

Office for
**Budget
Responsibility**

Working paper No.15
**The evolution of public sector receipts
over the past decade**

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Abstract

This paper studies the evolution of tax revenues and other sources of government income between 2007-08 and 2018-19 – respectively the last full year before the financial crisis and the last full year before the coronavirus crisis. Overall, receipts fell as a result of the crisis, then recovered their pre-crisis level, and ended the period fractionally higher relative to GDP than they started it. But compositional changes were much greater. Both structural and policy changes left the UK economy less ‘tax rich’ at the end of the period than at the start, as existing tax bases fell as a share of GDP. Drivers included a fall in the labour share of income and the gradual erosion of excise duty tax bases through both technological and behavioural trends. Several policy giveaways lowered receipts too (such as personal allowance increases and fuel duty freezes). But other policy changes boosted receipts, including by raising rates on some large tax bases (primarily VAT and NICs) and by introducing new taxes (such as those levied on banks).

I am grateful to James Taylor, Chizoba Obi, Jon Riley, Shaun Butcher, Andy King, Sima Bhandari and Ellen Brett at the Office for Budget Responsibility for their expertise and insight on earlier versions of this paper. I would also like to thank the various analysts across HM Revenue and Customs, HM Treasury and other government departments for their feedback.

1 Introduction

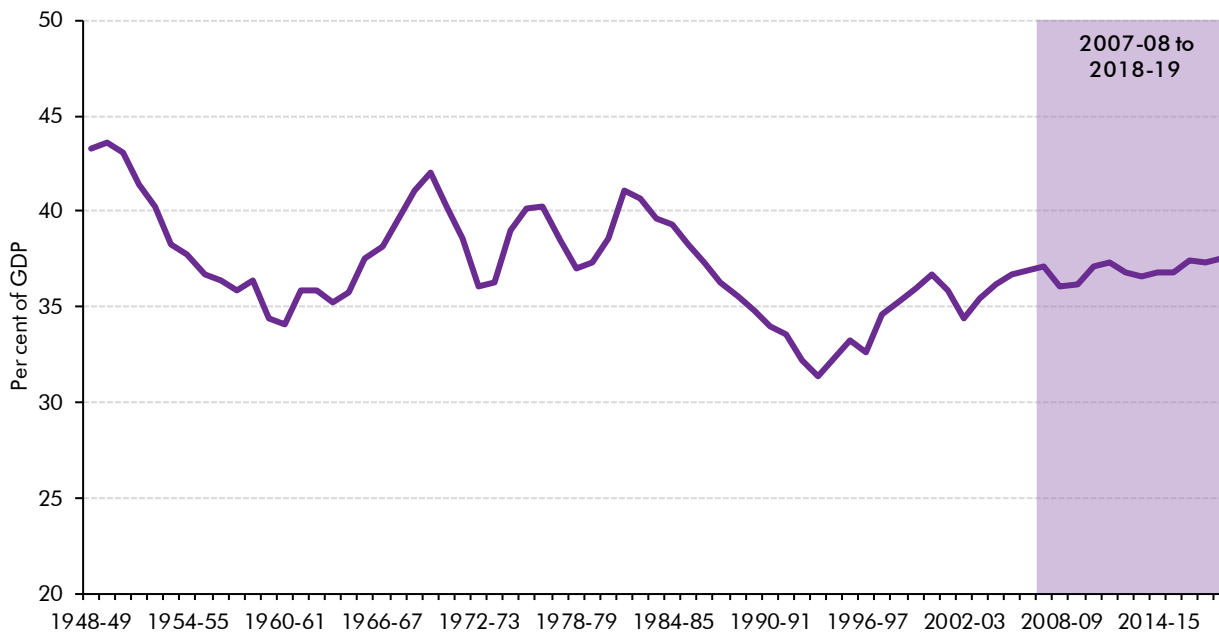
Coronavirus

- 1.1 In addition to its impact on public health and families' wellbeing, the spread of the coronavirus will have significant adverse consequences for the public finances, primarily because of the disruption it is causing to the economy (and therefore receipts) and the cost of the policy response to the crisis. In this working paper – the analysis for which was largely complete before the extent of the outbreak was known – we look back at the how tax revenues have evolved since 2007-08, before the financial crisis hit. We do not consider the receipts implications of the coronavirus shock, but the framework we use to analyse changes over the past eleven years is the same one we will use to understand this crisis as it unfolds.

The changing composition of tax receipts

- 1.2 The overall level of public sector receipts relative to GDP is only marginally higher now than where it stood before the financial crisis, but the relative importance of different sources of government revenue has changed markedly over that time. Receipts have increased from 37.1 per cent of GDP in 2007-08 to 37.5 per cent of GDP in 2018-19. And while that represented the highest receipts-to-GDP ratio since 1985-86, it is still far off the peaks of over 40 per cent of GDP seen following the end of the Second World War and during the late 1960s and 1970s. But it is far above the trough of 31.4 per cent of GDP in 1993-94. Chart 1.1 puts movements over the past eleven years into historical context.

Chart 1.1: The receipts-to-GDP ratio

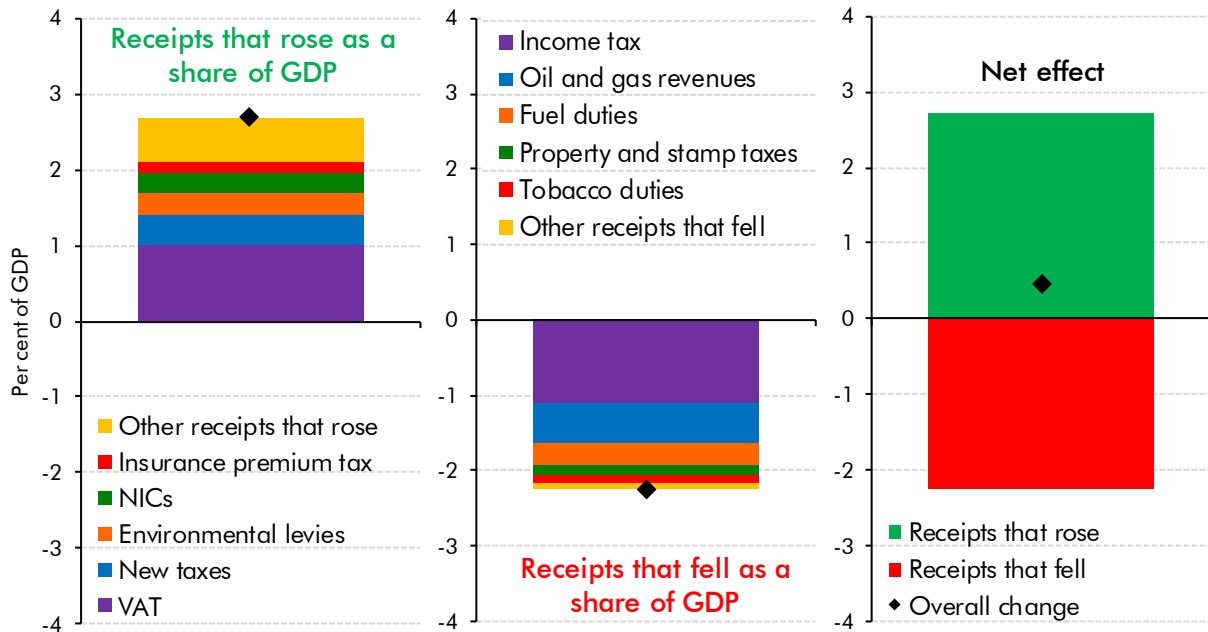


Source: ONS

1.3 The relative importance of different parts of the tax system has changed more substantially over the past eleven years, with the small rise in the tax burden being the net effect of various larger, but mostly offsetting, changes in individual receipts streams. Chart 1.2 shows which ones contributed positively and which negatively to the overall 0.5 per cent of GDP change in receipts over the eleven years to 2018-19:

- **Items that boosted receipts** include increases in headline rates (such as raising the standard rate of VAT to 20 per cent and various increases in rates of National Insurance contributions), as well as the introduction of a variety of new taxes, such as the bank levy and the apprenticeship levy.
- **Items that weighed on receipts** include the effects of weaker tax bases and policy measures. In particular, the income tax base has narrowed (thanks to personal allowance increases) and become less tax rich (thanks to weak earnings growth), while improved fuel efficiency and repeated rate freezes reduced fuel duty receipts.

Chart 1.2: Changing composition of public sector income over the past eleven years



Source: ONS

1.4 To understand the drivers of each tax stream, in this paper we split movements in receipts relative to nominal GDP into two components:

- **Changes due to tax bases growing more or less quickly than the economy as a whole.** These will typically reflect changes in the composition of whole economy expenditure or income. In some cases, defining the tax base for a particular stream of revenue is challenging, reflecting both the complex nature of the underlying economic activity as well as data availability. We make our best attempt to define tax bases that are broad and that capture the bulk of the underlying activity. In the annex to this paper, we set out our methodology and describe any limitations to the approaches we have taken.
- **Changes due to movements in effective tax rates** – i.e. the amount of tax paid on each unit of the tax base. These can change due to policy or other factors.

2 Receipts that rose as a share of GDP

Introduction

2.1 This section considers the receipts lines that have risen in importance since 2007-08:

- VAT;
- National Insurance contributions;
- onshore corporation tax;
- new taxes and receipts; and
- a variety of other receipts streams where changes were smaller.

VAT

2.2 VAT receipts increased by 1.0 per cent of GDP between 2007-08 and 2018-19 (Table 2.1). Receipts initially fell during the recession, from 5.1 per cent of GDP in 2007-08 to 4.7 per cent in 2009-10, thanks to a cut in the standard rate. They then increased sharply to 5.9 per cent of GDP in 2011-12 as the standard rate was first returned to its pre-crisis level and then raised further, before slowly edging up over the rest of the period.

Table 2.1: VAT receipts

	Per cent of GDP											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	5.1	4.8	4.7	5.3	5.9	5.8	5.9	5.9	6.0	6.0	6.0	6.1
Tax base	63.8	64.5	64.3	64.2	64.5	64.7	64.7	64.4	64.6	65.1	65.1	66.5
Effective tax rate	8.1	7.5	7.3	8.3	9.1	9.0	9.1	9.2	9.3	9.3	9.2	9.4
Rates charged at end of year, per cent												
Standard rate	17.5	15.0	17.5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Reduced rate	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

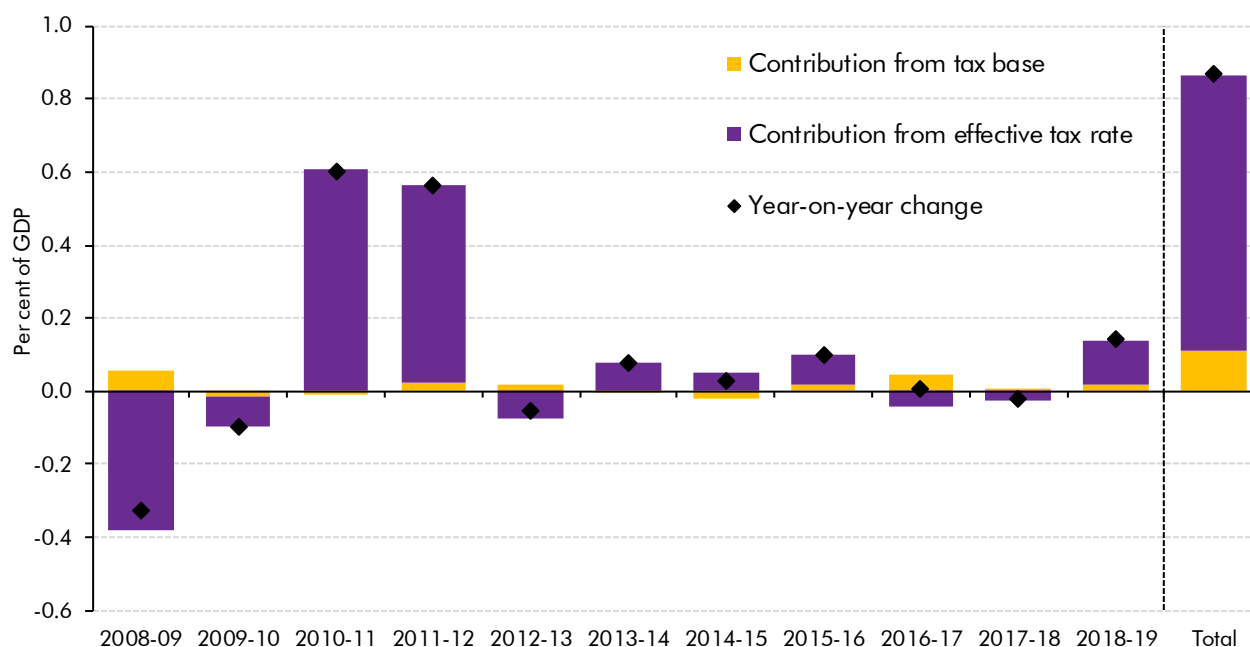
Note: Tax base is defined as nominal household consumption. See annex for more information.

