National Audit Office

Report
by the Comptroller
and Auditor General

Cross-government

Forecasting in government to achieve value for money

HC 969 SESSION 2013-14 31 JANUARY 2014

Key facts

£360bn

forecast departmental expenditure limit (DEL) spend for 2015-16, allocated in Spending Round 2013

£11.5bn

forecast central government underspend against DEL for 2012-13 – at 3.2 per cent of total DEL this was nearly three times the recent average

71

of our reports since January 2010 have identified concerns about forecasts

39 per cent	of analysts we surveyed thought senior managers used forecasts effectively
450 per cent	approximate increase in total DEL carried forward by HM Treasury under budget exchange in 2012-13 compared with the previous financial year
£74 million	estimated cost to the Ministry of Defence to avoid approximately £623 million of further spend once it became clear its carrier strike forecast costs were based on immature information and assumptions
21 per cent	of analysts we surveyed thought that their department was sharing good forecasting practice
32,000	approximate overstatement of the estimated number of new homes the New Homes Bonus policy would deliver in its first ten years, as a result of an arithmetical error

Summary

1 Effective financial management is vital for sound decision-making, accountability, planning and managing risks. Our recent report on financial management in government identified the strategic challenges facing finance professionals, including cost reduction, strategic planning, prioritisation and the funding of local public services.

2 Forecasting is an essential component of good financial management and informed decision-making, and taxpayers bear the costs where poor forecasting means projects or services cost more than anticipated, are delivered late or produce fewer benefits than predicted. Effective forecasting requires organisations to recognise that forecasts are more than a technical activity, and emphasise their importance to financial and operational management. It is essential that departments generate cooperation and understanding between the analysts who produce forecasts, and their policy, operational and finance colleagues who use them to manage the business.

3 High-profile errors, such as the one found in the model used to evaluate bids in the InterCity West Coast franchise competition in 2012, which led to unforeseen costs to taxpayers of £54 million, have prompted greater focus on the quality and accuracy of analysis which underpins business critical decisions. In response, HM Treasury commissioned the Macpherson review of the quality assurance of modelling. This recommended that departments put in place the right processes and culture to support quality assurance.

4 Poor forecasts of aggregated expenditure can lead to late identification of under or overspending and rapid, poor value-for-money responses. HM Treasury has announced that departments demonstrating excellent financial management – including accurate aggregate spending forecasts – would be rewarded with greater budgetary freedoms. In addition, it made changes to the budgetary system to encourage earlier and more transparent forecasting of future underspends. HM Treasury has also published a review of financial management capability.

5 We often identify problems with project-level forecasting, but these latest developments mean this is a good time to consider government forecasting holistically.

Scope and approach

6 We examine how departments produce and use forecasts. While we mainly focus on forecasting that informs expenditure, our findings are relevant to forecasting more generally – for example forecasting the benefits from new investment.

7 We consider resource and capital spending in the area of spending known as departmental expenditure limits (DEL). We do not address in this report demand-driven areas of spending, such as benefits (known as annually managed expenditure, or AME). AME also requires high-quality forecasts, which are scrutinised by the Office for Budget Responsibility.

8 Drawing on our evaluative framework, we consider:

- the importance of forecasting in government (Part One)
- departmental forecasting, covering:
  - production (Part Two);
  - use (Part Three);
  - the departmental environment (Part Four); and
  - HM Treasury's role and the impact of its budgetary system on forecasting (Part Five).

Key findings

9 **Poor forecasting is an entrenched problem, leading to poor value for money and taxpayers bearing the costs.** Since 2010, over 70 of our reports have identified forecasting weaknesses (paragraph 1.13).

a **At project and programme level:**

- The Ministry of Defence's decision to procure the carrier variant of the Joint Strike Fighter had to be reversed, at a cost of £74 million, after it became clear the forecast costs were based on immature information and assumptions.[a] Its decision avoided further spending of £623 million. In many of our reports we have identified weaknesses in the quality of information available or used in government, and analysts considered this a key concern (paragraphs 2.11 to 2.13). For High Speed 1, the Department for Transport did not challenge optimistic forecast passenger numbers, exposing taxpayers to an ongoing liability. We estimated that net taxpayer support could reach £10 billion (paragraph 3.8).

a Comptroller and Auditor General, Carrier Strike: The 2012 reversion decision, Session 2013-14, HC 63, National Audit Office, May 2013. The figure of £74 million was the Departmental estimate at the time and may be subject to revision because it is dependent on contractual costs that require up to two years to finalise following termination.

- More generally, forecasts often lack ranges and sensitivity analysis. Without this information, decision-makers cannot manage risks effectively. Our analysis of impact assessments found that fewer than half included sensitivity analysis (paragraphs 2.15 to 2.16).

b **At the aggregate level:**

- In our 2011 report on financial management in the Department for International Development we noted how it managed outturn by delaying or bringing forward payments rather than through effective forecasting (paragraph 1.10).
- Finance directors identified that poor forecasts meant opportunities to spend on worthwhile projects were missed (paragraph 1.11).

10 **We have identified several root causes for departments' poor production and use of forecasts:**

- **Decision-makers need greater understanding of forecasts to provide effective challenge and manage risks.** Only 39 per cent of analysts thought that senior managers used forecasts effectively (paragraphs 3.6 to 3.9).
- **When decision-makers need to introduce new interventions quickly they sometimes fail to recognise and manage the risks this creates for the quality of forecasts.** For example, the Department for Communities and Local Government failed to make effective use of available information or sufficiently test its assumptions before introducing its mortgage rescue scheme. It misjudged demand and underestimated costs for the scheme and had to increase its budget by £80 million soon after introducing it (paragraphs 4.5 to 4.7).
- **'Optimism bias' is a significant problem, with analysts concerned about the pressure to provide supportive rather than realistic forecasts.** In 2012, the Committee of Public Accounts noted that only a third of government major projects were delivered on time and on budget. The Major Projects Authority now expects that two-thirds of current projects will be delivered to time and on budget (paragraphs 4.8 to 4.10).

