# Appendix C: Tax Forecasts Decomposed

The first part of this Appendix explores the revisions to forecasts of the main tax heads for 2020. It shows how the 2020 forecasts in *SPU 2020* have changed relative to *Budget 2020.* Three categories are identified in this analysis as drivers of these revisions: (i) an update to the 2020 "**macro**" economic outlook relevant for each tax head; (ii) the error arising from an incorrect "**starting point**" estimate of 2019, which biases the 2020 forecast (a positive starting point means that the 2019 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.

**Appendix Figure C.1: Tax Forecast Revisions in 2020: *SPU 2020* versus *Budget 2020***
€ million, *SPU 2020 – Budget 2020*
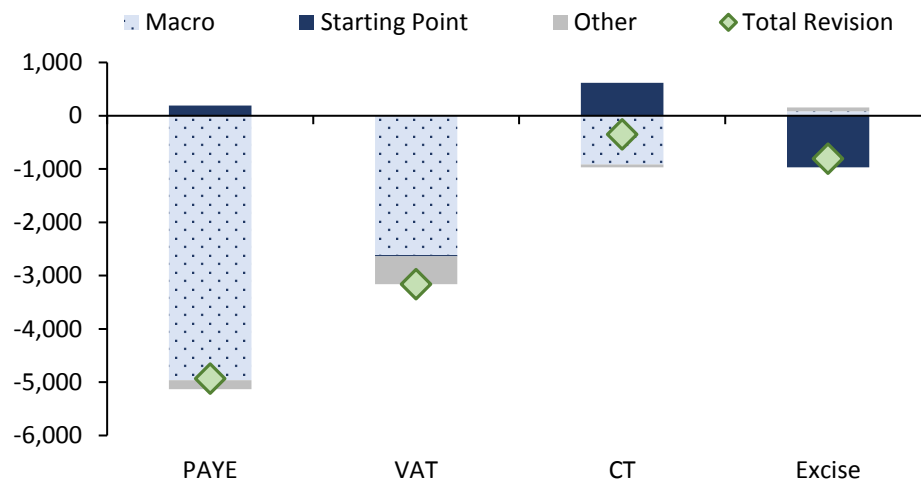


Sources: Department of Finance; and internal Fiscal Council workings.
Note: The chart breaks down the total revision into the macro component, a starting point component and an "other" component.

The second part of this Appendix examines the latest tax revenue forecasts produced by the Department of Finance in *Budget 2020* for the projection horizon 2020–2021. 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 C.1).[68] For a detailed description of the Fiscal Council's forecast replication model, see Hannon (2014).

The changes on the tax forecasts (year-on-year) 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 the Fiscal Council's internal forecasting exercise and that carried out by the Department of Finance), including judgement applied by the Department of Finance.

