughes, A, J Haskel and E Bascavusoglu-Moreau (2014) ‘The Economic Significance of the UK Science Base’, (<http://sciencecampaign.org.uk/UKScienceBase.pdf>).

Kay, J (2012) ‘The Kay Review of UK Equity Markets and Long-Term Decision Making’, Final Report’.

Mirrlees Review (2011) ‘Reforming the Tax System for the Twenty First Century’, Institute for Fiscal Studies.

Moretti, E, C Steinwender and J Van Reenen (2014) ‘The Intellectual Spoils of War? Defense R&D, Productivity and Spillovers’, mimeo.

OBR (2014) Office for Budget Responsibility: Economic and Fiscal Outlook, December 2014.

PACEC (2001) 'Evaluation of Smart', Department of Trade and Industry.

PACEC (2003) 'Evaluation on the Skills Impact of the Smart Scheme: Final Report', Department of Trade and Industry.

Pessoa, J P and J Van Reenen (2014) 'The UK Productivity and Jobs Puzzle: Does the Answer Lie in Wage Flexibility?', *Economic Journal* 124: 433-52.

Ramlogan, R and J Rigby (2012) 'The Impact and Effectiveness of Entrepreneurship Policy, Compendium of Evidence on the Effectiveness of Innovation Policy', NESTA Working Paper.

Vickers Report (2013) *The Independent Commission on Banking Final Report*, HMSO, SNBT 6171.

Weale, M (2014) 'The UK Productivity Puzzle: An International Perspective', speech given on 8 December 2014

(<http://www.bankofengland.co.uk/publications/Pages/speeches/2014/785.aspx>).

Annexes

1. Explanations of the productivity puzzle

It is hard to account for weak productivity in the UK since the global financial crisis. In this annex, we set out the key explanations put forward so far, grouped by theme. Some of these stem from deficient demand since the crisis. But others are due to more structural, supply-side forces. So far the consensus is that both the supply and demand sides matter, but that even adding the effects of all the explanations together, we are still unable to explain all of the productivity puzzle (for example, Bank of England, 2014).

Cyclical explanations

Productivity usually falls or slows down in a recession. When faced by low demand firms ‘hoard’ labour, or divert resources to low (immediate) productivity activities such as business development. This implies that firms have some spare capacity, and should be able to raise productivity when demand recovers.

Demand explanations have become less compelling over time as spare capacity reduces and employment rates recover to pre-recession levels. But this recession has been unusual in both its severity and slow recovery – the worst since the inter-war period. There remains controversy over the degree of UK spare capacity. Although surveys suggest relatively low amounts these are very crude and subjective. More statistically based measures of spare capacity suggest a larger output gap (4% of GDP in IFS, 2015, for example) and this is consistent with high levels of under-employment, very low wage growth and the weakness of the youth labour market. Monetary policy-makers have kept interest rates near zero, consistent with the view that there is little inflation risk.

Hence, it is likely that some part of the low productivity is still due to demand shortfalls, even if it cannot be all of the explanation.

Depressed investment

Low investment appears to be important for understanding the productivity puzzle. Low growth in capital per hour means low growth in GDP per hour. Since the global financial crisis, business investment has suffered due to increased uncertainty, cuts in public investment and dislocation in financial markets. Even though base interest rates are near zero, the banking crisis increased the cost of capital for UK businesses, especially for SMEs. Moreover, real wages have fallen by 8-10% since 2008, making labour cheap relative to capital. Real investment by the private and public sectors collapsed in 2008 and has only recently returned to anything near pre-crisis levels (Figure A1). The picture excluding intellectual property products is even worse (Figure A2).

Misallocation of capital

Lower aggregate labour productivity could have resulted from a misallocation of capital from high to low productivity firms, and some consider this to be an important factor in understanding the productivity puzzle. Misallocation may be due to unproductive firms staying in business, enjoying relatively low labour costs and interest rates. Further, during a banking crisis, banks may be reluctant to call in non-performing loans, a phenomenon known as ‘forbearance’, keeping ‘zombie’ companies in business. Equally, banks are unlikely to take

on new risks, so it may be much more difficult for new, potentially high productivity companies to grow.

Despite the popularity of this story, direct evidence is rare. It is true that exits have not been as great in this recession as previous ones, but this is rather indirect.

Measurement

Output or labour inputs may be mis-measured, which in turn means that labour productivity may be mis-measured. This would result in a slower trend than that witnessed in recent decades, implying that the true gap is smaller. For example, National Accounts data do not currently capture well investment in intangible assets such as marketing, management and innovation. Goodridge et al (2013) allow for intangible capital in analysing UK productivity growth through 2010 and argue that about a third of the productivity slowdown could be due to mis-measurement of intangible capital.