2.3 Chart 2.1 shows how changes in VAT receipts over the past eleven years were largely driven by changes in the effective tax rate. The tax base provided a small boost as household consumption rose over the period, despite relatively weak growth in household incomes.

Receipts that rose as a share of GDP

- 2.4 Changes in the effective tax rate mostly reflect policy changes to the standard rate of VAT, which left it higher in 2018-19 than in 2007-08. The Labour Government cut the standard rate temporarily from 17½ to 15 per cent between December 2008 and December 2009 to boost the economy during the financial crisis; it then raised it back to 17½ per cent from January 2010; and the Coalition then increased it to 20 per cent in January 2011.
- 2.5 The drop in the effective tax rate in 2008-09 was also caused in part by a rise in the implied VAT gap.¹ HMRC analysis indicates that much of that rise reflected an increase in the stock of VAT debt as firms temporarily delayed payments to HMRC during the recession. That partially unwound in 2009-10, somewhat offsetting the effect of the rate cut in that year.

Chart 2.1: Sources of year-on-year changes in VAT receipts



Source: ONS, OBR

National Insurance contributions (NICs)

- 2.6 NICs receipts have increased as a share of GDP over the past eleven years (Table 2.2). They were reasonably stable between 2007-08 and 2015-16, but then increased sharply in 2016-17 as a result of policy measures, and reached 6.3 per cent of GDP in 2018-19.

¹ This VAT gap is the difference between the total value of VAT that could theoretically be collected from the tax base (known as the 'VAT theoretical tax liability', or VTTL) and actual VAT receipts. The gap is made up of error, fraud, evasion, avoidance and debts owed by firms to HMRC, as well as any errors in estimating the VTTL itself. For more information regarding how we forecast VAT receipts, see the 'forecast in-depth' section of our website.

Table 2.2: National Insurance contributions

	Per cent of GDP											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	6.1	6.1	6.2	6.0	6.1	6.0	5.9	5.9	5.9	6.3	6.3	6.3
Tax base	42.3	42.0	42.4	41.5	40.9	40.0	40.7	40.4	40.2	40.1	40.5	41.4
Effective tax rate	14.4	14.6	14.6	14.5	14.9	15.1	14.6	14.6	14.7	15.6	15.6	15.6
Selected rates charged during year, per cent												
Class 1 - Primary												
Main	11.0	11.0	11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Additional	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rebate ¹	1.6	1.6	1.6	1.6	1.6	1.4	1.4	1.4	1.4	-	-	-
Class 1 - Secondary												
Main	12.8	12.8	12.8	12.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
Class 4												
Main	8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Additional	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Selection of weekly NICs thresholds, £												
Class 1												
Lower earnings limit	87	90	95	97	102	107	109	111	112	112	113	116
Primary threshold	100	105	110	110	139	146	149	153	155	155	157	162
Upper earnings limit	670	770	844	844	817	817	797	805	815	827	866	892

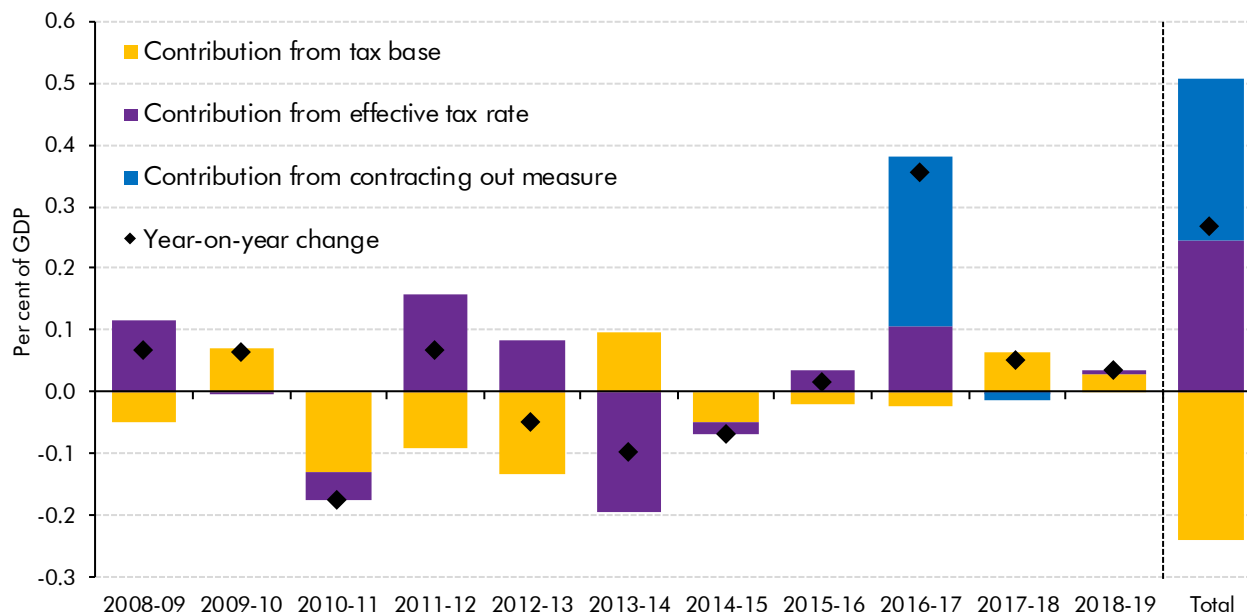
¹ Rebate for any employees in contracted-out pension schemes.

Note: Tax base is defined as total wages and salaries. See annex for more information.

Note: A full list of rates and thresholds is available on HMRC's website.

2.7 Chart 2.2 shows the sources of changes in NICs receipts over the past eleven years. The increase over the period is more than explained by a rise in the effective tax rate, particularly in 2011-12 and 2016-17 (both reflecting policy changes, as described below). Earnings-related weakness in the tax base had a partly offsetting impact.

Chart 2.2: Sources of year-on-year changes in NICs receipts



Note: The tax base is defined as the National Accounts measure of total employee compensation, less employers' social contributions. The contracting out effect is calculated using initial costing estimates from the OBR *Policy costings database*.
Source: ONS, OBR

2.8 The largest policy impact on the effective tax rate was related to the April 2016 introduction of the new State Pension. This removed the ability of certain taxpayers due to reach State Pension age after April 2016 to 'contract out' of the additional earnings-related element of the previous two-tier state pension and thus pay lower NICs via a rebate. Removing the rebate boosted NICs receipts by £5.5 billion in 2016-17 (based on the costing estimate at the time the measure was announced).² This estimate suggests that nearly three-quarters of the rise in the effective tax rate in 2016-17 shown in Chart 2.2 was due to these reforms.

2.9 Other policy measures also influenced the effective tax rate. These include:

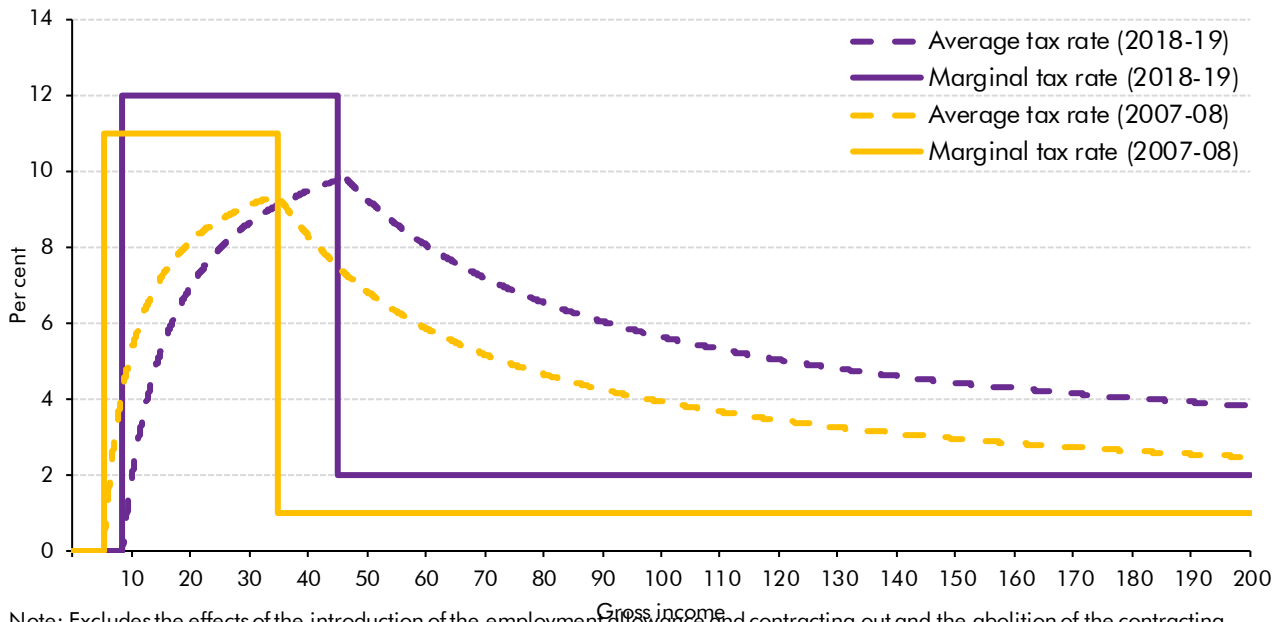
- **Increasing the main rates paid by employees, employers and the self-employed** by 1 percentage point with effect from 2011-12. This boosted the effective tax rate.
- **Increasing the NICs-free thresholds** faced by both employees and employers with effect from 2011-12. An 'employment allowance' was also introduced from April 2014, giving each employer a £2,000 tax-free threshold to offset against their NICs liability. HMRC estimates that the relief cost £1.4 billion in 2014-15, rising to £2.2 billion in 2018-19.³ These policies reduced the effective tax rate.

² The costing estimated that the reforms would raise an additional £1.4 billion and £3.3 billion from public sector employees and employers respectively in 2016-17, and an additional £0.2 billion and £0.6 billion from private sector employees and employers respectively in the same year. These estimates are available on the *Policy costings database* on our website.

³ HMRC, *Estimated costs of principal tax reliefs*, October 2019.

2.10 Chart 2.3 summarises the impact that the various policy changes had on marginal and average employee contribution rates over the period.

Chart 2.3: Average and marginal employee NICs rates, 2007-08 versus 2018-19



Note: Excludes the effects of the introduction of the employment allowance and contracting out and the abolition of the contracting out rebate.

Source: HMRC

Onshore corporation tax

2.11 Table 2.3 shows that onshore corporation tax (CT) receipts fell sharply during the crisis but ended the period slightly higher than they started it (rising from 2.5 per cent of GDP in 2007-08 to 2.6 per cent of GDP in 2018-19). Receipts fell by 0.6 per cent of GDP in 2008-09 alone – partly because the main rate was cut from 30 to 28 per cent in that year. They recovered some ground in 2009-10 and were then broadly flat until 2013-14, after which they started to rise materially relative to GDP.

Table 2.3: Onshore corporation tax receipts

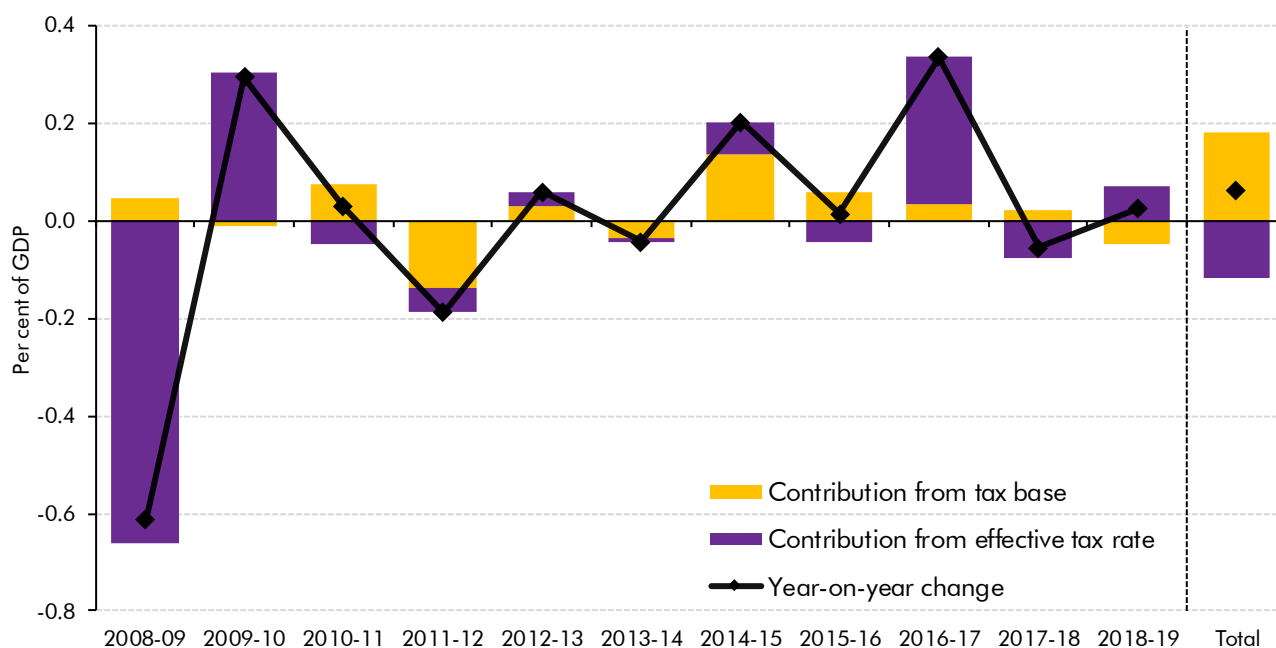
	Per cent of GDP											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	2.5	1.9	2.2	2.2	2.0	2.1	2.1	2.3	2.3	2.6	2.6	2.6
Tax base	18.5	19.0	18.9	19.6	18.3	18.6	18.3	19.5	20.0	20.3	20.4	20.4
Effective tax rate	13.7	10.1	11.7	11.4	11.2	11.3	11.3	11.7	11.4	12.9	12.6	12.9
	Rates charged during year, per cent											
Main rate	30	28	28	28	26	24	23	21	20	20	19	19

Note: Tax base is defined as the National Accounts measure of non-oil, non-financial gross trading profits, plus the HMRC measure of financial gross case 1 profits.

