

CATCHING THE PELOTON

THE BUSINESS INVESTMENT RACE AND HOW THE TAX SYSTEM
CAN HELP THE UK TO CATCH-UP

AUGUST 2018



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Executive summary

The global financial crisis and subsequent recession of the late 2000s precipitated a sustained stagnation of productivity growth in the UK and an unprecedented economic phenomenon in the post-war era. Productivity growth matters since it leads to more sustainable growth, better standards of living, and greater global competitiveness. For businesses, productivity matters because it determines how much they can pay their staff, how quickly they can grow and what they can invest in. This means that productivity growth is not only the key to long-term growth but is also needed to drive sustainable increases in pay and better opportunities for everyone in our society.

Investment is a key enabler of economic growth both now and in the future. Higher rates of business investment drive future productivity growth and higher standards of living. But, the UK underperforms relative to its international peers on levels of business investment, as this report shows. The UK has stood at the bottom of the G7 league table for close to four decades and the gap between the UK and the rest appears to have widened. In the UK, business investment accounts for 9% of GDP, compared to 13% across the G7.

Neither measurement issues, a decline in the UK's manufacturing base or the decision to exit the European Union can explain this gap. Business investment in intangible assets (which are often excluded from official data) has been increasing as the UK becomes a more knowledge-based economy. However, the same change has been seen across the G7. Including a broader definition of intangible investment does see the UK's investment intensity jump to 22.6% of GDP, but so does the rest of the G7, reaching 27% in the US and 30% in Sweden.

The uncertainty caused by Brexit has certainly affected businesses investment intentions more recently. Comparing current forecasts to those made pre-referendum, year-on-year business investment growth would have been 4.6% stronger on average (Q3 2016 to Q4 2017). But, overall investment intensity would not be dramatically different, averaging 9.7% compared to 9.3% and still below the G7 average of 13%.

With business investment in the G7 riding off into the distance, how can the UK catch up with the peloton? Productivity is a measure of business performance and there is more business can do to invest in their own success, including adopting readily available technologies and management best practices. More firms should take the leap and start exporting; the CBI's Regional Growth report showed that exporting makes firms more productive.

The policy environment created by government plays an important role in giving firms the confidence to invest and try out new approaches to running their business. The government has a range of policy tools it can use to affect the environment for business investment, for example through investment in infrastructure and skills, or through improving access to finance. But tax policy is one of the few ways in which the government can directly stimulate demand for business investment.

The UK now has lowest headline rate of corporation tax in the G20 and businesses place a high value on the strength of the UK's R&D tax credits scheme. Yet, there are significant gaps in the UK's tax incentive regime for investment, both in terms of the types of assets and compared to other G7 countries.

The present value of the UK's capital allowances regime is only 46% compared to an average of 64% across the rest of the G7. Much of this can be explained by the absence of allowances for industrial buildings in the UK (which make up close to 16% of total business investment). But, the present value of capital allowances for plant and machinery is also one of the lowest in the G7.

The tax incentive regime is also restricted to incentivising only a subset of intangible assets, such as R&D, patents and certain areas of design spend. Meanwhile, other intangible investment types, such as in organisational capital, have increased in importance over time without specific incentives being made available. However, business investment in training has been declining, falling from over £15 billion in 1999 to under £12 billion by 2014, despite the growing importance of human capital in the production processes of most firms.

The evidence is clear that a problem of under-investment by businesses exists in the UK and this is likely constraining productivity and economic growth. The CBI's report 'From Ostrich to Magpie' demonstrated that there are more UK businesses can do to increase their uptake of tried and tested technologies to boost their productivity. But, government must act too, by creating the right policy environment for businesses to feel confident in making those investment decisions. The tax system must work alongside other levers, and the Government's own Industrial Strategy, to deliver improvements in these areas.

Business investment in the slow lane

Why has business investment underperformed in the UK compared to other advanced economies?

Overall, the UK has underperformed on business investment since the late 1990s, trailing the peloton of advanced economies. Many of the widely cited explanations for this – such as measurement issues in official data and the decline of the UK’s manufacturing sector – do not appear to fully explain the UK’s underperformance. This suggests that UK businesses have faced longer, more structural barriers to investment, some of which relate to the lack of appropriate tax incentives to stimulate capital spending.

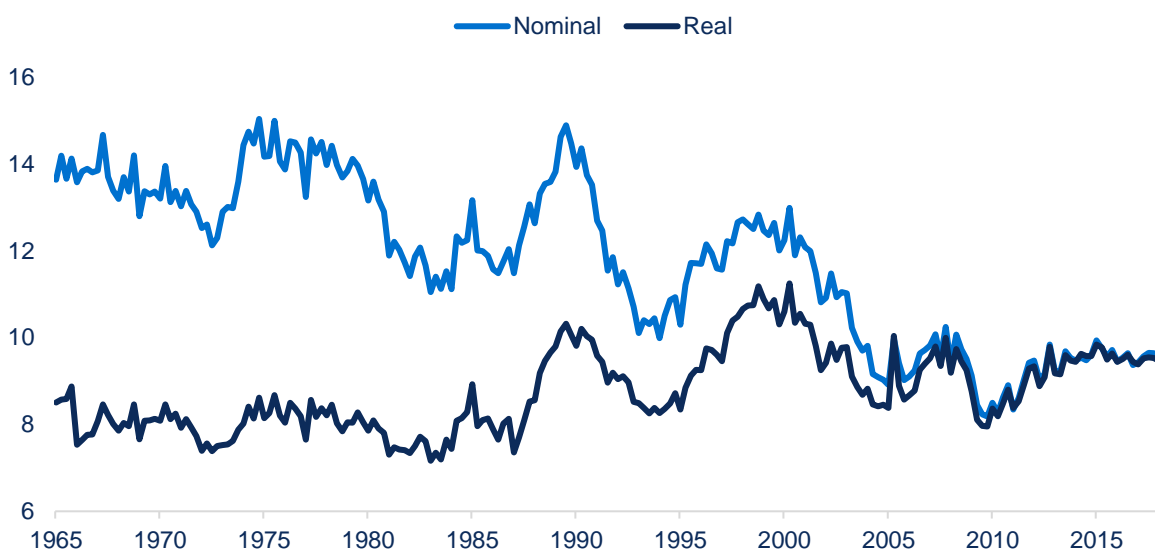
Stuck in the doldrums, and trailing global peers

The UK’s performance on business investment has varied over time. It made up an average of 8.3% of GDP between the two decades leading up to the mid-1980s, before seeing surges in the late 1980s and late 1990s – hitting a peak of 11.5% of GDP in 1998.

However, business investment then fell persistently as a percentage of GDP, a decline that was exacerbated by the 2007/8 financial crisis. After sinking to a low of 7.8% of GDP, it has recovered somewhat since – though at 9.3% of GDP (in real terms), remains well below the peaks seen 20-30 years ago.

Some of the decline in the nominal share of business investment to GDP can be accounted for by a decline in the relative price of investment goods over the late 1990s, in part thanks to cheaper capital goods entering the global economy via China’s emerging manufacturing powerhouse. However, the fact that we’ve also seen a decline in the share of real business investment in GDP (i.e. stripping out the impact of price changes) suggests other factors at work too.