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[68] The generic formula applied by the Department of Finance to forecast revenue is given by:
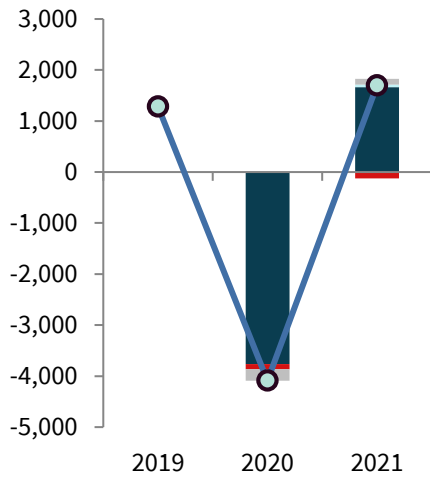$\text{Rev}_{t+1} = (\text{Rev}_t - \text{T}_t) * (1 + \text{B}_{t+1} * \text{E}) + \text{T}_{t+1} + \text{M}_{t+1} + \text{M}_t + \text{J}_{t+1}$,
where revenue forecasts ($\text{Rev}_{t+1}$) depend on their lag stripped of one-off items ($\text{T}_t$), one-off items in the current period ($\text{T}_{t+1}$), the macro drivers ($\text{B}_{t+1}$) and their associated elasticity (E), current policy ($\text{M}_{t+1}$) and carryover policy impacts ($\text{M}_t$), and judgement ($\text{J}_{t+1}$). See Hannon (2014) for a discussion of this approach. Rewriting the formula in terms of annual changes yields: $\Delta\text{Rev}_{t+1} = \text{Rev}_t * \text{B}_{t+1} * \text{E} - \text{T}_t * \text{B}_{t+1} * \text{E} + \Delta\text{T}_{t+1} + \text{M}_{t+1} + \text{M}_t + \text{J}_{t+1}$. 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 $\Delta T_{t+1}$; (iii) current and previous policy changes ($M_{t+1}$ and $M_t$, respectively); and other adjustments, mainly judgement, as covered in the component $J_{t+1}$.
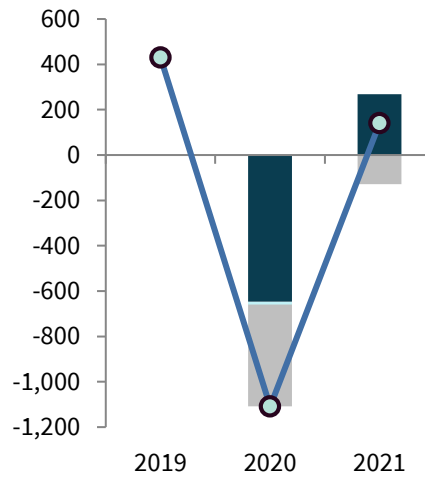
## Appendix Figure C.2: Tax forecasts decomposed

€ million, year-on-year change

Legend: ■ Macro  ■ One-offs  ■ Policy  ■ Carryover  ■ Other/Judgement  —○— Total Revenue
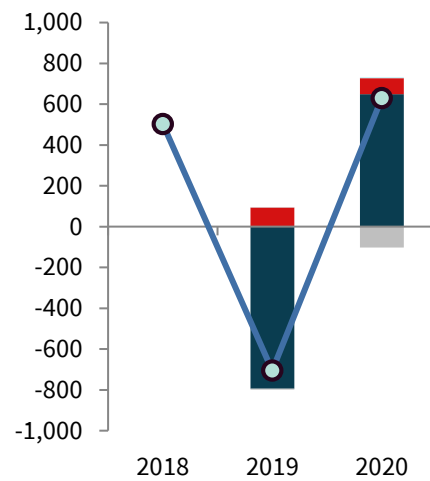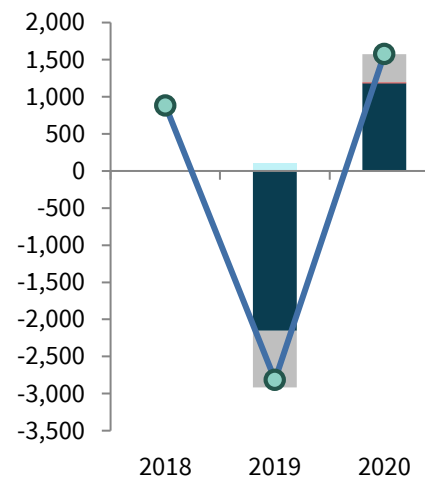
**A. PAYE**



**B. USC**
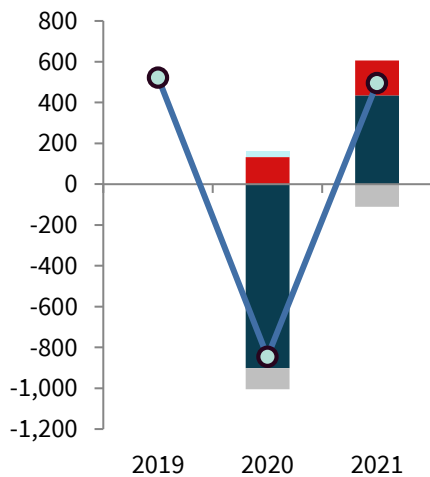


**C. Corporation tax**



**D. VAT**



**E. Excise duties**