Receipts that rose as a share of GDP

2.12 Chart 2.4 shows the drivers of changes in onshore CT receipts as a share of GDP over the past eleven years. Over the period as a whole, the rise in receipts as a share of GDP has been underpinned by profit growth. The implied effective tax rate has fallen a little – but by much less than would be explained by the successive cuts to the main rate.

Chart 2.4: Sources of year-on-year changes in onshore CT receipts



Source: ONS, OBR

2.13 Much of the tax base growth over the period will have reflected a return to profitability for many firms that made losses during the crisis. But it also reflects an increase in the number of firms paying onshore CT. Between 2007-08 and 2017-18, there was a 64 per cent rise in the number of firms paying CT.⁴ Most of these new firms were paying between £1,000 and £50,000 in tax, which suggests that individuals incorporating (in many cases to reduce their personal tax liability) was a key determinant of this trend. This boosts the CT tax base at the expense of the income tax and NICs tax bases, and reduces receipts overall.⁵

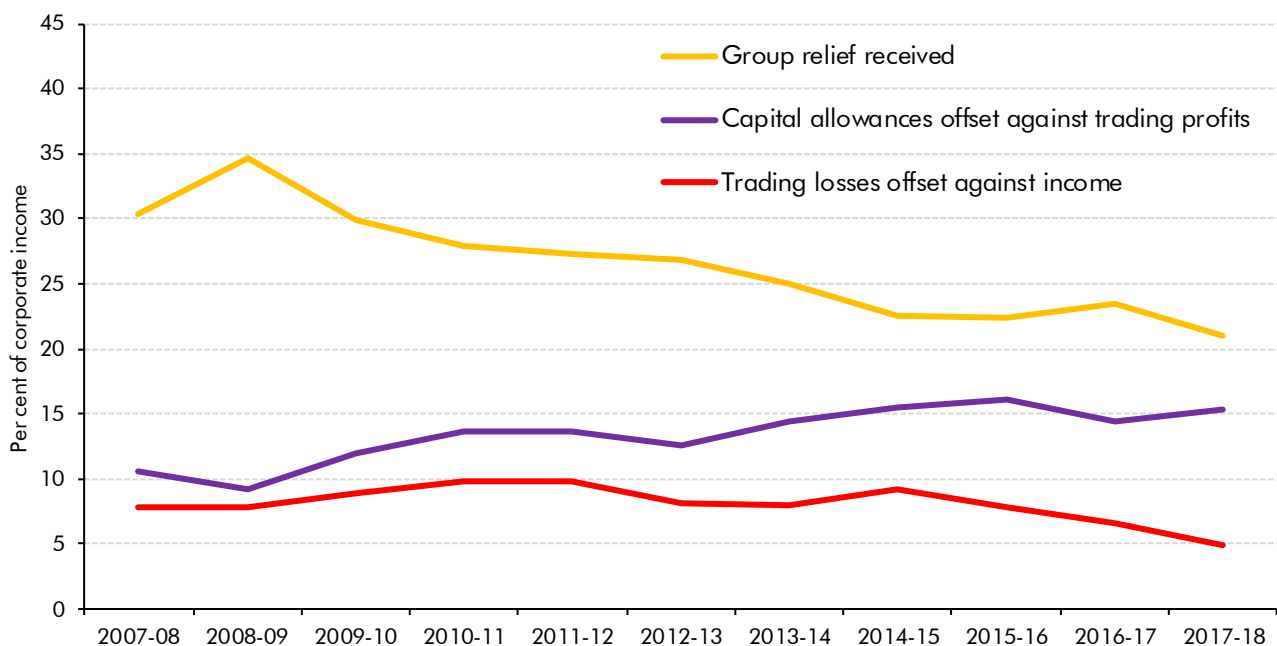
2.14 By contrast, the effective tax rate (inferred from our measure of corporate income) fell by 0.8 percentage points over the period. This is much more than explained by cuts in the headline rate, which fell from 30 per cent in 2007-08 to 19 per cent in 2017-18. The effective rate of CT paid on profits lies far below the headline rate, reflecting the many deductions and reliefs that are available to firms to offset against their taxable profits. The disparity was much greater at the start of the period than at the end. Indeed, Chart 2.5 shows that overall use of deductions has fallen over the period, which has offset much of the effect of the fall in the headline rate. Specifically, it shows that:

⁴ 2017-18 is the latest tax year for which information is available. Outturn data for 2018-19 will be available in autumn 2020.

⁵ See Chapter 5 of our 2017 *Fiscal risks report* for a fuller discussion of these trends.

- The relative use of **group relief** fell substantially over the period. Group relief allows different member firms within a 'qualifying group' (i.e. a parent and its subsidiaries) to share losses within the group for tax purposes. The fall in the use of this relief partly reflects the recovery of profits over recent years, which is likely to have reduced the stock of losses available to offset against income while also boosting income itself.
- The relative use of **trading losses offset against corporate income** rose during and shortly following the financial crisis, but their use has fallen in recent years. Policy measures have played an important role here – such as measures introduced in 2014 and 2015 to restrict the value of losses that banking groups can 'carry-forward' to offset against taxable income in later years.
- Offsetting that, the relative use of **capital allowances** has risen over the period, despite reductions in the generosity of the main component of the system in 2008-09, when the main writing-down rate was cut from 25 to 20 per cent, and then in 2012-13 when it was cut to 18 per cent. The introduction of the annual investment allowance (AIA) in 2008-09 partly offset this effect. The rise in the use of capital allowances in part will reflect the recovery in business investment following the crisis, but may also have been influenced by restrictions on the use of other reliefs and deductions.

Chart 2.5: Corporation tax deductions and reliefs as a share of corporate income



Source: HMRC

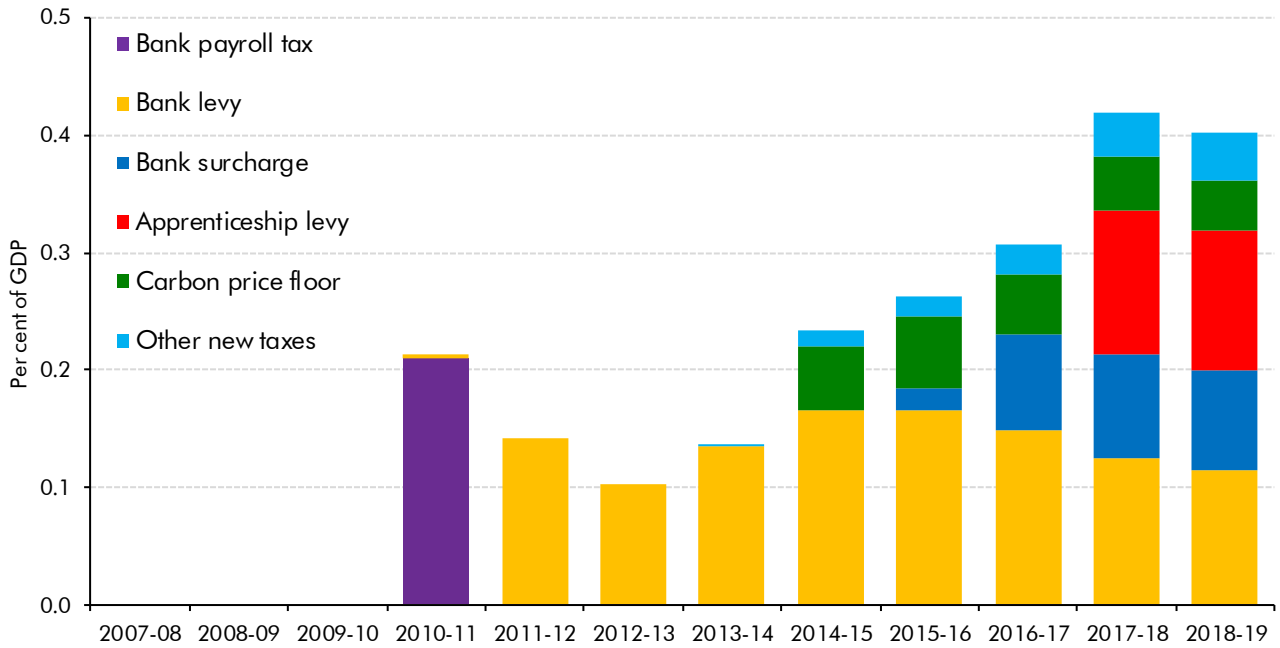
The introduction of new taxes and receipts

2.15 Several new taxes have been introduced in the past eleven years, which together have raised just over 0.4 per cent of GDP (Chart 2.6). Among them:

Receipts that rose as a share of GDP

- The **bank levy** was introduced in 2011 (following the one-off bank payroll tax that was imposed in 2010-11). It is an annual charge on certain liabilities and equity of banks and building societies. There are two main rates – one for short-term chargeable liabilities with maturities of a year or less and one for long-term chargeable liabilities and equity. Headline rates initially rose over time (from 0.05 per cent on short-term liabilities in 2011 to 0.21 per cent in 2015, as receipts repeatedly fell short of expectations) before a series of rate cuts were announced (when the bank surcharge was introduced as an additional source of tax on banking activity). In 2018-19, the bank levy raised £2.5 billion (0.12 per cent of GDP).
- The **bank surcharge** was introduced in 2016 as an 8 per cent surcharge on the profits of banking companies. Profits are calculated in the same way as for onshore corporation tax, but with some reliefs added back in. In 2018-19, the bank surcharge raised £1.8 billion (0.09 per cent of GDP).
- The **apprenticeship levy** was introduced in 2017 and is charged on UK employers to fund new apprenticeships. It is charged at a rate of 0.5 per cent of each employer's paybill, with an allowance of £15,000 to offset against their levy liability (putting a floor of £3 million for firms' annual paybills below which the levy is not paid). In 2018-19, the apprenticeship levy raised £2.6 billion (0.12 per cent of GDP).
- The **carbon price floor** (CPF) was introduced in 2013 as a supplement to the EU emissions trading system, requiring UK power generators to pay a minimum carbon price. When it was introduced, the Government planned for it to rise every year until 2020 (to a price of £30 per tonne of CO₂). However, in 2014 the Government decided to cap the CPF rate at £18 per tonne until 2020. In 2018-19, the CPF raised £0.9 billion (0.04 per cent of GDP).
- **Other new receipts and taxes** include the soft drinks industry levy (introduced in 2018), the diverted profits tax (introduced in 2015) and the HGV road user levy (introduced in 2014). Together these raised £0.8 billion in 2018-19 (0.04 per cent of GDP).

