Recognising uncertainty

Robert Chote
Chairman

Hutchins Center on Fiscal and Monetary Policy
Brookings Institution
Washington DC, 15 December 2014
A brief introduction to the OBR

• Independent, accountable to Executive and Parliament

• Four main tasks
  – Produce five-year forecasts for the economy and public finances
  – Judge progress towards the Government’s fiscal and spending targets
  – Scoring of tax and spending policy measures
  – Assess long-term (50 year) fiscal sustainability and balance sheet

• Differences from the CBO/JCT/OMB
  – Analysis covers entire public sector
  – Confined to current policy of current Government
  – The Executive does not publish its own forecasts
Uncertainty and the OBR’s work

- In UK Budget-making, the Executive is powerful relative to Parliament and the Treasury (in its OMB role) is powerful relative to Cabinet departments.

- We were created to remove politically-motivated wishful thinking from the official forecasts, rather than to help Parliament consider options à la CBO.

- Key objectives: increase transparency and emphasise uncertainty.

- Forecast highly disaggregated, so transparency means a lot of detail.

- But why emphasise uncertainty?
  - Policy should reflect uncertainty, not ignore it.
  - Avoid the spurious sense of precision that comes with lots of detail.
  - Offer a richer assessment of progress towards targets.
  - Educate people as to what forecasts can and cannot achieve.
  - Avoid tying success of institution to accuracy of central forecast.
Illustrating uncertainty: narrative

- **Explain conditioning assumptions (and implied risks) e.g.**
  - Monetary policy in line with market expectations
  - Fiscal policy as announced
  - Credit conditions normalise gradually
  - World economy evolves broadly in line with IMF forecasts
  - Exchange rate, oil and equity prices move in line with market expectations

- **Identify specific economic risks e.g.**
  - Euro area instability
  - Volatility as global monetary policy ‘unloosens’
  - Adjustment to ongoing fiscal consolidation proves difficult
  - Productivity and real wage growth fail to pick up

- **Identify specific fiscal risks e.g.**
  - Effective tax rates
  - Will central and local government spend more than they plan to?
  - Policy delivery risks
  - Uncertainty around scoring of policies
Illustrating uncertainty: scorings

- Every scoring we certify is given an uncertainty rating, based on the data, modelling and behavioural assumptions that underpin it

Example: Exempting children from Air Passenger Duty

<table>
<thead>
<tr>
<th></th>
<th>Very high</th>
<th>High</th>
<th>Medium-high</th>
<th>Medium</th>
<th>Medium-low</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data</strong></td>
<td>- Very little data</td>
<td>- Little data</td>
<td>- Basic data, perhaps from external sources</td>
<td>- Incomplete data</td>
<td>- High quality data</td>
<td>- High quality data</td>
</tr>
<tr>
<td></td>
<td>- Poor quality</td>
<td>- Much of it poor quality</td>
<td>- assumptions cannot be readily checked</td>
<td>- High quality external sources</td>
<td>- verifiable assumptions</td>
<td></td>
</tr>
<tr>
<td><strong>Modelling</strong></td>
<td>- Significant modelling challenges</td>
<td>- Significant modelling challenges</td>
<td>- Some modelling challenges</td>
<td>- Some modelling challenges</td>
<td>- Straightforward modelling</td>
<td>- Straightforward modelling of new parameters for existing policy with few or no sensitive assumptions</td>
</tr>
<tr>
<td></td>
<td>- Multiple stages and/or high sensitivity on a range of unverifiable assumptions</td>
<td>- Multiple stages and/or high sensitivity on a range of unverifiable assumptions</td>
<td>- Difficulty in generating an up-to-date baseline and sensitivity to particular underlying assumptions</td>
<td>- Difficulty in generating an up-to-date baseline</td>
<td>- few sensitive assumptions required</td>
<td></td>
</tr>
<tr>
<td><strong>Behaviour</strong></td>
<td>- No information on potential behaviour</td>
<td>- Behaviour is volatile or very dependent on factors outside the tax/benefit system</td>
<td>- Significant policy for which behaviour is hard to predict</td>
<td>- Considerable behavioural changes or dependent on factors outside the system</td>
<td>- Behaviour fairly predictable</td>
<td>- Well established, stable and predictable behaviour</td>
</tr>
</tbody>
</table>

**Overall**: Medium-low
Illustrating uncertainty: quantitative

• We quantify uncertainty around central fiscal forecast…

• …with particular reference to chances of hitting targets

• We use three main techniques for medium term forecasts
  – Probability bands implied by past forecast errors
  – Sensitivity to key economic determinants
  – Scenario analysis

• We try to explain how wrong the central forecast would need to be – and in what sorts of ways - for the targets to be missed
Probabilities based on past errors

Cyclically-adjusted current budget balance (target: to balance at rolling 5-year horizon)

Size and distribution of past official forecast errors implies 80% chance of success on current policy
Mechanical sensitivity analysis

- Bigger / smaller output gap (i.e. higher or lower potential output)
- Faster / slower GDP growth

Table 1.1: Cyclically adjusted current budget in 2019-20

| Level of potential in 2019-20 relative to central forecast (per cent) | Per cent of GDP |  
|-------------------------------------------------|----------------|----------------|
| -2                                              | 0.9     | 0.9     | 0.9     | 0.9     | 0.9     |
| -1                                              | 1.6     | 1.6     | 1.6     | 1.6     | 1.6     |
| 0                                               | 2.3     | 2.3     | 2.3     | 2.3     | 2.3     |
| 1                                               | 3.0     | 3.0     | 3.0     | 3.0     | 3.0     |
| 2                                               | 3.7     | 3.7     | 3.7     | 3.7     | 3.7     |

