Overview of NDRi Forecast – and Data Requirements

Summary: The NDR tax base is very stable compared to other major taxes. As a result, the forecast model uses data as a starting point and typically projects forward this data with minimal adjustments for behavioural or economic factors. Unless there is strong evidence to justify a move away from observed data facts and trends, analysts do not do so. Analysts therefore usually spend more time ensuring that the data that feeds into the NDRi forecast model is robust than they do on any of the modelling contained within the model. Most modelling is done not in the forecast model itself, but in associated policy costings.

Data Sources – and how they benefit the forecast

There are four major sources of data that are carried forward within the forecast model:

- The Valuation Roll: A constantly updated record of the key characteristics of every property within the NDR system. It is used to estimate initial RV – which serves as the basis of the NDRi forecast. It can also be used to monitor changes in the tax base and to assist with policy costings – especially where a new relief or supplement is introduced.

- RV-App: Which describes the amount of RV lost to revaulation appeals in each Local Authority. It is used to inform the revlautaion appeals assumption in the forecast – which has knock on effects for RV in all future years of the forecast

- The Billing System Snapshot: Which provides data on every property in receipt of NDR relief. It is used to help inform modelling the costs of relief schemes and to help cost policies.

- Local Authority Non-Domestic Rate Income (NDRI) Returns: Timely updates on NDR income raised by Local Authorities that can be used to evaluate forecast accuracy and monitor risk.

Annexes A-D present further information on each of these data sources, covering what the data source is, what work SG analysts do to improve the data

Other Data Considerations - What happens when further modelling is required?

Where Ministers introduce policy changes, data describing these policies can't be carried forward. Similarly, where there appear to be trends in the data, it would be inappropriate to carry data forward without adjusting for that trend. Annex E looks at policy costings and at trends within the data, and discusses how analysts use the data to help inform these points.

Annex A: The Valuation Roll

What is the Valuation Roll?

- The Valuation Roll is a list of every property that is valued for the purposes of the Non Domestic Rates system.
- It contains over 220,000 entries, with an RV approaching £7bn. For each property, in addition to unique identifiers, address information and RV, data is available on valuation method, use, owner/occupier and other fields.
- Many of the entries also contain a "summary valuation" with a breakdown of the valuation itself including floorspace estimates.
- The data is constantly updated and can be searched online via the Scottish Assessors Association website – however SG analysts typically download detailed snapshots of this data on a quarterly basis, as well as monitoring the data weekly and taking summary downloads on a monthly basis.

How do SG Analysts help to improve Valuation Roll data?

- Analysts do a large amount of work identifying where changes are occurring on the valuation roll – usually requiring SAS coding etc. A typical example of this work is the Buoyancy work for the SFC.
- Analysts also work with the SAA to identify areas where the data can be improved by the addition of new fields – typically this process can take a number of years and require significant investment, and SG analysts have helped reduce this cost by providing a detailed QA of any additions to the data set.

What role does the data play in the forecast?

- **Baseline RV:** The starting assumption in the forecast relates to aggregate RV during that year. This is taken directly from the Valuation Roll, and as a result, any error in this data set would cause a similar error throughout the forecast.
- **Policy Costings:** Typically, where a new policy involves extending a relief to a group of properties that do not currently receive NDR relief, the valuation Roll is the primary tool for analysing the revenue impacts of such a change.
- **Monitor Shifts in the Tax Base and Measure Risk:** The valuation roll is the only way to monitor shifts within the tax base, such as buoyancy or the effects of running roll appeals. It is also useful for defining the risk that are created by other assumptions – for example, by looking at the RV effect of a particular group of properties successfully appealing their RV.

Annex B: RV-App

What is RV-App?

- RV-App helps to explain the impacts of Revaluation Appeals on the tax base, describing in year revenue losses as a result of Revaluation Appeals.
- Data is collected at aggregate level by Local Authority and Joint Valuation Board area.
- As the revaluation cycle has progressed, additional information has been requested on high value RV cases yet to be resolved.
- The data is provided quarterly by Assessors / Joint Valuation Boards.

How do SG Analysts help to improve RV-App data?

- QA of this data is relatively simple – usually taking around 1 week for each of the submissions and 4 weeks total.

Typical QA involves a series of checks on total number and RV of resolved appeals against outstanding appeals and against all appealed RV. Any suspect data is then queried with relevant Assessors. Further checks can be performed against the Valuation Roll to ensure RV loss is being fed through to the Roll.

What role does the data play in the forecast?

- **Appeals Loss Assumption:** RV-App is constantly monitored and interpreted so that it can help inform a robust appeals assumption, both in terms of the total RV lost to revaluation appeals over the revaluation cycle, and in terms of the distribution of this RV loss between different financial years.
- **Cost of Backdated Appeals:** Where an appeal is awarded in year, it will be backdated to it's "effective date". The "effective date" of a revaluation appeal must be April 1 2010[1] by definition. Analysts use past poundage rates in order to estimate the liabilities associated with the backdating of these appeal settlements.

[1] For a revaluation appeal lodged during the current cycle. For the next revaluation, this will be April 1 2017, as that will be the first day that new values are implemented from.

Annex C: The Billing System Snapshot

What is the Billing System Snapshot?

- The Billing System Snapshot provides data on every property in Scotland that receives a bills reduction as a result of one or more of the NDR relief schemes. As such, it currently contains data on 135,000+ properties that receive nearly £600m in rates relief.
- The BSS dataset is matched to the Valuation Roll using a unique identifier to provide the same key property characteristics the Valuation Roll contains, as well as data on all NDR reliefs the property is claiming at the given snapshot date.

