National Audit Office

REPORT BY THE
COMPTROLLER AND
AUDITOR GENERAL

HC 434
SESSION 2009–2010

24 MARCH 2010

Audit of Assumptions for Budget 2010

Our vision is to help the nation spend wisely.

We promote the highest standards in financial management and reporting, the proper conduct of public business, and beneficial change in the provision of public services.

The National Audit Office scrutinises public spending on behalf of Parliament. The Comptroller and Auditor General, Amyas Morse, is an Officer of the House of Commons. He is the head of the National Audit Office which employs some 900 staff. He and the National Audit Office are totally independent of Government. He certifies the accounts of all Government departments and a wide range of other public sector bodies; and he has statutory authority to report to Parliament on the economy, efficiency and effectiveness with which departments and other bodies have used their resources. Our work leads to savings and other efficiency gains worth many millions of pounds: at least £9 for every £1 spent running the Office.

Audit of Assumptions for Budget 2010

Ordered by the House of Commons
to be printed on 24 March 2010

Report by the Comptroller and Auditor General
HC 434 Session 2009–2010
24 March 2010

London: The Stationery Office
£7.95

This report has been prepared for presentation to the House of Commons under Sections 156 and 157 of the Finance Act 1998.

Amyas Morse
Comptroller and
Auditor General

National Audit Office

15 March 2010

Printed in the UK for the Stationery Office Limited
on behalf of the Controller of Her Majesty's Stationery Office
P002354603 03/10 19585

Contents

The National Audit Office study team consisted of:

Simon Banner, Mehalah Beckett, Des Blake, Gareth Caller, Robert Cook, Helen Jackson and Sarah Shakespeare, under the direction of Alex Scharaschkin

This report can be found on the National Audit Office website at www.nao.org.uk/budgetassumptions2010

For further information about the National Audit Office please contact:

National Audit Office
Press Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP

Tel: 020 7798 7400

Email: enquiries@nao.gsi.gov.uk

Statement of responsibilities

1 Sections 156 and 157 of the Finance Act 1998 provide for me to examine and report on conventions and assumptions underlying the Treasury's fiscal projections that are submitted to me by the Treasury for examination.

2 For this report, the Chancellor of the Exchequer has requested that I conduct a three-year rolling review of the following assumptions:

- the VAT gap;
- tobacco revenues;
- factor shares in national income; and
- funding (debt interest).

My predecessor examined these assumptions for Budget 2007[1].

3 The remit of the rolling review is as follows:

To ensure that the key audited assumptions underpinning projections of the public finances remain valid, the Comptroller and Auditor General shall examine each audited assumption three years after its most recent audit:

- to review whether the assumption has resulted in reasonable and cautious projections of the elements of the public finances it relates to since it was first audited; and
- to check that it remains a reasonable and cautious assumption to use in future projections of the public finances.

---

4 The Treasury has advised me that in light of the emerging evidence on the impact of the credit crunch on the economy a slight further downward adjustment has been made to the trend output assumption from mid 2007. Full details are set out in Budget 2010. The Treasury has advised me that none of the other assumptions examined in previous reports have been changed. The Treasury remains responsible for making projections of future public expenditure and revenue on the basis of the audited and other assumptions.

Basis of report and opinion

5 I have considered the available evidence gathered for this audit from relevant papers and discussions with officials in the Treasury, HM Revenue and Customs, and the Office for National Statistics, and also with the organisations listed in the Appendix.

1 *Audit of Assumptions for Budget 2007*, HC 393, Session 2006-2007.

Report

The VAT gap

Background and scope of audit

6 In order to forecast VAT receipts, the Treasury calculates the "VAT theoretical tax liability" – an estimate of the amount of VAT that could theoretically be collected given applicable VAT rates and the relevant expenditure statistics produced by the Office for National Statistics. An estimate of the "VAT gap" – a measure of VAT losses from error, fraud, evasion, avoidance and debt – is then subtracted, giving VAT receipts.

7 Since Budget 2007, the Treasury has forecast VAT receipts using the following assumption, which I have been asked to audit:

VAT gap assumption

For the purposes of projecting VAT receipts, the underlying VAT gap will be assumed to rise by at least 0.5 percentage points per year, from the estimated outturn from the current year. It will be adjusted for the effect of changes in rates and coverage of VAT.

---

8 The "underlying" VAT gap, referred to in the assumption, includes adjustments, where applicable, to take into account of the impact of large one-off VAT payments and repayments that relate to past liabilities (such as litigation repayments) and the effects of policy measures.

9 The assumption was based on fitting a time trend to outturn estimates for the VAT gap, which showed an annual average growth rate of 0.4 percentage points per year over the period from 1990-91 to 2002-03. As the VAT gap is volatile from year to year, for reasons that are hard to predict in advance, the forecast for any one year may be subject to errors larger than those averaged over a longer period. The projected annual growth rate for the VAT gap adopted on the grounds of caution, therefore, was 0.5 of a percentage point, which implied lower VAT receipts than would be expected on the continuation of the historical trend.[2]

10 The projection of the annual change in the VAT gap is therefore made up of:

a an underlying rise of 0.5 percentage points per year;

b in some cases a further increase – an 'outlier' adjustment – in accordance with the provision in the VAT gap assumption for the VAT gap to increase by *at least* 0.5 percentage points per year; and

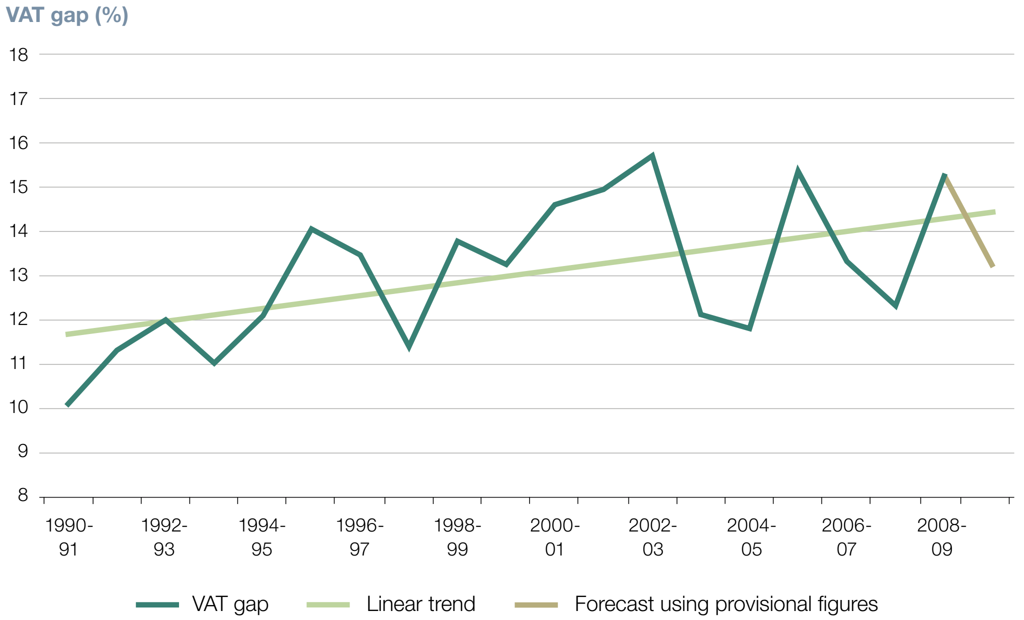
c an adjustment to reflect changes in rates and coverage of VAT such as changes to the tax base and compliance measures.

