Corporation Tax Changes and Challenges

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Executive summary

- The main policy changes since 2010 have been cuts to the main rate of corporation tax from 28% to 20% (from April 2015), the introduction of a preferential regime for patent income (Patent Box), a reduction in the generosity of capital allowances for plant and machinery, and modifications to the taxation of foreign income. The net cost of policy measures – using official costings – is around £7.9 billion in 2015–16.
- The clearly-stated aim of the changes has been to increase the competitiveness of the UK's corporate tax regime. The UK now has one of the lowest tax rates in the G20, but also one of the least generous sets of capital allowances. The Patent Box makes the UK attractive for earning certain kinds of income, but the introduction of similar policies by other governments erodes the comparative advantage.
- Corporation tax receipts fell sharply following the financial crisis. They still represent a significant amount of revenue (£41 billion in 2013–14 in real terms), but are forecast to remain well below pre-crisis levels in real terms until at least 2019–20. Corporation tax revenues have held up over the past three decades, but competition between governments to be attractive locations for mobile activities may put downward pressure on receipts going forwards.
- The UK has taken steps to reduce avoidance opportunities and is engaging in the OECD Base Erosion and Profit Shifting (BEPS) project. BEPS is the only option for international tax system reform that is realistically on the table, but it does not solve the fundamental difficulties that arise when allocating profits across countries.
- The UK may face a tension between the desire to compete and the desire to cooperate with other countries. Some of the policies that are used to increase competitiveness could be deemed to facilitate avoidance. The Patent Box could be one casualty of this.
- The next government could pick up the challenge of reforming the tax base, which has long been known to be designed in a way that distorts investment decisions.

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1. Introduction

Corporate tax has rarely received as much attention as in recent years. The coalition government has enacted a series of policy changes – the most prominent being an 8 percentage point cut in the main rate – with an explicit aim of increasing the competitiveness of the UK's corporate tax system. Concurrently, there have been prominent debates about the types of policies individual governments use to attract mobile investments, about corporate tax avoidance and about how the international corporate tax system can be improved.

In this election briefing note, we review the policy changes since 2010 (Section 2) and assess where this leaves the UK regime in an international context (Section 3). Despite the large number of changes in this parliament, challenges remain for the next government. In particular, the UK has a corporate tax base that embeds a number of distortions, we are likely to face further international competitive pressure and we must balance the desire to be competitive with the aim of cooperating with international attempts to reduce avoidance. We discuss these issues in Section 4.

The backdrop to the last five years has been large falls in corporation tax revenues. Nominal receipts fell from a height of £46.3 billion in 2007–08 to £39.3 billion 2013–14. This represents a fall from around 8.8% of total receipts to 6.5% and from 3.2% of national income to 2.3% (see Figure 1.1).[2] Real receipts, in 2015–16 prices, were £54.7 billion in 2007–08 and £40.7 billion in 2013–14 and are forecast to remain significantly below that pre-crisis peak until the end of the forecast horizon, reaching £42.0 billion in 2019–20. Within this trend, offshore corporation tax receipts (from the North Sea) display an even more marked decline. In 2015–16 prices, revenues have fallen from £11.3 billion in 2008–09 to £3.7 billion in 2013–14 and are projected to be just £1.6 billion in 2019–20. Oil prices have a large effect on North Sea revenues and are an important factor driving the current decline.

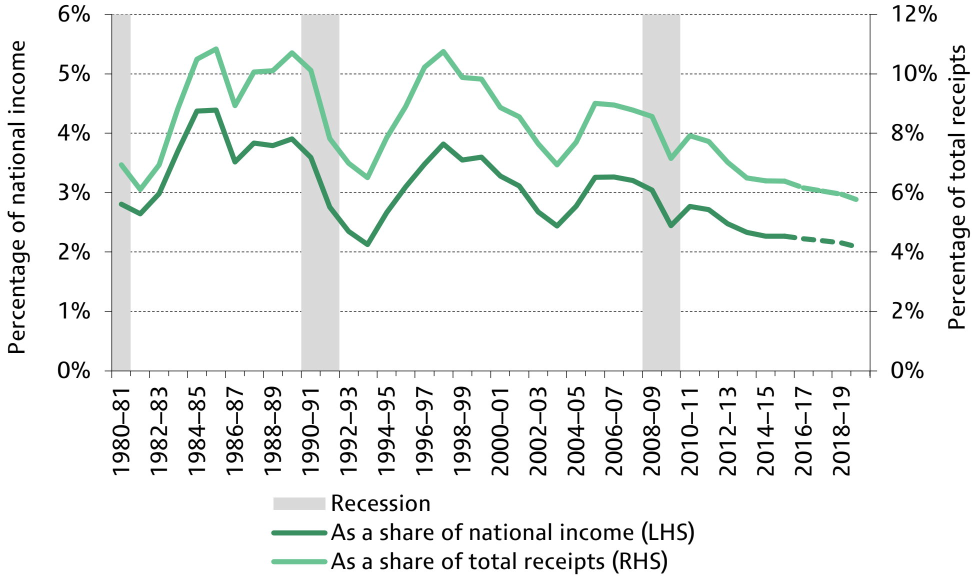
Corporate tax receipts are one of the most volatile forms of government revenues and tend to move with the business cycle. In part, the weak forecast reflects the effect of losses, especially in the financial sector, that were accumulated in the recession and are now being used to offset tax liabilities. Over the next five years, private non-financial onshore corporate profits are expected to grow by 5.1% but net taxable income is expected to grow by only 2.7%.[3] The growth in receipts is also affected by policy change, including a new measure to reduce the speed with which banks can offset their losses. As we set out below, the net cost of tax changes in this parliament is estimated to be substantial, at around £7.9 billion in 2015–16.

There have long been predictions that corporate tax receipts will fall as firms exploit opportunities to shift taxable profit offshore and as governments take policy measures to attract mobile investments. One of the striking features of Figure 1.1 is that corporation tax revenues actually remained relatively high between 1980 and 2008. This was despite

[2] See also H. Miller, 'Corporate tax, revenues and avoidance', in C. Emmerson, P. Johnson and H. Miller (eds), *The IFS Green Budget: February 2013*, http://www.ifs.org.uk/budgets/gb2013/GB2013_Ch10.pdf.

[3] See table 4.1 in Office for Budget Responsibility, *Economic and Fiscal Outlook: December 2014*, http://budgetresponsibility.org.uk/economic-fiscal-outlook-december-2014/.

