**Economic Impact Analysis Model and Its Use in TERC Reports:**

In this appendix, we explain why we use an economic impact analysis model for the evaluation of a tax expenditure. As explained below, a tax expenditure generates not only direct impact, but also multiplier impact or multiplier effect. An economic impact analysis model is used to measure the total impact including the direct impact and the multiplier impact.

On the one hand, a tax expenditure generates direct benefits to some taxpayers in the form of lower production or capital cost, or higher disposable income, or lower consumer price, etc. On the other hand, because the Commonwealth must balance its budget, spending on a tax expenditure means fewer funds available to spend on other expenditure items if there is no increase in state revenues. Reduced spending on other expenditure items means forgone benefits from those items. This is a direct cost[[1]](#footnote-1) to the Commonwealth, which is ultimately borne by the Massachusetts residents or businesses that would have benefitted from additional spending on those other expenditure items. The direct costs to the Commonwealth in the form of other foregone benefits are equal to the direct benefits to taxpayers of the particular tax expenditure.

Besides the direct costs and benefits, there are indirect and induced costs and benefits associated with a tax expenditure. The indirect impact (cost or benefit) is felt by the chain of businesses that provide intermediate products and services to the directly impacted businesses. The induced impact (cost or benefit) is felt by the chain of businesses that benefit when the employees working for the directly impacted businesses spend their wages and salaries to buy goods and services. Accordingly, the total benefits and/or costs to the whole economy are larger than the initial direct impacts. This phenomenon is called the “Multiplier Effect”.[[2]](#footnote-2)

To measure these indirect and induced costs and benefits, economists often need to utilize models of economic impact analysis. There are three widely-utilized such models: (1) REMI (Regional Economic Models, Inc.); (2) RIMS-II (Regional Input-Output Modeling System); and (3) IMPLAN (Impact Analysis for Planning). The citation in footnote 2 provides a comparison of these three models. DOR has used REMI models for economic and fiscal impact analysis for years. So, for the evaluation of a tax expenditure, we used REMI’s Tax-PI model.[[3]](#footnote-3)

1. Called “Opportunity Cost” in economics. [↑](#footnote-ref-1)
2. For an illustration of “Multiplier Effect”, see Slide 4 of: <https://www.ilw.com/seminars/JohnNeillCitation.pdf> [↑](#footnote-ref-2)
3. REMI’s Tax-PI is a versatile tool for evaluating the total fiscal and economic impacts of tax policy changes. Tax-PI is a ready-to-use dynamic fiscal and economic impact model which captures the direct, indirect, and induced fiscal and economic impacts of taxation and other policy changes over multiple years. The model integrates input-output, computable general equilibrium, econometric and economic geography methodologies. For an introduction of Tax-PI, please see the following linked file: <https://www.remi.com/wp-content/uploads/2020/07/Estimating-Economic-Fiscal-Impacts-in-Tax-PI.pdf> [↑](#footnote-ref-3)