2 *Audit of Assumptions for Budget 2007*, HC 393 Session 2006-07, paragraph 42.

11 **Figure 1** shows the year-on-year volatility around the trend. To take account of this volatility, the assumption allows the increase in the forecast VAT gap for any given year to be taken to be higher than 0.5 of a percentage point, if circumstances warrant it. This provides a prudent approach so long as forecasters are able to recognise events which are off trend and incorporate this information into the VAT forecasts. Adjustments to reflect changes to the tax base and compliance measures do not form part of the assumption that I audit; and I do not audit the estimate of the VAT theoretical tax liability, which is largely based on the Treasury's economic forecast.

12 **Figure 2** shows latest estimates of VAT Theoretical Tax Liability (VTTL), VAT receipts and the VAT gap from 1990-91 to 2008-09, and the relationship between them.

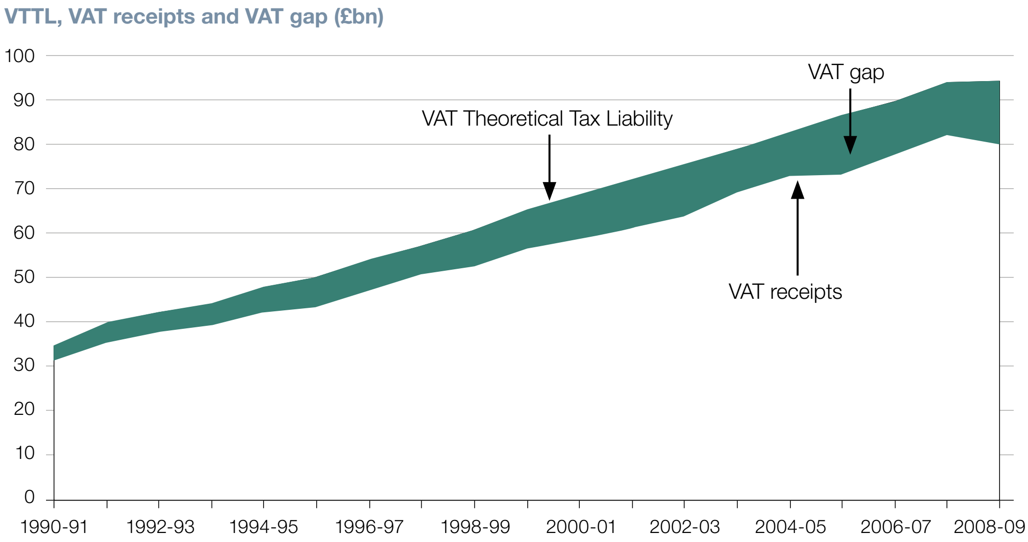
Figure 1
The VAT gap in percentage terms



Source: HM Revenue & Customs

NOTE
The 2009-10 figure is a forecast at the time of the Budget 2010.

Figure 2
VTTL, VAT receipts and the VAT gap



Source: HM Revenue & Customs

How the audited assumption has performed since Budget 2007

13 I confirm that the assumption has been correctly applied as stated, at each Budget and Pre-Budget Report over the rolling review period. **Figure 3** overleaf shows how the forecast VAT gap growth has been constructed from an assumed underlying growth rate of 0.5 percentage points per year, in accordance with the procedure summarised in paragraph 10. The Treasury, where applicable, increased the estimated VAT gap growth in cases where recent declines were not thought to be sustainable, or where recent indicators suggested that an increase in the gap was likely. In Budget 2009 there was a large one-off adjustment for excess debts, as it was thought that VAT debt would increase substantially due to the recession, and this would push up the gap.

14 Figure 3 also shows that the forecast VAT gap growth has exceeded actual VAT gap growth in 2007-08 and 2009-10, whereas actual VAT gap growth exceeded forecast in 2008-09. The Treasury attributes the high VAT gap growth in 2008-09 to a significant increase in VAT debts as a consequence of increased insolvencies and businesses experiencing cash flow pressures in the economic downturn. HM Revenue and Customs estimates that of the 2.9 per cent increase in the gap between 2007-08 and 2008-09, around 1.7 per cent (around £1.6 billion) can be attributed to increasing VAT debt.

Figure 3

Projected VAT gap growth (percentage points) estimated at the time of the Budget/Pre-Budget Report and outturn

Financial Year	Budget 2007 2007-08 (%)	Pre-Budget Report 2007 2008-09 (%)	Budget 2008 2008-09 (%)	Pre-Budget Report 2008 2009-10 (%)	Budget 2009 2009-10 (%)
VAT gap growth comprised as follows:					
Assumed underlying growth	0.5	0.5	0.5	0.5	0.5
Outlier adjustment[1]	–	–	–	–	1.8
Allowance for Legislative Measures	1.2	(0.2)	(0.2)	(0.2)	(0.4)
VAT gap growth used for forecasting VAT receipts at the time of the Budget/ Pre-Budget Report	**1.6**	**0.3**	**0.3**	**0.3**	**2.0**
Actual VAT gap growth[2]	**(1.0)**	**2.9**	**2.9**	**(2.1)**	**(2.1)**

Source: HM Revenue & Customs

NOTES

1 The outlier adjustment in 2009-10 is an estimate of the impact of the expected increase in VAT debt due to the recession.

2 Actual VAT gap growth figures for 2009-10 are forecasts at the time of the Budget 2010. First outturn figures will be published later in 2010.