Figure 1.1. Corporate tax receipts



Note: Figure includes onshore and offshore (including petroleum revenue tax) receipts. The trends look comparable if North Sea revenues are excluded. The grey shaded areas show years in which the UK was in recession for at least part of the year.
Source: IFS Fiscal Facts data, http://www.ifs.org.uk/fiscalFacts/fiscalAggregates. Figures for 2013–14 onwards from table 4.5 of Office for Budget Responsibility, *Economic and Fiscal Outlook: December 2014*, http://budgetresponsibility.org.uk/economic-fiscal-outlook-december-2014/. National income (GDP) from https://www.gov.uk/government/collections/gdp-deflators-at-market-prices-and-money-gdp.

the tax rate being cut substantially, and can be attributed to a larger and more profitable corporate, and specifically financial, sector.[4]

Were corporation tax receipts to form a smaller, and possibly decreasing, proportion of receipts in the future, this would not necessarily be a concern. It has long been recognised that corporate income taxes can distort incentives in a number of harmful ways, and they are thought to have a particularly damaging effect on economic growth.[5] Revenue could be raised more efficiently from other tax bases. One concern may be over the distributional consequences of such a move. However, one important feature of the corporation tax is that the ultimate burden is not necessarily borne by shareholders (in the form of lower dividends). It can also be borne by workers (in the form of lower wages or employment) or by consumers (in the form of higher prices). Evidence suggests that, because capital tends to be much more mobile than workers, a significant share of the burden of corporate tax tends to get shifted to labour.[6] As such, the distributional impact of a cut to corporate tax is not clear. In addition, what matters for welfare is the

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[4] See R. Griffith and H. Miller, 'Taxable corporate profits', *Fiscal Studies*, 2014, 35, 535–57. Tax base broadening played little role in maintaining corporate tax revenues.

[5] For discussions, see Y. Lee and R. H. Gordon, 'Tax structure and economic growth', *Journal of Public Economics*, 2005, 89, 1027–43 and A. Auerbach, M. Devereux and H. Simpson, 'Taxing corporate income', in J. Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J. Poterba (eds), *Dimensions of Tax Design: The Mirrlees Review*, OUP for IFS, Oxford, 2010, http://www.ifs.org.uk/publications/7184.

[6] For a review of work on incidence, A. Auerbach, 'Who bears the corporate tax? A review of what we know', in J. Poterba (ed.), *Tax Policy and the Economy*, Volume 20, National Bureau of Economic Research, Washington DC, 2006. Recent work suggests that capital may also bear a significant share of the burden; see K. Clausing, 'Who pays the corporate tax in a global economy?', *National Tax Journal*, 2013, 66(6), 151–84.

distributional consequences of the whole tax and benefit system, not any individual part of it.

2. Policy changes and revenue implications

2.1 Coalition policy changes

A clearly-stated aim of corporate tax policy changes from the coalition agreement onwards has been to make the UK's corporate tax regime the most competitive in the G20. In November 2010, the government published a 'Corporate Tax Road Map' laying out its plans for corporate tax reforms.[7] The government has deviated from this plan in certain respects (notably, cutting the main rate by more than originally envisaged), but the broad thrust of policy change has remained. This approach provided welcome clarity over the direction of policy change.

Rate cutting and base broadening

The most salient change has been a reduction in the **headline rate** from 28% to 20% by April 2015. The **small profits rate** was also reduced from 21% to 20% from 2011–12. This means that from April 2015 there will be a unified corporate tax rate, which is a welcome move. There is not a clear rationale for a differential small profits rate– the redistributional motivation for a progressive personal income tax system does not apply to firms – and it introduced unnecessary complexity into the system.

Alongside these cuts, the government has taken steps to broaden the **tax base** by making capital allowances less generous – that is, reducing the share of capital expenditure that can be deducted each year from revenue to calculate taxable profit. From April 2012, the main rate of capital allowances on plant and machinery was reduced from 20% to 18% and the special rate from 10% to 8%.[8] There was also a cut in the annual investment allowance (AIA), which allows the immediate deduction of expenditure on most plant and machinery, from £100,000 to £25,000 in April 2012. In fact, we had a £25,000 AIA for only eight months (April 2012 to December 2012). The AIA was (supposedly) temporarily increased to £250,000 in January 2013 and again to £500,000 in April 2014. On current plans, it will return to £25,000 in January 2016. Figure 2.1 illustrates the ridiculous volatility in the AIA that has resulted. This unnecessary instability creates uncertainty and undesirable distortions to behaviour.

The move to cut rates and broaden the tax base is broadly consistent with the trajectory of policy over the last three decades.[9] The preceding Labour government reduced the headline rate from 33% to 28% alongside changes in capital allowances that broadened the tax base. Despite the main rate reductions, the UK rate in 2010 was less competitive

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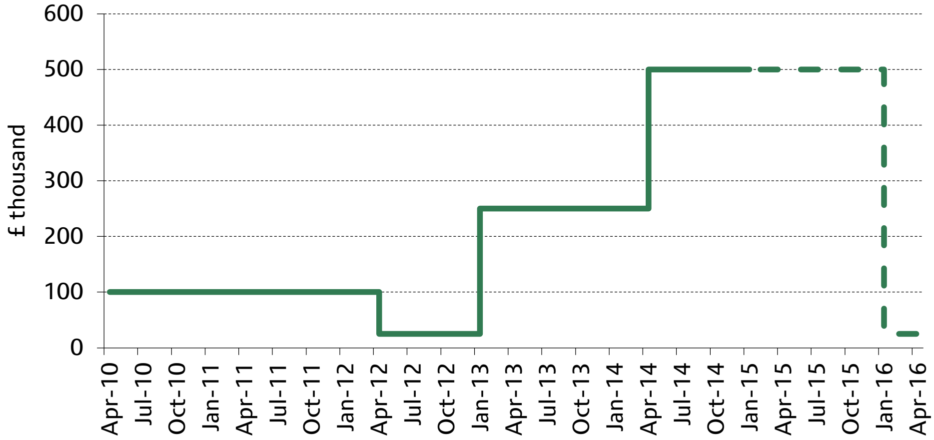
[7] See part 1A of HM Treasury and HM Revenue & Customs, *Corporate Tax Reform: Delivering a More Competitive System*, 2010, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/81303/corporate_tax_reform_complete_document.pdf.

[8] This special rate applies to certain types of plant and machinery, such as electrical systems.

[9] See section 9.3 of A. Auerbach, M. Devereux and H. Simpson, 'Taxing corporate income', in Mirrlees et al. (2010, op. cit.), http://www.ifs.org.uk/publications/7184.

internationally than that in 1997 due to larger reductions in other OECD countries.[10] This provides a demonstration that a competitive corporate tax system is a moving target.

Figure 2.1. Changing annual investment allowance



Note: Change in AIA from £100,000 to £25,000 announced in the June 2010 Budget. Two-year temporary increase to £250,000 announced in Autumn Statement 2012. Extension of temporary increase until January 2016 and doubling of allowance to £500,000 announced in Budget 2014. Dashed line shows planned policy.

