



FISCAL AFFAIRS

HOW TO

NOTES

How to Evaluate Tax Expenditures

Prepared by Sebastian Beer, Dora Benedek, Brian Erard, and Jan Loeprick

Fiscal Affairs Department

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| | |
|--|-----------|
| From Tax Expenditure Reporting to Evaluation | 1 |
| Scope, Depth, and Timing of Evaluations | 3 |
| What Should Be Evaluated?..... | 5 |
| Tools for Measuring Impact..... | 6 |
| Practical Implementation | 9 |
| Conclusion | 11 |
| References | 13 |
| Boxes | |
| 1. The Benchmark Tax System | 2 |
| 2. Sample Evaluation Questions..... | 7 |
| Figures | |
| 1. Total Tax Expenditures (in Percent of GDP) | 2 |
| 2. Number of Recorded Tax Expenditures | 4 |
| Tables | |
| 1. TE Reporting and Evaluation in Selected Economies | 3 |
| 2. Approaches for Different Tax Instruments | 8 |
| 3. Commonly Used Tools for Evaluation | 9 |
| 4. Steps for Conducting an Ex Post Evaluation..... | 11 |

From Tax Expenditure Reporting to Evaluation

Governments use tax expenditures (TEs)—deviations from a benchmark tax system (Box 1)—to provide financial support or benefits to individuals, companies, and other entities, including nongovernment organizations. The budgetary impact of TEs can be similar to that of direct outlays: after the support is provided, less money is available to fund other government priorities. Even though TEs frequently run counter to the principles of good tax policy design (IMF 2015), they are ubiquitous and often sizeable. As illustrated in Figure 1, they are estimated to reduce tax revenues by an average of around 4 percent of GDP among countries that report on them, with some countries forgoing more than 10 percent on the preferential tax treatment of specific sectors, firms, and/or individuals (Von Haldenwang and others 2021).²

Efficient use of limited public resources requires careful management of any type of public outlay, including TEs and direct spending. Understanding and transparently reporting on the revenue impact of TEs is required for comprehensive fiscal reporting (IMF 2018) and the starting point for any policy debate on their appropriateness (Heady and Mansour 2019). Efforts to improve the systematic quantification of revenue forgone have advanced over the past decade, with 102 countries providing some public information on related costs, albeit with varying coverage and quality (Von Haldenwang and others 2021).² Although serving as a useful starting point, enhancing transparency on the revenue impact of TEs does not by itself ensure that the funds are being well spent.

¹These estimates are likely to be a lower bound in many cases because the published TE costing estimates are often not comprehensive (as noted by Von Haldenwang and others 2021 and detailed in Table 1). Moreover, idiosyncrasies among benchmark tax systems and differences in the costing approaches that have been employed limit the utility of cross-country comparisons.

²Good practice examples include disclosure of details that allow for further analysis of a TE's performance similar to that of spending programs, for instance by publishing expenditures granted to firms by sectors and policy objectives or the distribution of benefits across household income levels.

Systematic evaluations, as opposed to ad hoc discussions, are needed to guide informed decision-making and to avoid a situation where the narrative on the benefits of TEs is primarily driven by profiting stakeholders.³ By TE “evaluation,” this note refers to a process that seeks to systematically inform policymakers on the desirability of introducing or maintaining specific tax benefits by gathering and analyzing available quantitative and qualitative information on their effects. Evaluation processes can be tailored to different levels of data availability and analytical capacity, with a minimum requirement of the application of a structured questionnaire to guide and delineate the effort. An evaluation should focus on the policy objective of a TE and whether it effectively and efficiently contributes to that policy objective. In some cases, the evaluation can also contribute to the refinement of static cost estimates by identifying behavioral responses.⁴

In most countries, fiscal transparency would be enhanced by making more performance information on the outcomes of major policy areas publicly available (IMF 2018). A minority of countries have undertaken a comprehensive and systematic evaluation of TEs' effects. As illustrated in Table 1, only a small group of countries evaluate TEs with any regularity and, even within this group, evaluations are often performed on an ad hoc basis rather than institutionalized.⁵ This is not surprising given the multifaceted challenges facing evaluation efforts. However, considering the scale of public resources spent on TEs, even “though evaluation of tax expenditures may be difficult, a more serious problem may be the failure to try” (OECD 2010, page 29).

³This is often the case in practice, where reports on the benefits of sector-specific measures are prepared by line ministries, industry organizations, or investment promotion agencies (see Institutionalization and Partnerships section).

⁴For instance, an evaluation may identify a significant potential for noncompliance with respect to a TE, in which case the actual revenue cost is likely to exceed the static estimate.

⁵For some countries, conducting evaluations is a legal requirement. In Germany, for instance, all subsidies and TEs are required to undergo a regular evaluation in terms of target attainment. Similarly, The Netherlands requires evaluations of TEs to be carried out every four to seven years.