Exhibit 1: Business investment as a % of GDP in the UK

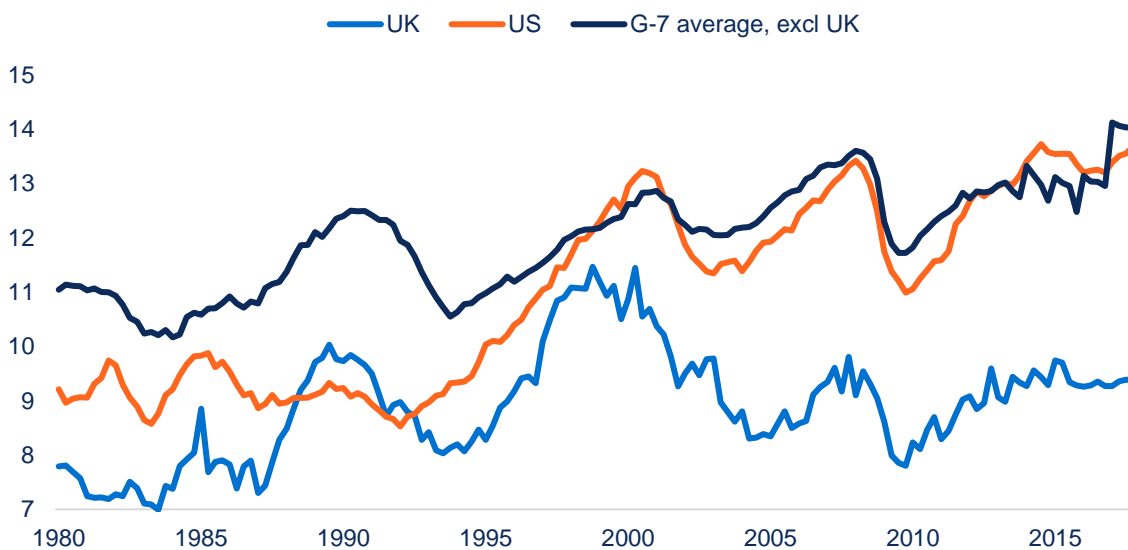


Source: ONS

Trailing other advanced economies

The UK's underperformance is even more stark when we look at other advanced economies. Despite the recent improvement in its investment intensity, and the surges in the late 1980s and 1990s, the UK has long trailed the peloton of its international peers. It has stood at the bottom of the G7 league for close to four decades, and the gap in investment intensity between the UK and the rest of the G7 appears to have widened since the late 1990s. In 2017, business investment made up around 13% of GDP across the G7, compared to 9% in the UK.

Exhibit 2: Business investment as a % of GDP



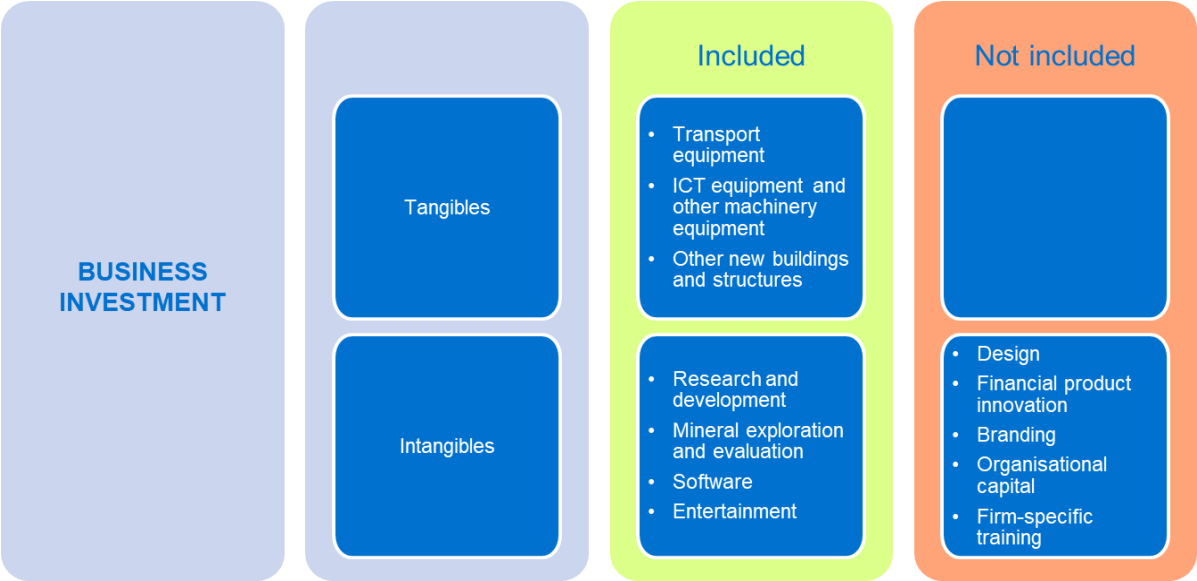
Source: Oxford Economics

We examine three widely cited reasons for the UK's underperformance on business investment: measurement issues in official data, the role played by a declining manufacturing sector and whether Brexit can account for any underperformance more recently.

Still a laggard, even when adjusting for intangibles

Some have questioned whether the UK's under-performance in business investment (particularly compared to other advanced economies) is due to the Office for National Statistics (ONS) using too narrow a definition of business investment when collecting official data. More specifically, the ONS still does not include many types of "intangible" investment – such as financial product innovation, branding and firm-specific training – which have become an increasingly important part of business' capital spending over time. "Tangible" investment or "physical" assets – such as buildings, transport and machinery equipment, are easier to measure.

Exhibit 3: Business investment as defined by the ONS



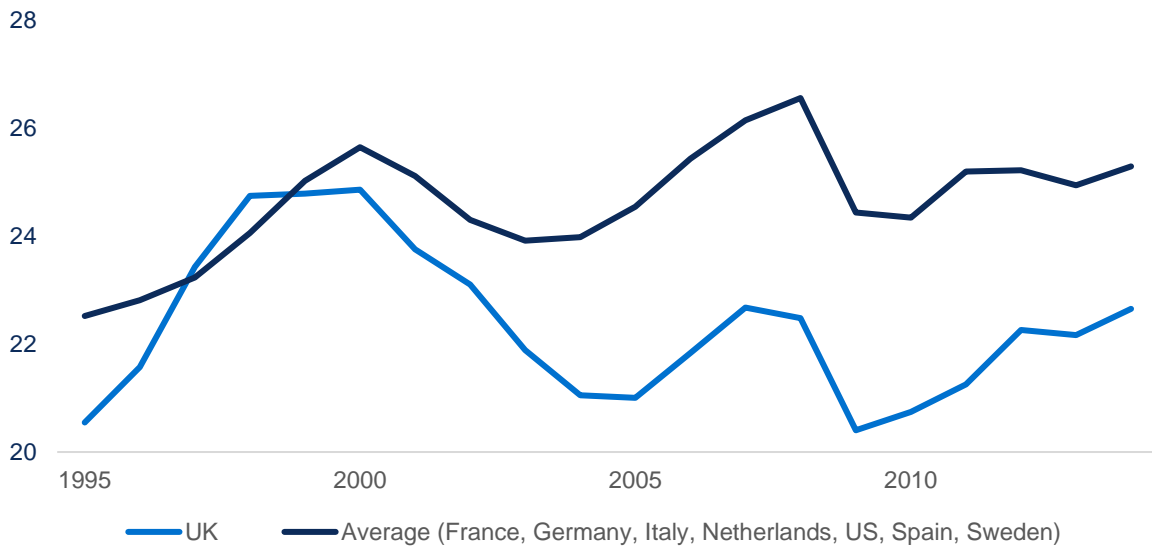
Source: ONS

We use an estimate of intangible investment developed by Jonathan Haskel and other academics, to try and get a more holistic picture of business investment in the UK economy. Adding this to the official data, the UK’s investment intensity does indeed look much better: jumping from 9.4% of GDP in 2014 (the last year for which data is available), to 22.6%.¹

However, other advanced economies also see their level of business investment increase substantially when using a broader definition than the one used by their respective statistical agencies. When we add in the same types of intangible investment for other advanced economies, the gap does narrow, but it remains clear that the UK still underperforms globally: compared to 22% in the UK, business investment including all intangibles made up 27% of GDP in the US, and 30% of GDP in Sweden.

