

Accuracy of Historic Non-Domestic Rates Income Forecasts

Summary of This Paper

This note provides an outline of how accurate historic forecasts of Non-Domestic Rates income (NDRi) were against outturn NDRi.

The note outlines the different types of forecast error, what the main sources of forecast error have been and how analysis of forecast error has been used to improve the forecast for draft budget 2017/18.

The note also discusses the data limitations with the historic forecasts the SG holds. While Scottish Local Government Finance Statistics regularly published past forecasts, these forecasts only extend to one year ahead. And no further information is published regarding these forecasts – key assumptions etc.

The analysis is based on a comprehensive erdm search that has identified ten snapshots of the forecast model since 2005. A consistent set of forecasts made at a consistent point during the year is not available to analysts. This makes it difficult to provide a comprehensive analysis of the accuracy of forecasts over time.

These data limitations mean that a robust comparison of forecast accuracy with the OBR cannot be produced. Nonetheless the paper provides an outline of the accuracy of OBR forecasts since 2010 for illustrative purposes.

The annex to this note contains a table of ten forecast snapshots made of future NDRi by the SG since 2005. There are 26 individual predictions of NDRi in total. This table allows a comparison of forecast to outturn NDRi. The table also has a matrix of factors which could explain certain large forecast errors. A list and explanation of these factors is on the second page of the annex.

How accurate are NDRi Forecasts?

- **NDRi Forecasts tend to underestimate the amount of NDRi collected.** The average forecast is £42m lower than outturn. Risk adjustments for particular valuation appeals (the Mercat¹ and Overgate cases²) caused appeals to be overestimated and therefore NDRi to be significantly underestimated in a number of years.
- **With this risk adjustment removed, NDRi would have been overestimated.** This is likely due to relief costs being consistently underestimated (which in turn is partly due to the forecast model not predicting future policy decisions).
- **Short term NDRi forecasts tend to be more accurate than long term ones.** Forecasts of one and two periods away are around 3% off outturn NDRi, compared with long-term forecasts which have an average 8% error.

¹ see <https://www.scotcourts.gov.uk/search-judgments/judgment?id=106286a6-8980-69d2-b500-ff000d74aa7>

² see <https://www.scotcourts.gov.uk/search-judgments/judgment?id=dea78aa6-8980-69d2-b500-ff000d74aa7>

Accuracy of Historic Non-Domestic Rates Income Forecasts

What are the main sources of forecast error?

The majority of forecast error can be ascribed to modelling assumptions. The modelling assumptions made in the forecast can be broken down to 3 main sections.

1. Gross Income

- **Gross income concerns appeals, buoyancy and poundage.** Appeals are forecast based on policy input. Buoyancy is forecast using methodology agreed with the SFC. Poundage is forecast using inflation forecasts.
- **Gross income assumptions are the largest source of error.** They roughly account for about 65% of forecast error.
- **Assumptions about Appeals were the largest source of Gross Income Error.** This is almost entirely due to two particular, unsuccessful valuation appeals from the 2010-2012 period. These appeals are described in the annex. The forecasts affected by assumptions regarding these appeals were noticeably worse than other forecasts. The forecast error from the appeals assumption from the forecasts not affected by valuation appeal were not as large.
- **Poundage and buoyancy assumption contribute a fairly similar amounts of forecast error.** If these were completely accurate, they would independently reduce forecast error by around 20-30% .

2. Reliefs

- **Reliefs are typically forecast based on uplifting historic relief costs (often a rolling three year average) by forecast growth in gross income.**
- **The link between gross income forecasts and relief forecasts means that when gross income is underestimated, reliefs will be overestimated and vice versa.** This reduces amount of inaccuracy on the NDRi forecast as a result of gross income forecast errors, however can lead to less accurate forecasting of relief costs.
- **Policy decisions on reliefs generate forecast errors where they are not known ahead of time.** It can be difficult to predict policy decisions, particularly in five year forecasts. This is noticeable for SBBS and empty property relief, which have seen large changes over the last ten years.
- **Even accounting for policy decisions, the cost of some reliefs have increased beyond the growth in gross income.** Basing the future cost of these reliefs on an average of the past three year has led to them being consistently underestimated. This is particularly relevant for SBBS and charitable relief.

3. Prior year and other adjustments

The methodology used is similar to reliefs, based on historic costs and input from policy colleagues. The adjustments made here tend to be relatively small and therefore introduce less error compared to gross income and reliefs. The only significant error created in this part of the forecast was due to the Mercat-Overgate valuation appeal as it related to forecasts of backdated appeals loss. As such it is a consequence of an error in the Gross Income forecasts as opposed to a methodological failure in forecasting Prior Year and other adjustments.

Accuracy of Historic Non-Domestic Rates Income Forecasts

Past Forecasts and Data Limitations

Past Forecasts

While Scottish Local Government Finance Statistics regularly published past forecasts, these forecasts only extend to one year ahead. Furthermore, these forecasts are not accompanied by intelligence on the forecast model used to produce them.

