APPENDIX A: MODELLING TAX EXPENDITURES

This Appendix provides an overview of the various modelling techniques used in this statement to estimate the value of tax expenditures.

The methods used to calculate the estimates of individual tax expenditures in this statement vary between tax expenditures. The approach taken depends on the nature of the tax benchmark, the particular tax concession examined and the availability of data. Data availability is also a major factor in determining the reliability of the estimates, and in many cases estimates are not provided due to data limitations.

The approaches used to estimate tax expenditures include aggregate modelling, distributional modelling and microsimulation. The most commonly used approach is distributional modelling, generally by adopting data derived from microsimulation analysis.

A.1   Aggregate modelling

This approach involves using information on the aggregate volume of transactions to calculate the value of a particular tax concession. This is most appropriate for a concession with a simple proportional value of the total transactions concerned and for tax exemptions. Data sources suitable for aggregate modelling include national accounts data, aggregates derived from administrative databases (such as taxation records), and trade and production statistics.

Aggregate modelling typically is used to estimate tax expenditures in fuel excise, where exemptions or reduced rates of excise for particular fuels can be estimated from statistics on the volume of those fuels produced.

A.2   Distributional modelling

This approach involves using more detailed aggregate data to calculate the impact of tax concessions on particular segments of the economy. It is most appropriate for concessions directed towards a particular group of taxpayers and for assistance that changes according to the variables used to analyse the data. Data sources suitable for distributional modelling include survey data and data derived from administrative databases.

Distributional modelling is used to estimate tax expenditures in personal income tax concessions when the cost of which is related to a taxpayer's taxable income. For these

concessions, data on income distribution and tax concessions by grade of taxable income can be used to estimate the cost of tax expenditures on those concessions.

A.3   Microsimulation

This approach involves examining detailed datasets, such as taxpayer records, to determine the value of taxable transactions for each taxpayer and the amount of tax paid on them. This information then is used to calculate how much tax would apply to those transactions under the benchmark tax treatment, calculating the value of the tax expenditure by subtracting the actual tax collected from the benchmark amount. This approach requires either a comprehensive database for all taxpayers or a detailed sample that can represent the population. It must sufficiently detail the value of transactions affecting the calculation of tax liabilities to allow the required calculations.

Microsimulation modelling is especially useful for calculating concessions that closely target particular taxpayer groups (for instance benefits subject to detailed eligibility tests) and for which the payment rate varies considerably according to taxpayer behaviour or circumstance.

Microsimulation modelling also can be used to derive data for use as an input to calculating tax expenditures using an aggregate or distributional modelling approach. This approach uses the microsimulation model to derive key information, such as the average effective tax rates to use in other models. It is suitable for situations where detailed datasets are not available for all data items.