¹ www.intaninvest.net, Carol Corrado, Jonathan Haskel, Cecilia Jona-Lasinio, and Massimiliano Iommi

Exhibit 4: Business investment including all intangibles as a % of GVA



Source: www.Intaninvest.net

Sectoral mix and investment intensity

The UK's comparatively weak business investment has also been attributed to the relative decline in its manufacturing sector over time: the notion being that manufacturers invest more in "physical" assets than services firms, so a shrinking manufacturing sector is directly linked to falling investment intensity.

Over recent decades, there has indeed been a marked shift in the structure of the UK economy, away from manufacturing and towards knowledge-intensive services such as finance, professional services and ICT: between 1970 and 2017, manufacturing's share of gross value added (GVA) fell from close to 30% to 10%, while services' share increased from 67% to 81%.^{2,3}

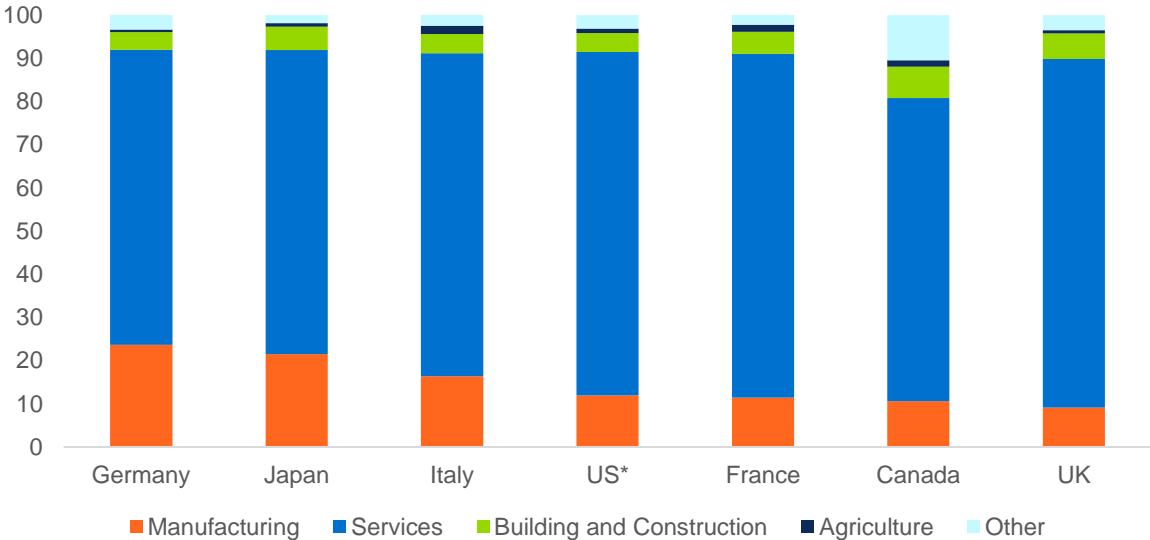
But while the UK economy has undoubtedly undergone profound structural changes, these still do not explain the bulk of the UK's underperformance in business investment. Indeed, other advanced economies experienced similar changes over the same period without corresponding declines in their investment intensity.⁴

² "Industrial Strategy: UK Sectoral Analysis", BIS Economic Paper no.18, September 2012.

³ "Manufacturing: Statistics and Policy", House of Commons Library Briefing Paper, January 2018

⁴ "Industrial Strategy: UK Sectoral Analysis", BIS Economic Paper no.18, September 2012.

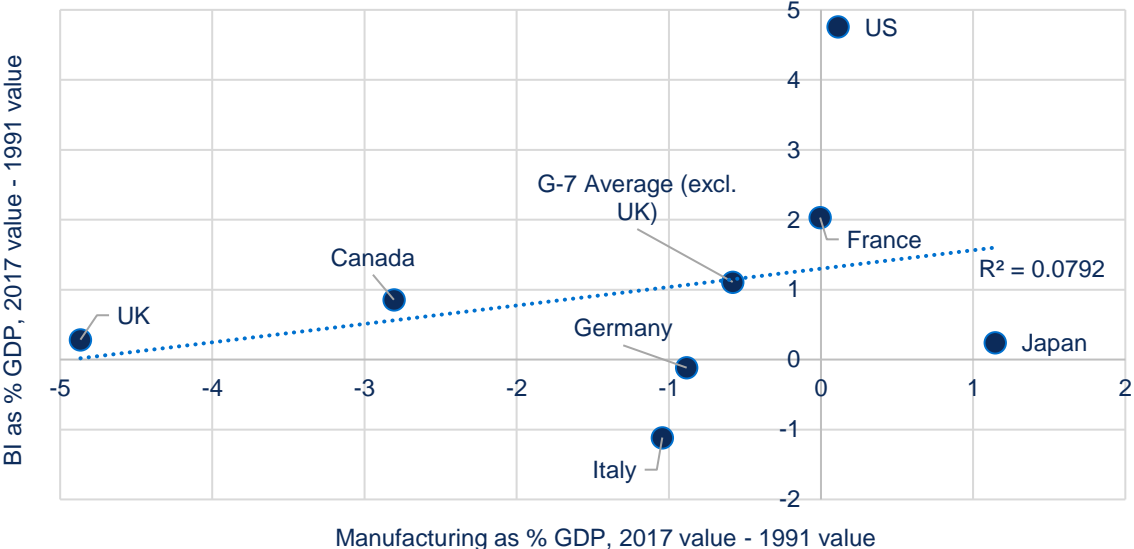
Exhibit 5: GVA by sector (% of total), 2017



Source: EcoFin, OECD. *US data is 2016

The UK did experience the sharpest decline in manufacturing compared to the rest of the G7, but this also does not fully explain its underperformance in business investment. Indeed, there appears to be very little relation between changes in the share of manufacturing to GDP, and changes in the share of business investment to GDP, for G7 countries over the past 30 years.

Exhibit 6: Changes in manufacturing and business investment, 1991-2017



Source: Oxford economics

In the UK, the decline in manufacturing has actually corresponded to an *increase* in business investment intensity (i.e. particularly over the late-1980s/90s). This could be explained by the relatively low level of investment intensity in the manufacturing sector in the UK, compared to other sectors which became a more prominent part of the economy over the same period.

Exhibit 7: Investment intensity, by sector

Rank	Sector	Investment intensity* (1998-2015 average)
1	Electricity, gas and water supply	2.7
2	Agriculture, forestry and mining	1.9
3	Information and communication	1.8
4	Transport services	1.7
5	Accommodation, food services	1.5
6	Manufacturing	1.3
7	Financial services	1.2
8	Wholesale and retail	1.1
9	Construction	0.8
10	Other	0.6