How do SG Analysts help to improve Billing System data?

- An improvement work project was recently undertaken in liaison with Local Authorities and software suppliers to improve the NDR reporting capabilities of LAs in producing the BSS data extract.
- The QA process provided for the Billing System is the most resource intensive – taking around 6 weeks to complete.Typically, this involves a mix of SAS coding in order to detect any anomalies and that reliefs are being applied in the correct hierarchical order, combined with a manual check of some properties. NDRI returns are used as a sense check for total costs of reliefs, although totals are not expected to match exactly.
- SG analysts are likely to get involved at a group of properties level rather than an individual property level. Typically, this involves identifying new trends within the data on reliefs and querying these with Local Authorities. Sometimes this would lead to revisions or resubmissions of the statistics – other times it will confirm the existence of a new trend in the data.

What role does the data play in the forecast?

- **Forecasts of Reliefs:** The forecast model contains a separate forecast of 19 reliefs. This data is used to inform how those reliefs are forecast. Typically this will be a three year rolling average, however Billing System Data is often used to verify whether this is reasonable. If there is a break in the time series for a specific relief, or if there is evidence of an unusual trend (e.g. increased takeup), then a different approach will be taken.
- **Forward Looking Policy Costing:** Where Ministers wish to make any policy changes to an existing relief, the Billing System will typically be the primary tool that is used to assess the revenue impact of those changes.
- **Backward Looking Policy Costing:** Similarly, the billing system is very useful for looking at policies in hindsight – and ensuring that initial policy costings were reasonable. Depending on this, future forecasts of the affected relief may be made with reference to new data so as to incorporate the impact of these policy changes in the base forecast.

Annex D: Local Authorty Non-Domestic Rate Income Returns

What are Local Authority Non-Domestic Rate Income returns?

- Local Authority NDRI Returns contain the most up to date data and estimates on how much NDR that Local Authorities are collecting.
- They contain data on all NDR reliefs as well as other factors affecting NDR collected, such as bad-debts, write-offs, TIF Income and BRIS Income.
- NDRI returns are sent by Local Authorities to the Scottish Government four times a year. The data is first sent as a Provisional contributable amount (PCA, typically in April at the start of the financial year), then as a Mid-Year Estimate (MYE, typically sent in October), then a Notified return is collected in June/July at the end of the financial year and finally as a fully Audited return (typically sent in October).

How do SG Analysts help to improve NDRI data?

- SG analysts typically provide QA for these data submissions over around 6 weeks of each year (around 2 weeks for the first three returns).
- Typically this QA involves checking year-on-year changes and querying large unexpected additions or deductions to NDRI collected. Improvements in collection occur from analysts communicating with Local Authorities and Audit Scotland, ensuring forms are fit for purpose, making improvements where possible and that they have been filled out as intended.
    - A common reason for SG-LA discussion is to ensure that Local Authorities understand any recent policy reforms and are considering these reforms in budget setting.
    - SG analysts role is usually in spotting any unexpected changes within the NDRI returns and querying these. Usually, this results in a discussion of how data is entered into the system. It can also be valuable for monitoring key outcomes.
- SG analysts also use our understanding of these forms in order to contribute to auditor's guidance on how the NDRI data is collected and described. Scottish Government feed into detailed Audit Scotland guidance produced to help auditor's carry out the audit of Notified NDRI returns.

What role does the data play in the forecast?

- **Check for any emerging problems with the forecast:** Once proper QA has been provided, this data provides a timely snapshot of how much income is being raised – therefore it provides an essential sense check on the forecasts – and whether the forecast model is performing correctly.
- TIF Income: Local Authorities also provide an assessment of likely Tax Incremental Financing revenues. These revenues need to be identified, modelled and netted off any future calculation of NDRI.

Annex E: Policy Costings and Trend Analysis

How do SG Analysts model policy changes?

Typically this will depend on the policy change, most policies will relate to the NDR reliefs– and the first evidence base to investigate is typically the NDR data sets described in Annexes A-D, or more specifically:

- In the case of expanding an existing relief, the Billing System usually provides the most valuable information.
- In the case where properties that do not currently claim a relief are the intended subjects of a policy change, the Valuation Roll often provides the most valuable information.
- In the case where a significant number of properties that do not currently exist will be affected by a policy, wider evidence will need to form the basis of any costing.

The base case for any costing is one that does not allow for behaviour change, further work may be done to identify the scale of any behaviour change.

What happens after a policy change?

Where there has been a known policy change, analysts need to consider whether the latest data fully reflects that policy change or not before deciding on how the forecast model will operate. This decision is made with reference to the evidence on the policy itself. For example, if a new relief has been introduced and take up is expected to increase dramatically in year 2 of the policy, it wouldn't be appropriate to use data from year 1 as the baseline forecast. However, if it is expected that most of the effects of the policy have already been fully felt in year 1, then this may be more appropriate.

Trend Analysis

There are also cases where some degree of trend analysis must be applied in order to come up with a reasonable forecast. Reliefs provide a useful example. If evidence suggests that the take up rate of a particular relief is increasing, then using large amounts of historical data alone to predict future costs would be inappropriate – some adjustment must be made to reflect increased take up. Similarly, analysts adjust forecasts of RV loss as a result of revaluation appeals to reflect the fact that resolution rates typically follow a set pattern over the revaluation cycle. At these times, it is important not just to take forward averages, but to interrogate whether any trends or patterns are emerging within the data.