The R&D tax credit and the Patent Box

The coalition government also followed the trajectory of previous policy by increasing the generosity of the research and development (R&D) tax credit and introducing a Patent Box. The **R&D tax credit** was introduced in the early 2000s (and made more generous in 2008) with a view to encouraging innovation by allowing more than 100% of current R&D expenditure to be deducted from profits when calculating taxable profit. The coalition has made two main changes. First, the amount of current R&D expenditure that small companies can write off was increased from 175% in 2010 to 200% in April 2011 and 225% in April 2012, and will increase to 230% in April 2015. This makes the small company credit more generous and increases the incentive to invest in R&D. Second, in 2013, the large company credit was reformed to an 'above-the-line' credit. Rather than deducting a credit (super deduction) from the tax base, the new system gives a taxable credit to be offset against overall tax owed. Importantly, the new credit is repayable (up to a cap), which allows more companies to benefit immediately.[11] The idea is that the above-the-line credit makes it easier to see the tax savings and provides more certainty (it is easier to predict the timing and amount of the benefit because it does not rely only on a firm's current level of profits). Any benefits to this change are likely to be apparent only in the medium term once firms have had time to adjust to the new system.

The previous Labour government first announced the intention to introduce the **Patent Box** – a preferential tax rate on the income that is derived from patents – in 2009. The Patent Box was introduced in April 2013 and is being gradually phased in. When it is fully

[10] For a discussion of corporate tax changes under Labour, see R. Griffith and H. Miller, 'Productivity, innovation and the corporate tax environment', IFS Election Briefing Notes (BN96), 2010. http://www.ifs.org.uk/bns/bn96.pdf.

[11] The amount repayable is capped at the level of PAYE and employer National Insurance contributions related to R&D staff. The old system (which allows 130% of costs to be deducted from the tax base) and the above-the-line system will run concurrently until April 2016. Firms can choose which scheme to use until 2016. The rate of the above-the-line credit (10% until April 2015, 11% after) has been set so that the two reliefs are similarly generous.

operational, it will apply a 10% rate to income that is derived from a good or service that contains a patented element. We return to discuss the Patent Box in Section 3.4.

Taxation of foreign income and avoidance measures

In 2009, the UK moved to an exemption system for the taxation of foreign dividends – UK resident firms can now remit most offshore income to the UK without being subject to UK tax. This was a welcome move that brought the UK into line with most other countries and reduced the distortions that UK multinationals faced when owning foreign assets. When operating in foreign countries, UK multinationals now face the same tax rate as that faced by domestic companies and other countries' multinationals. The coalition government went further by also exempting foreign branch profits in 2011, producing a consistent treatment between overseas subsidiaries and branches.

These changes required modifications to the **controlled foreign company (CFC) regime** – the anti-avoidance rules that apply to the income of UK-headquartered firms that arises in low-tax offshore jurisdictions. Effectively, the new rules (introduced in 2013) aim to capture income that has been shifted offshore for tax purposes. The intention is not to apply a UK tax charge where offshore income arises from genuine economic activities. Overall, the UK regime is now more attractive to multinationals that are headquartered here because they face a lower tax rate on both UK income and foreign income.

Throughout the last five years, the government has also introduced a number of measures aimed at preventing corporate tax avoidance. In revenue terms, most of these have been small (and substantially smaller than the total amount raised from all avoidance measures, including those for personal taxes). Most recently (Autumn Statement 2014), the government announced a new **diverted profits tax (DPT)** – this is the anticipated '*Google tax'* that George Osborne proposed at the Conservative Party conference and comes in response to concerns over tax avoidance by some prominent multinational companies. The new tax, to be introduced in April 2015, will apply a 25% rate to profits that are deemed to relate to UK activity but have been diverted offshore. Specifically, the tax is aimed at identifying two cases: (i) a foreign firm is carrying out activity in the UK but has 'structured its activities to avoid' operating through a permanent establishment (PE) (and therefore having a tax presence) in the UK;[12] (ii) a UK firm has created a tax advantage by using transactions or entities that 'lack economic substance'. Identifying these cases and the associated profits will be extremely difficult. The legislation for the tax will be long and complex.

There are a number of concerns surrounding the introduction of the DPT, perhaps reflecting uncertainty over its precise economic purpose. It is in effect a piece of anti-avoidance legislation aimed at preventing profit shifting. But the UK already has a number of provisions in place that aim to prevent profit shifting (including the CFC rules, the General Anti-Abuse Rule (GAAR)and long-established rules around what defines a PE). The new tax comes on top of these provisions, adding significant complexity and potentially overriding some of the long-running principles embedded in the current system. Also, the OECD BEPS (Base Erosion and Profit Shifting) project is already in the process of identifying new ways to deal with some of the issues around PE rules and

[12] A foreign company operating in the UK is subject to UK tax if its UK activities are carried out through a permanent establishment. There are rules determining what classifies as a PE, which, broadly, are met when there is a fixed place of business (e.g. a factory or office) and operations occur through a dependent agent. A foreign company that employs an independent agent in the UK and uses a facility solely for the purpose of storage (for example) would not necessarily be deemed to have a PE.

structures that lack economic substance. Rather than act unilaterally now, the UK could have waited for the BEPS recommendations. One outstanding question is how effective the DPT will be. There may be legal challenges in relation to how the tax interacts with pre-existing treaties. Assuming it withstands these, the DPT is forecast to raise only £350 million per year (less than 1% of corporation tax receipts), indicating that the government expects to identify only relatively small sources of diverted profits.

Devolution

At Autumn Statement 2014, the government announced that powers to set corporation tax would be **devolved to Northern Ireland** (NI), subject to the NI Executive demonstrating that its public finances were strong enough to manage the financial consequences. Following a recently published bill, it is expected that the Northern Ireland Assembly (NIA) will be given the power to set the rate from April 2017.[13] This is one of the most substantial changes to the corporate tax system that will have been decided on, if not enacted by, the coalition government.[14]

The NIA will be able to set the rate of corporation tax for most trading profits (excluding certain profits such as those from lending, investing and insurance). The tax base will continue to be determined at the UK level.[15] This restricts the policy choices of the NIA but also substantially reduces the complexity of the policy move. Small and medium sized companies will be taxed in NI if at least 75% of their staff time and staff costs occur in NI and they will be taxed at the main UK rate otherwise. Large companies that have establishments in NI and the rest of the UK will be required to allocate profits to the two locations. Effectively, an NI establishment will be treated as a separate entity and any transactions with the part of the company elsewhere in the UK will be priced using transfer pricing principles. The rules governing the allocation of profits will draw on the current international rules, with modifications aimed at reducing the opportunities for profit shifting within the UK.[16]

The stated objective of the move is to allow a lower corporate tax rate in NI to be used as a means to increase the size of the private sector; the share of output created by the private sector is substantially lower in NI than in the rest of the UK. It is not clear that a separate corporate tax rate is the most appropriate policy lever to address concerns about the size of the private sector. One possible rationale for the lower rate is the proximity of NI to the Republic of Ireland; investment in NI may be more responsive to the corporate tax rate because there is a lower tax rate available just across the border. In both cases, the success of the policy will depend in large part on how responsive firms are to a lower rate in NI – in other words, whether it leads to a substantial increase in investment. One of the concerns with allowing a lower tax rate in NI is the effect that it may have on the rest of the UK. It is expected that any adjustment to the funding that NI

[13] http://services.parliament.uk/bills/2014-15/corporationtaxnorthernireland/documents.html, 8 January 2015.