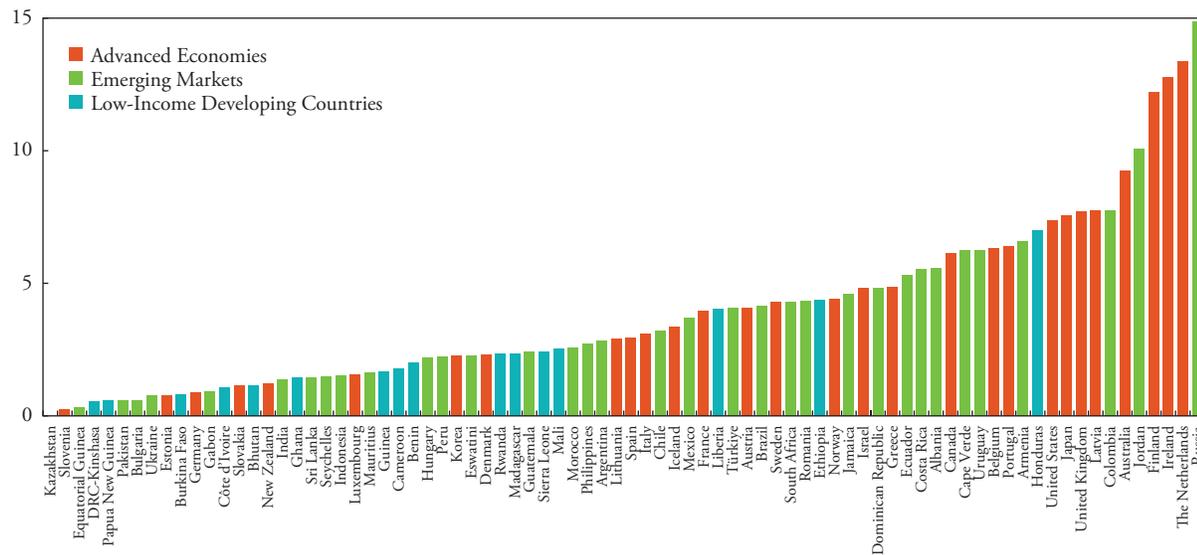
Box 1. The Benchmark System

A benchmark tax system serves as a basis to identify the nature and extent of tax expenditures (TEs). It should be grounded in the key principles of good tax policy design, including fairness, efficiency, and simplicity. To subject all public spending to the same rigor in evaluations and to enable the same level of transparency, the benchmark definition should be as broad as possible and should aim at avoiding exceptions to the general rule. Three approaches of defining the benchmark tax system can be distinguished:

- The conceptual approach relies on a clearly formulated normative benchmark tax system based on theoretical concepts of tax policy.
- The reference tax law approach is more practical and takes as the starting point a discussion of existing tax provisions.
- The expenditure equivalent approach defines the benchmark based on provisions that could equally well be provided through the expenditure side.

Combinations of these approaches are possible. For instance, it is common to incorporate some elements of the reference tax law even when the guiding principle is the conceptual approach. Regardless of the underlying approach, the benchmark tax system should be well defined and transparent. It should be limited to the key features of the main taxes; represent the standard tax treatment that applies to similar taxpayers or types of activity; and exclude provisions that favor particular groups, business activities, or regions. It should be consistent across taxes and should be defined in a way such that the resulting list of TEs informs policymakers about possible reform options. Refer to Heady and Mansour (2019) for a discussion of selected features of the benchmarks for different taxes.

Figure 1. Total Tax Expenditures (Percent of GDP)



Sources: Global Tax Expenditures Database; and Redonda and others (2022).
 Note: DRC = Democratic Republic of the Congo.

Table 1. TE Reporting and Evaluation in Selected Economies

| Country | TEs Identified | TEs Estimated | Evaluation Referenced in TE Reporting ¹ |
|------------------------|----------------|---------------|--|
| Argentina (2018) | 77 | 77 | No |
| Australia (2017) | 289 | 146 | Yes |
| Austria (2016) | 67 | 47 | Yes |
| Belgium (2018) | 251 | 136 | No |
| Brazil (2017) | 205 | 193 | No |
| Canada (2017) | 337 | 216 | Yes |
| Chile (2016) | 179 | 179 | No |
| Denmark (2017) | 80 | 80 | No |
| Estonia (2017) | 20 | 20 | No |
| Finland (2017) | 188 | 126 | No |
| France (2018) | 457 | 221 | Yes |
| Germany (2017) | 104 | 71 | Yes |
| Greece (2018) | 768 | 130 | No |
| Hungary (2018) | 51 | 51 | No |
| India (2018) | 120 | 120 | No |
| Ireland (2017) | 167 | 95 | Yes |
| Israel (2017/18) | 66 | 49 | No |
| Italy (2017) | 338 | 187 | No |
| Latvia (2016) | 321 | 321 | No |
| Mexico (2017) | 105 | 105 | Yes |
| The Netherlands (2017) | 125 | 100 | Yes |
| Norway (2017) | 45 | 45 | Yes |
| New Zealand (2017) | 51 | 10 | No |
| Poland (2015) | 208 | 96 | Yes |
| Slovak Republic (2016) | 47 | 47 | No |
| South Africa (2018) | 30 | 30 | No |
| South Korea (2018) | 276 | 254 | No |
| Spain (2017) | 95 | 95 | No |
| Sweden (2017) | 174 | 113 | Yes |
| Switzerland (2011) | 192 | 70 | No |
| Türkiye (2017) | 222 | 183 | No |
| United Kingdom (2017) | 424 | 185 | Yes |
| United States (2018) | 167 | 167 | No |

Sources: Redonda and Neubig (2018).

¹Information in Redonda and Neubig (2018) is drawn from public TE reports. Where no evaluations are referenced in the report, separate evaluation efforts may still be taking place. For instance, in the United States, the Congressional Research Service (CRS) periodically produces a compendium of TEs for the Senate Budget Committee. The CRS provides a balanced discussion of available evidence relating to each TE along with references to relevant studies from the academic literature. However, the CRS does not develop direct impact evaluation estimates for the compendium.