3 Figures may not sum due to rounding.

15 **Figure 4** compares forecast VAT gap with outturn since 2007-08. This shows that forecast exceeded outturn at Budget 2007, Pre-Budget Report 2008 and Budget 2009, and was within 0.6 and 0.1 percentage points of outturn at Pre-Budget Report 2007 and Budget 2008, respectively. Provisional figures suggest that the forecast VAT gap in Budget 2009 (which allowed for additional VAT debt due to adverse economic conditions) considerably overestimated outturn for 2009-10, and hence provided a cautious estimate in that year.

16 Forecast and outturn VAT receipts from end-of-year fiscal reports are shown in **Figure 5**. As noted in paragraph 14, the VAT gap in 2008-09 increased in excess of forecast, and the Budget 2008 forecasts of VAT receipts were consequently £5.4 billion higher than outturn. For the three years 2007-08, 2008-09 and 2009-10 (estimated full year) taken together, however, VAT receipts were about £1.5 billion more than forecast.

Figure 4

Comparison of forecast VAT gap estimated at the time of the Budget/ Pre-Budget Report with outturn VAT gap

	Budget 2007	Pre-Budget Report 2007	Budget 2008	Pre-Budget Report 2008	Budget 2009
Financial Year	2007-08 (%)	2008-09 (%)	2008-09 (%)	2009-10 (%)	2009-10 (%)
Forecast VAT gap using outturn base	15.7	14.6	15.2	13.7	17.5
Outturn VAT gap[1]	12.3	15.3	15.3	13.2	13.2
Forecast minus outturn[2]	3.4	(0.6)	(0.1)	0.5	4.3

Source: HM Revenue & Customs

NOTES

1 Outturn figures for 2009-10 are forecasts at the time of the Budget 2010. First outturn figures will be published later in 2010.

2 Figures may not sum due to rounding.

Figure 5

Comparisons of forecast and outturn VAT receipts (£ billion)

	Budget 2007	Budget 2008	Budget 2009
Financial Year	2007-08	2008-09	2009-10
Forecast VAT receipts (£bn)	80.0	83.8	63.7
Outturn VAT receipts (£bn)[1]	80.6	78.4	70.0
Overall difference (£bn)	0.6	(5.4)	6.3
Overall difference (% as share of forecast VAT receipts)	0.7%	(6.5%)	9.9%
Of which (£bn):[2,3]			
Fiscal Forecasting	(0.6)	0.4	0.7
Economic Determinants	(0.5)	(2.0)	0.2
Policy Measures and Litigation	–	(1.5)	1.9
Other factors	–	–	1.5
VAT gap growth assumption (audited by the NAO)	1.6	(2.2)	2.0

Source: HM Treasury – End of Year Fiscal Report; HM Revenue & Customs

NOTES

1 Outturn figures for 2009-10 are forecasts at the time of the Budget 2010. First outturn figures will be published later in 2010.

2 Fiscal forecasting allows for errors in estimating current year receipts from part data. The economic determinant allows for errors in forecasting VTTL. Policy measures and litigation relate to the temporary reduction in the standard rate of VAT to 15 per cent, HMRC's Business Payment Support Service granting additional 'time-to-pay' allowing businesses to reschedule payments, and changes in expected repayments as a result of litigation. Other factors include the under-forecast due to the outlier adjustment for the expected rise in debt.

3 Figures may not sum due to rounding.

17 Figure 5 is produced by comparing the forecast expected receipts at each Budget with outturn – this shows how the forecast would have differed had the latest data been available at the time of the forecast, instead of using the VAT gap assumption or best estimates of other data. It shows that the assumption resulted in an under-forecast of receipts (as the gap was lower than forecast) in two of the three years. Over the three years the VAT gap assumption has resulted in a £1.4 billion under-forecast of VAT receipts, other things equal. Further details of the methodology used to analyse differences between forecast and outturn are given in the 2009 End of year fiscal report published by the Treasury[3].

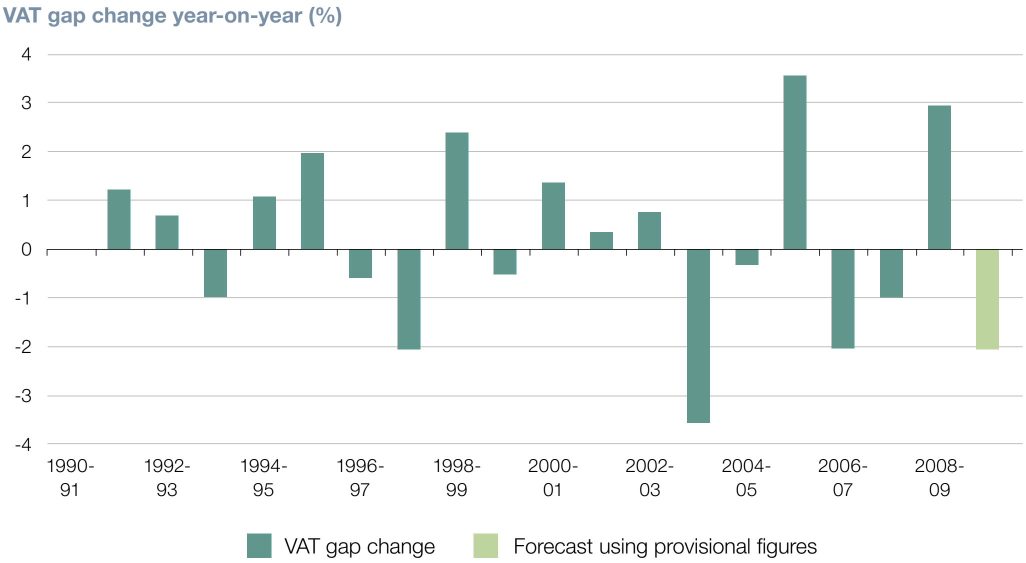
The reasonableness and caution of the assumption for future projections

18 The Comptroller and Auditor General's 2007 report concluded that the VAT gap assumption was reasonable and cautious, and would remain cautious to the extent historical trends are a good indicator of future trends in the VAT gap[4].

19 Analysis of the VAT gap data series shows that the assumed 0.5 percentage point trend has been cautious historically, although there has been significant volatility in recent years (**Figures 6** and **7**), and this volatility around the trend may dominate outturn VAT gap in any given year. The safeguard, that an increase in the forecast VAT gap of more than 0.5 percentage points per year can be assumed, allows expectations of off trend growth to be factored into the overall approach to forecasting VAT receipts. Such discretionary adjustments are important to ensure that the approach is reasonable and cautious going forwards, but by their nature are not specified within the VAT gap assumption itself and therefore are not assessed as part of this audit.