Chart 2.6: New taxes and receipts introduced since 2007-08



Source: ONS

Other taxes that rose as a share of GDP

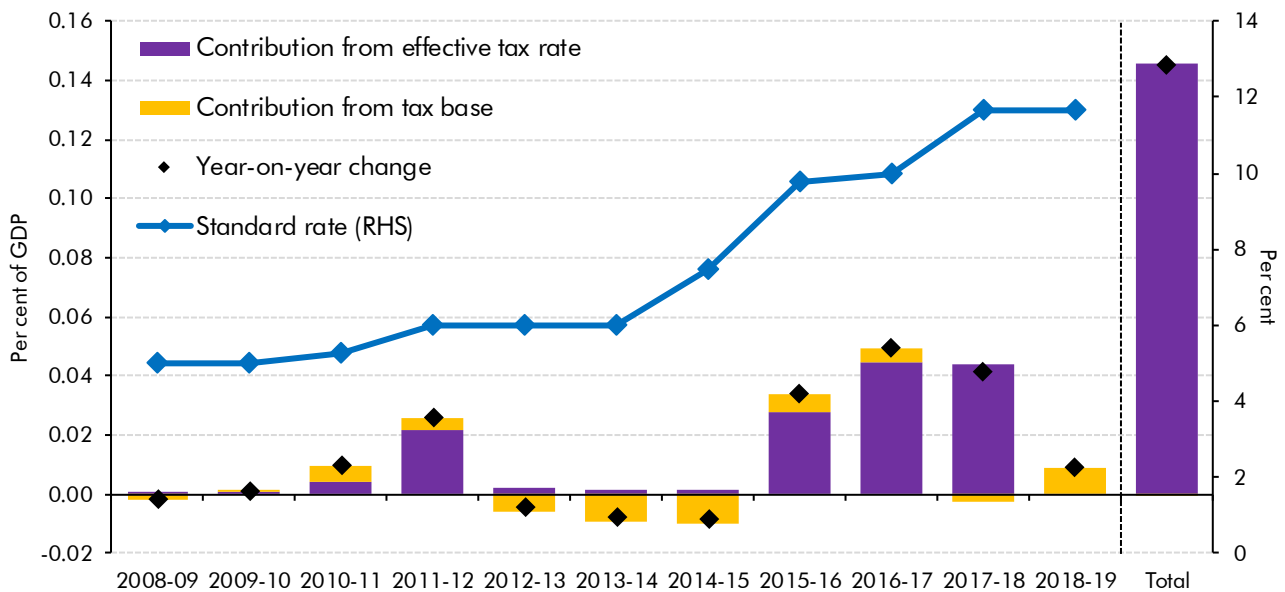
Environmental levies

- 2.16 **Environmental levies** rose by 0.3 per cent of GDP over the period. These include levy-funded spending policies that have been introduced by successive governments over the period, including the renewables obligation and contracts for difference. Many of these levies score equally in public spending and receipts, so are neutral for net borrowing in the public finances.
- 2.17 The vast majority of the rise in levy receipts over the period is explained by the renewables obligation – a scheme designed to incentivise energy suppliers to generate electricity from eligible renewable sources, such as offshore wind farms. Two factors combined have increased the effective price per unit of electricity generated over the period, raising receipts:
- Since 2007-08, suppliers in Great Britain have been required to generate an **increasing proportion of their electricity from renewable sources** – 7.9 per cent in 2007-08 rising to 46.8 per cent in 2018-19.
 - Suppliers that do not fully meet their obligation must also pay a ‘buy-out’ price to the regulator for each unit missed. The **‘buy-out’ price has risen** in line with RPI inflation.

Insurance premium tax

- 2.18 **Insurance premium tax (IPT)** receipts rose by 0.1 per cent of GDP over the period. With total insurance premiums (as implied by the measure derived in this paper) rising broadly in line with GDP, this increase reflected several policy measures raising both the standard and higher tax rates. The standard rate was increased in several steps from 5 to 12 per cent between 2010 and 2017, while the higher rate (predominantly paid on travel insurance) was raised from 17½ to 20 per cent in January 2011. Chart 2.7 shows the sources of changes in IPT receipts as a share of GDP. Most of the rise took place since 2015-16.

Chart 2.7: Sources of year-on-year changes in IPT receipts



Note: The effective tax rate is defined as the weighted average IPT rate from HMRC's IPT receipts forecasting model.
Source: HMRC, ONS, OBR

Council tax

2.19 Council tax receipts in Great Britain increased by 0.1 per cent of GDP between 2007-08 and 2018-19. With the number of dwellings growing by less than 1 per cent a year on average this rise mainly reflected several above-inflation increases in average tax bills.

2.20 Since 2015, some local authorities have had the power to increase bills by more than inflation to help fund the adult social care services they provide – known as the ‘adult social care precept’. The vast majority of those eligible have exercised this power, at least to some extent. For instance, in 2018-19, 148 out of the 152 eligible councils used some or all of the precept. This explains much of the recent rise in receipts relative to GDP.

Table 2.4: Council tax receipts (Great Britain)

	Per cent of UK GDP, unless otherwise stated											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	1.5	1.5	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6
Number of dwellings (mns)	26.1	26.3	26.5	26.7	26.9	27.0	27.2	27.3	27.5	27.7	28.0	28.2
Average bill (000s)	892	918	932	944	945	953	993	1016	1040	1082	1137	1207

Capital gains tax

- 2.21 Capital gains tax (CGT)** rose by 0.1 per cent of GDP over the period. This is more than explained by a rise in the effective tax rate charged on qualifying gains.
- 2.22** The tax base fell sharply in 2009-10, reflecting both the financial crisis (which reduced both the value and number of chargeable gains) as well as the unwinding of forestalling related to the abolition of taper relief in April 2008. The value of chargeable gains has recovered over time, reaching roughly the same level relative to GDP as it was in 2007-08.
- 2.23** The increase in the effective tax rate largely occurred in 2009-10, where the giveaway of setting the main CGT rate at 18 per cent (rather than at income tax rates) was offset by the abolition of taper relief, which previously meant lower tax rates were charged on assets that had been held for longer periods of time.⁶ The further increase in the main CGT rate to 28 per cent for higher or additional rate income taxpayers in 2010-11 compounded this effect.

Table 2.5: Capital gains tax receipts

	Per cent of GDP											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	0.3	0.5	0.2	0.2	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.4
Tax base	2.7	4.5	1.0	1.3	1.5	1.3	1.3	1.7	2.1	2.5	2.5	2.7
Effective tax rate	12.4	11.0	15.9	17.4	16.9	16.8	16.7	17.0	17.1	16.9	15.2	15.9

Note: Tax base is defined as the HMRC measure of chargeable gains, shifted by one year to match the payment of cash receipts. Data between 2007-08 and 2009-10 have been adjusted by the OBR to measure gains before taper relief was applied (taper relief was abolished in April 2008). See annex for more information.

Business rates

- 2.24 Business rates** receipts rose by 0.1 per cent of GDP over the period. This predominantly occurred during the financial crisis, where rateable values were held constant at the time while property prices and GDP fell, causing receipts to rise relative to nominal GDP. The effect of subsequent revaluations, together with the increased generosity of certain reliefs (such as small business rate relief), has only partially reversed this.

Alcohol duties

- 2.25 Alcohol duties** have risen as a share of GDP over the period, but only slightly. With the tax base shrinking earlier in the period due to weak consumption growth, this rise reflected above-inflation increases in duty rates, particularly in the first half of the period. These have been partially reversed by several freezes in nominal duty rates in more recent years.

⁶ Given the large amount of forestalling around this change, our estimate of the contributions from the tax base and the effective tax rate are particularly uncertain.

3 Receipts that fell as a share of GDP

Introduction

3.1 This section considers the receipts lines that have fallen in importance since 2007-08:

- income tax;
- oil and gas receipts;
- fuel duties;
- stamp duty on shares;
- tobacco duties; and
- property transaction taxes.

Income tax

3.2 Income tax receipts¹ have fallen steadily as a share of GDP over the past eleven years, ending the period 1.0 per cent of GDP lower than in 2007-08 (Table 3.1).

Table 3.1: Income tax receipts

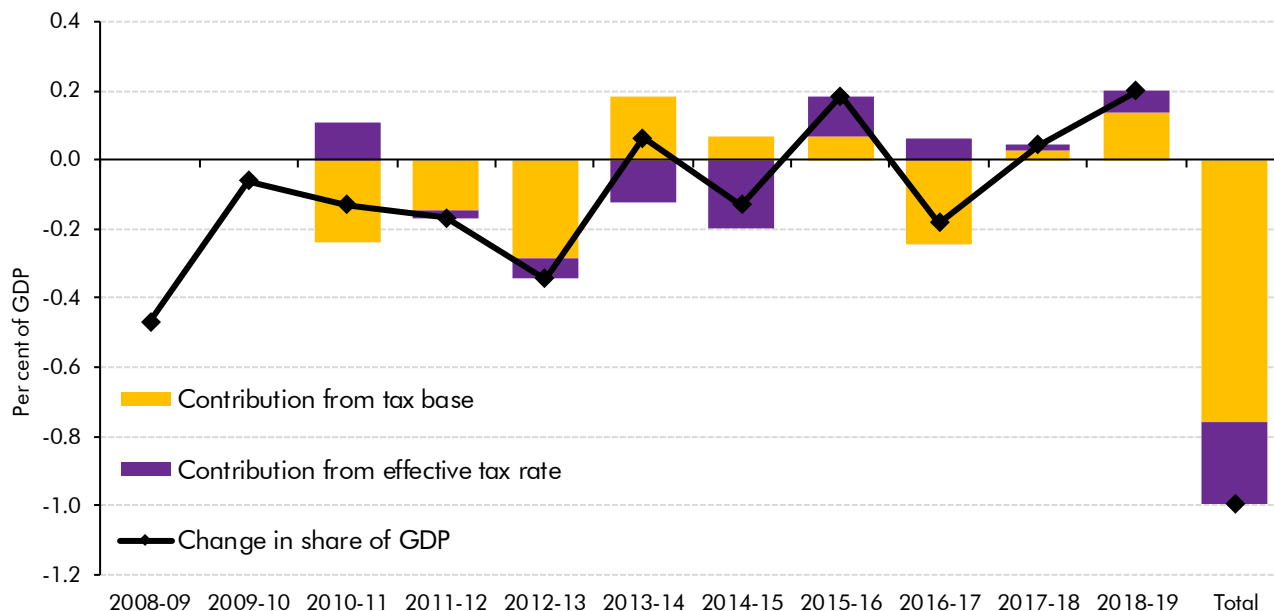
	Per cent of GDP											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	10.0	9.5	9.5	9.3	9.2	8.8	8.9	8.8	8.9	8.8	8.8	9.0
Tax base	63.5	62.9	61.3	59.7	58.8	57.0	58.2	58.7	59.1	57.5	57.7	59.7
Effective tax rate	15.7	15.2	15.5	15.6	15.6	15.5	15.3	14.9	15.1	15.2	15.3	15.4
Selected features of income tax schedule, per cent (unless otherwise stated)												
Basic rate	22	20	20	20	20	20	20	20	20	20	20	20
Higher rate	40	40	40	40	40	40	40	40	40	40	40	40
Additional rate	-	-	-	50	50	50	45	45	45	45	45	45
Personal Allowance (£s)	5,225	6,035	6,475	6,475	7,475	8,105	9,440	10,000	10,600	11,000	11,500	11,850

Note: Tax base is defined as the National Accounts measure of wages and salaries, mixed income and other forms of non-employment income, including savings and dividends. See annex for more information.

¹ This includes receipts from both the 'pay as you earn' (PAYE) and 'self-assessment' (SA) systems.

3.3 Chart 3.1 breaks down the year-on-year changes in income tax receipts as a share of GDP into contributions from the tax base and the effective tax rate. The fall over the full period was dominated by weak tax base growth, while the effective tax rate also fell.

Chart 3.1: Sources of year-on-year changes in income tax receipts



Note: Self-assessment income tax receipts have been shifted back one year to align with underlying movements in the tax base. Data for 2008-09 has not yet been published by HMRC, so the changes in 2008-09 and 2009-10 are not decomposed. Source: HMRC, ONS, OBR.

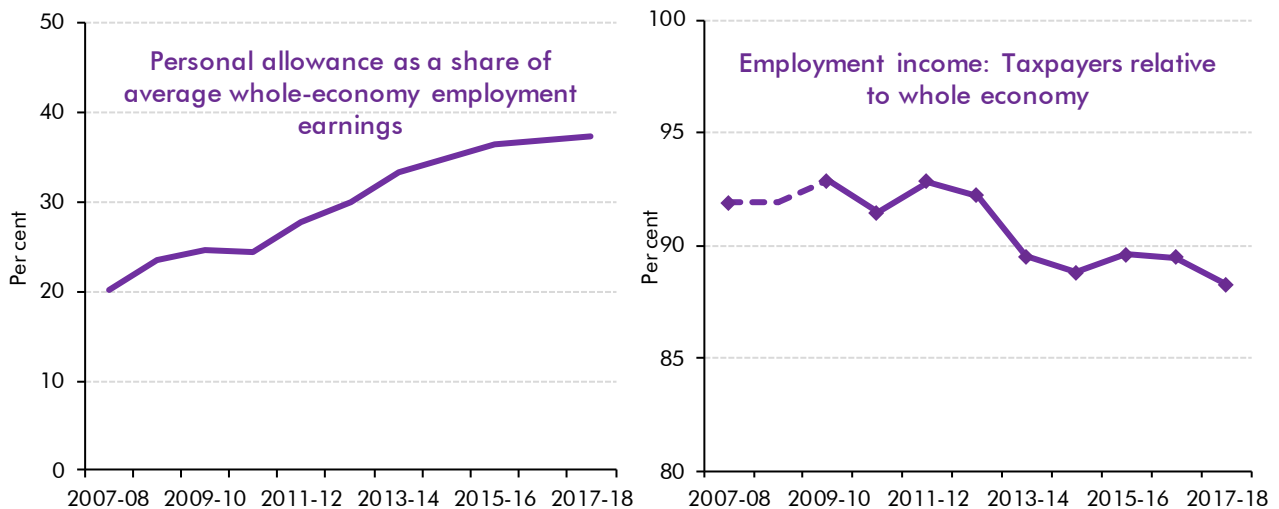
3.4 The fall in the tax base reflects the decline in the labour share of national income since before the crisis. For example, wages and salaries fell from 42.3 per cent of GDP in 2007-08 to 40.7 per cent of GDP in 2018-19. This decline is more than explained by the stagnation in average earnings, which have risen by only 1.9 per cent a year on average in cash terms and by only 0.1 per cent a year on average in inflation-adjusted terms. Employment growth has been strong by comparison, rising by 10.3 per cent over the period, faster than the 8.3 per cent growth in the adult population. This partly offset the effect of weak average earnings growth on the tax base.

