

ANALYTICAL NOTE 4: DIRT FORECAST METHODOLOGY

The standard rate of Deposit Interest Retention Tax was increased by 8 percentage points to 41 per cent in *Budget 2014*.¹ The policy change is projected to add €140 million in revenue on a full-year basis.

DIRT revenues are the only element of non-PAYE income tax that is forecast by the Department of Finance. There seems to be little documentation of how DIRT revenues are forecast: the most comprehensive recent description appears to be the following two sentences in Annex 1 of the Medium Term Budgetary Framework (2013):

Deposit Interest Retention Tax is forecast using the Consumer Price Index, as, over the long run, it tends to move in line with interest rates. It also takes account of interest rate futures.

More formally, the calculation of DIRT revenue could be described by the following equation²:

$$T_{t+1} = [(T_t + \text{Carryovers from previous budgets})(1 + \text{CPI})] + \text{New Measures} + \text{Other Adjustments}$$

where T_t is DIRT revenue in the base year and growth in the consumer price index (CPI) serves as the macro driver. Other adjustments may include alterations made by the Department of Finance based on deposit information from the Central Bank and information about predicted interest rate movements from ECB policy rate futures. For example, for 2014 the calculation was:

$$€627\text{m} = [(\text{€}501\text{m} + \text{€}13\text{m})(1 + 0.016)] + \text{€}105\text{m},$$

where the estimated outturn for 2013 was €501 million and €13 million reflected carryover effects from previous budgets. The projected CPI for 2014 was 1.6 per cent, €105 million was the static impact of the change in the DIRT rate introduced in *Budget 2014*, and no additional adjustments were made to incorporate, for example, expected interest rate changes.³

¹ The Budget also brought the traditionally higher rate of DIRT for interest paid less than annually in line with the standard rate and abolished certain exemptions. (See Finance Bill (no.2) 2013 for details.)

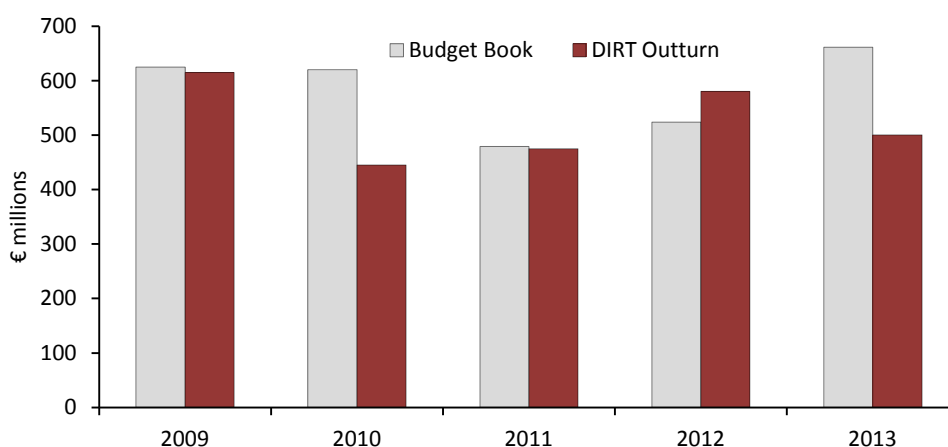
² For the DIRT forecast, the elasticity is assumed to be 1, so for simplicity it is omitted from the equation.

³ The static impact takes no account of the likely change in behaviour resulting from the increase in taxes. In this case, it ignores the potential for reduced savings.

According to the Department of Finance, this static impact figure for the rate increase in *Budget 2014* was based on advice from the Revenue Commissioners that every one percentage point increase in the DIRT rate would raise approximately an additional €17 million in revenue. Specifically, the calculation took the available estimate of the outturn for DIRT and some exit taxes revenue for 2013 as €590 million, divided by 33 and multiplied by 8.⁴ The resulting (rounded) €140 million was then adjusted for 2014 based on the pattern observed in the previous year that 28 per cent of DIRT payments relate to interest from the previous year.⁵ This gave a (rounded) estimate of €105 million for the impact of the new measures for 2014.⁶

An early assessment for 2014 based on the first two quarters of data only indicates that the DIRT revenue forecast is behind target (€270 million vs. target €300 million). As DIRT is paid quarterly in arrears, however, it is still too early to assess the extent to which the impact of the policy change has been accurately predicted. At this point, the initial CPI forecast of 1.6 per cent used in the forecasting equation looks high but even relatively large forecast errors in the macro driver forecast do not appear to have a significant impact on the DIRT revenue forecast.⁷

FIGURE N9: BUDGET DIRT FORECAST VS OUTTURN



Source: Department of Finance and internal calculations.

⁴ This number comprised an estimated outturn for DIRT for 2013 of €510 million and about €80 million in receipts relating to Life Assurance Exit Tax (LAET) and other exit taxes that were also to be increased from 33 per cent to 41 per cent in *Budget 2014*. Consequently, the static impact figure used in the DIRT calculation appears to include about €19 million relating to LAET. We thank the Revenue Commissioners for the information on how these calculations were made.

⁵ DIRT is paid quarterly in arrears and so January receipts in 2014 are based on the lower 33 per cent rate.

⁶ Given the relatively small numbers involved, no adjustments were made to account for revenues arising where interest is paid less than annually where the rate increase was smaller.

⁷ The Department of Finance forecast for the CPI was revised downwards to 0.4 per cent in *SPU 2014*.

As is evident from Figure N9, the forecasting performance varies quite a lot from year to year: errors were relatively small in 2009 and 2011 (1.6 per cent and 0.8 per cent respectively) but quite large in 2010 and 2013 (€175 million (39.3 per cent) and €161 million (32.2 per cent) respectively). For all years, the contributions of starting point errors (estimates of T_t) and the macro driver errors (estimates of CPI) were extremely small.⁸ Other potential sources of forecasting errors include: (i) error in the Revenue Commissioners' forecast for the effect of new measures or; (ii) error in the estimation of the carryovers from previous budgets.

Given the wide variation in the size of the errors from year to year, it seems more likely that the bulk of the errors arose from the omission of other relevant factors driving the tax revenue stream. For example, it may be possible to improve the forecasting equation by incorporating additional information on interest rate movements over and above that captured by the CPI or information on projected growth in deposits. Historically, the Department did not take interest rate movements into account but this has recently become part of their assessment. Since ECB policy rate futures signalled no change at *Budget 2014* time, no adjustment for interest rate movements was incorporated by the Department in their 2014 forecast.

⁸ Macro driver errors and starting point errors are estimated by substituting the forecasts for these variables with the actual outturns in the forecasting equation. The actual outturns imply a different DIRT forecast from the Budget forecast. The difference between them is the error due to macro driver/starting point errors.