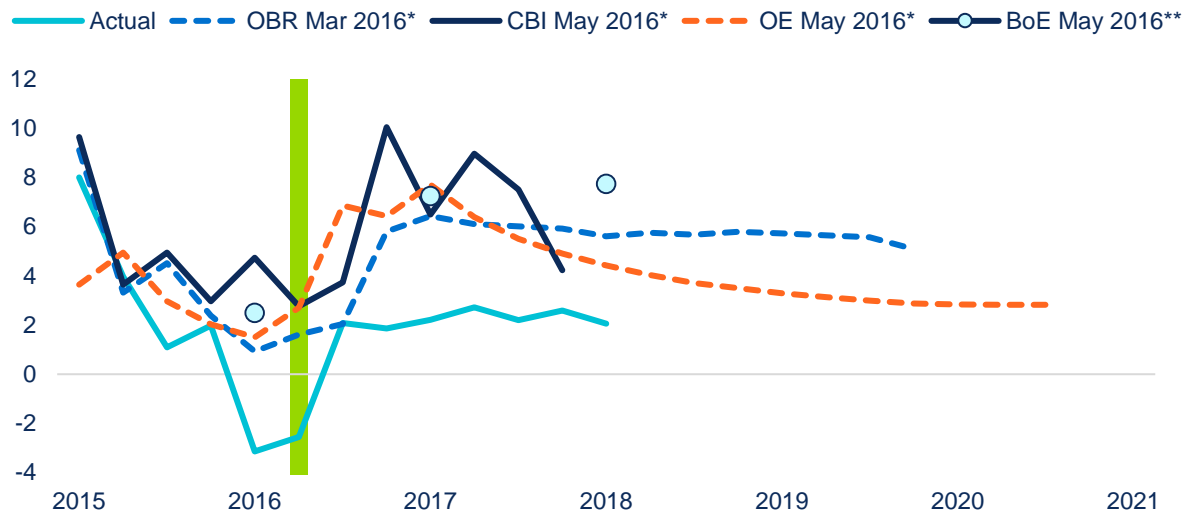
Source: ONS. *Investment intensity = sector's percentage of GVA / sector's percentage of business investment

The impact of Brexit

More recently, uncertainty around Brexit has contributed to a weaker investment climate in the UK. Business' investment intentions – as recorded by both CBI and non-CBI surveys – deteriorated noticeably following the June 2016 referendum. While they have remained above their long-run averages, plans for investment remain below their pre-referendum highs. Uncertainty is indeed deterring investment, in particular in larger projects: packaging manufacturer DS Smith announced in March 2018 that it had been holding up investment since the referendum, while in July 2018 Jaguar Land Rover warned that £80bn of investment planned over the next five years could be jeopardized by Brexit. In some cases, foreign companies are wary to invest in the UK until they have more clarity: in June 2018, aeronautics giant Airbus warned that it would carefully monitor any new investments in the UK, and might be forced to leave the country, while German Industry UK (GIUK) – which represents firms such as automakers BMW and Mercedes-Benz – announced in July 2018 that German business leaders were unwilling to invest in the UK because of Brexit uncertainty.

While business investment growth itself (as measured by official data) has held up better than most analysts had expected post-Brexit, it is still much lower than implied by pre-referendum forecasts – suggesting that business investment would have been far stronger if the UK had remained in the EU. Looking at the CBI's pre-referendum forecasts alone (in May 2016), year-on-year business investment growth would have been 4.6 percentage points stronger on average (between Q3 2016 and Q4 2017), had the referendum vote gone the other way. This picture is corroborated by other pre-referendum business investment forecasts.

Exhibit 8: Business investment, % change year on year



Source: ONS, Office for Budget Responsibility, Bank of England, Oxford Economics, CBI. *Latest forecast published prior to the referendum. **Annual averages

Having said that, stronger business investment growth since 2016 would have had very little impact on the UK's more structural underperformance. Assuming that business investment had grown in line with our pre-referendum forecast, its ratio to GDP would have averaged 9.7% between Q2 2016 and Q4 2017. This isn't much higher than the actual level of 9.3% and is still below the G7 average of 13%.

In addition, investment intensity in the UK had been declining substantially from around the late 1990s, well before the UK's decision to leave the European Union. While uncertainties surrounding Brexit, negotiations can therefore explain some of the recent weakness in business investment growth in the UK, its underperformance appears to be rooted in deeper, more structural issues.

What issues is the UK facing?

Our analysis suggests that the UK's underperformance on business investment cannot be fully explained by either measurement issues, a declining manufacturing sector or more recently Brexit uncertainty.

So why might the UK have performed so poorly against its global counterparts? Recent studies on business investment in the UK highlight a number of factors that could shed some light.⁵ Following the Bank of England's terminology, these factors can be divided in the following two broad categories: financial obstacles, and real economic obstacles.⁶

Financial obstacles are constraints that firms face when financing or looking to finance investment. While some of these constraints stem from structural issues in financial

⁵ See "Invested Interest - The Long-Term Investment Challenge Facing The UK Economy", CBI report, August 2014; "Business investment, cost of capital and uncertainty in the United Kingdom — evidence from firm-level analysis", Bank of England Staff Working Paper No. 717, March 2018; "Uncertainty and investment dynamics", Review of Economic Studies, Vol. 74, 2007; "Explaining trends in UK business investment", Bank of England Quarterly Bulletin, 2002Q2; "The best versus the rest: the global productivity slowdown, divergence across firms and the role of public policy", OECD Productivity Working Papers No. 5, 2016; "Financial pressure and balance sheet adjustment by UK firms", Bank of England Working Paper no. 168, October 2002; "The Deindustrial Revolution: The Rise and Fall of UK Manufacturing, 1870-2010", Centre for Business Research, University of Cambridge, June 2014.

⁶ "The financial system and productive investment: new survey evidence", Bank of England Quarterly Bulletin, 2017Q1.

markets, others are related to internal funding within firms and related issues, such as their management and financial planning practices.

Structural issues in financial markets – including limited availability of and access to patient capital, and overdependence on bank financing for SMEs – are a major hurdle to firms investing in the UK. In addition to reducing the availability of external funding suitable for capital spending, it also raises the cost of available finance for firms, deterring investment.

Some firms' difficulties or unwillingness to use *internal funding for capital expenditure* also drag on the UK's overall business investment performance:

- High levels of indebtedness can reduce the *ability* that firms have to invest,
- Inertia of investment decisions and prioritisation of non-investment uses of funds weaken firms' *willingness* to invest.

Relatedly, some have argued that increased "*short-termism*" among UK firms – i.e. the prioritisation of short-term returns over long-term investment by both investors and financial managers – limits firms' allocation of capital to productive investment.

Real economic obstacles are all other obstacles to business investment that do not relate to firms' finances. They include:

- *Longer-term issues weighing on the attractiveness of the UK's business environment:* Less competitive tax incentives to invest, comparatively poor-quality infrastructure and high energy costs, alongside low levels of R&D and training in human capital
- *Uncertainty about demand, growth and the political environment:* Higher policy uncertainty since the global financial crisis, heightened regulatory uncertainty in some sectors and more recently, uncertainty around Brexit
- *The rising innovation cost for laggard firms* to catch up with frontier companies – the latter adopting and leading innovation, and the "long tail" of less innovative business failing to catch up
- *Skills shortages* within firms, which could constrain the adoption of innovation, and more generally limit the scope for investment. Our business surveys and anecdote from members suggest skill shortages and recruitment difficulties are currently particularly high
- *Other considerations:* aside from the measurement issues relating to intangible capital spending, business investment data in the UK is particularly prone to revisions, which could increase the risk of misdirection when looking at the macro picture.

It is likely, therefore, that the UK faces a number of structural barriers to investment. The solutions to tackle them are likely to be nuanced and multi-pronged. The government can however, play a pivotal role in stimulating businesses to invest more, particularly through tax incentives.

Kick-starting business investment

Can the UK Government do more to create an environment conducive to business investment?

The UK policy landscape

It is clear looking at the evidence that the UK's underperformance on business investment cannot wholly be attributed to a declining manufacturing base or uncertainty caused by the UK's decision to exit from the European Union. This points to a deeper structural issue that must be addressed.

Business investment is critical for the delivery of significant improvements in the UK's productivity performance, a key driver of future growth and prosperity. Therefore, while there is a role for business in delivering investment, the government must provide the right policy environment for businesses to feel confident in making those investment decisions.

The tax system as an enabler of business investment

The UK Government has a range of tools at its disposal to support the business environment and firm decision-making, including investment in infrastructure and skills and improving firms' access to finance. However, tax policy is one of the few levers any government has at its disposal to affect the environment for business investment.