3.5 In terms of the effective tax rate, the fall over the decade is explained by two main factors:

- Several **policy changes** to rates and thresholds have reduced effective tax rates for most taxpayers. Successive above-inflation rises in the personal allowance have also substantially reduced the proportion of adults who pay any income tax at all – reducing the overall effective tax rate on personal income across the whole economy.
- The **weakness in average earnings growth** has put downward pressure on tax receipts due to the progressive schedule of rates that individuals face.

3.6 Focusing on the reduction in the proportion of income taxpayers first, Chart 3.2 shows that the personal allowance more than doubled from £5,225 in 2007-08 to £11,850 in 2018-19, rising much faster than average earnings. This left the personal allowance in 2018-19 at just over 37 per cent of average earnings, relative to only 20 per cent in 2007-08. As a consequence, the value of employee income subject to income tax fell from 92 per cent in 2007-08 to 88 per cent in 2017-18.

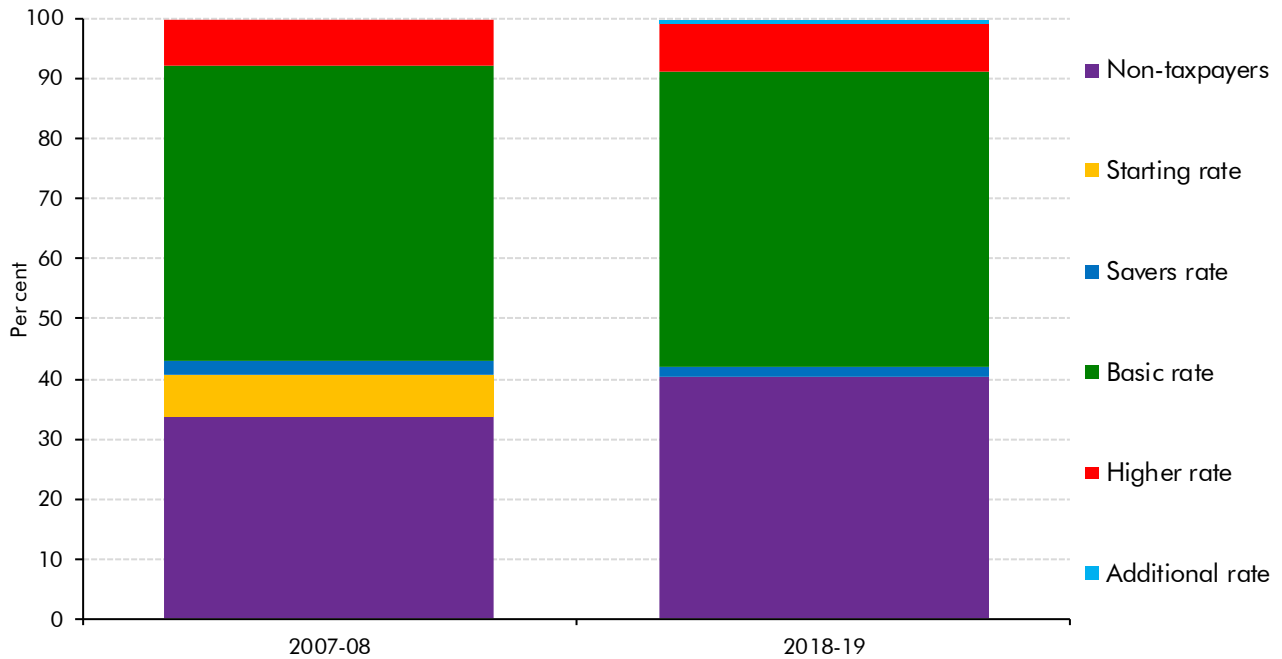
Chart 3.2: Impact of personal allowance rises on the share of employees paying tax



Note: 2008-09 and 2018-19 data is not yet available.
Source: HMRC, ONS

3.7 Chart 3.3 shows that, relative to the whole adult population, these changes have had a marked impact on the composition of the income tax paying population. It implies that the proportion of *all* adults paying income tax has fallen from 66.3 to 59.7 per cent. HMRC data on the earnings of the self-employed also suggest that the strong growth in self-employment over the past decade has been concentrated among those reporting earnings at or below the personal allowance, so is likely to have lowered the proportion further.

Chart 3.3: Proportion of adults paying income tax by highest marginal rate faced, 2007-08 versus 2018-19



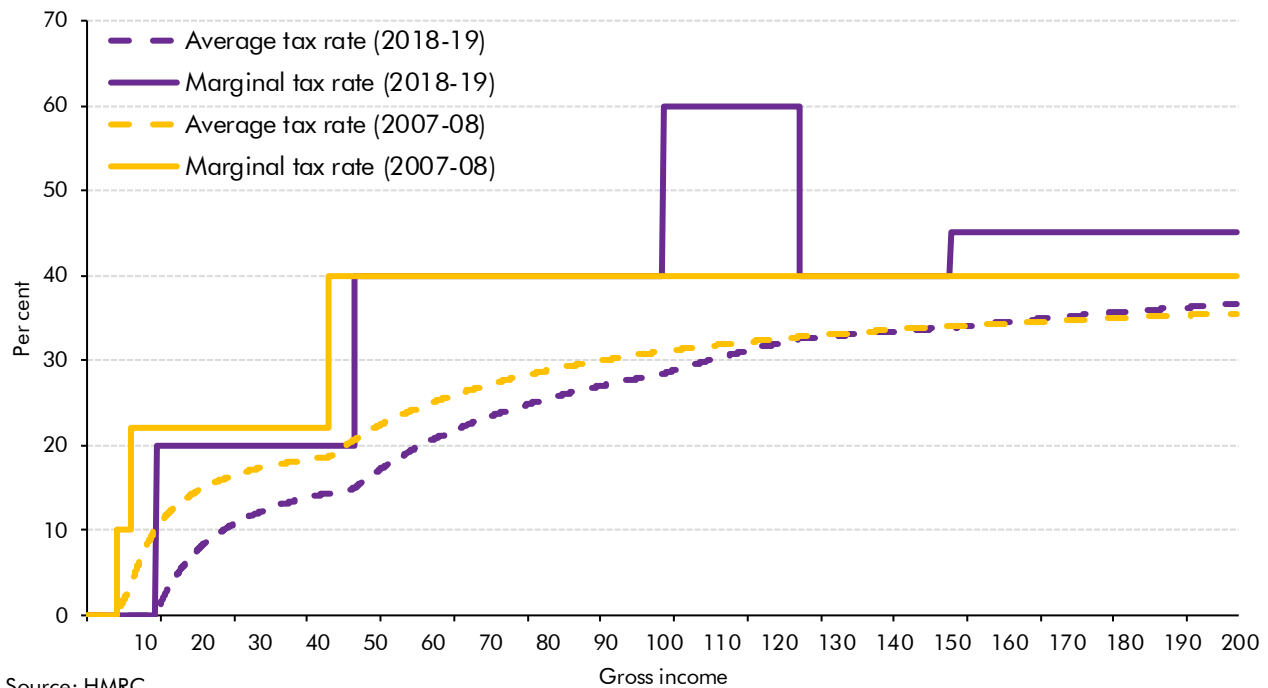
Source: HMRC, OBR

3.8 For adults who have remained in the taxpaying population over the period, these policy changes have reduced average and marginal tax rates in 2018-19 relative to those in 2007-08. Chart 3.4 shows that average income tax rates on most employment income have fallen for all taxpayers earning up to around £155,000. These policy changes include:

- Several above-inflation increases in the personal allowance.** These have steadily increased the amount of earned income that is not subject to income tax. In 2007-08, the personal allowance for those aged under 65 was £5,225 a year. Eleven years on, this had more than doubled to £11,850. If the personal allowance had increased in line with the Government’s stated uprating policy in 2007-08, it would have reached £7,340 in 2018-19 – over £4,500 (nearly 40 per cent) less than the actual threshold.
- Changes to existing marginal rates.** In 2007-08, taxpayers with income of less than £7,455 a year faced a starting 10 per cent tax rate. This rate was abolished in 2008-09. The basic rate was cut from 22 to 20 per cent in 2008-09 where it has remained, while the higher rate has remained unchanged at 40 per cent throughout the period.
- The introduction of a new additional rate.** A new top rate of 45 per cent for those with incomes over £150,000 was announced by the Labour Government in 2008. This was increased to 50 per cent in 2009 before it was introduced in 2010-11. The Coalition then lowered it to 45 per cent in 2013-14.

- **The introduction of the tapered personal allowance.** In 2008, the Labour Government announced a restriction on the personal allowance for high earners, which was introduced in 2010. This reduces an individual's personal allowance by £1 for every additional £2 earned over £100,000 – in effect introducing a higher marginal tax rate of 60 per cent for those taxpayers affected until their personal allowance reaches zero.

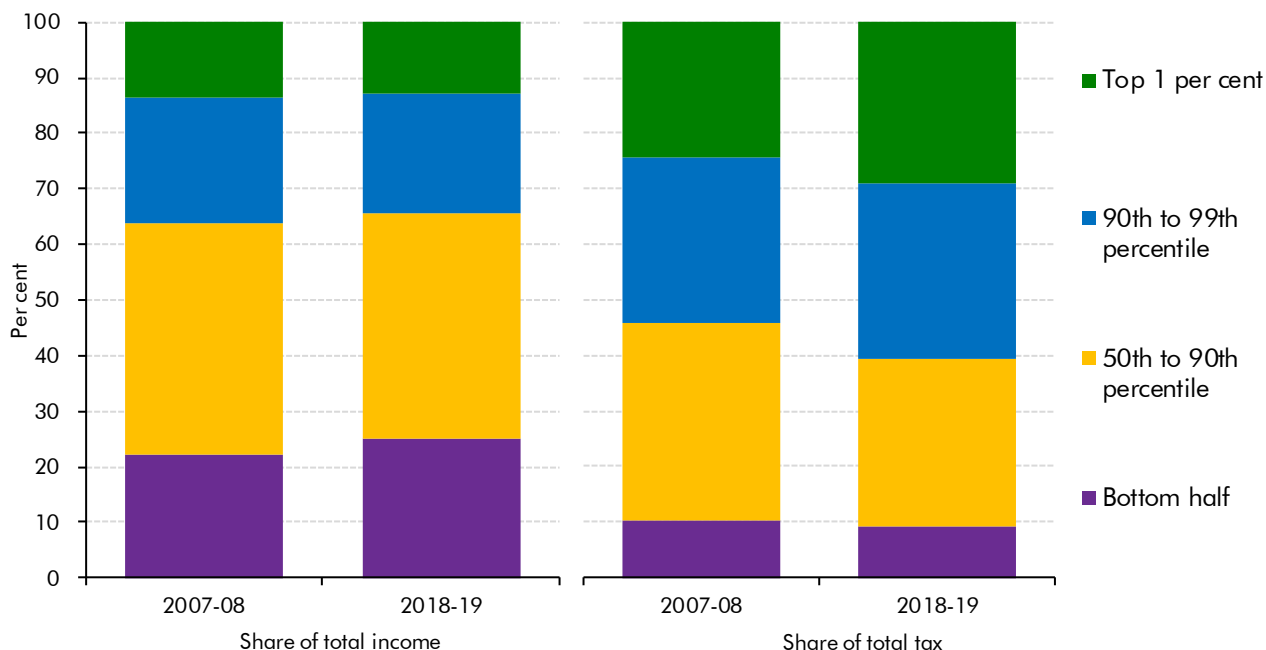
Chart 3.4: Income tax average and marginal tax rates, 2007-08 and 2018-19



3.9 Among taxpayers, a higher share of income tax receipts is now paid by higher earners. HMRC data suggest that this has been driven by a rising average tax rate paid by higher earners (primarily due to the introduction of the additional rate), rather than their incomes rising faster than at other points in the earnings distribution. For instance, Chart 3.5 shows that the share of pre-tax income received by the top 1 per cent of taxpayers has fallen from 13.4 to 12.7 per cent over the period.² This contrasts with the share of all income tax paid, which has risen from 24.4 to 29.1 per cent.