3 *End of year fiscal report*, December 2009, HM Treasury (www.hm-treasury.gov.uk/d/pbr09_endofyear.pdf).
4 *Audit of Assumptions for Budget 2007*, HC 393 Session 2006-07, paragraph 85.

Figure 6
Percentage change in VAT gap from previous year



Source: HM Revenue & Customs

NOTE

The 2009-10 figure is a forecast at the time of the Budget 2010. First outturn figures will be published later in 2010.

Figure 7
Trends in the VAT gap over time

- Analysis of the data series from 1990-91 to 2009-10 indicates a smaller upward trend than found in the 2007 report. The trend increase in the VAT gap is 0.15 percentage point per year, which is less than the assumption, implying that the assumption is cautious over the whole period.
- Analysis of the data series for the ten years from 1998-99 to 2007-08, excluding the effect of the recent recession, indicates a decline in the gap, with a negative trend of -0.13 percentage point.
- Analysis of the data series for the six most recent years, however, provides a trend increase of 0.16 percentage point. The VAT gap growth over this recent period has been very volatile with both large increases and decreases. This volatility is explained by Missing Trader Intra-Community fraud (2005-06) and increasing debt during the recession (2008-09).

Source: HM Revenue & Customs

Tobacco revenues

Background and scope of audit

20 From Budget 2007, the methodology for forecasting cigarette receipts within tobacco duties overall has comprised three elements[5]:

a an estimate of the volume of duty paid clearances derived from the following assumption, which I have been asked to audit:

Tobacco revenues assumption

For the purpose of projecting the revenue duties on tobacco, the underlying level of duty paid consumption of cigarettes will be set at least 3 per cent per year lower than the estimated outturn for the current year. The underlying level is defined as HMRC clearances, adjusted for timing impacts.

---

b multiplying the assumed volume of duty paid cleared cigarettes by an assumed future duty rate of cigarettes; and

c adjusting the resulting revenue forecast for the impact of any projected legislative and regulatory measures.

21 The second and third elements above are consistent with the approach used prior to Budget 2010. I have not been asked to audit them.

22 The "HMRC clearances" referred to in the assumption are the volumes of cigarettes removed from tobacco manufacturers' warehouses for consumption each month. Manufacturers are required to provide this information to HM Revenue & Customs, as the excise duty is liable at this point. HMRC then adjusts the clearance data to remove the effects of "forestalling". Forestalling occurs when manufacturers stockpile cleared, duty paid cigarettes, in advance of an anticipated increase in excise duty or a manufacturer's price increase[6]. The adjusted volume data constitute the "underlying duty paid clearances" of cigarettes.

23 In practice there is some judgement involved in determining the pattern of forestalling to apply each year in order to arrive at the estimate of underlying duty paid clearances. For example, the timing of the Budget is likely to affect the pattern of clearances in each year. After clearances are forecast using the 3 per cent decline assumption, legislative and regularity measures are incorporated to produce the final forecast.

5 The Treasury also makes a simple forecast of non-cigarette receipts, which is added to the cigarette forecast receipts to give total tobacco duties. Cigarettes make up the bulk of receipts, comprising approximately 93 per cent of total receipts.

6 Tax accrued on any given amount of cigarettes is lower than if the clearance had taken place after a rate or price increase. Since Budget 2000, tobacco companies are restricted to a maximum amount of cigarettes they can clear in advance of the next Budget.

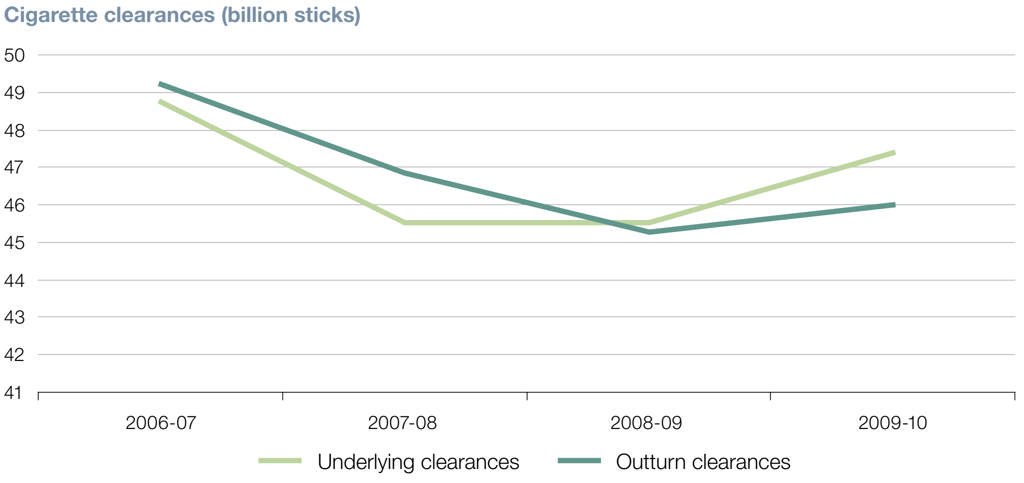
How the audited assumption has performed since Budget 2007

24 I confirm that the assumption has been correctly applied as stated, at each Budget and Pre-Budget Report since Budget 2007.

25 **Figure 8** shows the trend in clearance data since 2006-07. The data indicate a decline in the underlying level of duty paid consumption, at an average rate of 0.8 per cent per year between 2006-07 and 2009-10. The decline was not, however, uniform over the period. The introduction of the smoking ban in 2007 resulted in an above-trend decline in underlying consumption in 2007-08 of 6.6 per cent. Clearance volumes remained constant in 2008-09 with a below-trend decline of just 0.02 per cent. Growth in underlying consumption was observed at 4.1 per cent between 2008-09 and 2009-10.[7] The Treasury attributes this growth to changes in the exchange rate and demand for travel abroad during the recession, which are thought to have had a positive effect on demand for UK duty paid clearances in 2009-10.

Figure 8

Outturn and underlying cigarette clearances over the rolling review period (billion sticks)



Source: HM Revenue & Customs Tobacco Duties Bulletin

NOTE

The 2009-10 figures are estimates at the time of the Budget 2010.

7 Clearance figures for 2009-10 are estimates. Outturn figures are due to be published later in 2010.

26 **Figure 9** compares the forecast duty paid consumption of cigarettes, calculated in accordance with the assumption, with the outturn levels, since Budget 2007. It shows the forecast of duty paid consumption was less than outturn in two of the three years, and that the assumption had therefore led to cautious projections over that time period.