Internationally, the OECD has highlighted the importance governments must place on ensuring the tax burden does not act to disincentivise business investment. They note that the level of taxation can influence the rate of return on an investment and therefore may directly affect the amount of investment undertaken.⁷ In the UK, the Government's Industrial Strategy also recognises this link, and the evidence provided in the green paper showed that a correlation exists between government investment and tax support, and the level of business investment.⁸

“[the Government] needs to ensure that regulatory frameworks, tax and fiscal incentives support business investment rather than distort markets.”

Building our Industrial Strategy, January 2017

The role of tax in businesses investment decisions is often oversimplified, with a large weighting being placed on the headline rate that businesses pay on their annual profits. However, when businesses are considering an investment decision, the headline rate is only one factor among many. While low tax rates can help to encourage investment at the margin, the infrastructure underpinning the tax system is just as important. Stability, predictability and level playing fields are some of the factors that will impact businesses' decisions. Where the rules and their application are not transparent, too complex, or

⁷ Policy Framework for Investment, A review of Good Practice, Chapter 5: Tax Policy, OECD 2006.

⁸ Building our Industrial Strategy, January 2017.

unpredictable, this increases the cost of the investment and adds to uncertainty over profitability.⁹

The current tax incentive regime in the UK

Within the broader tax system, the Government can use specific levers to encourage a greater level of business investment. With the economic evidence suggesting the UK has a problem of under-investment the time is right to evaluate whether tax incentives are working as hard as they can to deliver the best economic outcomes.

Tax incentives act to reduce the overall cost to a business of making an investment and as a result increase the investment's rate of return. This makes it more likely that businesses will undertake these investments within their limited resources.

In the UK, a suite of tax measures exist that help increase the financial viability of investing. This report does not attempt to cover all of these in detail but instead focuses on the most significant of them:

- **Capital allowances** - provide a tax incentive to encourage and bring forward investment in capital used in the business (e.g. plant and machinery).
- **R&D tax relief** - target those businesses undertaking R&D with the aim of promoting innovative projects in science and technology.
- **Patent box** - incentivises domestic and foreign direct investment, spurring innovation through lower tax rates from patented innovations that have been developed in the UK.

Exhibit 9: Principal investment tax incentives in the UK

	Overview	The UK's offer
Capital allowances	<ul style="list-style-type: none"> • Provides corporation tax or income tax relief for qualifying assets • Relief is generally spread over a period of years but businesses may also be able to claim Annual Investment Allowance (AIA) which provides relief in the year of expenditure 	<ul style="list-style-type: none"> • Available for both plant and machinery, including some fixtures and integral features in a commercial building • Writing down allowances (WDAs)* can currently be claimed at 18% in the main pool, or 8% in the special rate pool** • AIA can currently be claimed up to the value of £200,000
R&D tax relief	<ul style="list-style-type: none"> • Companies undertaking research and development (R&D) could benefit from corporation tax relief on qualifying expenditure • Broadly, R&D for tax purposes arises within a project that seeks to achieve an advance in science or technology 	<ul style="list-style-type: none"> • Generally, the R&D expenditure credit (RDEC) provides large businesses with a tax credit for 12% of qualifying R&D expenditure • Small and medium sized enterprises (SMEs) are eligible for an additional deduction of 130%, a tax credit is also available in some circumstances
Patent box	<ul style="list-style-type: none"> • Provides companies a lower Corporation Tax rate to profits earned from patented innovations developed in the UK 	<ul style="list-style-type: none"> • The regime seeks to tax those worldwide profits attributable to qualifying patents and a few similar IP rights at an effective corporation tax rate of 10%

Source: CBI analysis

*A WDA is a type of capital allowance where a business deducts a percentage of the value of an item from their profits each year

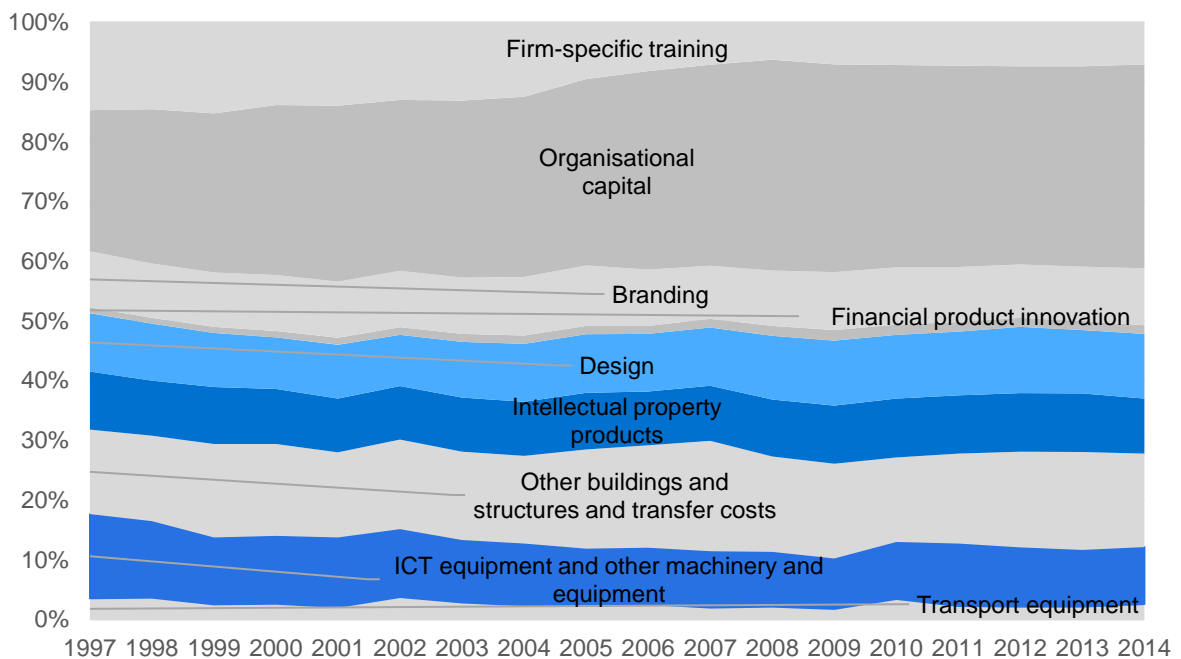
** Qualifying capital expenditure is allocated to either to main pool or special rate pool depending on the type of expenditure

⁹ Policy Framework for Investment, A review of Good Practice, Chapter 5: Tax Policy, OECD 2006.

The impact of the current tax incentive regime

As set out in the preceding chapter business investment is made-up of a range of tangible and intangible asset types. By looking at the composition of business investment by asset type (including intangibles not currently included in official data), as shown in Exhibit 10 we can see that over the past 15 years there has been a shift towards expenditure on organisational capital. In fact, organisational capital now accounts for 34% of total business investment (2014), compared to 24% in 1997.¹⁰ However, while other areas of intangible assets have also seen increases in business investment (such as design, branding etc.), businesses appear to be investing less in training. In 1999 the value of investment in training was over £15 billion, whereas in 2014 it was under £12 billion.¹¹

Exhibit 10: Business investment in the UK by asset type, % of total business investment



Source: CBI analysis based on ONS

If we map these business investment asset types against the incentives available through the tax system, we start to see gaps in the coverage of the UK's incentives regime.

Some coverage is provided for various asset types by the three principal investment tax incentives:

- For intellectual property products, R&D tax reliefs encourage businesses undertaking R&D to continue investment. The patent box further incentivises innovative intellectual property development through preferential corporation tax rates.¹²
- Capital allowances support business investment in ICT equipment and other machinery used in the business.
- Tax incentives for design may be available depending on the exact nature of the activity undertaken.

¹⁰ 2014 is the latest year available based on the dataset.