Note: For Australia, reported figures are for the Commonwealth Government only. TE = tax expenditure.

Although pragmatic qualitative approaches will often need to be taken, following a systematic approach can dramatically improve the quality of the debate on the use of TEs and the scope for meaningful policy reform. A range of options and associated tools are at the disposal of policymakers seeking to institutionalize TE evaluations. This note summarizes key considerations and country experiences in applying them, including practical considerations for implementing a TE evaluation process. The note builds on previous How-to Notes on TE reporting by Heady and Mansour (2019) and Tax Policy Units by Grote (2017). Although the note provides some guidance on evaluation methods, it does not provide detailed instructions on implementing these methodologies. The Revenue Forecasting and

Analysis Online course⁶ developed by the IMF Fiscal Affairs Department can be a useful starting point for this.

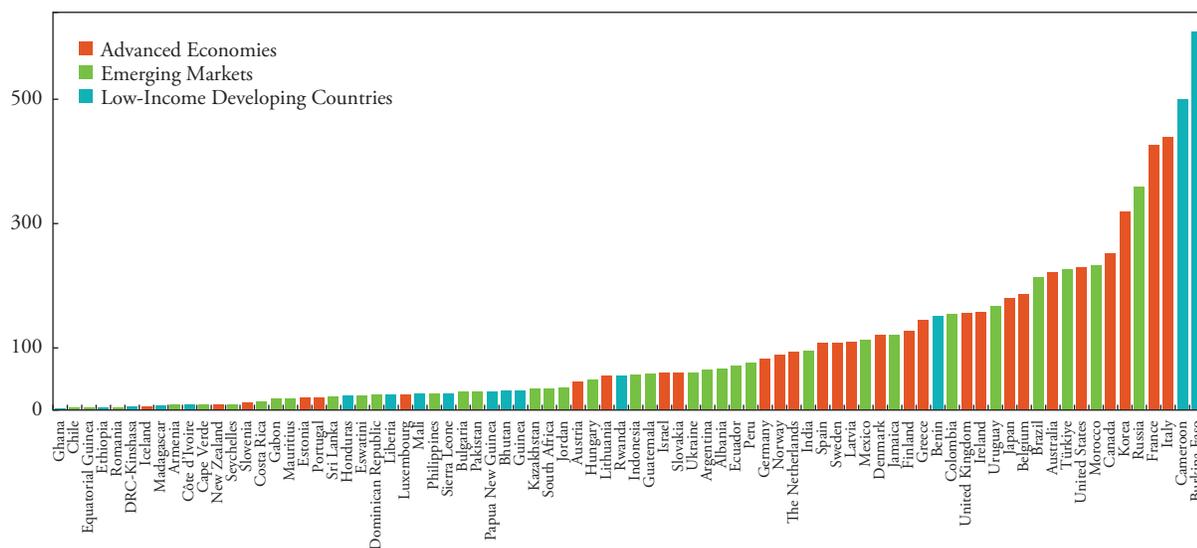
Scope, Depth, and Timing of Evaluations

Evaluating each TE *annually* is not feasible but also not necessary. However, it is desirable to evaluate all TEs *periodically* over a multiyear evaluation cycle.⁷ A broad scope of evaluations allows for analysis of duplications and redundancies, and it maximizes transpar-

⁶<https://www.imf.org/en/Capacity-Development/Training/ICDTC/Courses/RFAX>.

⁷In practice, the actual scope can also be unduly restrained de facto by questionable decisions on benchmark systems. In Germany, for instance, reduced VAT rates are excluded from TE reporting and evaluation.

Figure 2. Number of Recorded Tax Expenditures



Sources: Global Tax Expenditures Database; and Redonda and others (2022).
 Note: DRC = Democratic Republic of the Congo.

ency. It is, for instance, desirable to conduct thematic evaluations covering several TEs aimed at similar or the same objectives. Such an approach has the potential to yield revealing comparisons, maximizes the return on the investment into the evaluation effort, and informs decisions on the scope for streamlining and consolidation. For example, the same level of generosity may be maintained, but it is delivered while relying on the most efficient instrument. Similarly, covering all TEs in an evaluation cycle reduces the risk of the process being seen as a selective and politically driven exercise, thus increasing its credibility. However, with an average of 100 TE provisions in countries reporting on the costs of TEs (Figure 2), conducting in-depth research on all TEs is not practically feasible in most economies.

Differentiating evaluation efforts, depending on the importance and structural nature of TEs, may therefore be needed to keep the process manageable and costs reasonable. In Germany, large-scale evaluations are conducted once per legislative cycle in line with a mandate to evaluate every TE at least once every 10 years. The German subsidy report, which reports on TEs on a biannual basis, then draws on the findings of these studies in its discussion and presentation of TEs (Thoene 2019). Other countries with comprehensive evaluation mandates seek to differentiate the depth of analysis and the evaluation interval based on

the relative importance and nature⁸ of specific TEs. This differentiation can help ensure that resources are methodically deployed, recognizing that a large share of TE evaluations may need to be of a less resource-intensive, qualitative nature. Ireland, for instance, envisages TE evaluations every five years for each TE, but it recognizes that quantitative assessment cannot be prepared for many TEs. However, any triage should allow for some flexibility so that in-depth evaluations are accelerated for newly identified high-risk areas, as has recently been proposed in the UK (National Audit Office 2020).