- Higher / lower government borrowing costs
- Higher / lower cyclical adjustment coefficients
Potential output is the key uncertainty

Actual output 2007Q4 = 100

March 2008 actual
March 2008 potential
December 2014 actual
December 2014 potential

Range of implied external forecasts for potential output in 2015

Source: HM Treasury, ONS, OBR
Selected scenario analysis

- Used to highlight key debates/critiques

- Recent examples
  - Higher or lower productivity growth
  - Faster monetary tightening (for ‘good’ or ‘bad’ reasons)
  - Spike in oil prices
  - Impact of euro-zone crisis (took OECD scenario)

- Most boil down to identifying cyclical/structural impact
What can the balance sheet add?

- Whole of Government Accounts on commercial basis
- Includes assessment of contingent liabilities
  - i.e. those with non-negligible but less than 50% probability

Table 1.1: WGA quantifiable contingent liabilities

<table>
<thead>
<tr>
<th></th>
<th>£ billion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011-12</td>
</tr>
<tr>
<td>Financial Stability interventions</td>
<td>9.9</td>
</tr>
<tr>
<td>Export guarantees and insurance policies</td>
<td>9.9</td>
</tr>
<tr>
<td>Clinical negligence</td>
<td>8.4</td>
</tr>
<tr>
<td>Taxes subject to challenge</td>
<td>14.5</td>
</tr>
<tr>
<td>Supporting international organisations</td>
<td>32.6</td>
</tr>
<tr>
<td>Oil and gas field decommissioning revenues</td>
<td>20.0</td>
</tr>
<tr>
<td>Other</td>
<td>5.5</td>
</tr>
<tr>
<td><strong>Total quantifiable contingent liabilities</strong></td>
<td><strong>100.8</strong></td>
</tr>
</tbody>
</table>
Unquantifiable contingent liabilities

Table 1.1: Non-quantifiable contingent liabilities in the 2012-13 WGA

Details of the most significant non-quantifiable contingent liabilities in the 2012-13 WGA

• Legal claims, compensation claims and tribunal cases against various WGA entities.
• Commitments made by several WGA entities to fund any deficits of individual pension schemes.
• HM Treasury guarantees for indemnities in relation to financial stability interventions.
• Compensation schemes set up by HM Treasury in relation to former shareholders of various banks taken into public sector ownership as part of the financial stability interventions.
• HM Treasury's contingent liability for risks associated with reinsurance arising from acts of terrorism.
• Various civil nuclear contingent liabilities in BIS resource accounts.
• Future increases in liabilities of the Financial Assistance Scheme beyond those recognised in the provision.
• Contingent liabilities arising from rail franchise agreements.
• Contingent liability in relation to the Channel Tunnel (to return the land to a suitable condition if the tunnel ceases to operate).
• Access to life insurance for Ministry of Defence personnel.
Uncertainty in long-term projections

- Central projection based on ‘unchanged’ policy
- Takes on board projected demographic change
- Calculate debt trajectories and fiscal gaps

Sensitivity analysis
- Fiscal position at end of medium-term forecast
- Long-term relationship between interest rate and growth rate
- Demography: ageing / net migration flows
- Health spending / productivity
- Overall productivity: less significant if taxes and benefits indexed to earnings

Also selected issues in tax revenue sustainability
- North Sea oil receipts: impact of different price and production scenarios
- Motoring taxes: fuel efficiency scenarios
A postscript: *ex post* assessment

- We emphasise uncertainty *ex ante*

- So we try to show that we learn from it *ex post*...

- …via detailed annual analysis of past forecast errors

**Figure 1.1:** June 2010 net borrowing and current budget errors for 2012-13

<table>
<thead>
<tr>
<th></th>
<th>Forecast</th>
<th>Outturn</th>
<th>Error</th>
<th>Economic factors</th>
<th>Fiscal forecasting errors</th>
<th>Policy changes</th>
<th>Classification changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receipts (a)</td>
<td>621.9</td>
<td>586.5</td>
<td>-35.5</td>
<td>-31.8</td>
<td>-4.7</td>
<td>-3.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Spending (b)</td>
<td>711.0</td>
<td>702.1</td>
<td>-8.9</td>
<td>0.3</td>
<td>-2.4</td>
<td>-10.7</td>
<td>3.8</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current expenditure (c)</td>
<td>664.5</td>
<td>657.1</td>
<td>-7.4</td>
<td>0.3</td>
<td>-3.2</td>
<td>-7.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Net investment (d)</td>
<td>24.0</td>
<td>22.5</td>
<td>-1.6</td>
<td>0.0</td>
<td>1.4</td>
<td>-3.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Depreciation (e)</td>
<td>22.5</td>
<td>22.5</td>
<td>0.0</td>
<td>0.0</td>
<td>-0.6</td>
<td>0.6</td>
<td>0.0</td>
</tr>
<tr>
<td>Net borrowing (b - a)</td>
<td>89.1</td>
<td>115.7</td>
<td>26.6</td>
<td>32.1</td>
<td>2.3</td>
<td>-7.3</td>
<td>-0.5</td>
</tr>
<tr>
<td>Current budget (a - c - e)</td>
<td>-65.1</td>
<td>-93.2</td>
<td>-28.1</td>
<td>-32.1</td>
<td>-0.9</td>
<td>3.6</td>
<td>1.3</td>
</tr>
</tbody>
</table>