¹¹ www.intaninvest.net, Carol Corrado, Jonathan Haskel, Cecilia Jona-Lasinio, and Massimiliano Iommi

¹² Intellectual property products comprise namely research and development (R&D), mineral exploration and evaluation, computer software and databases, and entertainment, literary and artistic originals.

However, the incentives do not support all types of business investment spending. These tax incentive gaps are highlighted within Exhibit 10.

A lack of tax incentives to encourage training might go some way in explaining the fall of business investment in this area. The CBI's Industrial Trends survey for the three months to July 2018 pointed to a sharp fall in investment intentions in training and retraining, with some firms citing some inadequacies in the Apprenticeship Levy as a cause of retrenching spending. With the importance of human capital rising, despite the availability of the Apprenticeship Levy, tax incentives would further encourage investment in training. One way to deliver this is to make the apprenticeship levy more flexible.

Notwithstanding some very specific tax incentives available through the UK's capital allowances regime for some building features, the regime does not provide tax incentives for investment in buildings and structures themselves.

With the economic evidence suggesting the UK has a problem of under-investment, tax incentives can go further in encouraging businesses to undertake these investments within their limited resources.

Capital allowances

Some form of capital allowances has been available in the UK since the late 1800s. They are one of the most frequently used tax incentive by businesses in the UK, and over the past decade, changes to the capital allowances rules have accelerated the number of claims being made.¹³ By 2015/16 1.2 million businesses were claiming capital allowances, providing some indication that capital allowances are resulting in a greater level of business investment.¹⁴

This large uptake clearly has an initial cost to government in terms of foregone revenue. It is estimated that in 2017/18 capital allowances will cost the Exchequer £21.5 billion, the average cost per year over the past 5 years.¹⁵ However by allowing businesses to deduct a portion of the significant up-front expenditure incurred in projects from a business's tax liability, capital allowances can help to lower the cost of capital, increasing the viability of investments. Research by Bond and Xing finds 'very robust evidence' that more generous capital allowances for equipment in particular can help to tip investment decisions over the line.¹⁶ Over the longer-term the increase in economic growth that results from these projects should more than offset the short-term cost to the Exchequer.

Even though there is evidence to suggest capital allowances are a cost-effective policy, the scope of the qualifying relief does not capture every type of capital expenditure made by businesses. Other buildings and structures, which represents a significant proportion of business investment, are unlikely to qualify for capital allowances.¹⁷ Previously the UK had an Industrial Building Allowance (IBA), which provided allowances on the capital cost of constructing buildings or structures. However, from April 2011 the IBA was abolished as part of the 2008 reforms.

¹³ On 21 March 2007 as part of the Budget, the Chancellor announced a large overhaul of the capital allowances system to take effect from the following fiscal year (2008/09). From fiscal year 2008/09, the rate of Writing Down Allowances was cut to 20 per cent and the First Year Allowances were replaced by the Annual Investment Allowance, an allowance available to all businesses.

¹⁴ OTS – Accounting depreciation or capital allowances? Simplifying tax reliefs for tangible fixed assets, June 2018

¹⁵ HMRC estimated costs of principal tax reliefs. To note, these HMRC figures on cost of capital allowances are particularly tentative and subject to a wide margin of error.

¹⁶ Bond and Xing, "Corporate Taxation and capital accumulation: evidence from sectoral panel data for 14 OECD countries", 2013

¹⁷ There are some forms of expenditure on buildings that allowances are available for, including: qualifying for Enterprise Zone Allowances; Research & Development Allowances; and Business Premises Renovation Allowances

R&D tax relief

R&D tax reliefs are narrower in scope than capital allowances, targeting innovative projects in the development of science and technology. R&D tax reliefs are available through R&D tax credits or a super-deduction.¹⁸ The uptake of this incentive has been increasing over the past five years, with over 26,000 claims made in 2015/16 compared to almost 11,000 in 2010/11.¹⁹

R&D tax reliefs are an example of where government intervention has helped to address a market failure.²⁰ Spending on R&D can realise significant long-term economic benefits but, when left to its own devices, the market under invests in R&D due to the significance of the up-front cost that financially constrain businesses from investing.

This problem is particularly acute for small and medium-sized enterprises (SMEs) where R&D projects that typically involve significant upfront costs are much less feasible than for larger businesses. R&D reliefs can help support SMEs undertake such projects; of those claims made in 2015/16, over 80% were by SMEs.

The Government has shown a commitment to increasing R&D investment through tax incentives and recently announced an increase in the rate of R&D tax credit relief from 11% to 12%. The Government is also directly funding R&D activity through mechanisms such as the National Productivity Investment Fund.²¹

While in 2015/16 R&D tax relief schemes cost the government £2.9 billion, almost £23 billion in R&D expenditure was realised, the equivalent of almost 8 times the cost to government. A report by HMRC in 2015 found that £1 in foregone tax revenue creates between £1.53 and £2.35 of R&D expenditure.²² Businesses also value the stability of the R&D tax credit scheme, which has existed for SMEs since 2000 and for larger businesses since 2002, and it is seen as a critical element of the UK's broader innovation ecosystem.

Case study: QinetiQ

QinetiQ applied its vast experience in defence stealth technologies to the wind farm sector. The concept of a stealth blade had been demonstrated in Norfolk in 2009. Working alongside EDF Energies Nouvelles and turbine manufacturer Vestas, QinetiQ integrated an innovative material that is applied without structural change to wind turbines to reduce their radar signature by up to 99%. This technology enabled France's largest wind farm to be installed without significant interference to the weather radar located nearby. The availability of R&D tax relief enables QinetiQ to set aside funding for this and similar internal investment projects.

Spending on R&D is carried out across a range of sectors and not just those traditionally thought of as R&D intensive. The manufacturing sector accounts for the highest number of claims followed closely by Information and Communication. However, the mining and quarrying sector make the most significant expenditures by claim.

¹⁸ From 1 April 2015, an SME can claim an extra corporation tax deduction (currently an extra 130%) on their qualifying R&D costs, or for loss-making companies, surrender their losses in return for a payable tax credit.