- **Good decision-making requires a culture that promotes and explains the importance of forecasting, but we found that:**
  - **There is often a weak relationship between analysts and finance staff, increasing the risk of poorly informed budgetary decisions.** Senior analysts identified the finance function as a 'black box'. A disconnect between analysts' forecasts and finance's budgeting creates a risk of failure in how uncertainty is addressed (paragraphs 3.15 to 3.16).
  - **Departments do not always make best use of forecasting.** We found examples where departments could have tested potential performance improvements and identified savings by better use of analysis. For instance, in 2009 we estimated that HM Revenue & Customs could have identified potential annual savings of between £30 million and £50 million through better use of modelling to manage its staffing and demand (paragraphs 3.3 to 3.4). The department has subsequently introduced planning and modelling tools, which it refreshes to inform resource deployment.
  - **We identified few examples of clear sanctions or rewards for the quality of forecasting.** One exception is the Department for Business, Innovation & Skills, which uses awards and league tables to encourage more accurate year-end forecasts (paragraphs 3.23 to 3.24).

11 The centre of government also needs to do more. First and foremost, while HM Treasury has taken steps to incentivise better forecasting, these are at risk of being overwhelmed by other incentives in the spending control framework:

- Departments can and do meet year-end targets through rapid and late shifts of funding. This masks bad forecasting, and the effort involved can crowd out departments' ability to focus on improving forecasting (paragraphs 5.13 to 5.20).
- Until 2010, under the End Year Flexibility system departments could draw down an amount from their stock of previous underspends in-year with HM Treasury's permission. This system enabled departments to accumulate a stock of £19 billion of underspending. HM Treasury erased this sum when it introduced 'budget exchange' in 2011, which restricted the carrying forward of underspend to one year and to a strict limit. It also sought to encourage better forecasting by requiring departments to identify underspends early to claim budget exchange and by linking access to good financial management. However, in 2012-13, HM Treasury let departments carry forward more than its rules allowed, with no clear relationship to the quality of their financial management (paragraphs 5.22 to 5.27).

12 **Second, there is insufficient information to assess the quality of departments' forecasting.** Spending teams lack a consistent approach to assess and compare the quality of programme forecasting. The information departments publish on how and why their spending varied from what they expected is insufficient to support Parliamentary scrutiny (paragraphs 5.21 to 5.33).

13 **Third, while we are encouraged that HM Treasury has acted to improve the quality assurance of modelling through the Macpherson review, its scope is limited.** Macpherson's recommendations focus on promoting a culture of effective quality assurance for business-critical models, rather than systemic factors preventing good forecasting. HM Treasury needs to ensure departments' responses to the review deliver real change (paragraphs 5.5 to 5.10).

14 **Finally, the centre of government needs to collaborate more than it has to date to encourage good forecasting.** Both the Cabinet Office and the Finance Leadership Group (FLG) also have important roles to play in terms of building capability. They and HM Treasury will have to work together and coordinate activity in order to deliver an improvement in how forecasting is used in government (paragraphs 5.34 to 5.35).

Conclusion on value for money

15 High-quality expenditure forecasting is an essential element in achieving value for money for the taxpayer. Despite examples of good practice, our past work has identified many high-profile failures. Forecasting is not taken sufficiently seriously and is often hampered by poor quality data and unrealistic assumptions driven by policy agendas. Departments could improve the value for money they achieve by improving how they produce and use forecasts to manage individual projects and control aggregate spending. HM Treasury's efforts to improve forecasting through incentives in the budgetary system are unlikely to prove effective given the pressure in the spending control framework to avoid overspending and deliver small underspends. Improvements to transparency and scrutiny are needed to enable HM Treasury and Parliament to assess more effectively the quality of departments' financial management and the value delivered.

Recommendations

16 In implementing the Macpherson review recommendations, **departments should**:

- lead cultural change from the top, with departmental boards embedding a management culture that supports prioritised production and active use of forecasts – including communicating uncertainty and applying proportionate risk management;
- break down barriers between analytical, policy and finance functions – for example through training, secondments and greater transparency in the way in which finance decisions are informed by forecasts;
- deploy capacity adequately to reflect the importance of forecasting, as a recognised discipline, to financial and operational management;
- ensure clear ownership and accountability for forecast production and use, including the application of assumptions and scenarios;
- incentivise accurate and integrated forecast production and use through performance management arrangements; and
- understand the reasons for variance in order to improve forecast quality.

17 By the end of this Parliament, **HM Treasury should**:

a work with the **Cabinet Office** and the **Finance Leadership Group** to:

- develop and promote guidance to senior managers and boards on how to challenge and use forecasts when making decisions and managing risks; and
- ensure the Major Projects Leadership Academy curriculum drives good forecasting practice;

b work with **departments** and the relevant **professional networks** to support:

- the development and active promotion of advice on forecasting – for example through the planned 'Rainbow Book' and associated training for senior managers, as well as the refresh of *The Green Book*; and
- the establishment of cross-government, cross-profession thematic expert groups to provide peer review and an active professional network sharing forecasting activities, data, assumptions and best practice;

c strengthen how forecasts are challenged, by:

- working with the NAO and Parliament to identify how to support informed scrutiny of departments' forecasts – for example in its review of the presentation of departments' reports and accounts and the introduction of mid-year reports; and
- strengthening spending teams' ability to interrogate departments' forecasts, at programme and project levels, for example through training and enhancements to data collection.