[14] For a discussion of corporate tax devolution, see H. Miller, 'Corporate tax setting', in C. Emmerson, P. Johnson and H. Miller (eds), *The IFS Green Budget: February 2012*, http://www.ifs.org.uk/budgets/gb2012/12chap10.pdf.

[15] The rules that dictate loss relief will be modified to ensure that a loss made in NI (rest of the UK) under a lower (higher) corporate tax rate is adjusted before being offset in the rest of the UK (NI).

[16] For example, neither interest nor royalties for the use of intangible assets paid to (from) an NI establishment from (to) the rest of the company will be considered in calculating NI profits. This is designed to reduce opportunities for UK firms to shift profits to NI by locating intangible assets there or making loans from there.

receives from the Treasury – which would be required to ensure that NI bore the cost of reducing the tax rate – would aim to incorporate the effect of NI policy choices on revenues in the rest of the UK, although this will be difficult and imperfect.[17] The move also entails significant administration costs both for businesses and the tax authorities. Looking forward, devolving the rate to NI opens the possibility that other areas in the UK will lobby for their own separate rate.

The taxation of banks

The coalition government implemented two policies targeted at banks. First, in January 2011, the **bank levy** – a tax on certain equity and liabilities of banks and building societies – was introduced with a stated aim to 'ensure that the banking sector makes a fair contribution ... reflecting the risks it poses to the financial system and the wider economy'.[18] The government's original goal was to raise at least £2.5 billion each year. In a recent consultation on the bank levy, the government announced that it views £2.9 billion each year as a reasonable revenue target.[19] Part of the rationale for the increase in the revenue target is to reduce the benefits that banks have received from cuts to the corporation tax rate. Increases to the bank levy rate have been announced on no fewer than six occasions in the last four years. The 2013–14 bank levy receipts were £2.3 billion. The December 2014 OBR forecast suggests that the levy will raise £2.7 billion in 2014–15 and £2.9 billion in 2015–16. While there may be a good rationale for having a tax like the bank levy, changing it so frequently introduces potentially damaging uncertainty into the tax system. Furthermore, setting a revenue target for a tax, and adjusting the rate to meet that target, is not a good way to make tax policy. It can imply taxing more elastic behaviours (those that change more in response to a tax change) more, which increases the distortions brought about by the tax.

Second, effective from April 2015, there will be a 50% cap on the proportion of taxable profits that banks can offset each year using losses that were accumulated before 2015. This works to bring government revenues forward by delaying when banks are able to **offset losses** against taxable profits. Because it applies to activities that have already occurred, it is unlikely to distort investment decisions. However, it does affect banks' cash flows and may raise concerns over future policy, thereby increasing uncertainty and potentially discouraging investment.

Offshore corporation tax

North Sea companies are subject to a ring-fenced corporation tax (30%) and the **supplementary charge** (30%).[20] In 2011, the government introduced a **Fair Fuel Stabiliser (FFS)**. The idea was to increase taxes on North Sea profits when oil prices were high (which they were at the time) and use this to fund cuts to fuel duties. To this

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[17] Most of the funding for the devolved administrations comes from a block grant from the Treasury. If the NIA reduces the corporation tax rate, there will need to be an adjustment to the block grant to NI. At the time of publication, it is not yet clear how the adjustment would be determined or implemented.

[18] HM Revenue & Customs, 'Bank levy 2014 rate change', https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/264604/2._Bank_levy_rates.pdf.

[19] HM Treasury, *A Bank Levy Banding Approach: Consultation*, 2014, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/298679/bank_levy_banding_approach_consultation_270314.pdf.

[20] Profits from fields given consent before March 1993 are also subject to petroleum revenue tax, levied at 50% and deductible when calculating the other two taxes.

end, the supplementary rate was increased from 20% to 32% for profits arising after 23 March 2011 and fuel duties were reduced. A stated condition of the stabiliser was that, should oil prices fall below $75 a barrel on a sustained basis, the supplementary charge would be reduced and fuel duty increased (by RPI plus 1p per litre). In 2011, oil prices were not forecast to fall anywhere close to the trigger point before 2017–18. However, in the last quarter of 2014, the oil price was falling substantially. In Autumn Statement 2014, the supplementary charge was reduced to 30% but the FFS was quietly scrapped. The policy of varying the tax rate with oil prices and linking it to rates of fuel duties was not obviously a good one.[21] But introducing a policy and then scrapping it when the conditions look likely to be met is definitely a bad way to set policy.

2.2 The exchequer cost of coalition policies

The first budget of the coalition government announced that the main rate of corporation tax would be cut to 24% (by April 2014). At the time, it was expected that the associated revenue cost would be offset in this parliament by the broadening of the tax base.[22] In fact, the rate has been cut by substantially more and the package of rate and base measures is no longer revenue neutral. Based on official policy costings, we calculate that the net cost, in terms of onshore corporation tax receipts, of all tax policy changes since 2010 will be around £7.9 billion in 2015–16 (see Table 2.1).

Table 2.1. Cost of policies on onshore corporation tax

Policy	Policy cost in 2015–16 (£ billion)
Main rate cut from 28% to 20% by 2015–16	–7.6
Small profits rate cut to 20% in 2011	–1.4
Annual investment allowance changes	–0.5
Capital allowances	1.2
Restriction on banks' loss offsets	0.7
Patent Box	–0.7
R&D tax credit changes	–0.4
CFC rules	–0.7
Avoidance measures	1.1
Other[a]	0.4
Total	–7.9

[a] 'Other' includes: various reliefs in the creative industries; disincorporation relief; flood defence relief; changes to tax credit administration; changes to the taxation of foreign branch income; and spillover effects from changes to other taxes.

Note: Figures are calculated from HM Treasury costings, including behavioural responses. For the main rate cut from 21% to 20%, we use the cost of the policy in 2016–17, expressed in 2015–16 terms (i.e. adjusted by nominal GDP). All other policies use the cost in 2015–16.

Source: Budgets and Autumn Statements (2010–14), including Budget 2011 for small profits rate, Budget 2013 for Patent Box and Budget 2014 for main rate cuts.

The main cost (£7.6 billion) arises from the cuts to the main rate. The cut to the small profits rate costs an additional £1.4 billion. Permanent changes to capital allowances

[21] For more on North Sea oil taxation, see H. Miller, 'Corporate tax, revenues and avoidance', in C. Emmerson, P. Johnson and H. Miller (eds), *The IFS Green Budget: February 2013*, http://www.ifs.org.uk/budgets/gb2013/GB2013_Ch10.pdf.