¹⁹ HMRC estimated costs of principal tax reliefs

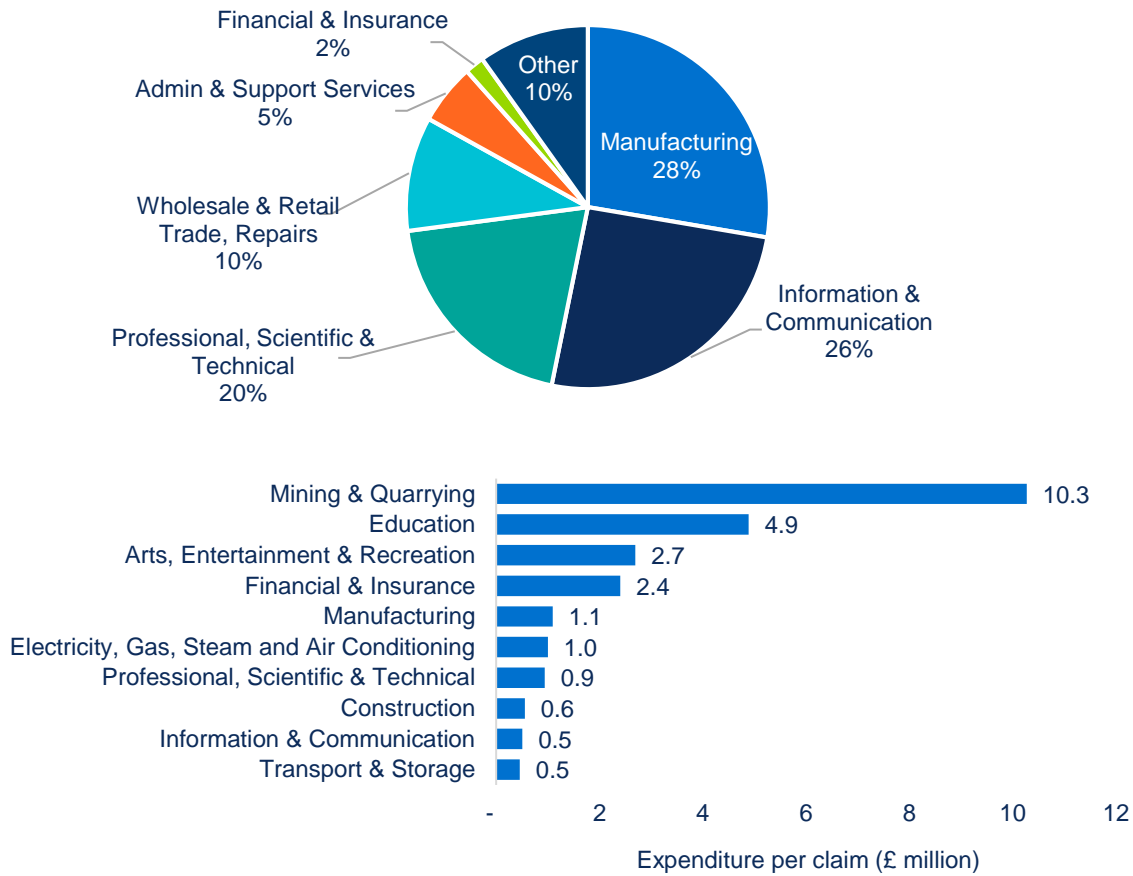
²⁰ A market failure is defined as a market that is not allocating resources optimally i.e. there is an over or an under allocation of a particular resource.

²¹ Autumn Budget 2017 commitment of £31 billion to the national productivity fund, with £7 billion funding available for R&D.

²² Evaluation of Research and Development Tax Credit, HMRC Working Paper 17:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/413629/HMRC_WorkingPaper_17_R_D_Evaluation_Final.pdf

Exhibit 11: Share of R&D tax credit claims by sector and top 10 expenditure per claim, 2015/16



Source: CBI analysis based on HMRC's Research and Development Tax Credits Statistics

Although evidence suggests this is a cost-effective policy, there is still more the Government could do to support business certainty. Clear guidelines setting out qualifying R&D expenditure and reassurance that future R&D expenditure will qualify would create greater certainty for businesses to undertake long-term projects.

Patent box

Introduced in 2013, the patent box aims to encourage IP to be developed and located in the UK. As well as encouraging business investment, the patent box aims to promote inward investment by increasing the UK's competitiveness as an investment location.

Since its introduction, the number of companies using the patent box has increased by almost 40%, with the value of relief claimed increasing twice as much, by almost 80%.^{23,24} The number of companies using the patent box is distributed evenly across different sizes of businesses, but the expenditure of this relief is significantly skewed towards large companies. Of the £652 million claimed in 2014/15, £617 million is from large companies, representing 95% of total relief claimed.

As the patent box is relatively new, there is limited academic research on its effectiveness. When first announced, the IFS estimated that a UK patent box would more than double the UK's share of new patent holdings, which would more than offset the likely reduction driven by the introduction of patent boxes in the Benelux countries. However, the IFS did criticise the UK patent box as being poorly targeted and therefore providing limited incentive to conduct research activities in the UK.²⁵ Anecdotal evidence from CBI members

²³ Figures reported compare 2014/15 to 2013/14 as this is the latest data available.

²⁴ HMRC patent box data

²⁵ Corporate taxes and Intellectual Property: Simulating the Effect of Patent Boxes, Institute for Fiscal Studies 2010.

suggests that key decisions on where to locate IP and technology spend are being directly impacted by the tax benefits available in the UK.

There tends to be a long lead time for businesses' decisions about where to locate patent related activity and therefore predictability over the future availability of relief and the competitiveness of the UK's rates are important for business investment decisions.

Following over 2 years of work and international discussion and negotiations, in October 2015 the OECD published its final report setting out a package of measures for comprehensive reform of the international tax framework. This was in response to calls from G20 Finance Ministers to address the issue of Base Erosion and Profit Shifting (BEPS) by international businesses.²⁶ These recommendations (under Action 5) included adaptations to countries' IP regimes.

The new 'nexus' preferential IP regime requires that there now needs to be a process whereby the research and development (R&D) undertaken to develop an IP asset (termed 'substantial activity') has taken place within the territory of the preferential IP regime providing the link, or nexus between R&D expenditure and IP income. Countries are currently in the process of reviewing, or already have made changes to, their IP regime rules. The UK adopted the nexus approach phased in from June 2016. The new regime will limit benefits based on the proportion of relevant UK R&D undertaken as a proportion of global R&D.

The case for further action

A look at the UK's international peers

A competitive tax regime is an important component in determining the UK's attractiveness as a place to invest. This is significant to both multinational corporations looking for investment locations but also to less internationally focused businesses where inward investment can often be an important source of capital to support business growth.

International comparisons are therefore a useful tool for understanding where the UK sits on the international stage, as well as providing an evidence base to draw upon when formulating UK policy. In this section, the UK is benchmarked against the rest of the G7, Ireland and the Netherlands ("the benchmark countries").

Capital allowances

Most developed countries offer businesses some form of capital allowances on the depreciation of certain assets. The benchmark countries all implement a depreciation system similar to the UK, based on straight-line or declining-balance methods (or a mixture), with some variations.²⁷

While the UK has the most competitive headline corporate tax rate across the G20 and one of the lowest effective tax rates, when purchasing an asset, the costs businesses can recover using capital allowances is the lowest in the G7. The present value of capital allowances in the UK, a measure of the percentage cost businesses can recover, is only 46%, compared to 73% in France.²⁸ This can predominantly be explained by the absence

²⁶ Base erosion and profit shifting (BEPS) refers to tax avoidance strategies that exploit gaps and mismatches in tax rules to artificially shift profits to low or no-tax locations. Under the inclusive framework, over 100 countries and jurisdictions are collaborating to implement the BEPS measures and tackle BEPS.

²⁷ Straight-line basis is a method of computing depreciation and amortisation by dividing the difference between the cost of an asset and its number of expected years

²⁸ The present value of capital allowances considers the rate at which businesses can deduct from taxable income and the time value of money (i.e. the value of the asset will be higher today than in the future even in the absence of depreciation) and assumes an asset life based on the literature. The resulting figure reflects the percentage of the initial value of the asset the business is able to write-off at the end of the asset's lifetime.

of capital allowances for industrial buildings. However, the present value of capital allowances for plants and machinery is also one of the lowest in the G7 (the UK performs second to last behind Germany).

Exhibit 12: CT rate and present value of capital allowances, 2017

	CT rate	EATR	EMTR ²⁹	PV of capital allowances	PV of plants and machinery	PV of industrial buildings	Intangibles
UK	20%	18%	17%	46%	76%	0%	83%
Italy³⁰	27%	21%	-8%	67%	76%	46%	97%
Canada	27%	23%	15%	60%	97%	24%	52%
Japan	31%	27%	19%	57%	77%	28%	79%
Germany	31%	27%	18%	62%	74%	39%	87%
France	38%	32%	20%	73%	86%	55%	87%
US	40%	35%	23%	68%	100%	35%	63%

Source: CBT Tax Database and capital Cost Recovery across the OECD, 2018

Furthermore, the performance of the UK has deteriorated since 2012. This is mainly due to the reduction in the Writing Down Allowance (WDA) rate of the main pool and special rate pool, from 20% to 18% and 10% to 8%, respectively. Over this period, all other G7 countries have seen their present value of capital allowances increase, further dampening the UK's competitiveness.