Figure 9

Comparison of adjusted forecast duty paid consumption to outturn (volume)

	Budget 2007	Pre-Budget Report 2007	Budget 2008	Pre-Budget Report 2008	Budget 2009
Financial Year	**2007-08**	**2008-09**	**2008-09**	**2009-10**	**2009-10**
	(billion sticks)	**(billion sticks)**	**(billion sticks)**	**(billion sticks)**	**(billion sticks)**
Forecast duty paid consumption[1]	46.8	40.5	40.3	40.8	40.9
Outturn duty paid consumption[2]	45.5	45.5	45.5	47.4	47.4
Forecast minus outturn	1.3	(5.0)	(5.2)	(6.6)	(6.5)

Source: HM Revenue & Customs

NOTES

1 Forecast set at least 3 per cent lower than estimated underlying outturn for the respective current year and subsequently adjusted for the impact of the smoking ban.

2 The outturn figures for 2009-10 are estimates at the time of the Budget 2010. Outturn figures are due to be published later in 2010.

3 Figures may not sum due to rounding.

27 Projected tobacco clearances led to an under-forecast of tobacco receipts of £0.3 billion and £0.4 billion in 2007-08 and 2008-09 respectively, as shown in **Figure 10**. Including the provisional estimates for 2009-10, the Treasury expects to have under-forecast tobacco revenues over the rolling review period by £1.5 billion.

Figure 10
Comparisons of forecast and outturn tobacco receipts (£ billion)

	Budget 2007	Budget 2008	Budget 2009
Financial Year	**2007-08**	**2008-09**	**2009-10**
Outturn tobacco receipts (£bn)[1]	8.1	8.2	8.8
Forecast tobacco receipts (£bn)	8.1	7.6	8.3
Overall difference (£bn)	0.0	0.6	0.5
Overall difference (% as share of forecast tobacco receipts)	0%	7.9%	6.1%
Of which (£bn):			
Economic Determinants [2]	–	0.1	–
Fiscal Forecasting Differences[3]	(0.3)	(0.2)	(0.3)
Policy Measures[4]	–	0.3	-
Duty paid clearance assumption (audited by the National Audit Office)	0.3	0.4	0.8

Source: HM Treasury – End of Year Fiscal Report; HM Revenue & Customs

NOTES

1 The outturn figures are estimates at the time of the Budget 2010. Outturn figures will be published later in 2010.

2 Tax revenues are largely related to economic determinants forecast by the Treasury. Any difference between economic forecasts of determinants used in the original forecast, and their eventual outturn, will partly explain differences between forecast and outturn tax receipts. This is scored in the economic determinants line. This includes differences between the forecast and outturn of duty rate revalorisations.

3 Fiscal forecasting differences reflect any difference in receipts arising from changes in the relationship between economic determinants, tax rates and tax revenues. For example, the fiscal forecasting difference in 2007-08 can be attributed to an over-estimate of the underlying duty paid clearances in 2006-07 and to a timing effect shifting receipts between years.

4 Policy measures reflect the impact of new measures announced after publication of the forecast. For example, tobacco duties were raised in the 2008 Pre-Budget Report to offset a reduction in the standard rate of VAT.

5 Figures may not sum due to rounding.

The reasonableness and caution of the assumption for future projections

28 The Comptroller and Auditor General's 2007 report noted that the assumed rate of 3 per cent per year decline in underlying duty paid consumption was consistent with the recent available data, but that the time series used to generate the 3 per cent trend was relatively short at that time, starting as it did from 2002-03[8]. For Budget 2010, the Treasury remains consistent in its use of the assumption introduced at Budget 2007, based on updated trends in clearance data since 2002-03. The data indicate an average decline in the adjusted underlying level of duty paid consumption at a rate of 2.1 per cent over the period (**Figure 11**), with declines of less than 3 per cent in four out of the seven years.

29 In three instances, however, the actual decline in the adjusted underlying level of duty paid consumption exceeded 3 per cent.

- As noted in the 2007 report[9], the Treasury attributes the fall of 4.5 per cent in 2005-06 mainly to a slow growth in real consumer spending and increases in real duty paid cigarette prices since 2002-03, measured against the increase in the retail prices index.
- As discussed earlier, clearances fell by 6.6 per cent in 2007-08, the first year of the smoking ban. It was expected that 2007-08 would be an off-trend year, and Figure 10 indicates that the overall approach to projecting tobacco receipts that year led to a result in line with outturn.
- As discussed in paragraph 25, the Treasury attributes the growth in clearances of 4.1 per cent in 2009-10 to the exchange rate and demand for travel abroad during the recession, which are thought to have had a positive effect on demand for UK duty paid clearances in 2009-10.

30 While there has been some variability in the underlying level of duty paid clearances over the period since 2002-03, and there have been exogenous impacts around the time of the smoking ban, and recent recession, the trend has been broadly consistent and on average has declined at a level below 3 per cent per annum.

31 For the forecast period, the Treasury assumes that duty per cigarette will increase in line with the Retail Prices Index (RPI). In the event that real prices rise substantially, there could be an increase in the illicit market and cross-border shopping shares of tobacco, which could in turn reduce duty paid consumption.

8 *Audit of Assumptions for Budget 2007*, HC 393, Session 2006-2007, paragraphs 59-60.
9 *Ibid.*, paragraph 62.

Figure 11

Adjusted/unadjusted duty paid consumption of cigarettes (volume)

Financial year[1, 2]	Duty paid consumption of cigarettes (unadjusted) (Billion sticks)	Percentage change (%)	Duty paid consumption of cigarettes (adjusted for forestalling) (Billion sticks)	Percentage change (%)
2002-03	55.0	–	55.0	–
2003-04	54.0	-1.9	53.7	-2.4
2004-05	52.1	-3.5	52.4	-2.5
2005-06	49.5	-5.0	50.0	-4.5
2006-07	49.2	-0.6	48.7	-2.5
2007-08	46.9	-4.8	45.5	-6.6
2008-09	45.3	-3.4	45.5	0.0
2009-10[3]	46.0	1.6	47.4	4.1
Average percentage change over period		-2.5		-2.1

Source: HM Revenue & Customs Tobacco Duties Bulletin

NOTES

1 The long-run trend decline in adjusted clearances is from data from 2002-03. Allocations were introduced in 2001, so clearances from before then were a lot more volatile with much more forestalling taking place.

2 Tobacco clearances are published in HMRC bulletins. Clearances are considered on a March-February basis (rather than financial years April-March) to allow for the one month lag between tobacco clearances and HMRC tax receipts.

