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OPTIONS FOR LOW INCOME COUNTRIES' EFFECTIVE AND EFFICIENT USE OF TAX INCENTIVES FOR INVESTMENT—TOOLS FOR THE ASSESSMENT OF TAX INCENTIVES

This background document describes five different tools that can be used for the assessment of tax incentives by governments in LICs.

The first tool (an application of cost-benefit analysis) provides an overarching framework for assessment. Evaluations of the various costs and benefits of tax incentives are vital for informed decision making, but are rarely undertaken, partly because it can be a difficult exercise that is demanding in terms of data needs. The simple template presented here aims to provide a practicable framework to guide evaluations, steer data gathering, and structure public discussions on the effectiveness and efficiency of tax incentives.

The next three tools (tax expenditure assessment, corporate micro simulation models, and effective tax rate models) can be used as part of a comprehensive cost-benefit analysis, to shed light on particular aspects. For instance, tax expenditure analysis is essential to understanding the costs of tax incentives in terms of revenue foregone. Corporate micro simulation models are the most accurate and generally preferred instrument to perform such a tax expenditure review. Yet, their value goes beyond this and they are commonly used for wider tax policy analysis, including forecasting and distributional analysis. Effective tax rate models shed light on the implications of tax parameters—including targeted tax incentives—on investment returns and help understand the implications of reform for expected investment outcomes.

Finally, the document presents two tools for assessing the transparency and governance of tax incentives in LICs. These discuss principles in transparency and governance of tax incentives, and allow for benchmarking existing LIC practices against better alternatives.

Note that the tools discussed in this background document might well be complemented by other, more sophisticated analyses. For instance, general equilibrium models, systematic analysis of micro or macro data, and ex-post evaluations may be critical for a full understanding of all costs and benefits of tax incentives. Such analyses might indeed be considered, but are typically beyond reach in the short run in most LICs due to capacity constraints and data limitations. Priority might therefore be given to developing the tools discussed in this document.

Note also that this document offers only a brief introduction to the various tools, without providing a complete handbook on each of them. Further references are provided for additional reading.

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COST BENEFIT ANALYSIS

This section develops a template for cost benefit analysis of tax incentives, aimed to structure discussion about their effectiveness and efficiency and to offer a guide to the collection of necessary data. The framework emphasizes both direct and indirect effects of tax incentives – the latter are often overlooked in policy debates. The model captures several relevant components of a comprehensive welfare assessment, but, it is hoped, in a fairly simple way. In particular, the following simplifications are made (which could be expanded upon in a more complex model).

- *Static approach*—the model here uses a static (long-term) approach that cannot analyze timing issues. As costs and benefits of tax incentives often materialize in the future, these timing aspects could be modeled in a dynamic setting, with appropriate discounting.
- *Limited fiscal framework*—the model includes only taxes on FDI, often the main focus of tax incentive policies. Yet, there might be complex (and country-specific) interactions with other taxes, with indirect revenue effects, as well as indirect effects on public expenditures.
- *Reduced form*—equations here capture some of the most relevant feedback effects as identified in the literature. A more elaborate structural framework of microeconomic behavior and market structure might be adopted to derive a fully-fledged general equilibrium model that links micro behaviors with macroeconomic outcomes.

A. A Simple Model

Assume that welfare (W) of citizens in a developing country depends on private consumption (C) and public consumption—simply represented by tax revenues (R) that finance public goods. For simplicity, we assume utility is additive:

$$W = C + V(R) \quad (1)$$

where $V(\cdot)$ captures the valuation of public goods relative to private goods, with $V' > 0$. Private consumption is constrained by income, which comes from two sources: domestic production (Y^D) and earnings of domestic residents working in a multinational corporation (MNC), where w^M is the wage rate and L^M employment in the MNC:

$$C = Y^D + w^M L^M \quad (2)$$

Domestic production is denoted by the function

$$Y^D = f(L^D, K^D, K^M), \quad (3)$$

which depends on domestic labor (L^D) and domestic capital (K^D). Moreover, FDI of the MNC enters the domestic production function in (3), reflected by K^M . The latter is not a direct input into

domestic production, but may affect it indirectly in two ways. First, there may be a technology or knowledge spillover from FDI upon the domestic sector. In case of such positive spillovers, we have $f_{K^M} > 0$ so that domestic output expands due to FDI. Second, FDI may displace domestic capital. In that case, we have $\partial K^D / \partial K^M < 0$ and FDI reduces domestic production (and domestic savers can then generate returns elsewhere, at a rate r).