² This fall needs to be considered in the context of the overall fall in the number of taxpayers, which generates two effects working in opposite directions. First, the top 1 per cent of taxpayers would be less numerous as the total number of taxpayers falls. This would result in the top 1 per cent having higher average incomes than a decade ago, since it now covers a smaller proportion of the overall income distribution. Second, the average income of all income taxpayers should be higher than it was a decade ago, since more of those with lower average earnings no longer pay income tax.

Chart 3.5: Distribution of taxpayer income and income tax liabilities, 2007-08 versus 2018-19



Source: HMRC

3.10 While the effective tax rate fell between 2007-08 and 2013-14, there have been several policy-driven changes since then that have partly reversed that fall. The most notable of these were the changes to dividend taxation (paid through self-assessment) announced in July 2015. From 2016-17 onwards:

- The **dividend tax credit was replaced by a tax-free dividend allowance** of £5,000. This was later reduced to £2,000 with effect from 2017-18.
- The **headline rates of dividend tax were increased** by 7.5 percentage points in each band (the basic rate rose from 0 to 7.5 per cent, the higher rate from 25 to 32.5 per cent and the additional rate from 30.56 to 38.1 per cent).

Oil and gas receipts

3.11 Oil and gas receipts have fallen sharply over the past decade, from around 0.6 to 0.1 per cent of GDP (Table 3.2). Revenues have historically been very volatile from year to year.³

³ For more information, see Box 4.4 of our December 2014 *Economic and fiscal outlook*.

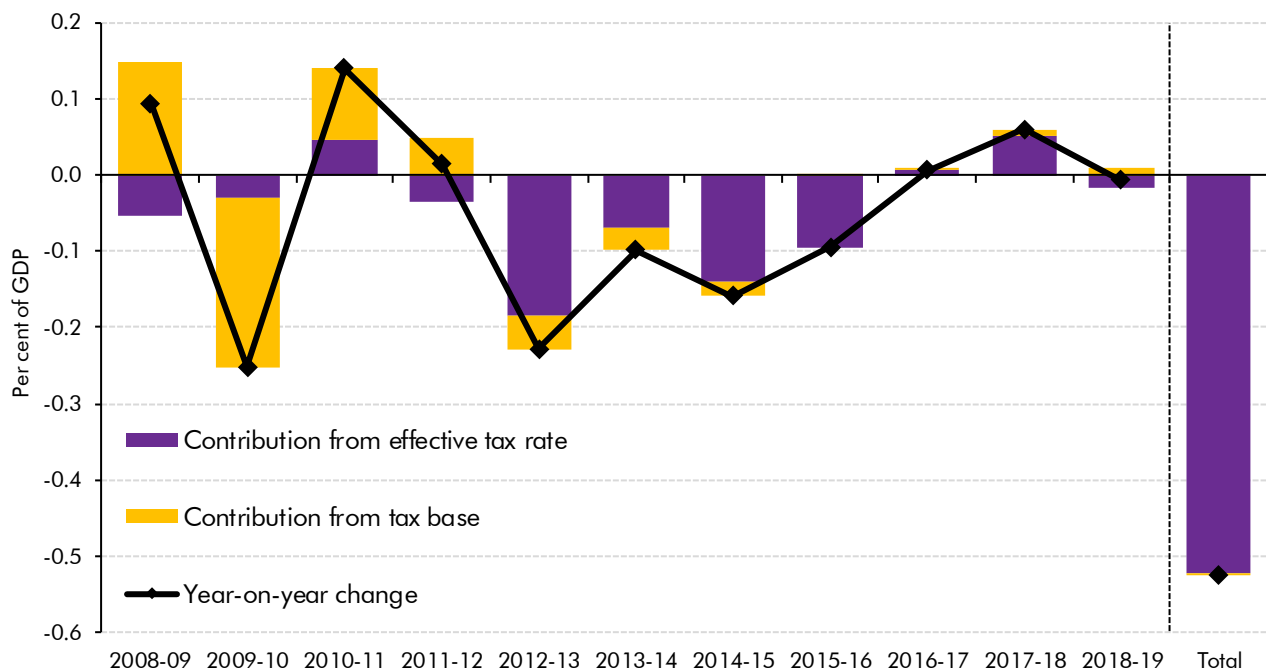
Table 3.2: Oil and gas receipts

	Per cent of GDP											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	0.6	0.7	0.4	0.6	0.6	0.3	0.2	0.1	0.0	0.0	0.1	0.1
Tax base	2.0	2.5	1.6	2.0	2.2	1.9	1.7	1.4	1.1	1.0	1.1	1.4
Effective tax rate	29.3	26.6	25.4	28.2	26.4	17.9	14.3	6.2	-0.7	-0.2	5.2	3.7
Selection of rates, per cent												
Main rate	30	30	30	30	30	30	30	30	30	30	30	30
Supplementary charge	20	20	20	20	32	32	32	32	20	10	10	10
Petroleum revenue tax	50	50	50	50	50	50	50	50	0	0	0	0

Note: Tax base is defined as total oil and gas income. See annex for more information.

3.12 Chart 3.6 shows the drivers of changes in oil and gas receipts as a share of GDP over the past decade. Most of the fall between 2007-08 and 2018-19 occurred since 2011-12 and reflected a drop in the effective tax rate, although the tax base also declined somewhat.

Chart 3.6: Sources of year-on-year changes in UK oil and gas receipts

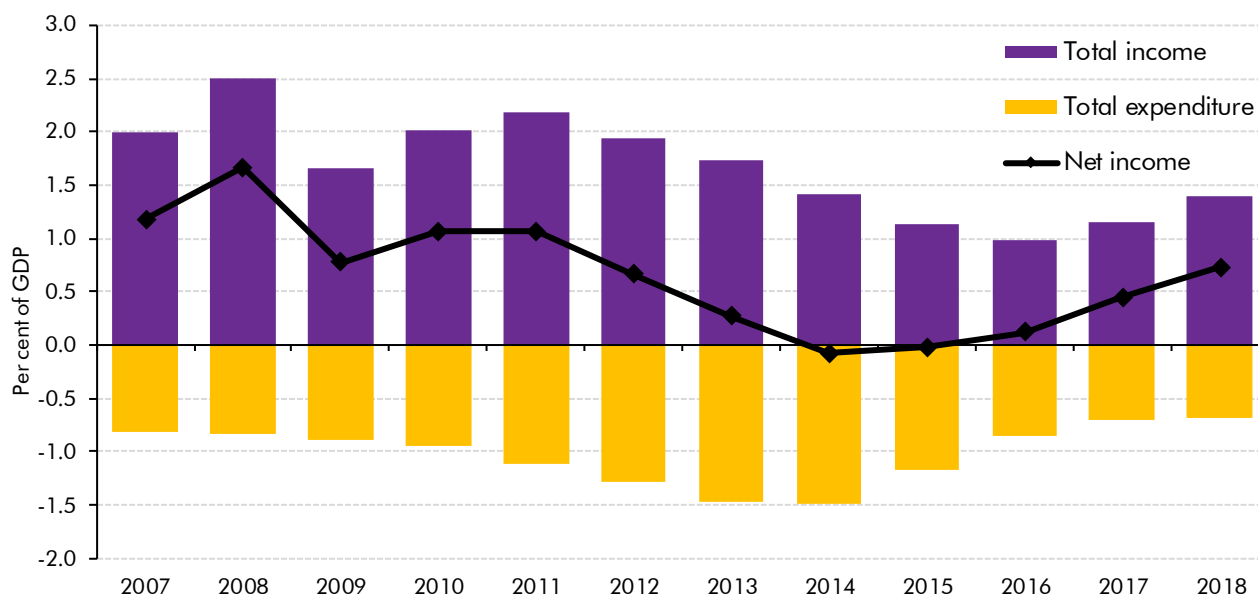


3.13 Trends in oil and gas receipts can be explained by the drivers of taxable profits and losses together with tax rates and allowances. All else equal, rising production volumes and higher oil and gas prices boost taxable profits, while rising operating costs and capital expenditure (which are both largely tax-deductible) lower them, as do losses carried forward from previous years. The combination of these effects determines what effective tax rate is paid on any residual profits.

3.14 The overall decline in net taxable profits as a share of GDP reflects two main effects, summarised in Chart 3.7:

- **Falling production in the North Sea** lowered the total income of the sector over the period despite significantly higher sterling oil prices. Production fell by 40 per cent between 2007 and 2018, ending the period at 90 million tonnes of oil equivalent a year. Oil prices in sterling terms were nearly 50 per cent higher than in 2007, but the intervening period was volatile, with sharp rises in 2008, 2010, 2011, 2017 and 2018 and sharp falls in 2009 and 2015.
- **Total expenditure** was around 15 per cent higher than it was eleven years ago, despite markedly lower production. Higher tax-deductible spending has reduced the effective tax rate paid on total gross income.
- Within that total, **decommissioning spending** rose by £1.3 billion over the period – almost an eight-fold increase. Losses arising from decommissioning fields liable to petroleum revenue tax (PRT) can be carried back against past PRT payments, generating a cost for the government.

Chart 3.7: Total income and expenditure of the UK oil and gas sector



Note: Total income consists of sales of oil, gas and natural gas liquids plus other revenue (for instance, from pipelines). Total expenditure includes operating costs (including decommissioning) and capital expenditure (including exploration and appraisal). Source: UK Oil & Gas Authority, ONS, OBR

3.15 Policy changes have played a key role in reducing the effective tax rate, including:

- **Reductions in the rate of the supplementary charge (SC).** This is an additional charge on a company's ring-fenced profits (but with no deduction for finance costs). It is paid on top of the main ring-fence corporation tax (RFCT) rate. The SC started off the decade at 20 per cent. It was increased in 2011 to 32 per cent, but was then cut to 20 per cent in 2015, and to 10 per cent on 1 January 2016. In addition, over the period

a number of allowances were introduced or made more generous including field and then investment allowances and the ring fence expenditure supplement.

- **Reductions in petroleum revenue tax (PRT).** PRT is a 'field-based' tax charged on the profits arising from individual oil and gas fields that were approved for development before 16 March 1993. The rate was permanently set at zero per cent with effect from 1 January 2016 (having been charged at 50 per cent of taxable profits since 1993). PRT has not been abolished though, which means that losses (such as those arising from decommissioning PRT-liable fields) can be carried back against past PRT payments. PRT was deductible as an expense in computing profits chargeable to RFCT and SC before the rate was set to zero and RFCT/SC are still charged on refunds of PRT.

Fuel duties

3.16 Fuel duty receipts fell by 0.3 per cent of GDP between 2007-08 and 2018-19. Table 3.3 shows a steady downward trend since 2010-11, whereas fuel duty receipts rose edged up by 0.1 per cent of GDP between 2007-08 and 2010-11.

Table 3.3: Fuel duty receipts

	Per cent of GDP											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	1.6	1.6	1.7	1.7	1.6	1.5	1.5	1.4	1.4	1.4	1.3	1.3
Tax base ¹	3.1	3.0	3.0	2.9	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6
Effective tax rate ²	0.53	0.53	0.57	0.59	0.59	0.57	0.56	0.56	0.55	0.54	0.53	0.52
	Nominal rate charged during year, pence per litre											
Main rate ³	54.35	51.02	55.36	57.88	57.95	57.95	57.95	57.95	57.95	57.95	57.95	57.95

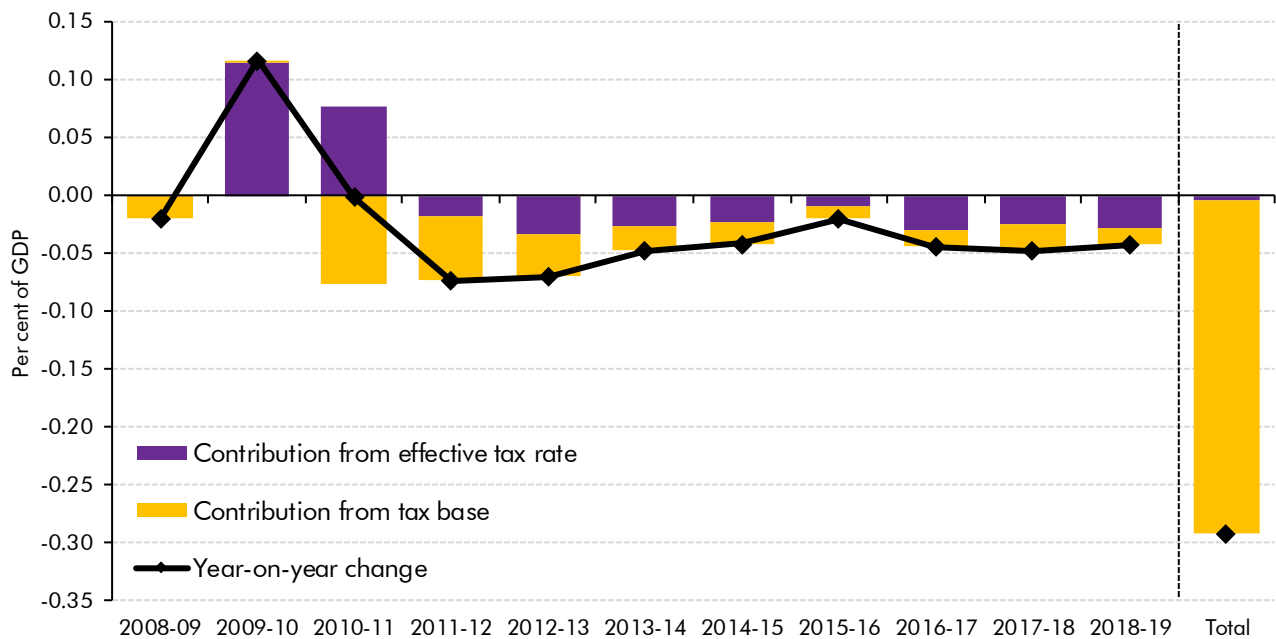
¹ HMRC measure of fuel clearances divided by real GDP. As such, this is a measure of the fuel consumption intensity of real GDP.