Although the evaluation of existing TEs is necessary to optimize the efficiency of the current TE portfolio, ex ante evaluations—the evaluation before a new TE is introduced—can help constrain the proliferation of TEs that are unlikely to improve social welfare.⁹ Ex ante evaluations will typically be focused on reviewing the justification of a TE and its consistency with broader economic policy objectives. TEs may be justified, for instance, when they target positive

⁸Some countries differentiate between “structural” and “nonstructural” TEs, where the former are deviations from the benchmark that are considered an integral component of the system, such as a basic allowance for the taxation of personal income.

⁹This can be an obligatory step of regulatory impact assessments, although the depth of these assessments varies in practice. When an in-depth ex ante assessment cannot be prepared, an alternative is to introduce new TEs as temporary instruments, with permanence conditional on an initial evaluation.

externalities, such as knowledge spillovers, are aimed at reducing compliance or administrative costs, or seek to promote the government's distributional objectives. Potential improvements in the proposed design for the TE might also be explored at this stage. Indicators and underlying data sources to be used in future assessments of the TE's performance should be defined ex ante, and a discussion of the ex ante assessment should be a standardized requirement for ex post evaluations. This comparison of ex post performance against ex ante predictions fosters transparency and establishes a feedback mechanism that helps safeguard the quality and objectivity of the ex ante evaluation process.

What Should Be Evaluated?

Evaluations should seek to answer the same set of basic questions, notwithstanding differences in the methods and resources employed:

- Is a TE effective in achieving its stated or implied¹⁰ objectives? Most TEs aim at changing behavior or supporting redistribution.¹¹ Effectiveness refers to the extent that the desired impact is directly or indirectly accomplished. This needs to be qualitatively or quantitatively assessed against a counterfactual outcome that would have been observed in the absence of the TE.
- At what direct and indirect costs are objectives achieved? The costs of achieving the observed impact go beyond revenue forgone and include potential distortions and administrative and compliance costs. Often, a change in the design of a TE (for example, an improvement in targeting to reduce revenue leakage) can reduce these costs and thus increase the TE's efficiency.

The first step in evaluating these questions—ideally, but not necessarily, conducted ex ante—is to understand how a TE works, whom it benefits, and its intended purpose. Although the functioning of a TE should be clear from the legislation, understanding

¹⁰Von Haldenwang and others (2021) report that for almost 70 percent of TEs captured in the Global Tax Expenditures Database, revenue estimates are not linked to information on the policy objective it is supposed to serve.

¹¹For instance, corporate income tax incentives often aim at attracting investment, sometimes for specific industries. For individuals or households, the benefits targeted by a tax incentive might involve changes in labor market participation or formalization, savings rates, poverty levels, health status, charitable activities, conservation, or even fertility rates.

its goals and intended beneficiaries will often require consultation with stakeholders, administrators, and other experts. Requiring an explicit statement of the intended policy objective for all new measures facilitates this process. Delineating the purpose can sometimes help identify TEs that no longer align with government priorities or may no longer have any clear social benefit associated with them. For instance, TEs that are found to be out of step with current environmental objectives may be targeted for elimination without the need to conduct an in-depth evaluation. Relatedly, TEs that target objectives that have since been accomplished, such as the development of specific sectors or activities, can be reconsidered.

In evaluating effectiveness, it is important to consider net effects against a counterfactual outcome. These often go beyond direct change in behavior targeted by an incentive. Investment tax credits can lead to an increase in investment, with positive effects on employment, wages, and productivity. However, an increase in investment or employment in one sector may also result in a corresponding decrease in another (displacement effects). Similarly, it is important to account for the extent to which a TE merely subsidizes activities that would have taken place even in the absence of the incentive (redundant expenditure). Consider, for example, the redundancy of a nonrefundable tuition tax credit with regard to many wealthy parents who would likely provide the same expenditure on their children's education irrespective of the subsidy. At the same time, a nonrefundable credit provides little or no benefit to lower-income households that have minimal tax obligations. Means-tested direct support for college education may be both more efficient and equitable.

The costs of a TE also include administrative and compliance costs. For instance, a TE may have design features that create opportunities for improper claims or that result in excessive administrative and compliance burdens. And where governance structures are weak, the process for establishing and administering TEs may be open to corruption, adversely affecting the tax morale of nonbeneficiaries who perceive that only the well connected are able to avail themselves of the benefit.

TEs are justified when their social benefits outweigh their social costs and the use of tax instruments is

preferable to a direct budgetary outlay.¹² IMF (2015) provides a template to guide the evaluation of tax incentives for investment, which illustrates that the social welfare effect of tax incentives seeking to promote investment depends on direct (for example, jobs created, direct revenue loss) and indirect changes (for example, displacement of labor and capital, productivity spillovers, indirect revenue effects). When comparing social benefits against social costs, the revenue foregone due to the incentive should be weighted by the marginal cost of public funds (that is, the social cost of raising an additional dollar of tax revenue), which generally exceeds unity because of the additional distortions to resource allocation induced by a higher level of taxation.¹³

Identifying the potential for both direct and indirect effects can be done by mapping out the causal path through which the TE influences economic and social outcomes, thereby fleshing out a “theory of change.” Sometimes this exercise is referred to as “logic modeling,” where causal relationships are hypothesized to explain how the incentives created by a TE influence the behaviors of relevant actors and how these changes, in turn, affect relevant outcomes, both directly and indirectly, in the short and longer terms. By going through the exercise of conceptualizing the anticipated linkages between the incentive, behaviors, and outcomes, a clearer sense of how to evaluate whether the program is working as intended and how to measure its impact can be obtained. Thinking through the logic of this process can also help uncover potential pathways for unwanted outcomes, which should be probed as part of any evaluation.

