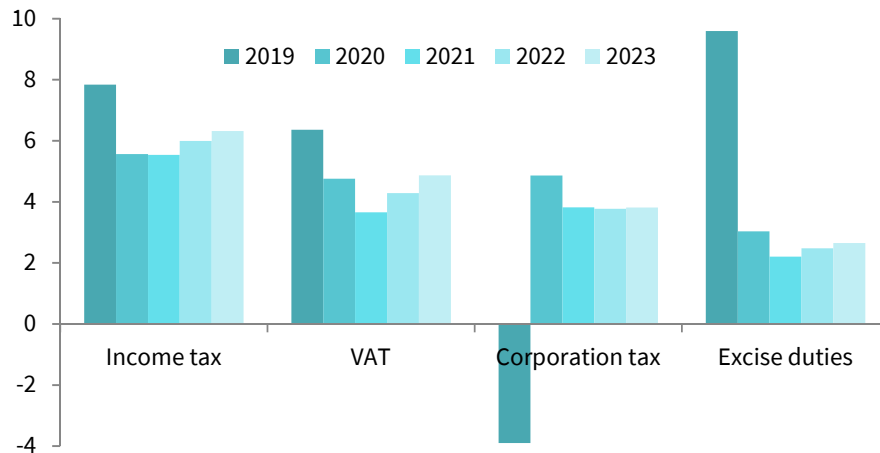## Figure 3.14: Tax Forecasts
Percentage change (year-on-year)

Sources: Department of Finance; and internal IFAC calculations.

Box I: Forecasting Tax Revenue: a Reassessment of Elasticities

This Box examines the elasticities used in tax forecasting to map from tax bases, such as wage incomes, to tax revenue. Different revenues are forecast by using different macroeconomic drivers. For example, income tax is driven by the amount of income generated in the economy.

The sensitivity of the revenue collected to the macroeconomic driver is reflected in the elasticity of revenue to the tax base. This elasticity measures the endogenous percentage change in revenue following a 1 per cent change in the macroeconomic driver of that revenue source. Elasticities are conventionally estimated empirically using time series data on revenue collected and the associated macroeconomic driver.

A recent paper (Conroy, 2019) re-assesses this relationship by adjusting for the impact of policy changes based on a newly compiled dataset of budget-day estimates of tax policy changes. If policy changes are procyclical and negatively correlated to revenue growth (tax rates are cut in good times), this biases down the tax elasticities compared with the true relationship.

The new results suggest a long-run income tax (income tax combined with USC) elasticity of 1.4, with a short-run elasticity of 1.5 (Table I.1). This compares with conventional elasticities of 1.2 and 2.1 used by the Department to forecast USC and PAYE income tax respectively.

Table I.1: Comparison of Elasticities

	Values
Conroy (2019) estimates, combined income tax and USC	
Policy-adjusted long-run elasticity	1.4
Policy-adjusted short-run elasticity	1.5
Unadjusted long-run elasticity	0.8
Unadjusted short-run elasticity	1.0
Department of Finance estimates	
Income tax elasticity	2.1
USC elasticity	1.2

Sources: Department of Finance; and Conroy (2019).

Next, we consider the impact different assumed elasticities would have on the projections for future income tax and USC receipts. As the elasticity estimated in Conroy (2019) refers to USC

and income tax combined, this exercise examines the impact of applying that estimated elasticity to forecasts of both USC and income tax receipts separately. For illustrative purposes the estimated long-run elasticity (1.4) is used, as the estimated short-run elasticity (1.5) is not hugely different this would not substantially alter the results.

For PAYE income tax, the policy-adjusted estimated elasticity (1.4) is lower than that currently assumed by the department (2.1). This means that lower revenue forecasts would result from using the estimated elasticity (in a period of income growth). For 2019, the lower assumed elasticity would result in lower forecast growth in receipts of €310 million. By 2021, PAYE income tax receipts would be €1.0 billion lower if using this lower elasticity.

Looking next at USC, as the policy-adjusted estimated elasticity (1.4) is higher than the one currently used (1.2), this would lead to higher forecast receipts (as income is forecast to grow). For 2019, forecast receipts would be €20 million higher due to this change. In each subsequent year, the growth in USC receipts would be €20 million stronger also due to this change. This means that in 2021, USC receipts would be €61 million higher than would be the case if the lower elasticity were assumed.

Figure I.1: Sensitivity of Forecasts of PAYE Receipts to Differing Elasticities

€ billion
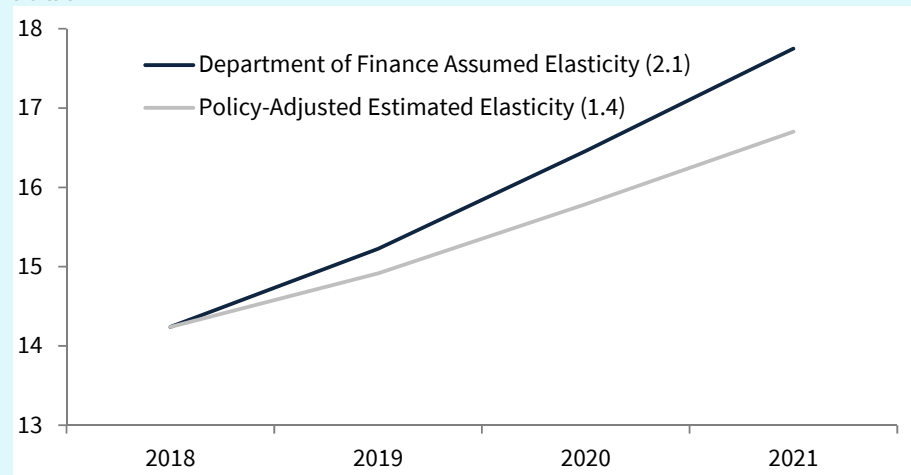
Sources: Department of Finance; and internal IFAC calculations.
Note: Forecasts for 2019 and beyond differ only in the elasticity applied.

On balance it would appear that using an elasticity of 1.4 for both income tax and USC would lead to lower forecast growth in receipts. In 2021, combined USC and income tax receipts would be almost €1 billion (4.8 per cent) lower if the estimated elasticity of 1.4 was used for both revenue sources. Figure I.1 shows how forecasts of PAYE receipts would diverge depending on the elasticity used, with the differences in forecasts accumulating over the years.

SPU 2019 notes that "a Tax Forecasting Methodology Review Group has been established to assess the Department of Finance's current tax forecasting processes. The Group's report will be published by end-year".

Non-tax revenues are estimated to reach €3.1 billion in 2019 (Figure 3.15). This is €0.5 billion higher than projected in *Budget 2019*, driven by increased expectations