3 The 2009-10 figures are estimates at the time of the Budget 2010.

32 The assumption is based on trend information obtained from time series of actual cigarette clearances to date, and to that extent continues to provide a reasonable approach to future forecasts. By assuming that the rate of decline of underlying duty paid volumes will be at least 3 per cent per year lower than the estimated outturn for the current year, the Treasury can, if circumstances warrant, assume a faster rate of decline. This gives some added assurance in respect of caution.

Factor shares in national income

Background and scope of audit

33 The factor income shares assumption is that:

Factor income shares assumption

In the medium term, when the Treasury assumes that the economy grows at the underlying trend rate, the shares of labour incomes and profits in domestic income are assumed to be broadly constant.

---

34 The value of the factor income shares assumption is that it provides a reasonableness check on the coherence of the Treasury's forecast, since empirical evidence suggests that, when the economy is close to trend, labour income and profit shares remain broadly constant. The assumption is also consistent with economic theory, though dependent on a number of assumptions about the nature of technology in the economy and the degree of competition in markets. The Treasury considers that the medium term focus of the assumption means that the economic forecast has the flexibility to incorporate cyclical effects on factor shares during the period over which the economy is moving back to trend. This allows the Treasury to take account of the wider economic environment when making its forecasts.

35 I am not asked to audit the modelled estimates of labour and income shares, but rather to check that the results are in line with the broad constancy assumption, and that the assumption itself has been and remains reasonable.

36 The factor income shares assumption has a direct bearing on the public finances, since labour income and profits are taxed at different rates. Labour incomes at the margin are more highly taxed than company profits. The basic rate of income tax is 20 per cent and, taking account of both employee and employer National Insurance contributions, the marginal tax rate of average earnings for contracted-out employees is about 35 per cent. The standard rate of Corporation Tax is 28 per cent.

37 A shift between labour income and profit shares in domestic income will therefore affect the level of tax revenues. The precise effects will depend on a range of assumptions (especially for average earnings and employment). The Treasury estimates suggest that, if no second round effects on the real economy or on prices are taken into account, then for the tax rates in paragraph 36, a permanent shift of one percentage point in GDP from profits to labour income could raise the total level of tax receipts by about £2.2 billion after one year.

38 In order for estimates of labour income shares to be cautious, therefore, it would be necessary that they do not consistently overstate actual shares. I am not asked to examine this, and moreover, the data series available make a valid comparison difficult, due to methodological changes and regular data revisions. Accordingly, I am assessing the reasonableness of the assumption but make no conclusion in respect of caution.

How the audited assumption has performed since Budget 2007

39 There have been revisions in the national accounts data since the previous audit of the factor share assumption in March 2007. The most significant of these changes took place in the 2008 Blue Book, which used a revised methodology for estimating the output of financial intermediation services. The factor share data has been affected by these changes largely through reclassification of net interest earnings by financial intermediaries: the reclassification affected gross operating surplus and hence the profit share. In consequence, profit share has been revised upwards for the time series 1961 to 2008.

40 As in the Comptroller and Auditor General's 2007 Report[10], I have examined the empirical evidence for the constancy of shares of labour incomes and profits. **Figure 12** shows the latest data for the period from 1988 to 2008[11]. The shares have tended to be broadly constant in the long term, with fluctuations around an average level of 76.3 per cent for labour income shares over the period 1959 to 2008.

Figure 12

Factor shares in domestic income net of stock appreciation and rental income, 1988-2008

Source: HM Treasury; Office for National Statistics

10 *Audit of Assumptions for Budget 2007*, HC 393, Session 2006-2007.

11 At the time of the 2007 Budget, data on factor shares was only available up to the end of 2005. As a result this Audit covers the period from 2006 to the end of 2008, the latest full year for which factor shares data is available.

41 Over the three-year rolling review period the share of labour income averaged 74.1 per cent, below the 1959 to 2008 average and within the lower bound of the period's overall range of fluctuation. In 2006 the labour share fell to 74.5 per cent, from 75.7 per cent in 2005, then fell further to 73.4 per cent in 2008.

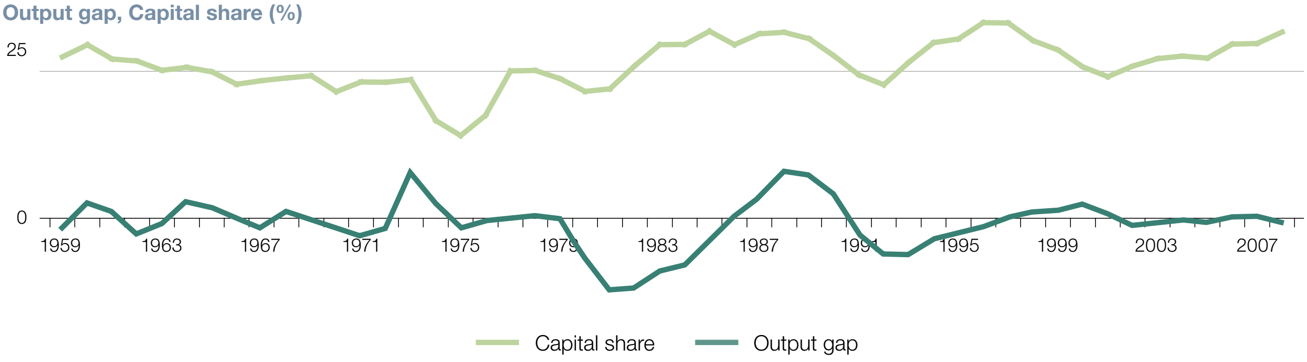
The reasonableness of the assumption for future projections

42 The factor shares assumption is formulated in terms of the situation that obtains when the economy is on trend, and growing at the underlying trend rate. It is harder to form a view on the extent to which it applies when, as is currently the case, the economy is not on trend. **Figure 13** compares factor shares and the economic cycle by plotting the profit share of domestic income against the output gap.

43 The output gap is the difference (in percentage terms) between actual output and the assumed trend level of output in the economy. The output gap cannot be measured with complete certainty, as potential output is not observed. The Treasury's estimates of the output gap are based on its trend output assumptions together with the latest National Accounts data, and are informed by a wide range of cyclical indicators, including those from business surveys such as the British Chambers of Commerce Quarterly Economic Survey, the CBI's Industrial Trends Survey, and the Bank of England's Regional Agents' scores. The Comptroller and Auditor General's audit of assumptions for the 2005 Pre-Budget Report discusses how the Treasury and other organisations identify the economic cycle and the output gap[12].

Figure 13

Relationship between the output gap and profit share of income



Source: HM Treasury

NOTE

Y-axis not drawn to scale to improve the readability of the graph.