A well-developed set of questions can ensure the evaluation process addresses all components needed to understand a TE’s relevance, effectiveness, and direct and indirect costs (see Box 2).¹⁴ Evaluations should ideally follow a consistent process of answering such a predetermined set of targeted questions, irrespective of the depth of the envisaged analysis.

¹²In practice, the use of TEs is often preferred for administrative and procedural reasons and in contexts where the objective is to maximize access to a broad and clearly defined objective (for example, the use of mortgage deductions). See Toder (2000).

¹³Especially in developing economies, administrative constraints to domestic revenue mobilization can increase the distortionary costs of raising additional public funds through taxation.

¹⁴For a more detailed discussion of potential evaluation questions, see U.S. Government Accountability Office (2013).

Tools for Measuring Impact

A range of tools and methods can be employed to assess the impact of TEs. At a minimum, a basic set of indicators that summarize behavioral incentives or provide a rough sense of direct costs and benefits should be constructed. At the other extreme for quantifying impact is the implementation of complex structural models designed to capture relevant direct and indirect effects of a TE. Between these two extremes are a variety of reduced-form estimation approaches.

Qualitative indicators of program performance are ideally established at the time a TE is introduced and are regularly updated over time. Where possible, such indicators should cover all the elements of the causal chain as articulated in the theory of change. To the extent possible, indicators should be selected that can be measured with reasonable frequency at a reasonable cost. Even though it will often not be feasible or practical to quantify all outcomes that have been identified, a simple review with reference to qualitative indicators can make a meaningful contribution to the policy discussion.¹⁵ Depending on the nature of the TE program and the study scope, these indicators may cover some combination of direct and indirect outcomes (both wanted and unwanted) over the short run and long run.¹⁶

The selection of outcome indicators can be challenging. Measurability is important, but TEs often target activities that are inherently hard to measure, such as innovation and technology spillovers where reliable indicators may be hard to find.¹⁷ Simple indicators that are informative regarding the effectiveness and efficiency of TEs include the direct revenue forgone, the number of participants or beneficiaries, the impact effect of the TE on a company’s tax liability, or its overall impact on the posttax income distribution (for instance, as measured by the Gini coefficient). Theo-

¹⁵In Benin, for instance, a review of available descriptive information on the socioeconomic impact of VAT exemptions for rice, water, and electricity, published with the tax expenditure report (Ministry of Finance, Benin 2021), informed a decision to scale them back in 2022.

¹⁶When more in-depth analyses are conducted, a starting point will often be a thorough analysis of the related literature to identify potential direct and indirect effects and constructive methods for their assessment. Empirical studies on the relationship between effective tax burdens and foreign direct investment (De Mooij and Ederveen 2008) are a useful starting point for the assessment of investment incentives, for instance.

¹⁷For instance, although indicators such as the number of registered patents of beneficiaries or the number of PhDs on payroll may be informative, they must be interpreted with great caution.

Box 2. Sample Evaluation Questions

Effectiveness

- What are the intended benefits of the program, and who are the intended beneficiaries?
- Do most eligible taxpayers claim the tax expenditure? If not, what prevents them from doing so?
- What are potential indirect benefits?
- Would the desired behavior also occur in the absence of the expenditure?
- What is the potential for displacement effects?

Costs

- How large and how reliable are the cost estimates for the program?
- What is the potential for market distortions introduced by the tax expenditure?
- How is the qualifying threshold for accessing the tax expenditure being monitored?
- What are the “pain points” about administering the program?
- Do taxpayers who are ineligible submit claims?
- How simple is it for eligible taxpayers to obtain the tax benefits?

- What are the implications of the tax expenditure for horizontal and vertical equity?
- Does the program have any unwanted side effects?

Potential for Improvement

- Would any program changes reduce the compliance burden associated with the tax expenditure?
- Would any program changes make the program easier to administer?
- Is eligibility defined in a way that maximizes the tax expenditure’s effectiveness?
- Could the benefits be delivered more effectively and efficiently through a direct expenditure program or through a different tax mechanism (for example, a refundable credit rather than a deduction or nonrefundable credit)?
- Does the tax expenditure overlap with other tax expenditures or direct expenditure programs that are targeted at similar objectives? If so, how do they interact, and should they be evaluated together?

retical indicators, such as forward-looking average and marginal effective tax rates, or summary statistics based on simulation models can be constructed to inform both ex ante and ex post evaluations.

Table 2 summarizes the most common areas of analysis, data sources, and models for the value added tax (VAT), personal income tax, and corporate income tax. For instance, VAT expenditures often aim at reducing the effective tax burden on poor individuals. Household income and expenditure surveys thus provide important information on the effectiveness of VAT expenditures, which can be used in microsimulation models (MSMs) to compute changes in disposable income across the income distribution.

However, because TEs vary greatly in terms of their design, operation, and intended benefits, no “one-size-fits-all” approach can measure their impact. The choice of which tools to use will depend, in part, on the scope and depth of the evaluation. Some of the methods provide static analysis of the impact of the TE (for example, some MSMs cover partial equilibrium effects, whereas some can be used to analyze general

equilibrium outcomes, such as computable general equilibrium [CGE] models or linked CGE-MSM models). These all have advantages and disadvantages. Table 3 provides a summary of methodological tools for conducting an impact analysis and examples of their application.