An erdm search has identified ten snapshots of the forecast model made at various points in time since 2005. A number of these forecasts estimated NDRi for more than just the following year. Overall the note examines 26 individual predictions of NDRi. However, it is unclear the extent to which longer term forecasts were properly QAed.

An outline of when these forecasts were originally made – and when they were last updated – is provided in the first table in the annex of this paper.

The table also has a matrix of factors which could explain certain large forecast errors. A list and explanation of these factors is on the second page of the annex. The annex shows that the most significant event driving forecast error was the Mercat-Overgate valuation appeal. An overly prudent appeals assumption meant forecast NDRi was significantly less than outturn NDRi in years 2011/12 and 2012/13.

The other major errors seen were due to policy decisions. For example introducing a much expanded small business bonus scheme or the decision to cap poundage at 2% instead of using September RPI to uprate it were not forecast ahead of time.

Limitations of Past Forecasts

There are limitations on the comparisons which can be made between the ten different snapshots of the forecast model. This is because a consistent record of the forecast model at a regular point in time (e.g. draft budget) is not available to analysts.

Furthermore, many of the past forecast spreadsheets were updated after the forecast model was created. An update to the spreadsheet may or may not imply the forecasts themselves were updated as these spreadsheets typically contain other elements that may have required updates. In a number of cases, it is not possible to view old versions of a forecast so it is not possible to determine which changes were made when.

These factors mean that it is difficult to make direct comparisons between the forecasts. This is because the data available when the forecasts were made would be different. For example, better intelligence may be held on the likelihood of successful appeals, better inflation data would be available or Mid-year estimates may have been available. In some cases, it is even unclear which year the forecast was made in.

Whilst the ten snapshots of the forecast model are useful for assessing the general success of the forecast model over time, this lack of consistency in the timing of when forecast snapshots were recorded makes it difficult to make direct comparisons in forecast accuracy between Scottish Government and the OBR, or to reliably comment on expected forecast accuracy in the future.

Accuracy of Historic Non-Domestic Rates Income Forecasts

Analysis of Past Forecast Accuracy.

Forecasts of one and two financial years ahead have tended to be around 3% off outturn NDRi (in absolute terms), with longer term forecasts associated with a larger average forecast error (around 8%). In addition to the obvious truth that forecasting further ahead is more difficult, there is a tendency of some errors (appeals, not foreseeing policy changes, underestimated relief take-up) to compound themselves in longer term forecasts, partly explaining worse performance in the longer term.

Use of Past Forecasts Analysis to Improve Forecasts at Draft Budget 2017/18

Examining the accuracy of past forecasts lead to some small changes in the forecast model and helped to validate forecasting methodology during the QA process for draft budget 2016/17.

One specific change made to the forecast model for draft budget 2016/17 was how we forecast charitable rates relief. Analysis of the forecast cost of charitable rates relief shows it had been consistently lower than outturn. A discussion with policy colleagues revealed this is likely due (at least in part) to the increasing use of Arm's Length External Organisations (ALEOs) by Local Authorities.

The increasing use of ALEOs to claim charitable rates relief means relief claims from 3 years prior are unlikely to be as closely related to future relief claims. Therefore analysts decided for the 2017/18 draft budget forecast, charitable rates relief data from 2016/17 would be used to inform the future forecast, as opposed to the traditional 3 year rolling average of data from prior years.

Accuracy of OBR Forecasts

The OBR makes bi-annual forecasts of NDRi. The table below provides the five forecasts which have been made at the end of the calendar year (Nov/Dec) which would be comparable to the time when draft budget SG forecasts would be made. As the table below illustrates, the average forecast error made by the OBR is $\pm 2.5\%$.

Forecast	Year	OBR Forecast Error
2010	2010-11	1%
	2011-12	2%
	2012-13	3%
	2013-14	5%
	2014-15	4%
2011	2011-12	-3%
	2012-13	1%
	2013-14	5%
	2014-15	5%
2012	2012-13	-2%
	2013-14	0%
	2014-15	1%
2013	2013-14	-1%
	2014-15	-3%
2014	2014-15	-3%
Absolute Average		2.5%

Accuracy of Historic Non-Domestic Rates Income Forecasts

Annex – Forecasts vs. Outturn NDRi and Unforeseen Factors.