[22] For initial policy costings, see pages 13 and 16 of HM Treasury, *Budget 2010 Policy Costings*, http://www.hm-treasury.gov.uk/d/junebudget_costings.pdf.

(including a cut in the AIA from £100,000 to £25,000) would have raised £1.7 billion in 2015–16, only partially offsetting the cost of rate cuts. In actuality, the temporary increases in the AIA reduced revenue by £1.1 billion in 2015–16, such that overall the AIA costs £0.5 billion in that year. In addition, the revenue raised by providing less generous allowances today will be partly offset by lower revenue in future years. This is because firms are still able to offset the cost of investment, just over a longer period, when allowances are reduced. Similarly, the restriction on banks' loss offsets raises significant revenue in 2015–16 (£0.7 billion), but does this by bringing revenues forward. As a result of these temporary changes, the ongoing annual cost will differ (slightly) from that in Table 2.1.

The exact estimated cost of policies is sensitive to changes in the forecast for corporate investment and profits. There is also uncertainty around the estimates because it can be difficult in some cases to calculate the tax base and it is always difficult to assess the effect of possible behavioural responses. The uncertainty is particularly high around the Patent Box – because it is a new policy and will be modified going forward – and around avoidance measures.

The costings in Table 2.1 include some estimated behavioural responses. Accounting for behavioural responses has a significant effect on the cost of policy. For example, the 1 percentage point reduction in the headline rate in 2015–16 is forecast to reduce revenues by £1.2 billion in 2017–18 before any behavioural responses. After accounting for the increased incentive for multinationals to locate income in the UK, the HMRC estimated cost is substantially lower at £865 million. Again, there is uncertainty around this estimated profit shifting. Also, these estimates do not account for the expected effect of changes to corporation tax on levels of investment.

In 2013, HMRC published a dynamic costing of cuts to the main rate and small profits rate (not including changes to the tax base).[23] This aims to capture more of the potential behavioural responses, including through changes in investment. It also attempts to consider the general equilibrium effects – that is, the effects on the rest of the economy, including through higher employment and consumption (and therefore higher income and indirect taxes), when the distortions created by corporation tax are reduced. The resulting estimates suggest that within 18 years 45% of lost corporation tax receipts will have been recouped through higher receipts resulting from increased economic activity. This suggests that the actual cost of cuts to the corporate tax rate may eventually be lower than suggested in Table 2.1.

There are benefits to attempting to reflect the full set of effects of a tax change. Notably, since one of the motivations for cutting corporation tax is to boost investment, attempting to account for this effect in the policy cost makes sense. However, it should be remembered that tax rises also have dynamic effects. This means that while dynamic costings make tax cuts look less costly, they also reduce the expected yield from tax increases. Furthermore, there are a number of concerns and difficulties with employing

[23] HM Revenue & Customs and HM Treasury, 'Analysis of the dynamic effects of corporation tax reductions', 2013, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263560/4069_CT_Dynamic_effects_paper_20130312_IW_v2.pdf. The analysis is based on a computable general equilibrium model that embeds a number of assumptions. The analysis does not represent an official costing.

dynamic costings.[24] Importantly, creating a policy cost that accounts for all effects, on all agents in the economy, is impossible. Estimating an approximation to the full general equilibrium effects requires a number of assumptions (e.g. how responsive investment is to tax and the extent to which firms substitute between capital and labour) and modelling simplifications (e.g. in this case using a model with a single country). In practice, this is a difficult exercise and the results will be imperfect. The HMRC analysis has followed the techniques developed in the academic literature and attempted to make reasonable assumptions. There is, however, necessarily a high degree of uncertainty around the precise estimates. In summary, it is plausible that some of the revenue costs in Table 2.1 will be recaptured through higher investment, but we cannot say whether 45% of receipts will be recouped or even how much confidence we should have around the 45% figure. This could be an overestimate (underestimate) if, for example, investment is less (more) responsive to tax than assumed or if wages rise by less (more) than expected. The actual path for corporation tax revenues will also be affected by other corporate tax measures (e.g. reductions in capital allowances work to reduce investment) and non-corporate tax measures (e.g. changes to income tax impact consumer demand and therefore investment incentives).

3. Where does this leave the UK?

3.1 A more competitive statutory tax rate …

In line with the government's stated aim, the UK now has one of the lowest headline corporate tax rates in the G20. In 2010, the UK headline rate ranked 9th lowest in the G20. When the rate falls to 20% in April 2015, it will be the joint lowest corporate tax rate in the G20 (see Figure 3.1). Among the 34 countries in the OECD the UK will have the joint 6th lowest rate, whereas among the 28 countries in the EU the UK will have the joint 11th lowest (assuming other countries do not change their rates).

3.2 … but a less competitive base

The statutory rate is only one aspect of the competitiveness of the corporate tax regime. Another important factor is the tax base. Compared with other countries, the UK has a particularly ungenerous set of capital allowances.[25] That is, the UK allows a smaller share of capital expenditure to be deducted from revenues each year. As a result, the net present value of the stream of allowances is lower in the UK than in most other developed countries. The AIA is an exception to this – it allows 100% of investment costs to be deducted from revenues in year 1. Therefore, the UK base is uncompetitive for investments above the AIA threshold.

To get some sense of the overall effect of tax changes, one can consider an effective tax rate – a measure that combines information on how both the tax rate and the tax base affect the burden of tax. An *effective marginal tax rate* (EMTR) is used to measure the tax

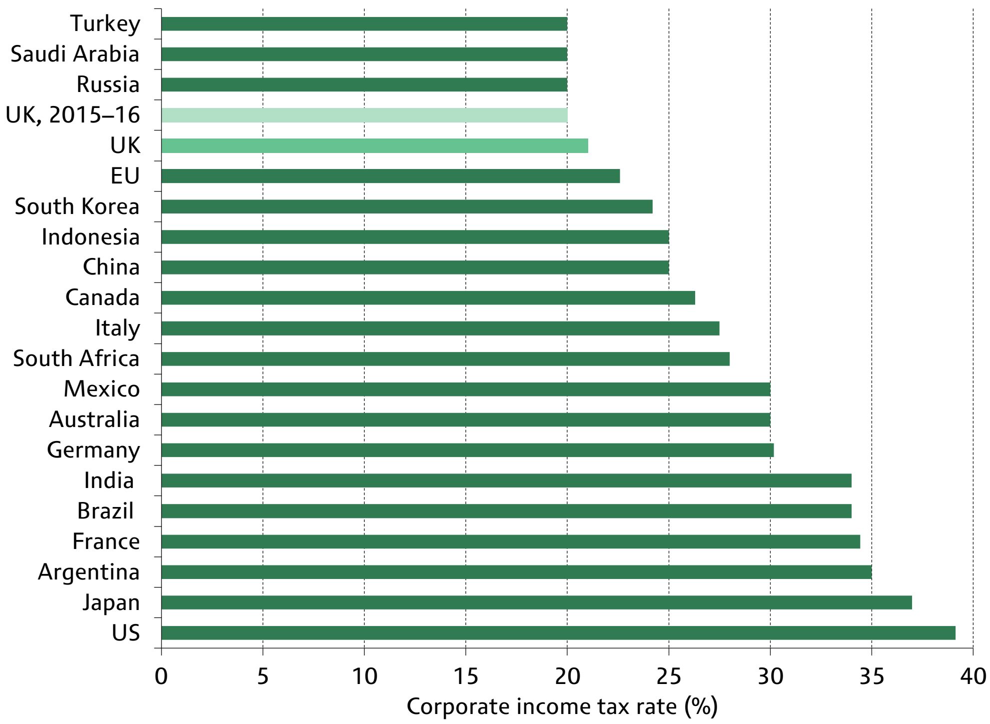
[24] A full discussion of the issues is provided by S. Adam and A. Bozio, 'Dynamic scoring', *OECD Journal on Budgeting*, 2009/2, http://www.ifs.org.uk/docs/dynamic_scoring.pdf.