Industry composition

Aggregate productivity growth can slow because high productivity growth sectors have permanently shrunk relative to low productivity growth sectors. The oil and gas sector and the financial sector are two high productivity growth sectors in the UK and these have both shrunk. But the magnitude of these changes is not big enough to matter. Productivity growth within these sectors also appears to have slowed, but this is another way of describing rather than explaining the problem.

2. Industrial policy: key sectors and technologies

The *Industrial Strategy* announced by Vince Cable in 2013 includes government support for 11 *Key Sectors* and eight *Key Technologies*. The key sectors – aerospace, agricultural technologies, automotives, construction, information economy, international education, life sciences, nuclear, offshore wind, oil and gas and professional and business services – are all seen as strategically important, ‘tradable’ and with a ‘proven commitment to innovation’.⁹

Support has involved forums for industry leaders and government to discuss barriers to growth; the development of specific training institutions or initiatives within the sector; and some match-funded financial commitments to certain aspects of the sectors.¹⁰

The eight key technologies – big data, satellites, robotics and autonomous systems, synthetic biology, regenerative medicine, agri-science, advanced materials and energy storage – all have established roots in the UK (either through academia or business), and high growth potential.

Funding for the development of R&D centres for these technologies has been provided, some of which has been used to set up or enlarge Catapult centres. These types of activist industrial policies have been an international phenomenon in the years following the financial crisis.¹¹ Labour has also been developing its own vision of industrial policy (Adonis Review, 2014).

⁹ BIS, *Industrial strategy: UK sector analysis*, September 2012.

¹⁰ See: *Industrial Policy since 2010*, Commons Library Standard Note, <http://www.parliament.uk/business/publications/research/briefing-papers/SN06857/industrial-policy-since-2010>.

¹¹ See: <http://www.economist.com/node/16741043>.

3. Competition in banking

Measures to create a less concentrated market structure

In April 2014, the Payment Systems Regulator (PSR) was created as a subsidiary of the Financial Conduct Authority (FCA¹²). The PSR will be fully operational in April 2015, and will have ‘market investigation reference powers’ – that is, the power to take competition action over payment systems.¹³

The FCA and the Prudential Regulation Authority (PRA, which is part of the Bank of England) published ‘A review of requirements for firms entering into or expanding in the banking sector’ in 2013.¹⁴ This report describes ways to reduce barriers to entry. The review set out changes in two key areas: reforms to the authorisation process for bank applicants; and a shift in the approach to the prudential regulation of banking start-ups (for example, reduced capital requirements at authorisation).

The coalition government has committed to undertaking the recommendation from the Vickers Report (2013) to separate banks’ retail and investment arms by 2019, as set out in the Banking Reform Act 2013.¹⁵ The main objective is to protect customer deposits from the riskier activities carried out by investment banks, but separation also helps to level the playing field between the existing banks’ retail arms and potential new entrants in retail banking.

In addition, the coalition government introduced a new bank levy in January 2011, an annual tax on the value of all of the debts of the UK banks intended to encourage banks to move to less risky funding profiles (such as deposits and UK government debt). The levy raised £2.3 billion in tax receipts in 2013-2014.

Measures to increase effective competition

The coalition government reached an agreement with major current account providers to give customers their account data in a simple, standardised format that can be used in comparison sites (midata project) and enable switching.¹⁶

The Current Account Switching Service was launched in 2013. The FCA has published a review of its effectiveness, finding that while the service works well, there is a lack of customer awareness and confidence. The FCA has recommended full account number portability to make switching even more convenient.¹⁷

A number of measures have been implemented for SME banking specifically, some key measures are summarised here.

¹² The FCA is the financial services regulator which replaced the FSA following the Financial Services Act 2012.

¹³ <https://www.gov.uk/government/publications/budget-2014-documents>.

¹⁴ <http://www.fca.org.uk/firms/about-authorisation/dual-regulated-firms/banking-applications/barriers-to-entry>, and <https://www.gov.uk/government/publications/budget-2014-documents>.

¹⁵ <https://www.gov.uk/government/news/banking-reform-act-becomes-law>.

¹⁶ <https://www.gov.uk/government/publications/budget-2014-documents> and <https://www.gov.uk/government/policies/providing-better-information-and-protection-for-consumers/supporting-pages/personal-data>.

¹⁷ <http://www.fca.org.uk/your-fca/documents/research/cass-report>.