Forecast	Year	Forecast NDRi	Actual NDRi	Difference	% Difference	Factors Affecting Forecasts					
FORECAST Nov 2005	2005-06	£1,939m	£1,933m	£6m	0%						
	2006-07	£1,904m	£1,933m	-£29m	-2%						
	2007-08	£1,779m	£1,928m	-£149m	-8%						
FORECAST Nov 2006 – Taken in November 2006	2006-07	£1,948m	£1,933m	£15m	1%						
	2007-08	£1,835m	£1,928m	-£93m	-5%						
FORECAST Dec 2007 – First uploaded in Dec 2007, updated in October 2008	2007-08	£1,937m	£1,928m	£9m	0%						
	2008-09	£2,010m	£1,924m	£87m	5%						
	2009-10	£2,151m	£2,010m	£141m	7%						
	2010-11	£2,242m	£2,138m	£104m	5%						
FORECAST Oct 2008 – First uploaded October 2008, updated May 2009	2008-09	£1,981m	£1,924m	£57m	3%						
	2009-10	£2,085m	£2,010m	£75m	4%						
	2010-11	£2,053m	£2,138m	-£85m	-4%						
FORECAST May 2009 – First uploaded May 2009, updated April 2010	2009-10	£2,072m	£2,010m	£62m	3%						
	2010-11	£2,203m	£2,138m	£65m	3%						
	2011-12	£2,085m	£2,251m	-£166m	-7%						
	2012-13	£1,892m	£2,347m	-£455m	-19%						
	2013-14	£2,040m	£2,367m	-£327m	-14%						
	2014-15	£2,248m	£2,511m	-£263m	-10%						
FORECAST Spending Review Nov 2010 – uploaded and updated in Nov 2010	2010-11	£2,197m	£2,138m	£59m	3%						
	2011-12	£2,156m	£2,251m	-£95m	-4%						
	2012-13	£1,946m	£2,347m	-£401m	-17%						
	2013-14	£2,126m	£2,367m	-£241m	-10%						
	2014-15	£2,347m	£2,511m	-£164m	-7%						
FORECAST Draft budget 11/12 Oct 2011 – Uploaded and updated Oct 2011	2011-12	£2,211m	£2,251m	-£40m	-2%						
	2012-13	£2,222m	£2,347m	-£125m	-5%						
	2013-14	£2,364m	£2,367m	-£3m	0%						
	2014-15	£2,598m	£2,511m	£87m	3%						
FORECAST Draft budget 12/13 Oct 2012 – Uploaded Oct 2012, updated Nov 2012	2012-13	£2,118m	£2,347m	-£229m	-10%						
	2013-14	£2,362m	£2,367m	-£5m	0%						
	2014-15	£2,533m	£2,511m	£22m	1%						
	2015-16	£2,608m	£2,576m	£31m	1%						
FORECAST Draft budget 13/14 Nov 2013 – Uploaded Oct 2013, updated Jan 2014	2013-14	£2,473m	£2,367m	£106m	4%						
	2014-15	£2,651m	£2,511m	£140m	6%						
	2015-16	£2,712m	£2,576m	£135m	5%						
FORECAST Draft budget 14/15 Oct 2014 – Uploaded Oct 2014, updated July 2015	2014-15	£2,581m	£2,511m	£70m	3%						
	2015-16	£2,653m	£2,576m	£76m	3%						

Accuracy of Historic Non-Domestic Rates Income Forecasts

Explanation of Factors affecting Forecasts

Factor	Explanation
Mercat and Overgate cases	<p>These were two unsuccessful valuation appeals in respect of the Mercat (Kirkcaldy) and Overgate (Dundee) Shopping centres respectively. The issue was whether a material change of circumstances that was agreed to have occurred during the currency of the 2005 Roll at a date after the tone date of the 2010 Roll should have been reflected in the rateable values entered in the 2010 Roll. Had the appeals been successful, a significant number of properties would likely have been able to successfully appeal their valuations on the same premise. This would have resulted in a significant decrease in RV.</p> <p>To account for the risk relating to these appeals, analysts used a very large appeals loss assumption. As the appeal was unsuccessful, overall appeal losses were in practice much lower. This meant that NDRi was consistently underestimated in the forecasts affected by this appeal.</p>
Poundage 2% Cap	<p>In the 2013 Autumn Statement, chancellor George Osborne announced the following year's poundage increase for England would be capped at 2% (rather than the default figure of RPI for year to September 2013). This cap was repeated in the following year. The Scottish Government maintained the same level of poundage as was set by the UK Government. This meant poundage was overestimated in these years, leading to an overestimate of NDRi.</p>
Changes to SBBS	<p>Between 2008 and 2011, eligibility for the Small Business Bonus Scheme was expanded significantly.. This expansion of SBBS led to the costs of the scheme growing faster than forecast expenditure. It is also worth noting that SBBS relief costs have continually increased since it was first introduced. This could be due to an increased awareness of the availability of SBBS or businesses structuring to take advantage of the scheme.</p> <p>Changes have been made to SBBS in this financial year, expanding who is able to claim relief. This will mean that any past forecasts of 2017/18 will likely underestimate the cost of SBBS (Draft Budget 2017/18 uses a standalone policy costing to estimate the effects of this expansion).</p>
Changes to Empty Property Relief	<p>In 2013/14 changes were made to limit empty property relief. This meant forecasts had overestimated the cost of providing this relief.</p>
Mandatory reliefs modelled aggregately	<p>Mandatory reliefs such as Empty Property Relief, SBBS and Charitable Relief previously used to be modelled together as one lump cost. Analysts changed the methodology to forecast these reliefs individually. The change in methodology appears to have produced more accurate forecasts of reliefs. It should be noted however the aggregate years included the 2008 changes in SBBS which created a large amount of forecast error.</p>
The 2007 recession	<p>In the years following the 2007 financial recession Empty Property Relief was consistently underestimated. This may be because a large number properties which were previously economically active went out of use and lay vacant. The modelling assumptions which forecast Empty Property Relief would not predict these changes.</p>