R&D tax relief

The scope and scale of tax relief available for R&D activities varies significantly across the benchmark countries:

- **Availability of relief** – Germany is currently the only benchmark country that does not offer a form of R&D tax relief. Instead Germany provides a public grant scheme.
- **Rate of relief** – The UK is the only country that offers a tax super-deduction. The additional tax credit available is currently 12% of qualifying expenditure, which is below average across the benchmark countries.
- **Cap on relief expenditure** – For large companies, the UK currently has no cap on the amount of qualifying expenditure that can be claimed against, whereas most benchmark countries have caps applied in some form, determined by a mixture of the level of qualifying expenses, the total claimable amount, or by reference to the level of taxable profits of the company.
- **Location of activities** – Some countries have strict rules regarding where R&D activities are performed in order to qualify for tax relief, whereas others are more flexible. Both Germany and the US require all activities to be performed there, whereas in Japan there are no limitations as to where they occur. The UK occupies

²⁹ The effective marginal tax rate (EMTR) measures the proportionate increase in the required rate of return on an investment project.

³⁰ The EMTR in Italy is negative due to significant tax reforms, namely the introduction of a new allowance for corporate equity which gives relief for the opportunity cost of equity finance. This means that the marginal investment would not be taxed at all, but the Centre for Business Taxation (who produce the figures) believe this allowance is even more generous resulting in a negative EMTR.

the middle ground, allowing some activities to be undertaken outside the UK, but does require a local presence as well.

- **Form of credits** – The UK allows refundable research tax credits up to 12% of qualifying expenditure. Germany, Italy, Japan, Netherlands and the US offer no form of refundable credit. The other three countries, France, Canada and Ireland offer a form of refundable credit but generally this depends on either being an SME-type company, or on being in a position where credits remain otherwise unutilised for a period of time.

The CBI's 2016 Innovation survey showed that access to scientific research and R&D tax credits are the areas where businesses are most likely to rate the UK as world class (35% and 30% of respondents respectively).³¹ However, the UK is not a world leader when it comes to the overall landscape for innovation support. On average, businesses ranked the UK in 10th position for its innovation ecosystem, with little variation by size of company.

This demonstrates the importance of seeing tax incentives, such as the R&D tax credit, as part of the overall business environment, with government and businesses working in partnership to deliver improvements. UK public and private spend on R&D is just 1.7% of GDP, far short of international benchmarks.³² The CBI has consistently called on Government to set an interim target for public investment in R&D by the end of this parliament as part of the commitment to reach a combined 2.4% of GDP on R&D spend by 2027, with business set to play its part in achieving the target.

³¹ CBI Innovation Survey, 2016

³² Gross domestic expenditure on research and development, UK: 2016, ONS

Exhibit 13: R&D tax credits in benchmark countries

Country	Comparison to the UK
UK	<ul style="list-style-type: none"> - UK government spent £2.9bn on R&D tax relief for 2015/16 - R&D tax credit relief currently available at rate of 12% of qualifying expenditure (without limit) - super-deduction available for SMEs at a rate of 230% of qualifying expenditure.
Canada	<ul style="list-style-type: none"> - support for R&D through direct and indirect funding, including national grant programs - incentives for R&D in the form of deductions and tax credits.
France	<ul style="list-style-type: none"> - budget for R&D tax relief has continued to increase since its introduction in 2007, currently reaching approximately EUR 6bn per year - 30% tax credit for the first EUR 100m and a 5% tax credit for amounts exceeding this - additional 20% innovation tax credit available for SMEs.
US	<ul style="list-style-type: none"> - 'traditional tax credit' of 20% of qualifying expenses exceeding an historic 'base amount' viewed as complex - more companies claim the alternative simplified credit (ASC) which offers a tax credit equal to 14% of the excess over 50% of average qualified research expenses for previous three years.
Italy	<ul style="list-style-type: none"> - incremental R&D tax credit which was further enhanced in 2017 up to a maximum value of EUR 20m on qualifying expenditure - companies investing in R&D-intensive start-up companies may be entitled to an immediate deduction equal to 30% of the invested amount.
Germany	<ul style="list-style-type: none"> - currently no tax incentives - budget of EUR 17bn for R&D expenditure, but only through non-repayable cash grants - R&D expenditure cash grants are available for up to 50% of eligible costs and are awarded on a per project basis.
Japan	<ul style="list-style-type: none"> - R&D tax credit maximum of 17% for SMEs and 14% for large companies (Japanese legal definitions apply) - Generally, the credit is capped at 25% of the company's Japanese corporation tax liability.
Netherlands	<ul style="list-style-type: none"> - R&D tax credit maximum of 40% of the first EUR 350,000 qualifying costs and 14% of the excess above this amount.
Ireland	<ul style="list-style-type: none"> - grant support available prior to commitment to the R&D project - 25% tax credits are available on all qualifying expenditure (potentially including buildings or structures) within 12 months of the activities taking place.

Source: Deloitte - global survey report

Patent box

Around half of the benchmark countries offer a patent box regime at a national level, including the UK. They all operate in a similar way, limiting the application of corporation tax to profits arising from the use of IP. The UK is relatively competitive, although the Dutch and Irish regimes are more favourable due to the lower rate of tax.

Exhibit 14: Patent box regime in benchmark countries

Country	Comparison to the UK
UK	- 10% corporate tax rate on profits from IP
Canada	- no national IP tax regime, however, two provinces offer reduced tax rates for income from patents – Quebec and Saskatchewan.
France	- income from the licensing or sale of patent or patentable technology taxed at maximum rate of 17%
Italy	- 50% exemption for corporate income tax (usual rate 24%) and regional income tax (standard rate 3.9%) on productive activities on profits from IP
Netherlands	- 7% effective corporate tax rate on income attributable to innovations, with no cap
Ireland	- introduced in January 2016 - 6.25% reduced tax rate on profits from IP (50% of the usual CT rate).
US	- currently no IP regime available
Germany	- currently no IP regime available
Japan	- currently no IP regime available

Source: Deloitte - global survey report

Conclusions

It is clear from the evidence that capital allowances, R&D tax credits and the patent box are valued by businesses. There is also evidence to suggest these tax incentives are cost effective policies and have helped to increase the level of business investment in the UK. Despite this, the evidence also indicates that business investment is underperforming relative to its international peers.

To help increase the level of business investment in the UK, it is important for the government to consider these tax incentives in the context of maintaining the UK's competitiveness and creating a positive business environment. Our gap analysis shows that the tax incentive regime in the UK lacks competitiveness in several areas when compared to international peers and does not capture the full range of asset types that comprise business investment. There is therefore more the UK could do to create an environment that supports investment through the tax incentive regime.

Recommendations

Based on the conclusions reached in this report the government should:

1. Conduct a review into how the incentive regime supports investment in intangible assets

- Intangible investments such as training and organisational capital can be key enablers of productivity improvements and the adoption of new technologies, however there is currently no incentive available within the tax system for this type of investment.
- Investment in training has been declining over time, despite the importance of human capital rising. As well as making the Apprenticeship Levy more flexible, the government should explore other ways in which work based training can be incentivised through the tax system.

2. Continue to support businesses' confidence in the UK's R&D tax reliefs

- Investment in R&D requires long-term planning and commitment. The government should commit to R&D tax relief eligibility for the duration of a project.
- The simplicity and certainty of claims is vital to ensure reliefs are utilised effectively by business, with low administrative burdens.

3. Increase the competitiveness of the UK's capital allowances regime

- The present value of the UK's capital allowance regime performs badly against international benchmarks.
- The government should explore whether changes can be made to the regime to increase competitiveness, this could include a greater link between tax incentives and technology diffusion.
- The government should explore how the incentive regime can support investment in commercial buildings as this accounts for a significant proportion of overall business investment.



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