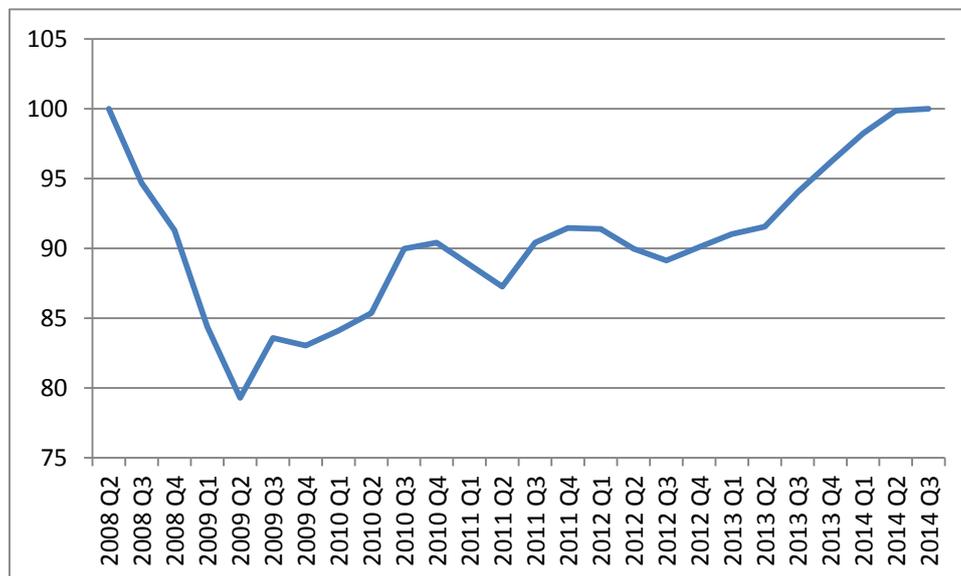
A survey of SME banking was commissioned by George Osborne in 2014. The results have been published on a website (<http://www.businessbankinginsight.co.uk/>), providing businesses with a tool to compare different banks based on the experiences of their peers. This enables firms to make more informed choices about which services are best suited to their needs.

There are also measures aimed at supporting SMEs that want to take finance from more than one provider, which often involves the need to decide the ‘deed of priority’ where finance is backed by securities (that is, the order of claims on assets). Banks are required to speed up the process, and this should increase competition, making it easier for SMEs to obtain finance from challenger banks or alternative finance providers.

In addition, the government has established a mandatory process to help match SMEs that have been rejected for finance with other lending opportunities from challenger banks and alternative finance providers (the Small Business, Enterprise and Employment Bill, 2014-15). When a loan application has been unsuccessful, banks have a duty to provide specified information about the SME to designated finance platforms that will help the business find alternative finance opportunities.

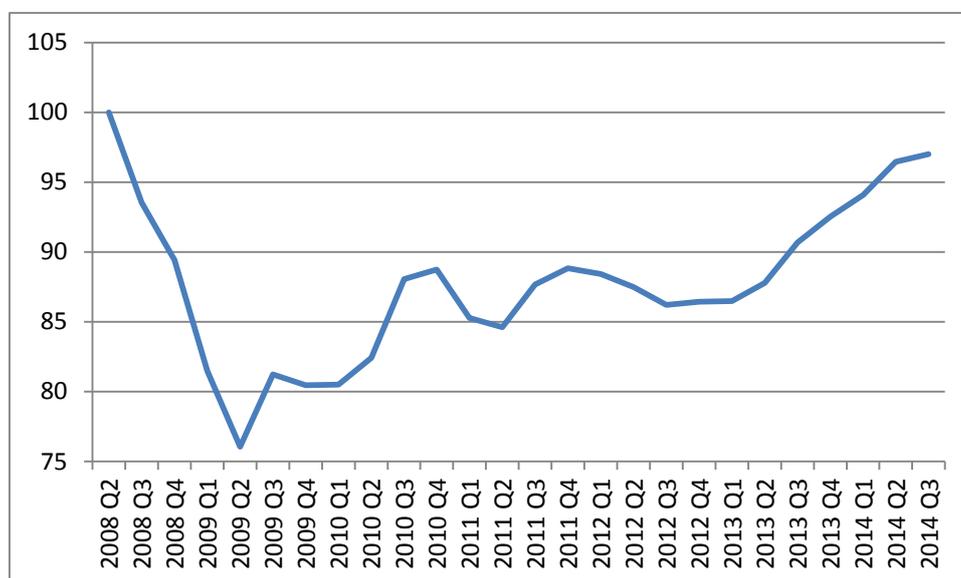
Additional figures

Figure A1: Quarterly gross fixed capital formation chained volume measures, Q2 2008=100

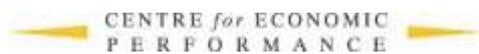


Source: ONS Statistical Bulletin, Business Investment, Q3 2014 Revised Results, 23 December 2014. Series NPQT, Total Investment (Government and Business), Chained Volume Measure.

Figure A2: Quarterly gross fixed capital formation, excluding intellectual property products, chained volume measures, Q2 2008=100



Source: ONS Statistical Bulletin, Q3 2014 Revised Results, 23 December 2014. Series: Gross Fixed Capital Formation, Chained Volume Measure, Series NPQT less Series EQDO.



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