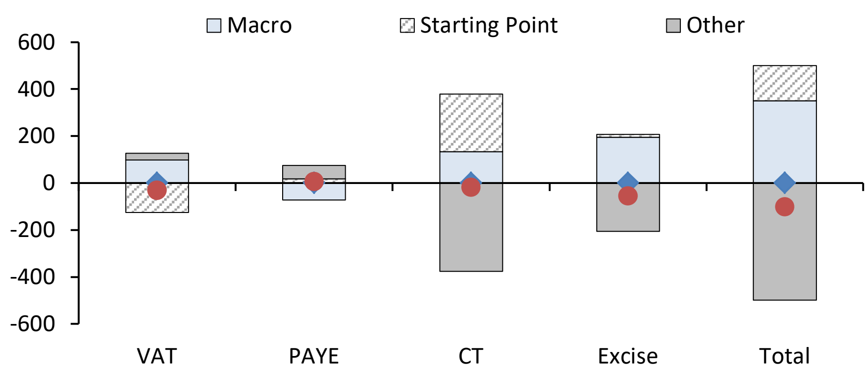
Appendix D: Decomposition of Exchequer Tax Revenue Forecasts

The first part of this Appendix explores the revisions to forecasts of the main tax heads for 2018. It shows how the 2018 forecasts in *SPU 2018* have changed relative to *Budget 2018.* Three categories are identified in this analysis as drivers of these revisions: (i) an update to the 2018 "**macro**" economic outlook relevant for each tax head; (ii) the error arising from an incorrect "**starting point**" estimate of 2017, which biases the 2018 forecast (a positive starting point means that the 2017 outturn was actually higher than expected at budget time); and (iii) an "**other**" source of revision, caused by use of incorrect estimates of any other component of the forecast. It is the residual of the "macro" and "starting point" errors.[82, 83] Appendix Figure D.1 also compares the total revision relative to the performance against the *Budget 2018* profile at end-April 2018.

Appendix Figure D.1: Tax Forecast Revisions for 2018

€ million (*SPU 2018 – Budget 2018*)



Sources: Department of Finance; and internal IFAC calculations.
Note: The chart breaks down the total revision into the macro component, a starting point component and an "other" component. Performance to date shows the tax receipts at end-April 2018 relative to profile. A positive performance to date indicates taxes are higher than what was forecast at *Budget 2018* time. The total revisions solely relate to VAT, PAYE, corporation tax and excise duties.

The second part of this Appendix examines the latest tax revenue forecasts produced by the Department of Finance for the whole projection horizon (2018–2021). In particular, it shows the yearly changes in the forecasts of VAT, corporation tax, excise duties, and the PAYE and USC components of income tax (see Appendix Figure D.2).

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[82] For a detailed description of the IFAC's forecast replication model, see Hannon (2014).

[83] The macro drivers for 2018 used in this exercise are based on the recent *SPU 2018* forecasts, as opposed to those projected at budget time. However, the Department of Finance's tax forecasts for 2018 use the macro drivers that were forecast in *Budget 2018.* The exercise is therefore based on the most up-to-date macroeconomic information for each tax source.

The total annual changes for each tax head are attributed to a number of components: (i) “**macro**” is the part of the forecast driven by the growth in the relevant macro driver (e.g. wage growth and its corresponding elasticity when analysing income tax); (ii) “**one-offs**” refer to non-recurring items that impact on expected tax receipts; (iii) “**policy**” impacts account for the estimated impacts from policy changes in a given year (e.g., discretionary tax cuts); (iv) “**carryover**” effects account for policy impacts carried over from previous years; (v)“**other**” represents potential elements affecting the forecasts (calculated as the difference between IFAC’s internal forecasting exercise and that carried out by the Department of Finance), including judgement applied by the Department of Finance.[84, 85]