[25] See Table 6, G. Maffini, 'Business Taxation under the Coalition Government', Oxford University Centre for Business Taxation, February 2015, http://www.sbs.ox.ac.uk/sites/default/files/Business_Taxation/Docs/Publications/Reports/cbt-coalition-report-final.pdf.

burden on a project that just breaks even and is important in determining the level of investment firms undertake. An *effective average tax rate* (EATR) is used to measure the tax burden on a project that makes a profit and is important in determining where firms locate investment projects.

Both the EMTR and the EATR have been reduced in the UK since 2010. However, on these measures, the UK system ranks less highly in the G20 than on the rate alone.[26] There are many features that determine the relative competitiveness of tax systems, and the elements that work to attract investments will differ across firms. Judged narrowly on whether the UK tax system produces the lowest tax burdens, the UK does not have the 'most' competitive regime in the G20.

Figure 3.1. G20 corporate income tax rates 2014



Note: Measure refers to the combined corporate income tax rate, including local taxes where relevant. The EU (European Union) value is an unweighted average.
Source: PKF worldwide tax guide 2014; KPMG tax profiles; table II.1 of OECD Tax Database, http://www.oecd.org/tax/tax-policy/tax-database.htm.

3.3 More attractive to mobile investments …

The EATR has fallen by much more than the EMTR as a result of coalition policy changes.[27] This has implications for the types of firms that are likely to benefit most from net tax cuts in this parliament. Firms that invest most heavily in plant and machinery (and industrial buildings) are harmed disproportionately by recent expansions of the base (although the rate cuts mean that most still benefit overall and those with

[26] For rankings using effective tax rates, see G. Maffini, 'Corporate tax policy under the Labour government, 1997–2010', *Oxford Review of Economic Policy*, 2013, 29, 142–64.

[27] The intuition for this is straightforward: as one moves from considering a project that breaks even to one that makes a positive profit, the tax rate becomes more important and capital allowances less so.

investment below the AIA threshold are unaffected).[28] This does not imply that all high-investing firms are relative losers. An increasing share of overall investment is accounted for by investment in intangible assets, such that some of the relative winners will be those firms that make important long-term investments in skills and ideas, which benefit relatively less from current allowances. Firms with high profits relative to the amount of investment they do will benefit disproportionately from the rate cuts.

The package of measures has done more to make the UK an attractive location for internationally mobile investment than to increase investment incentives at the margin for firms that are already located here. The lower tax rate also makes the UK a more attractive location to earn income, and therefore reduces the incentives for firms operating in the UK to attempt to shift profits to lower-taxed countries.

3.4 … including those involving intellectual property

The UK is now one of 12 European countries that operate a Patent Box style policy – i.e. a preferential rate for the income derived from (some forms of) intellectual property. The policies differ in a number of ways, including the types of intellectual property that are eligible and the method for calculating eligible income. Many of the other countries' policies cover a broad range of intellectual property, including trademarks and copyrights. The UK policy extends only to patents. However, eligible income is defined broadly to include effectively all income from a good or service that includes a patented element (with some deductions)– other countries base eligible income on a calculation of the price that can be associated with a specific piece of intellectual property.[29]

Patent Boxes work to reduce the effective average tax rate on qualifying investments. Figure 3.2 demonstrates this for an equity-financed investment in a self-developed patent. In all cases, the reduction is substantial. In some countries, the EATR is negative, effectively implying that the tax treatment provides a subsidy. In the UK, the EATR is slightly less than half what it is under the regular system. The UK Patent Box has therefore increased the incentive to undertake (some forms of) innovative investment.

The OECD and the European Union have long discouraged the use of preferential tax rates because of concerns that they might be associated with 'harmful' tax competition. Recently, such concerns have been raised in relation to Patent Box regimes. In 2013, the European Commission took a stance against the UK regime, concluding that some of the design features met the criteria used to identify harmful tax measures.[30] Notably, there was a concern that the Patent Box may grant tax advantages but require little real economic activity in the UK (e.g. a firm may own a patent in the UK but conduct research and commercialisation in other countries). This is an issue that applies to all European Patent Box regimes and that was considered in a review by the EU Code of Conduct group. Concurrently, the OECD BEPS process has also covered preferential regimes for

[28] G. Maffini, 'Corporate tax policy under the Labour government, 1997–2010', *Oxford Review of Economic Policy*, 2013, 29, 142–64 finds that the transport and communications, agriculture, and hotels and catering sectors have a relatively high intensity of capital allowances for plant and machinery. Financial services, business services, distribution and construction are highly profitable sectors with lower investment intensity.

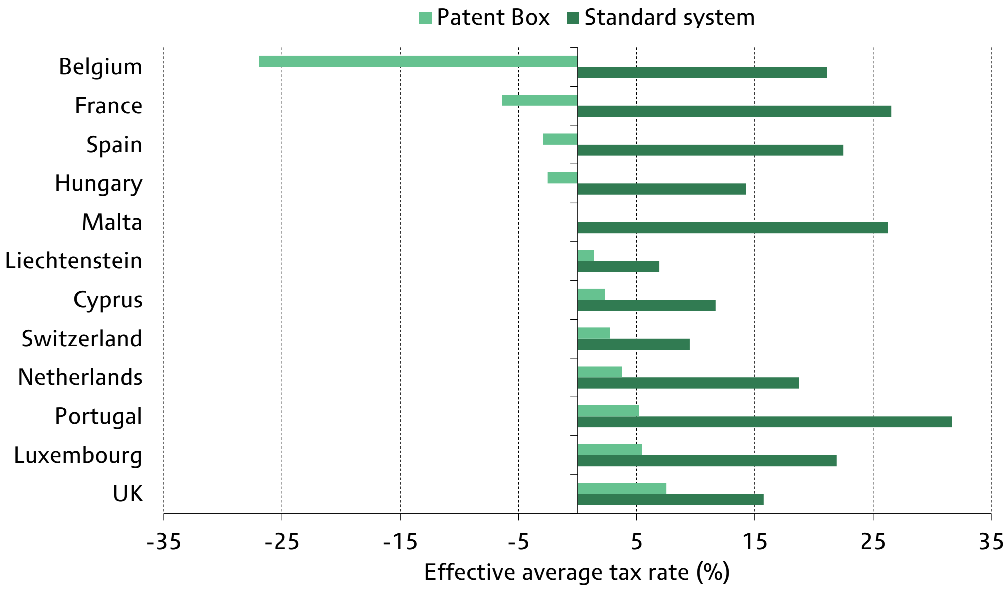
[29] For a discussion of European policy designs and policy rationales, see L. Evers, H. Miller and C. Spengel, 'Intellectual property box regimes: effective tax rates and tax policy considerations', *International Tax and Public Finance*, June 2014, http://dx.doi.org/10.1007/s10797-014-9328-x.