12 *Audit of Assumptions for the 2005 Pre-Budget Report*, HC 707, Session 2005-2006, paragraphs 25-31. For more details of the indicators used by the Treasury to assess the economic cycle and the Treasury's approach to estimating trend growth, see *Evidence on the economic cycle*, HM Treasury, November 2008, and *Trend growth: new evidence and prospects*, HM Treasury, December 2006.

44 Figure 13 suggests that the profit share tends to move cyclically with the output gap. As actual output falls relative to potential, the profit share tends to fall and vice versa. However, there are periods of countercyclical movement in profit share, for example between 1997 and 2000, when profit share fell year-on-year, while the output gap rose. There is also some evidence that a positive output gap, though associated with a high level of the profit share, is also associated with falls (negative changes) in the profit share[13]. There does not appear to be a simple relationship between the economic cycle and factor shares. The relationship may depend on the underlying influences that drive the economic cycle.

45 These considerations indicate that the assumption of a broadly constant labour share over the medium term is reasonable going forward, but it would be worthwhile for the Treasury to continue to further investigate the likely impact of cyclical factors on labour income and profit shares in future given the current uncertainty in the economy.

Funding (debt interest)

Background and scope of audit

46 For this assumption, I am not asked to check whether specific parameters used in projections of the public finances are reasonable and cautious. Rather, I am asked to check:

Debt interest assumption

the consistency of the financing assumptions used in projecting central government debt interest within the forecast of borrowing and with the financing policy as set out in the Debt and Reserves Management Report (DRMR).

47 These checks are necessary to ensure that the data input to the Treasury's economic forecasting system are consistent with the detailed forecast of debt interest over the year ahead, which is separately prepared and is based on a known and planned debt issuance and redemption profile. I have agreed with the Treasury to perform the necessary audit work for this assumption on the fiscal events from Budget 2007 to Pre-Budget Report 2009 inclusive.

48 A further element of ensuring consistency is that both financing requirement forecasts and debt interest calculations need to reflect policy intentions relating to debt management. These policy intentions are set out in the Debt and Reserves Management Report and include:

- financing, through the issuance of gilts and Treasury bills, the central government net cash requirement, plus refinancing any maturing debt and any financing required for the Official Reserves. This impacts on the stock of outstanding government debt and hence debt interest payments;

13 See *Evidence on the UK economic cycle*, HM Treasury, July 2005.

- planned changes to the level of Official Reserves of gold, foreign exchange and Special Drawing Rights (SDR) assets;
- a forecast of National Savings and Investments' net contribution to meeting the net financing requirement. This affects debt interest payments to the extent that interest rates paid on National Savings and Investments products differ from those on other debt instruments; and
- policy decisions regarding the mix and maturity of financing through the issuance of conventional and index-linked gilts. This again affects the level of debt interest payable as the coupons will be different depending on the type and maturity of gilts being issued.

49 These policies underlie a particular pattern of debt issuance, as set out in the DRMR. For consistency, this pattern must be used in the calculations of debt interest payments. Since the Comptroller and Auditor General's 2007 report on this assumption, there have been significant changes in policy decisions regarding the amounts of debt issues and the methods employed to sell this debt to the market. As part of this audit I checked that the policy decisions summarised in paragraphs 51 to 58 below were set out in the relevant DRMRs.

50 It is important to note that my opinion on this assumption is not a judgment on the reasonableness or caution of the Treasury's projections of debt interest payments. The Comptroller and Auditor General's audit of assumptions for Budget 2009 examined the Treasury's methodology for projecting short-term interest rates[14]. Future yields on gilts depend on economic conditions, and interest payments on index-linked gilts (which for example account for £12.3 billion of planned gilt issuance in 2009-10) will depend on future levels of inflation. The Treasury takes this into account in its forecasts.

Increases in financing requirements

51 2008-09 was an unprecedented year for the Debt Management Office (DMO), which issues gilts and Treasury bills on behalf of the Government. Their initial financing requirement of £80 billion was twice revised due to the need for financial sector interventions and slowing economic growth. In October 2008 it was revised to £110 billion and at the Pre-Budget Report in November 2008 it was revised to £146.5 billion.

52 The provisional remit for gilt sales in 2009-10 based on calculations in the Pre-Budget Report 2008 was £147.9 billion. This was then increased to £220 billion at the April 2009 Budget, and revised again at the Pre-Budget Report in December 2009 to £225.1 billion. In March 2009, the Bank of England also began its programme of Quantitative Easing and to date has purchased £198 billion of gilts in the secondary market.

14 *Audit of Assumptions for Budget 2009*, HC 408, Session 2008-2009, paragraphs 82 to 102.

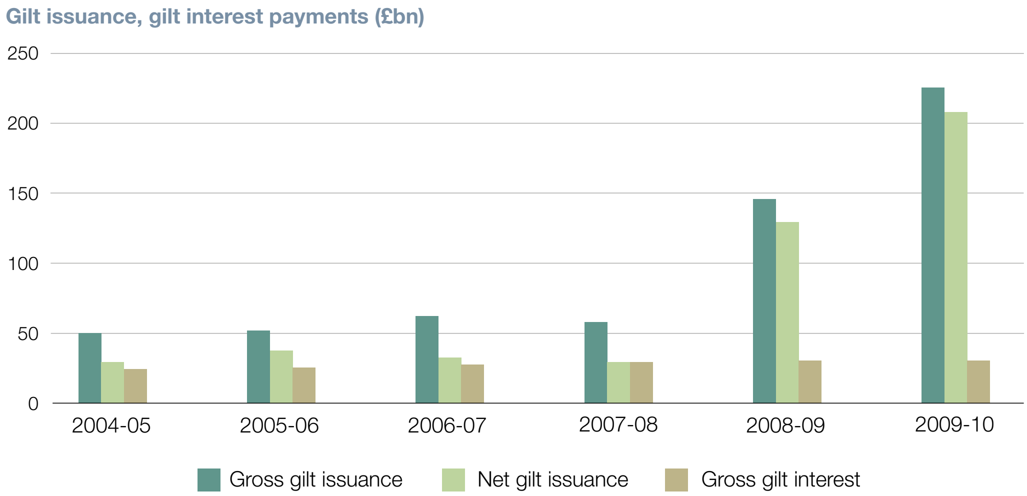
53 As **Figure 14** demonstrates, while gilt sales have increased considerably since 2007-08, the associated costs of servicing this debt have not risen as dramatically. Debt service costs are determined by a number of factors including market supply and demand for new gilts, and the coupon rate on the stock of existing gilts. The UK, along with other major issuers, continues to issue debt with very low coupon rates compared with historical trends.