² £ per litre, 2017-18 prices.

³ Where rates changed in-year, an average across the relevant months has been included.

3.17 Chart 3.8 decomposes year-on-year changes in fuel duty receipts as a share of GDP into contributions from the tax base and the effective tax rate. It shows that the volume of fuel consumed grew more slowly than real GDP in all but one year, generating a large negative contribution over the period as a whole. This was fractionally offset by rises in the effective tax rate in 2009-10 and 2010-11 outweighing the falls in every subsequent year.

Chart 3.8: Sources of year-on-year changes in fuel duty receipts



Source: ONS, OBR

3.18 Two factors together determine whether overall fuel consumption rises or falls:

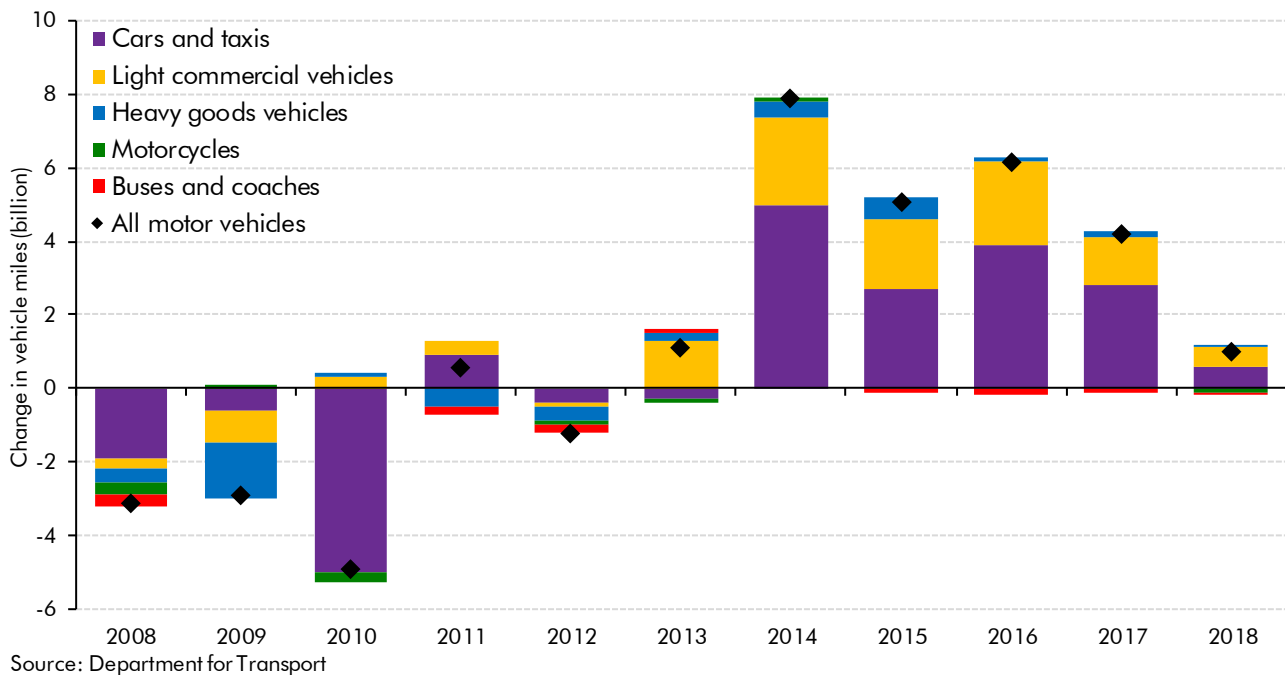
- The **total distance travelled** by all vehicles on UK roads combined (i.e. vehicle traffic).
- The **average fuel economy** of those vehicles (i.e. how much fuel those vehicles use to travel a given distance).

3.19 Chart 3.9 shows how total vehicle traffic fell between 2008 and 2012, predominantly due to declining car mileage and continued falls in traffic from other sources, such as heavy goods vehicles. From 2013 onwards, total vehicle traffic has risen. This is partly due to a pick-up in car mileage, but also to strong growth in light commercial vehicle traffic – perhaps due to the recent surge in internet deliveries. Between 2007-08 and 2018-19, the proportion of retail sales made online increased from 3.8 to 18.3 per cent.⁴ Over the same period, distances travelled by light commercial vehicles increased by 21.7 per cent.⁵

⁴ ONS, *Retail Sales Index*, February 2020.

⁵ Department for Transport, *Road traffic estimates in Great Britain: 2018*, May 2019.

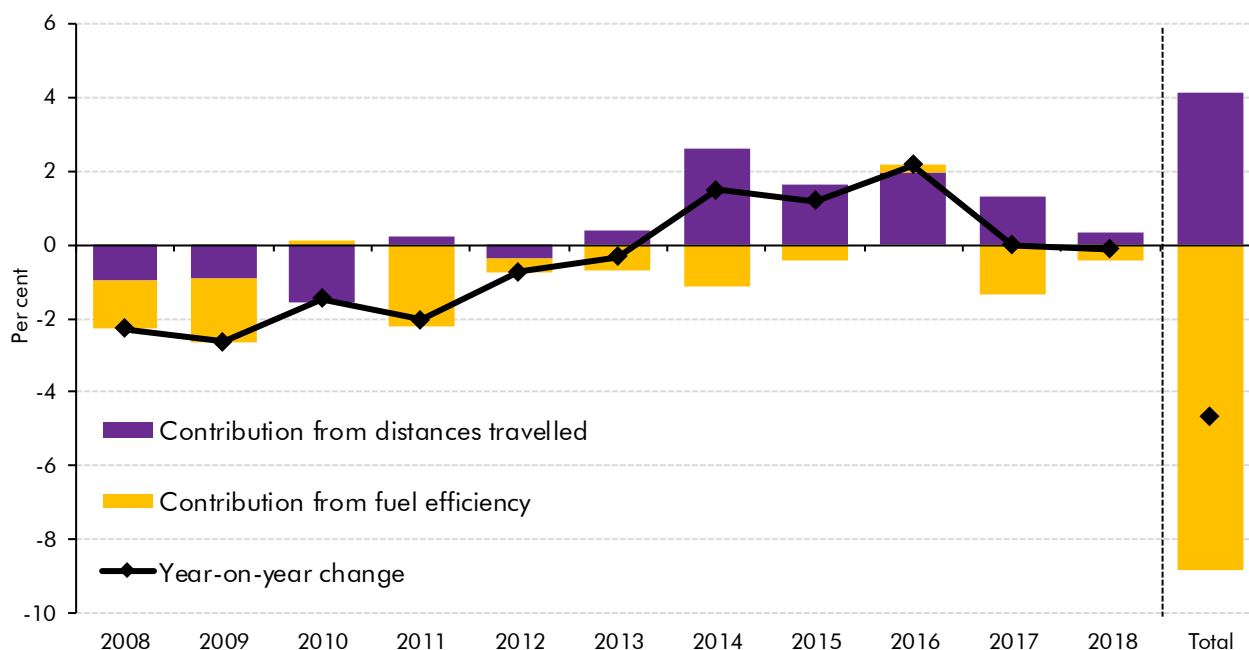
Chart 3.9: Contribution to year-on-year changes in total vehicle traffic



- 3.20 Average fuel economy has also improved materially since 2007 (based on the volume of fuel cleared with HMRC relative to the Department for Transport’s provisional estimates of annual vehicle traffic). But the pace of improvement has slowed in recent years. This is potentially due to the increase in the number of older vehicles on the road – the proportion of total vehicles aged 13 years or more than doubled between 2007 and 2018.⁶ Given the recent trend in new car sales back towards petrol cars, which are less fuel efficient on average than diesel ones, the slower pace of aggregate improvement could also be due to changes in the composition of new cars bought.
- 3.21 Chart 3.10 shows how improvements in the average implied fuel economy of the vehicle stock were predominantly due to the large gains made earlier in the period. These are likely to have been due to the Government’s crisis-related vehicle scrappage scheme, although the introduction of EU efficiency targets for new car sales in 2009 will also have contributed.

⁶ Department for Transport, Vehicle Licencing Statistics, *Licensed cars at the end of the year by number of years since first registration*, December 2019.

Chart 3.10: Sources of year-on-year changes in total fuel consumption



Source: Department for Transport, OBR

3.22 The effective tax rate paid on this declining tax base was lower in 2018-19 than in 2007-08, reflecting repeated freezes in the main duty rate since 2011. Table 3.3 shows how prior to the start of these freezes, the nominal duty rate was increased in line with RPI inflation (as the Government still assumes, but has not implemented for a decade).

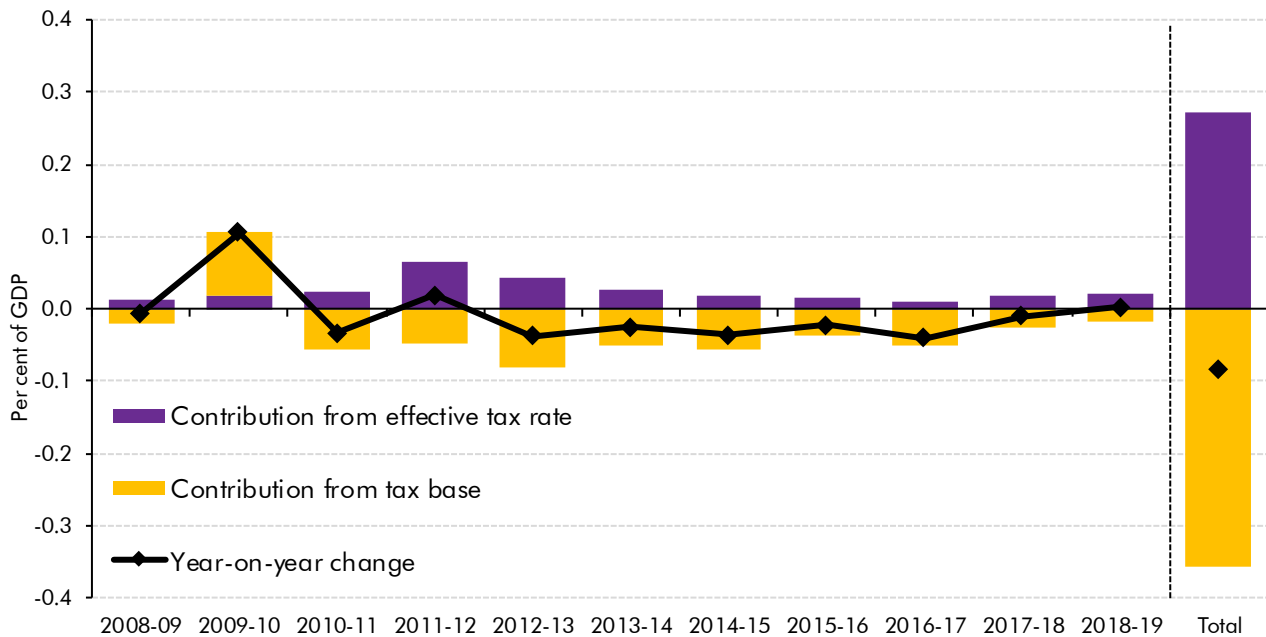
Stamp duties on shares

3.23 Receipts from stamp duty on shares fell by 0.1 per cent of GDP between 2007-08 and 2018-19. Much of this fall occurred before 2009-10, so is likely to have reflected the fall in equity prices during the financial crisis. The stock market recovered over the subsequent period, but receipts remained relatively flat as a share of GDP. Although data on taxable transactions are scarce, this subdued trend may have been influenced by the changing composition of share ownership. For instance, shareholdings in unit trusts (a type of collective investment scheme, usually managed by a fund manager) have reached record highs in recent years – transactions in these trusts are not subject to stamp duty on shares.