Labor supply (L^S) is assumed fixed. In equilibrium, it equals the sum of labor demand by domestic firms, labor demand by MNCs, and unemployment:

$$L^S = L^M + L^D + u \quad (4)$$

An increase in L^M due to FDI inflows will reduce either unemployment or employment in the domestic sector (and thus domestic production). If the wage in the MNC sector is higher than in the domestic sector, all workers will have an incentive to move to the MNC sector. Jobs in that sector (L^M), however, are rationed. Even with full displacement of domestic labor, an increase in L^M can raise total income due to higher wages earned by employees in the MNC.

Multinationals are assumed to be wholly-owned by residents abroad (in advanced countries). The after-tax profits earned by the MNC in the developing country (Π^M) will thus flow back to the foreign owner, and equal:

$$\Pi^M = (1 - T)[F(K^M, L^M) - wL^M - (1 + t)rK^M] \quad (5)$$

where T and t denote taxes by the developing country on, respectively, economic profit and the normal capital return (r)—capturing two components of an ordinary corporate income tax. $F(\cdot)$ is a production function of the MNC, combining FDI with domestic labor, and is assumed to have standard properties. The components of multinational income that accrue to the host country are wages earned by host-country employees and tax revenue.

If FDI is a continuous variable and MNCs are unconstrained, the optimal amount of FDI is given by

$$F_{K^M} = (1 + t)r, \quad (6)$$

and is guided by the cost of capital, which depends on t , but is independent of T —see below for further discussion.

Welfare from public goods depends on total government revenue

$$R = T[F(K^M, L^M) - wL^M - (1 + t)rK^M] + trK^M, \quad (7)$$

which comes from taxes on economic profit and the normal return of the MNC.

B. Taxation and Foreign Investment

Business tax incentives aim to attract FDI. In the framework above, this effect is captured by:

$$\Delta K^M = \frac{\partial K^M}{\partial T} \Delta T + \frac{\partial K^M}{\partial t} \Delta t \quad (8)$$

where $\Delta T < 0$ represent *profit-related tax incentives* (such as reduced corporate tax rates, tax exemptions, or tax holidays) and $\Delta t < 0$ represent *cost-related tax incentives* (such as investment tax credits or accelerated depreciation, which are targeted to reductions in the cost of capital). In a neoclassical setting, equation (5) suggests that only Δt will affect FDI and $\partial K^M / \partial T = 0$. However, in a more general setting where e.g. FDI is lumpy and its choice reflects a discrete location decision, the tax on profit ΔT can matter as well ($\partial K^M / \partial T < 0$). We will consider both effects.

Empirical insight into the two components of equation (8) may come from different sources:

- Studies looking directly at the impact of tax incentives on FDI. Some studies perform regressions to measure this effect; others use survey evidence to infer this.
- Using a two-step approach, first using studies that look at the impact of tax incentives on effective tax rates (see later Section) and second using studies that explore the impact of effective tax rates on FDI. Here, one needs to distinguish between marginal effective tax rates (METRs), which measure effects on incremental investment (cf. the second term in (8)) and average effective tax rates (AETRs), which measure effects on discrete investment (cf. the first term in (8)).

Estimated structural models can be used for the second step: they quantify the systematic impacts of taxes on investment, based on investment theories that describe how tax incentives influence firm behavior. Structural models can be estimated using (micro) data to test their validity and to infer the average magnitude of tax effects on investment. Many empirical studies, however, take a reduced-form approach to infer this effect, using ETRs as explanatory variables. In countries where data restrictions make it impossible to derive appropriate estimates, officials may rely on the best-available knowledge from other—preferably similar—countries.