New methods for issuing debt

54 As part of the October 2008 remit revision, mini-tenders were introduced as a means to access pockets of demand with a much shorter period of pre-commitment than auctions. These mini-tenders are typically half the size of conventional and index-linked auctions. In its quarterly issuance calendar the DMO specifies the weeks in which any tenders will take place. In the financing remit for 2009-10 published at Budget 2009 an additional issuance method, syndicated gilts offerings, was introduced.

55 In 2009-10 a planning assumption for the value of gilts sold through mini-tenders was included in the overall financing target given to the DMO in its annual remit. The use of mini-tenders and syndications therefore only affected the forecasting of future debt interest payments to the extent that, as an intentionally flexible means of selling gilts, the DMO used supplementary methods to sell a different split of gilts (by maturity and therefore coupon) to that envisaged at the start of the financial year. In practice, all gilts sold by this method in 2009-10 were, as planned, exclusively long-dated and index-linked gilts.

Figure 14
Gross and net gilt issuance compared to gross gilt interest payments



Source: HM Treasury – Debt and Reserves Management Reports, Budget and Pre-Budget Reports

56 On 2 June 2009, the DMO introduced the Post Auction Option Facility, which allows successful bidders at auctions to purchase (at the average accepted/strike price) additional gilts (up to a further 10 per cent of their allocation) in a two-hour window which closes at 2 pm on the day of the auction.

57 The take up of this facility is therefore dependent upon individual institutions' appetite for more gilts than they originally received, and the price movement of these gilts in the market in the intervening period. Forecasting how often and to what extent this facility will be used is therefore difficult.

58 In the nine months since its inception, the Post Auction Option Facility raised £9.4 billion in addition to the £140 billion raised through issuance at auctions over the same period. The additional finance raised in this way between Budget 2009 and Pre-Budget Report 2009 was factored into the financing arithmetic for the latter, allowing average auction sizes to be reduced. Proceeds from the Post Auction Option Facility in the period since Pre-Budget Report 2009 will be factored into the financing arithmetic at Budget 2010. As take-up of the Facility depends upon market movements after an auction, the Treasury cannot make a more explicit assumption about the size and timing of any take-up of the Facility.

Findings

59 For the three-year period of the rolling review since March 2007, I examined the relevant working papers relating to the 2008 and 2009 Budgets and the 2007, 2008 and 2009 Pre-Budget Reports. I confirm that the figures for government borrowing used to calculate debt interest payments were consistent with the forecast of government borrowing, and that they reflected the policy assumptions in the relevant DRMR.

60 I can also confirm that, from the period of Budget 2007 to Pre-Budget Report 2009, the Treasury consistently applied the audited methodology for calculating debt interest payments.

Conclusions and recommendations

The VAT gap

61 The Comptroller and Auditor General's 2007 report concluded that the approach taken to estimating the VAT gap was reasonable and cautious, and would remain cautious to the extent historical trends are a good indicator of future trends in the VAT gap. For Budget 2010 the overall approach remains reasonable, and has proved cautious over the rolling review period as a whole; but there has been significant volatility around the trend VAT gap growth in recent years. The Treasury should consider whether to do more to assess factors, such as VAT debt levels, that may be causes of this volatility.

Tobacco revenues

62 The approach to forecasting tobacco revenues has been a reasonable one, using directly observable and up-to-date information. Over the rolling review period the assumption has proved cautious, with the effect of underestimating tobacco revenues by £1.5 billion overall.

63 For the future, the assumed trend rate of 3 per cent per year decline in underlying duty paid consumption includes a safeguard that a faster rate of decline in duty paid cigarettes can be assumed if necessary, which introduces an element of caution, to the extent a faster rate of decline can be forecast in advance. In the short term the assumption may be susceptible to the uncertainty of the current economic conditions, making it difficult to judge how cautious it will prove. The Treasury should keep under review the impact of other factors, such as current economic uncertainties and the impact of legislative changes on cigarette consumption, and the extent to which these might affect the underlying linear trend.

Factor shares in national income

64 The assumption of broadly constant factor shares was reasonable over the rolling review period.

65 While the assumption appears reasonable for the future, uncertainty remains about the economy and the potential impact of the financial downturn on factor income shares. I recommend that the Treasury should consider further investigating the impact of cyclical factors on the relative proportions of labour and profit shares in domestic income, to provide additional checks on the reasonableness of its approach.

Funding (debt interest)

66 I confirm that, from the period of Budget 2007 to Pre-Budget Report 2009, the figures for government borrowing used to calculate debt interest payments in the relevant Budget or Pre-Budget Report were consistent with the forecast of government borrowing and that they reflected the policy assumptions in the relevant Debt and Reserves Management Report, and that the data input to the Treasury's economic forecasting system was consistent with the detailed forecast of debt interest as stated in the relevant Budget or Pre-Budget Report.

Appendix

Organisations consulted

National Institute of Economic and Social Research

Oxford Economics

ITEM Club

FSC
Mixed Sources
Product group from well-managed forests and other controlled sources
Cert no. TT-COC-002825
www.fsc.org
© 1996 Forest Stewardship Council

Design and Production by
NAO Marketing & Communications Team
DP Ref: 009271-001
This report has been printed on Consort 155 and contains material sourced from responsibly managed and sustainable forests certified in accordance with FSC (Forest Stewardship Council).

The wood pulp is totally recyclable and acid-free. Our printers also have full ISO 14001 environmental accreditation this ensures that they have effective procedures in place to manage waste and practices that may affect the environment.

Published by TSO (The Stationery Office) and available from:

Online
www.tsoshop.co.uk

Mail, Telephone, Fax & Email
TSO
PO Box 29, Norwich, NR3 1GN
Telephone orders/General enquiries: 0870 600 5522
Order through the Parliamentary Hotline
Lo-Call 0845 7 023474
Fax orders: 0870 600 5533
Email: customer.services@tso.co.uk
Textphone: 0870 240 3701

The Parliamentary Bookshop
12 Bridge Street, Parliament Square,
London SW1A 2JX
Telephone orders/General enquiries 020 7219 3890
Fax orders: 020 7219 3866
Email: bookshop@parliament.uk
Internet: http//www.bookshop.parliament.uk

TSO@Blackwell and other Accredited Agents
Customers can also order publications from:

TSO Ireland
16 Arthur Street, Belfast BT1 4GD
028 9023 8451 Fax 028 9023 5401

£7.95

ISBN 978-0-10-296359-5

9 780102 963595