Tobacco duties

3.24 Tobacco duties fell by 0.1 per cent of GDP over the period. This reflected continued declines in consumption that were only partly offset by above-inflation increases in duty rates, as Chart 3.11 shows. According to the ONS, smoking prevalence in Great Britain has continued to fall, with only 16.6 per cent of the adult population smoking in 2018 compared to 20.9 per cent in 2007. This continues a longer-term trend thanks to greater awareness of the health risks associated with smoking, overlaid by the effects of several policy changes over the past decade, such as the ban on smoking in public spaces and the introduction of plain tobacco packaging, which may have reduced smoking prevalence.

Chart 3.11: Sources of year-on-year changes in tobacco duties



Note: The tax base is defined as the HMRC measure of total cigarette clearances.

Source: HMRC, ONS, OBR

Property transaction taxes

3.25 Property transaction tax receipts were marginally lower as a share of GDP in 2018-19 than they were in 2007-08, following a sharp fall during the crisis as both transactions and property prices crashed.⁷ The tax base has not fully recovered. Transactions picked up following the crisis, but they stalled again in 2016 partly reflecting the introduction of a higher rate of tax on additional properties as well as the impact of the EU referendum. Average prices have risen strongly, particularly since 2013-14, and are above their pre-crisis peak.

3.26 Weakness in the tax base has been largely offset by the effective tax rate on the overall turnover in the housing stock rising significantly in the second half of the period (Chart 3.12). This reflects both distributional factors (with the top-end of the market providing an increasing proportion of overall receipts) as well as policy measures, in particular the higher rates that are now levied on purchases of second homes and buy-to-let properties.

3.27 Other policy measures will have worked in the opposite direction:

- The December 2014 decision to **replace the 'slab' system to tax rates with a 'slice' one** reduced the tax paid on purchases worth less than around £935,000 and raised it on those above that level.⁸ This is likely to have boosted the number of property sales at lower prices and reduced the number at higher prices, lowering the average tax rate.

⁷ At the start of the period, property transactions in all parts of the UK were subject to stamp duty land tax. By the end, property transactions in Scotland were subject to land and buildings transaction tax and in Wales to land transactions tax.

⁸ See Box 4.5 of our December 2014 *Economic and fiscal outlook*.

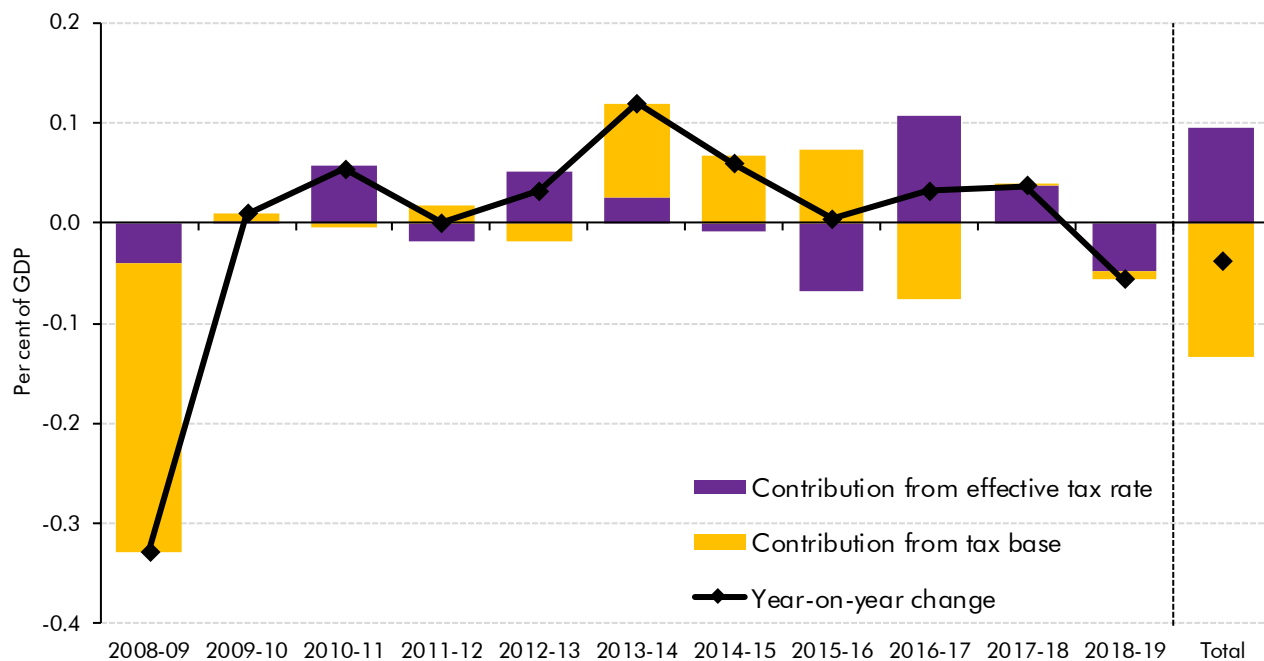
Receipts that fell as a share of GDP

- The November 2017 decision to **introduce a first-time buyer relief** reduces the amount of tax paid by first-time buyers on property purchases up to £500,000 in England and Northern Ireland. (The Scottish Government introduced a similar relief into its property transaction tax system, but the Welsh Government has not.) HMRC estimates that the relief in England and Northern Ireland lowered receipts by £0.5 billion in 2018-19.

Table 3.4: Property transaction tax receipts

	Per cent of GDP											
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Receipts	0.6	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.6
Tax base	28.1	14.4	14.8	14.7	15.4	14.7	17.9	20.3	23.2	20.7	20.7	20.8
Effective tax rate	2.3	2.1	2.1	2.5	2.4	2.7	2.9	2.9	2.5	3.0	3.2	2.9

Chart 3.12: Sources of year-on-year changes in property transaction tax receipts



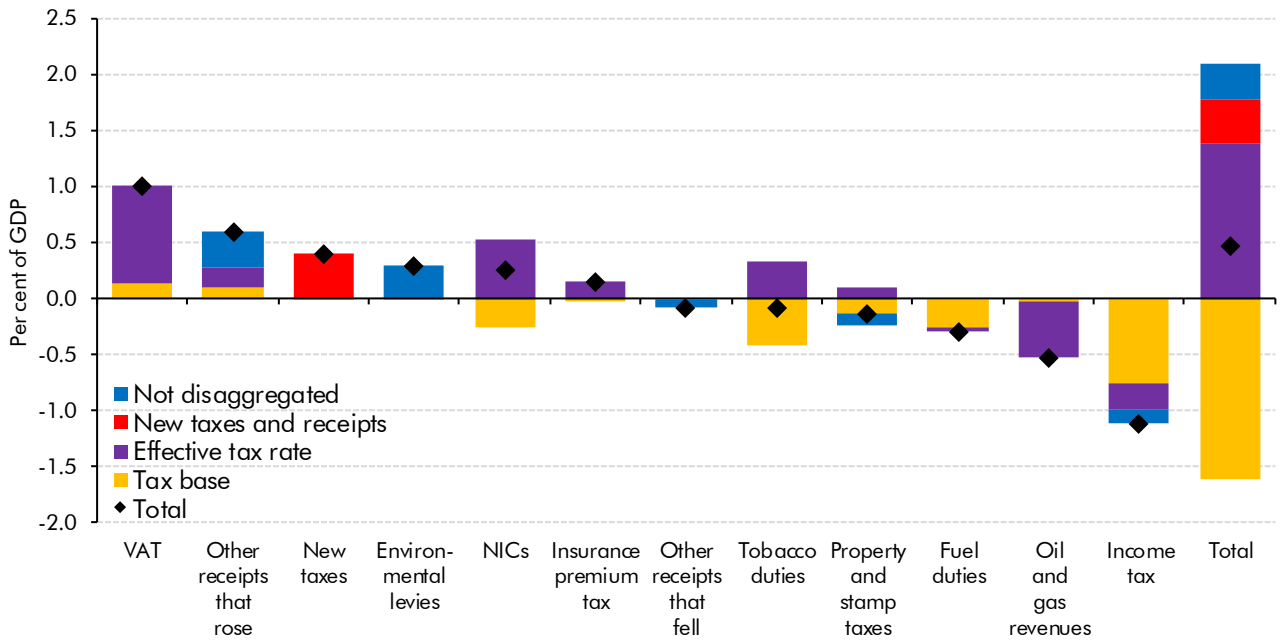
Source: HMRC, ONS, OBR

4 Conclusions

- 4.1 In this paper, we have looked at the shifting importance of different sources of revenue to the total amount raised since the eve of the financial crisis. These shifts have taken place within an overall receipts-to-GDP ratio that has returned close to the pre-crisis level.
- 4.2 The main conclusions to be drawn are that:
- **There was a gradual fall over the period in major sources of revenue that were subject to political commitments to cut them.** For income tax, the effect of above-inflation increases in the personal allowance were compounded by the effects of weak average earnings growth and the composition of self-employment. For fuel duties, the effect of successive freezes in the main duty rate were compounded by rising fuel efficiency.
 - **These falls were slightly more than offset by raising VAT and by several smaller sources of revenue, including entirely new ones.** For VAT, this primarily reflected raising the standard rate to 20 per cent. The main rate of insurance premium tax was doubled in a series of measures. And several new tax and receipts streams have been introduced, each contributing modest amounts but collectively boosting receipts substantially.
- 4.3 As Chart 4.1 shows, these compositional changes, driven by both structural and policy changes, have resulted in the UK economy becoming less 'tax rich' relative to the pre-crisis position – that is, existing tax bases have on average declined as a share of GDP. These reductions largely reflect underlying trends in the wider economy, including a fall in the labour share of national income (labour income is more highly taxed than other income components of GDP) and the gradual erosion of excise duty tax bases thanks to technological and behavioural trends. Despite several policy giveaways on top of these falling tax bases (including personal allowance rises and fuel duty freezes), the UK has arrived at a similar receipts-to-GDP ratio to pre-crisis levels, predominantly by increasing tax rates applied to some large tax bases (primarily VAT and NICs) and adding some new smaller tax bases (including those levied on banks).
- 4.4 Our March 2020 forecast assumed that tax bases across the economy would continue to decline gently over the medium term but that effective tax rates would continue to rise. The latter effect was assumed to dominate, raising the receipts-to-GDP ratio over time. This forecast has, of course, been overtaken by events as the public health and economic policy response to the coronavirus outbreak has taken effect. This will lead to a sharp fall in GDP and receipts this year, although the size of the shock is impossible to predict with any confidence at this stage. The approach used in this paper of analysing changes in tax bases and effective tax rates will provide one important lens through which to assess the effects of the crisis on receipts and to begin to understand how they might recover as the crisis passes.

Conclusions

Chart 4.1: Sources of change in the receipts-to-GDP ratio, 2007-08 to 2018-19



Source: ONS, OBR

A Tax bases

- A.1** To analyse movements in the receipts-to-GDP ratio for this paper we have needed to choose which measure of the tax base to use for each specific tax or non-tax receipt. In most cases, we have used the widest measure available. But given the complexity of the tax system, we acknowledge the measures we have used will not capture all the various allowances, deductions and intricacies each specific part of the tax system offers.
- A.2** Nevertheless, identifying and choosing tax bases in this way is still useful, since it allows us to disaggregate movements in specific receipt streams into their constituent parts and analyse the main drivers of these trends. Table A.1 sets out the tax bases we have used.

Table A.1: Receipts discussed in this paper and chosen measure of tax base

Receipt	Chosen tax base	Source
VAT	National Accounts measure of individual consumption expenditure	ONS
NICs	National Accounts measure of total employee compensation, less employers' social contributions	ONS
Onshore corporation tax	National Accounts measure of non-oil, non-financial gross trading profits plus the HMRC measure of financial company gross trading profits (excluding life assurance companies)	ONS and HMRC
Insurance premium tax	Tax base measure derived from receipts and the weighted average tax rate used in HMRC's forecasting model	HMRC and OBR calculations
Council tax	Total number of dwellings (Great Britain)	MHCLG
Capital gains tax	Chargeable gains, shifted by one year to match the payment of cash receipts.	OBR calculations using HMRC data
Income tax	National Accounts measure of total employee compensation (less employers' social contributions), plus gross mixed income, plus property income received by households (including various other forms of income, such as interest and dividend income)	ONS
UK oil and gas receipts	Total income of UK oil and gas companies, minus total expenditure	Oil and Gas Authority
Fuel, alcohol and tobacco duties	HMRC measure of total clearances	HMRC
Property transaction taxes	Total UK property transactions, multiplied by average property prices.	OBR calculations using HMRC and ONS data