[30] See H. Miller, 'EU Commission labels UK Patent Box harmful tax competition', IFS Observation, 2013, http://www.ifs.org.uk/publications/6899.

intellectual property.[31] This work, which was led by the OECD Forum on Harmful Tax Practices, led to proposals for a new 'modified nexus' approach to ensuring that preferential tax regimes for intellectual property are directly linked to real economic activities. In November 2014, the UK and Germany issued a joint statement proposing that Patent Boxes follow this approach and be changed to ensure that a tax benefit requires a link to R&D expenditures in a country.[32] The Code of Conduct group has supported this proposal.[33] The UK Patent Box will therefore be modified and the current policy closed to new entrants no later than 30 June 2016. At this stage, it is not clear how big a change this will be for the UK; it will likely be a much larger change for some other countries that have policies more geared towards attracting mobile income. It is also not clear how any new stipulations over the location of real activities would fit with EU freedom of establishment rules.

Increasing the link between a Patent Box tax benefit and real activity in a country may help to ensure that the policy is used to attract real innovative activities, and not only the associated income. In this sense, it may support the goal of the policies. However, this also implies an increase in the distortion to real activities; firms will be more likely to move the location of innovative activities in responses to taxes. And it would not remove the competitive pressure between countries.

Figure 3.2. Effective average tax rates for European countries with Patent Boxes, 2014



Note: Figures are for an equity-financed investment in a self-developed patent. The bars labelled 'Switzerland' are for the canton of Nidwalden. The EATR for Patent Box in Malta is zero.
Source: L. Evers, H. Miller and C. Spengel, 'Intellectual property box regimes: effective tax rates and tax policy considerations', *International Tax and Public Finance*, June 2014, http://dx.doi.org/10.1007/s10797-014-9328-x.

[31] For more information, see http://www.oecd.org/ctp/beps.htm. Patent Boxes are addressed in Action 5.

[32] See www.gov.uk/government/uploads/system/uploads/attachment_data/file/373135/GERMANY_UK_STATEMENT.pdf

[33] See http://data.consilium.europa.eu/doc/document/ST-16100-2014-INIT/en/pdf.

4. Challenges for the next parliament

The coalition government made the creation of the 'most competitive' tax system in the G20 one of its central policy goals. However, competitiveness is a moving target and may require further policy action if other governments also enact significant changes. In addition, the UK may face a tension between operating policies that increase competitiveness and engaging in international efforts to reduce avoidance opportunities.

There are long-running distortions that arise from the design of the corporate tax base. The next government could pick up the challenge of reforming the base to reduce distortions. Short of a wholesale reform, a positive step would be to end the uncertainty around the AIA by setting a permanent rate and sticking to it.

4.1 Staying competitive

Governments have a clear incentive to ensure that they attract investment to their jurisdiction – they value the associated jobs and economic growth. Empirical evidence shows that the location of investment is responsive to corporate taxes.[34]

The UK may not have the most competitive corporate tax system in the G20, but the 2015 regime is more competitive relative to other countries than the 2010 one was. However, as we noted earlier, tax rates across the developed world have been lowered over the past three decades, in part as a result of competitive pressure. It would be reasonable to expect that other countries will seek to maintain the relative attractiveness of their tax systems. The standard for a competitive tax system is therefore a moving target. The Patent Box is a prime example of this. Since the UK announced the policy in 2009, similar policies have been introduced in five more countries. Others, including the US, are considering following suit. Most recently, the Irish Finance Minister announced that Ireland is considering a 'Knowledge Development Box'.[35] Maintaining competitiveness may therefore lead to further demands on UK corporate tax.

One way that countries have attempted to limit the revenue consequences of rate cuts is to broaden the tax base. As we noted above, the coalition's policies, despite some base broadening, are forecast to lead to a large reduction in receipts. Given that the UK base is already comparatively ungenerous, there may be limited scope to fund any further rate cuts with base broadening. In addition, being a competitive location for real activities may require a more generous tax base.

4.2 Cross-border Avoidance

Alongside moves to make the UK more attractive to multinationals, there have been growing concerns over tax avoidance. The system in place today, with source-based taxation of profits, was designed in the first half of the 20th century. Since then, the economic environment has changed substantially. Firms' activities, and the associated income, have become more mobile. As markets have become more integrated, trade more liberalised and communication cheaper, both inputs and final goods and services have

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[34] For an overview of the literature, see R. de Mooij, and S. Ederveen, 'Corporate tax elasticities: a reader's guide to empirical findings', *Oxford Review of Economic Policy*, 2008, 24, 680–97.

[35] See Financial Statement of the Minister for Finance, October 2014, http://www.budget.gov.ie/Budgets/2015/FinancialStatement.aspx.

been able to move more freely across national borders and therefore across tax jurisdictions. This trend has been bolstered by the recent growth in digital services and transactions that occur across the internet. There has also been a large increase in intangible investments, which are less clearly tied to a geographic location than physical equipment. These changes have raised challenges for the implementation of the international corporate tax system, and in particular for the calculation of how profits should be allocated to different jurisdictions. They have also raised opportunities for companies to manipulate their real or reported activities so that profits are reported in low-tax jurisdictions.[36]

We do not have good measures of the scale of avoidance behaviour. This is partly because there is no accepted definition of exactly what constitutes avoidance and partly because we lack full information about the activities of firms. HMRC produces an estimate of the 'tax gap' – the estimated difference between the amount of tax that should have been paid and the amount that was actually paid.[37] This is a narrowly-defined measure. Importantly, the avoidance component of the tax gap is geared towards cases involving disclosed avoidance schemes or genuine uncertainty over the correct tax treatment and does not capture the effects of multinational profit shifting. It is therefore a lower bound on the true cost of avoidance. Case studies on specific companies – for example, those that arose from large-scale media campaigns[38] – suggest that the revenue cost of avoidance could be many times greater. However, recent surveys of the academic literature suggest that avoidance through profit shifting is lower than anecdotal evidence suggests.[39] There are various factors that may explain this divergence. Academic studies tend to consider the effect on profit shifting of a marginal change in tax rates – this may underestimate the degree to which avoidance is already taking place. There may also be differences in what is deemed to be avoidance behaviour. However, there is evidence that firms differ greatly in their tax planning approaches, such that it is possible that some firms are taking very aggressive positions (and attracting media attention) while most others are not. In summary, while the amount of revenue lost due to avoidance is higher than the official avoidance component of the tax gap and lower than an extrapolation of the extreme cases, we cannot say where in that range it lies.