Although it may be straightforward to measure some of the outcomes that have occurred after the introduction of a TE, it is generally much more difficult to reliably estimate a counterfactual, that is what these outcomes would have been if the TE had not been implemented. Evaluations, therefore, can be a resource-intensive exercise, and quantification of the economic impact of TEs can be complex and reliant on various assumptions. Impact evaluation methodologies can often be applied to capture direct benefits of a TE, comparing, for instance, the additional effect on investment or jobs created (that is, the additional investment or employment that would not have happened had the TE not been in place) with the revenue

Table 2. Approaches for Different Tax Instruments

| | TEs Typically Aimed at | Typical Data Used in Analysis | Unit of Analysis | Typical Focus in Analysis | Models Typically Used |
|------------|---|---|------------------------------|---|---|
| VAT | 1. Reducing compliance and administrative costs | 1. S-U tables, I-O tables, import duty information (ASYCUDA) | 1. Sectors | 1. Interindustry links, impact of TEs on prices and distortions | 1. I-O or S-U models |
| | 2. Achieving distributional objectives | 2. Household expenditure surveys | 2. Households | 2. Pre- and post-TE distribution of tax across incomes | 2. MSMs using household survey data |
| PIT | 1. Redistribution | 1. Household income and expenditure surveys | 1. Households | 1. Pre- and post-TE distribution of tax across incomes | 1. MSMs using household survey data or linked survey-administrative data sets |
| | 2. Incentivizing (specific) activities | 2. Household- or individual-level administrative data | 2. Individuals or households | 2. Taxpayer behavioral outcomes, take-up, targeting of TEs | 2. Econometric methods applied to administrative data |
| CIT | Attracting (specific) investment | Sectoral GDP estimates, sector-specific investment and financing information, firm-level data | Specific firms | Impact of TEs on marginal and average effective tax rates, changes in investment and employment levels and patterns, and displacement effects | Effective tax rate measures, MSMs, CGE, and econometric models applied to administrative data |

Note: ASYCUDA = automated system for customs data; CGE = computable general equilibrium; CIT = corporate income tax; I-O = input-output; MSM = microsimulation model; PIT = personal income tax; S-U = supply-use; TE = tax expenditure; VAT = value added tax

forgone.¹⁸ In the Dominican Republic, for instance, direct and indirect costs of tax incentives aimed at promoting the tourism industry were found to exceed measured benefits (Chen 2018).

Measuring indirect effects is often particularly challenging.¹⁹ Structural models can be applied for the most substantial TEs, but often, these models will not include sufficient detail to meaningfully model the incentive's spillover effects on outcomes such as employment, wages, and economic growth. However, qualitative approaches to evaluation may already provide some important insights on indirect effects. Such approaches rely on tools such as surveys, focus groups, and in-depth case studies to develop a sense of whether a given program is operating as intended and whether it is producing any unwanted side effects. Canada, for instance, publishes one to three detailed evaluation studies of specific TEs as part of its regular and com-

prehensive TE report. Many of these evaluations are qualitative in nature.²⁰

Ex ante evaluations will draw on a different set of methods than ex post evaluations, and they may not be capable of making precise predictions regarding behavioral effects. However, the application of a standardized catalog of questions can yield valuable qualitative information on the relevance and potential effectiveness of a new TE, and static cost estimates should be prepared as part of an ex ante evaluation. The Irish evaluation guidelines for TEs, for instance, require ex ante assessment for costly TEs to provide information on (1) the objective of the TE; (2) the market failure that is being addressed; (3) why a TE is the best approach to deliver the benefit; (4) potential redundancies, displacement, and opportunity costs; and (5) administrative and compliance costs as well as abusive claims and other effects. Sometimes, experiments can be conducted to pilot measures²¹ before broader roll-out. However, given the limitations to applying different and hence potentially discriminatory policy measures, this is more

¹⁸The determination of “additionality” requires sophisticated identification strategies. Such analysis is critical to disentangle the behavioral change triggered by the TE to account for the true return to the TE as opposed to the windfall gain that accrues to those who would have conducted the same activities in its absence.

¹⁹In addition, indirect effects are often felt by a silent minority, whereas direct benefits tend to be obtained by more vocal interest groups.

²⁰Occasionally, an impact evaluation methodology is used to measure impact (for example, a user cost of capital approach employed to assess the impact of a research and development credit on research and development activity).

²¹China, for instance, is piloting a property tax reform in select regions (OECD 2021). For a review of tax experiments focused on compliance management, see Mascagni (2018).