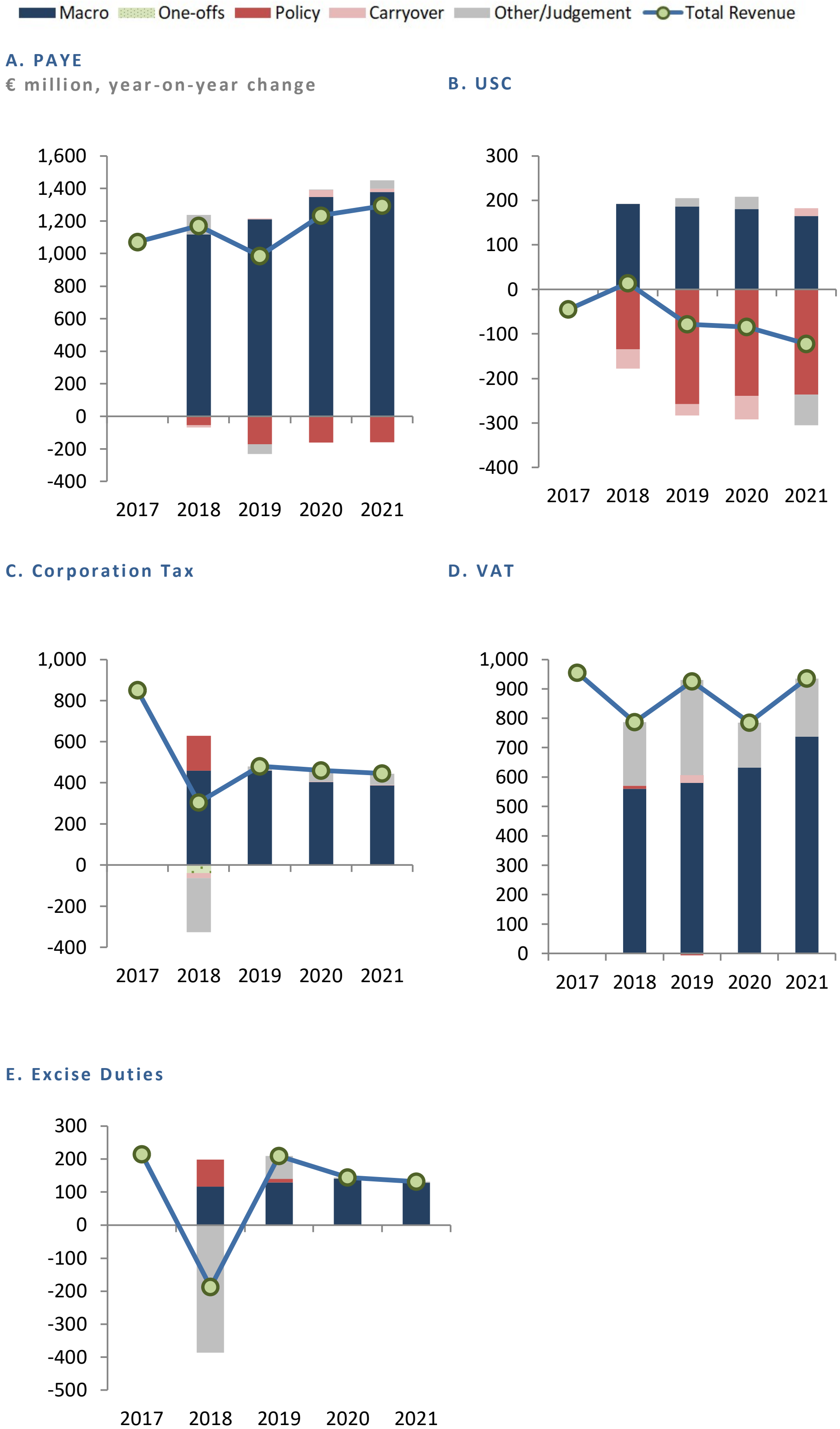
[84] The generic formula applied by the Department of Finance to forecast revenue is given by:

$$\mathrm{Rev}_{t+1} = (\mathrm{Rev}_t - \mathrm{T}_t) * (1 + \mathrm{B}_{t+1} * \mathrm{E}_{t+1}) + \mathrm{T}_{t+1} + \mathrm{M}_{t+1} + \mathrm{M}_t + \mathrm{J}_{t+1},$$

where revenue forecasts (Rev_{t+1}) depend on their lag –stripped of one-off items (T_t)–, one-off items in the next period (T_{t+1}), the macro drivers (B_{t+1}) and their associated elasticity (E_{t+1}), current policy (M_{t+1}) and carryover policy impacts (M_t), and judgement (J_{t+1}). See Hannon, 2014 for a discussion of the approach. Rewriting the formula in terms of annual changes yields: $\Delta\mathrm{Rev}_{t+1} = \mathrm{Rev}_t * \mathrm{B}_{t+1} * \mathrm{E}_{t+1} - \mathrm{T}_t * \mathrm{B}_{t+1} * \mathrm{E}_{t+1} + \Delta\mathrm{T}_{t+1} + \mathrm{M}_{t+1} + \mathrm{M}_t + \mathrm{J}_{t+1}$. In this way, yearly revenue changes for each tax head are attributed to the addition of: (i) the macro driver, which covers the parts of the formula affected by B_{t+1}; (ii) changes in one-off items, as shown in ΔT_{t+1}; (iii) current and previous policy changes ($M_{t+1}$and M_t, respectively); and (iv) judgement, as covered in the component J_{t+1}.

[85] The macro drivers for 2018 used in this exercise, as in the previous part of the Appendix, are based on the recent *SPU 2018* forecasts, as opposed to those projected at budget time. However, the Department of Finance’s tax forecasts for 2018 use the macro drivers that were forecast in *Budget 2018.* The exercise is therefore based on the most up-to-date macroeconomic information for each tax source. From t+1 onwards (2019–2021), the most recent SPU macroeconomic forecasts are used both by the Department of Finance and in this exercise.

Appendix Figure D.2: Tax Revenue Forecast Growth per Indicator



Sources: Department of Finance; and internal IFAC calculations.