In response to concerns over the effect of avoidance on revenues, all countries operate anti-avoidance provisions. However, since avoidance opportunities often occur at the boundaries between different tax systems, unilateral action is insufficient. The OECD has long been and remains at the forefront of international efforts to reduce tax avoidance. Currently, the OECD is midway through its BEPS project, which is intended to consider what actions can be taken multilaterally to reduce avoidance opportunities. The UK is engaging in this process.

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[36] For a fuller discussion of avoidance and related policy challenges, see section 10.3 of H. Miller, 'Corporate tax, revenues and avoidance', in C. Emmerson, P. Johnson and H. Miller (eds), *The IFS Green Budget: February 2013*, http://www.ifs.org.uk/budgets/gb2013/GB2013_Ch10.pdf.

[37] HM Revenue & Customs, *Measuring Tax Gaps*, 2014, https://www.gov.uk/government/statistics/measuring-tax-gaps.

[38] Examples include Bloomberg's 'The great corporate tax dodge', the *New York Times*'s 'But nobody pays that', *The Times*'s 'Secrets of tax avoiders' and *The Guardian*'s 'Tax gap'.

[39] See D. Dharmapala, 'What do we know about base erosion and profit shifting? A review of the empirical literature', *Fiscal Studies*, 2014, 35, 421–48 and J.R. Hines Jr, 'Policy Forum: how serious is the problem of base erosion and profit shifting?', *Canadian Tax Journal*, 2014, 62, 443–53.

The OECD has issued an action plan for what it sees as the steps that governments should be taking to prevent opportunities that allow income to avoid tax in all jurisdictions. The steps include developing options for applying current tax rules to digital activities, advising on domestic rules to prevent profit shifting taking place through the use of hybrid structures, excessive interest deductions or preferential tax regimes, and further developing transfer pricing rules.[40]

The BEPS process will conclude at the end of 2015. BEPS is an impressive project; it is tackling a broad range of issues on a timescale designed to take advantage of political momentum. However, the process is effectively seeking to 'patch up' the current system and prevent some of the most problematic forms of avoidance rather than provide any fundamental reform. Notably, it does not seek to remove the need to ascertain where corporate profits are created, which can be difficult both conceptually and in practice. Importantly, the BEPS actions will not reduce the incentives that governments have to compete over mobile resources.[41]

In the last five years, the UK has been trying to find a balance between implementing policies that increase attractiveness to mobile investments and preventing the types of avoidance that are deemed unacceptable. Looking forward, there is likely to be a tension between any competitive aims of a government and some of the BEPS recommendations. That is, some of the policies that the BEPS process may want to change (because of concerns that they help to facilitate tax avoidance) are those that are currently being operated with a view to making a country more attractive for mobile capital or to giving domestic multinationals a competitive advantage.

4.3 Tax base reform

In order not to distort investment decisions, the corporation tax should ideally not be levied on the normal rate of return – the minimum rate of return required by an investor. The UK (like most countries) taxes the normal return on equity-financed investment. This serves to discourage certain investments that would have taken place in the absence of the tax. Debt financing is taxed more favourably than equity financing (because there is a deduction for interest payments), such that the system encourages firms to take on more leverage relative to a no-tax scenario.

The current system of capital allowances also creates a bias between different types of assets. In theory, in a system that attempts to tax the normal rate of return (such as the current system), capital allowances should perfectly reflect the economic depreciation of assets. By aggregating assets into classes (e.g. plant and machinery), it is inevitable that some assets will receive more or less generous allowances relative to their true economic depreciation than others. In addition, some investments – notably industrial buildings in the UK – receive no allowances. These features can distort investment patterns and so affect the productive potential of the economy.

It has long been known that the design of the tax base can distort investment decisions and affect the ownership, financing and composition of investment. Despite this, few

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[40] OECD, *Action Plan on Base Erosion and Profit Shifting*, Organisation for Economic Cooperation and Development, Paris, 2013, http://www.oecd.org/ctp/BEPSActionPlan.pdf.

[41] For a discussion, see M. Devereux and J. Vella, 'Are we heading towards a corporate tax system fit for the 21st century?', *Fiscal Studies*, 2014, 35, 449–75.

countries have moved to address these issues.[42] Two notable exceptions are Belgium and Italy, which have introduced an allowance for corporate equity (ACE). An ACE provides an explicit deduction for the cost of using equity finance, similar in conception to the existing deduction for interest payments on debt finance. It works to remove the normal rate of return to equity from the tax base and to address the distortion on financing decisions. Under an ACE, investment in different assets is not distorted by the precise structure of capital allowances, and the tax treatment is no longer sensitive to inflation.[43]

The ACE would eliminate major distortions to investment currently brought about by the definition of the UK tax base. In the process, however, this would represent a substantial reduction in the tax base and there would be an associated revenue cost. In order to preserve corporation tax receipts, a rate rise would be necessary. However, this would make the UK less attractive for mobile investments and erode the UK's competitiveness. As argued above, there is no economic reason to require a particular amount of revenue to be raised from corporate tax. Instead, it would be best to reform the tax base to remove distortions, to set the rate with reference to distortions to mobile income and to make up the revenue shortfall elsewhere.

5. Summary

In the last five years, the coalition has spent around £8 billion reforming the corporation tax. Most visibly, the main rate has fallen from 28% to 20%. The UK has moved up in international rankings, although it stands out as having a less generous set of capital allowances. Looking forward, the next government could pick up the challenge of reforming the corporate tax base.

One challenge that will have to be faced in the next parliament is finding a balance between competitiveness and cooperation. In particular, in the early stages of the next parliament there will be a set of recommended actions coming out of the BEPS final reports. While some of the actions might be straightforward for the UK, others may create a tension if they involve policy changes that would be deemed to make the UK less competitive. One particular area of tension may be the Patent Box, which is coming under increasing pressure to be reformed.

[42] There are various ways in which these distortions could be addressed, including a move to an allowance for corporate equity or to a cash-flow-based tax. A discussion is provided by A. Auerbach, M. Devereux and H. Simpson, 'Taxing corporate income', in Mirrlees et al. (2010, op. cit.), http://www.ifs.org.uk/publications/7184.

[43] For an overview of the ACE, see chapter 17 of J. Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J. Poterba, *Tax by Design*, OUP for IFS, Oxford, 2011, http://www.ifs.org.uk/publications/5353.