Table 3. Commonly Used Tools for Evaluation

| Tool | Basic Description | Areas Commonly Assessed | Examples |
|--|---|--|--|
| Survey-based qualitative analysis | Provide a descriptive profile of beneficiaries, self-reported impacts, and experience. | Targeted TEs with narrow group of beneficiaries. | Department of Finance (2012) review experience with the Film Tax Credit in Ireland. |
| Effective tax rate measures ¹ | Summarize combined impact of statutory tax rates, tax incentives, and features of the tax system on the effective tax burden. | Assessment of relative impact of different TE investment incentives on tax liabilities. Average effective tax rates are commonly used to assess tax incentives' impact decisions to locate FDI activities. | Botman, Klemm, and Baqir (2010) compare investment incentives for seven East Asian economies. |
| Interrupted Time Series Analysis | Seek to identify impact of a TE by comparing the pre- and post-implementation outcomes of interest. | Used where incentives apply broadly and no suitable comparison group of taxpayers who did not qualify is available. | Canadian Department of Finance uses administrative data to assess impact of TE on R&D expenditures. |
| Quasi-experimental econometric methods: (DID) analysis, statistical matching methods, and regression discontinuity designs | Compare relevant outcomes for beneficiaries (or eligible taxpayers) to those of a comparison group of non-beneficiaries (or ineligible taxpayers). | Whenever suitable comparison groups can be identified based on eligibility criteria of the incentives. | Department of Finance (2019) uses trade data to estimate impact of TE on export performance of beneficiaries in Ireland. |
| Static simulation models: MSM and models based on I-O data and S-U tables | Compute the impact of tax incentives on the tax liabilities of a representative sample (or, in some cases, the entire population) of taxpayers. Other models can be based on household survey data, for example, to evaluate targeting of VAT exemptions and reduced rates. | When seeking to assess distribution of TE benefits across income groups (among individual taxpayers) or by size and sector (among corporate taxpayers). | The U.S Office of Tax Analysis (2016) uses administrative data to measure distribution of retirement savings. Hutton (2010) presents a microsimulation framework for evaluating VAT TEs. |
| Overlapping generations models | Study long-run life-cycle behavior (for example, retirement savings) and resource allocation across generations. | Impact of TEs affected by demographic trends, such as education, health, and retirement incentives. | Cifuentes (2005) on retirement savings incentives in Chile. |
| Structural modeling: CGE models and DSGE models | Used to account for spillover effects of TEs on employment, capital investment, productivity, and income and induced (multiplier) effects brought about through increased consumption. | To evaluate TEs intended to promote substantial indirect benefits. | Copenhagen Economics (2007) evaluate the impact of VAT rate reduction in the European Union. |

Note: CGE = computable general equilibrium; DID = difference-in-differences; DSGE = dynamic stochastic general equilibrium; FDI = foreign direct investment; I-O = input-output; MSM = microsimulation model; R&D = research and development; S-U = supply-use; TE = tax expenditure.

¹See IMF and others (2015) for a more detailed discussion of effective tax rate measures.

common for administrative reform. In the case of large TEs, it is sometimes feasible to use microsimulation, input-output (I-O), applied general equilibrium, or CGE models to develop ex ante estimates of likely behavioral outcomes, including spillover effects. This approach was used, for instance, to develop an ex ante assessment of the economic impact of a tax incentive package to induce Tesla to build a Gigafactory in Nevada (Applied Economics 2014).

Practical Implementation

Information Sources and Planning Horizons

Suitable data are key for the evaluation of TEs. Although administrative data collected from taxpayer returns are often the most comprehensive source of information on individuals and firms, those data may not be sufficient for an in-depth evaluation if they lack detail on the targeted outcomes of an expenditure. Accessing relevant information often remains the biggest challenge for TE evaluations. Sufficient lead time must be built in during the planning and design phase to secure access to selected data sources. In some cases, relevant data are not readily available, and reporting

requirements need to be expanded to furnish the requisite information

The costs and practical challenges associated with accessing relevant information also reinforce the importance of being selective in conducting in-depth analyses. Investments in in-depth evaluations should be driven by the economic or political importance of the TE, but their pursuit will also depend on whether the TE design allows for rigorous quantitative impact evaluation establishing causal effects.

Overall, country experience supports the adoption of a pragmatic approach, leveraging all available information sources, starting with administrative data, and collecting additional data where readily available information is insufficient for a specific evaluation effort. This can, for instance, be done through targeted surveys of beneficiaries. Depending on the incentive, other potentially useful data sources include household budget or consumption surveys, sectoral surveys, and national accounts data (I-O and S-U data). In cases where data for evaluations are to be sourced from other agencies, it is important to establish data protocols to ensure timely, regular, and accurate data provision.²²

Systematically analyzing the potential merits of newly proposed TEs before their introduction also helps fill information gaps that may limit the scope for ex post evaluations. For instance, a core requirement as part of the ex ante assessment should be the determination of information needs for future ex post evaluations of the TE. Where this information is deemed to be insufficient, introduction of additional reporting requirements for TE beneficiaries can be considered at the time of introduction. An effective ex ante process will help to ensure data availability for all TEs in the long run. A systematic approach to data collection can be especially important in the case of broad exemptions, for example, in sectoral exemptions where taxpayers are also relieved from filing and reporting requirements.

Institutionalization and Partnerships

TE evaluations are frequently part of more general public policy assessment mandates and require well-coordinated institutional arrangements between the Ministry of Finance and other public institutions that

²²Legal safeguards may be required to ensure that such exchanges can take place while preserving confidentiality, particularly where individual taxpayer data are concerned.

act as fiscal watchdogs and conduct periodic reviews of public expenditures, such as the Auditor General.

Evaluation strategies to determine the impact and effectiveness of direct expenditures and TEs aimed at the same policy outcomes will be similar, if not identical. As a result, there is often ample scope for synergies in building evaluation capacity and collecting required information across a range of public institutions. Furthermore, understanding outcome achievement in different sectors will frequently require close involvement of line ministries, departments, and agencies.

However, a strong case for centralizing oversight under the auspices of the Ministry of Finance, or, at a minimum, securing close involvement of Ministry of Finance staff, can be made. Although line ministry staff often have a better sector-specific understanding of the expected benefits of TEs within their purview, they also tend to have more of an incentive to overstate these benefits. Oversight or close involvement by Ministry of Finance staff can thus help ensure a more balanced and objective evaluation. Moreover, evaluation efforts create a feedback loop for future tax designs, such as base broadening with accompanying downward tax rate adjustment if revenue neutrality is pursued, suggesting that a Tax Policy Unit, ideally within the Ministry of Finance (Grote 2017), is best placed to steer evaluation efforts. Alternatively, methodological consistency can be ensured where independent agencies are tasked with leading the evaluation process, including fiscal councils.

Irrespective of the institutional allocation of evaluation mandates, external partnerships in implementing evaluation studies are common. Examples include Germany, The Netherlands, and the UK.²³ Beyond their contribution of specialized knowledge and expertise, an advantage of partnering with external researchers is their independence and resulting ability to formulate strong and sometimes inconvenient policy messages. Outsourcing, however, comes with additional challenges to maintaining consistency and a cost of limiting both the institutional memory around evaluation efforts and the scope for leveraging synergies with other analytical efforts and across public institutions. And in some cases, restrictions on data access can limit the scope for relying on external providers.

²³Outsourcing costs for external evaluations have been reported for specific TEs in the UK (EUR 60,000–290,000) and for a wider evaluation cycle in Germany across a broad range of TEs (~EUR 300,000).

Table 4. Steps for Conducting an Ex Post Evaluation

| Step | Purpose |
|---|--|
| 1. Review legislative history, including ex ante evaluation | <ul style="list-style-type: none"> • Understand how the incentive is meant to work, the intended beneficiaries, and the targeted outcomes |
| 2. Meet with stakeholders | <ul style="list-style-type: none"> • Obtain perspectives relating to a guiding set of evaluation questions like those in Box 2 that cover such issues as these: <ul style="list-style-type: none"> ◦ How the incentive operates in practice, including desirable and unwanted outcomes ◦ Related incentives for possible inclusion in a joint evaluation ◦ Administrative and compliance costs ◦ Potential ways to improve incentive design |
| 3. Review literature | <ul style="list-style-type: none"> • Inform the theory of change for the incentive • Gather evidence on desirable and undesirable outcomes of similar incentives in other jurisdictions • Identify potential qualitative and quantitative impact evaluation strategies |
| 4. Develop evaluation plan | <ul style="list-style-type: none"> • Select evaluation methods (qualitative and/or quantitative) appropriate for desired evaluation depth • Identify data sources required for implementation • Specify logistics, such as personnel, contracts and permissions, milestones, communication strategy. |
| 5. Make data arrangements | <ul style="list-style-type: none"> • Ensure data will be available in time to perform the evaluation |
| 6. Perform evaluation | <ul style="list-style-type: none"> • Compare predicted social benefits and costs from the ex ante assessment with the ex post evaluation results • Assess whether the social benefits exceed the social costs • Explore potential ways to improve TE design |
| 7. Draft report | <ul style="list-style-type: none"> • Document evaluation methodology and findings with respect to the relevance, effectiveness, efficiency, and equity of the incentive • Recommend whether TE should be continued and, if so, whether any design changes should be considered • Supply a rationale for the recommendations along with an assessment of the strength of the evidence on which they rest • Identify potential improvements in data sources and methods for future evaluations |
| 8. Communicate findings and publish report | <ul style="list-style-type: none"> • Inform stakeholders to enhance transparency, support decision-making, and inform public discourse |

Returns to Transparency

It is good and common practice to publish TE cost reports, albeit the level of detail provided varies across jurisdictions. In some cases, beneficiaries of specific TEs are also published to increase transparency.²⁴ Moreover, an increasing number of administrations are making (some) anonymized administrative data publicly available. This practice provides an avenue for independent external research on a variety of aspects of TEs, which the authorities can freely draw upon when conducting their own evaluations. Digitalization and e-filing will likely reduce the cost of data collection and dissemination in the future.

Similarly, evaluation reports and the background work commissioned from external researchers should be systematically made publicly available to receive feedback and to promote productive discourse. A commitment to always publish commissioned independent reports on specific incentives unaltered contributes to the credibility of the exercise. In Germany,

²⁴In Portugal, for instance, all beneficiaries of corporate tax benefits exceeding EUR 1,000 are disclosed annually.

for instance, external experts' evaluation reports are published separately from the summary evaluation reports. Such a policy also facilitates the recruiting of scholars who desire to draw upon their commissioned research to make recognized academic contributions. Where it is deemed necessary because of disagreements on the studies, companion statements can be published alongside the background evaluation reports.

Evaluation Process

Table 4 summarizes the process for carrying out an ex post TE evaluation along with a brief description of the purpose of each step. Although this process applies broadly to all evaluations, the time and intensity associated with a given step will depend on the planned depth and breadth of the assessment.

Conclusion

Evaluations assessing the justification of tax incentives are an important tool for better (tax) policymaking.

ing. More than 100 countries that currently publish periodic TE cost reports have made important steps in this direction. These cost estimates are a critical starting point but should be complemented with an assessment of benefits to better inform decision makers. Although such efforts can be challenging and resource intensive,²⁵ even comparatively simple qualitative and partial quantitative analyses are preferable to ceding the discussion of benefits to benefiting stakeholders. Although important lessons can be learned from country practices in implementing increasingly ambitious evaluation processes, there is no single best-practice approach to replicate. With limited resources, countries should initially focus on the most important TEs but should seek to gradually expand their evaluation mandate and to carefully consider the best division of responsibilities between the Ministry of Finance and other public and private institutions.

²⁵The IMF Fiscal Affairs Department is offering technical support as part of its Tax Expenditure Assessment Program. For further information, see <https://www.imf.org/en/Topics/fiscal-policies/Revenue-Portal/Tax-Policy>.

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