C. Welfare Assessment

Equation (1) suggests that social welfare is the sum of welfare derived from private consumption and public consumption, respectively, both of which can be affected by tax incentives. We discuss the changes in private and public welfare in turn, thereby distinguishing direct and indirect effects.

Private component of welfare

Combining (2) and (3), we derive the change in private consumption as a result of the inflow of FDI:

$$\Delta C = \left[(w^M + f_{L^D} \frac{dL^D}{dL^M}) \frac{dL^M}{dK^M} + (f_{K^D} - r) \frac{dK^D}{dK^M} + f_{K^M} \right] \Delta K^M \quad (9)$$

where r is the opportunity cost of domestic saving. The private welfare gain depends on four factors. The first term measures the direct effect; the other three terms measure indirect effects.

Direct effects

- *Jobs and wages* (first term). Some studies take the number of jobs created by an FDI project to measure the benefits of a tax incentive. Equation (9) suggests that the wage paid to these workers is important as well.

Indirect effects

- *Displacement of labor* (second term). The jobs created due to the FDI inflow may be occupied by people who were previously unemployed. However, to the extent that these workers previously worked in the domestic sector, domestic production declines by $f_{L^D}(dL^D/dL^M)$. Equation (9) shows that the net benefits to the developing country is still positive if the wage paid by the MNC is higher than the production loss in the domestic sector.
- *Displacement of capital* (third term). FDI may (partly) displace domestic capital, e.g. when the FDI involves a takeover or when there is round tripping. Empirical estimates and general equilibrium analysis can shed light on such displacement effects. If there is full displacement, the net effect on the total capital stock will be zero.
- *Productivity spillovers* (fourth term). FDI can bring new technologies and skills to a developing country, with positive effects on the productivity of workers and capital in the domestic sector. Empirical studies (such as those summarized in the main document) can reveal the importance of such spillovers.

Public component of welfare

Using (1) and (7), the change in public welfare can be written as

$$\Delta V = V'(R) \left[\frac{\Pi^M}{1-T} \Delta T + rK^M \Delta t + \frac{T}{1-T} \Delta \Pi^M + tr \Delta K^M \right] \quad (10)$$

where the change in profits ($\Delta \Pi^M$) can be inferred from (5). The change in public welfare depends on direct and indirect effects, and should be corrected for the social value of public funds:

- *Direct revenue loss* (first two terms between brackets). General tax relief is costly for governments as it reduces revenue from the existing base. Targeted tax incentives generally aim to mitigate such losses by only granting relief to new FDI. Some of these new FDI projects, however, might have been undertaken even without the incentive, which then leads to revenue foregone.
- *Indirect revenue effects* (last two terms between brackets). To the extent that tax incentives attract new FDI, they can expand tax bases. As long as the tax rate remains positive, this base broadening will recover some of the direct revenue loss from the incentive. However, tax incentives may also create new leakages (for example through domestic profit shifting to the incentivized firms), so that tax bases are eroded—so the sign of $\Delta\Pi^M$ is ambiguous.
- *Scarcity of public funds* (term V'). Public funds may be scarcer than private income, as taxes necessary to generate public revenue are distortionary. Alternatively—and perhaps especially relevant for developing countries—there can be administrative constraints to domestic revenue mobilization that make public revenue particularly scarce. With a marginal cost of public funds larger than one ($V' > 1$), a dollar of public revenue is more valuable than a dollar of private income, which should be accounted for in assessing the welfare implications of changes in government revenue.

Evaluation studies on tax incentives sometimes compare the jobs created by (incremental) investment with the revenue foregone from (non-incremental) investment—the so-called dollar-cost-per-job calculations. This essentially takes account of only the direct effects listed above. Indirect effects, however, can be critical, yet are often more difficult to quantify. Indirect effects can be inferred from general equilibrium models, which capture linkages and feedback effects through other markets. This could account for displacement effects, spillover benefits and distortions in resource allocation due to discriminatory treatment. Quantifying these aspects generally requires calibration of critical parameters, based on available econometric analysis—which is not always readily available in LICs. General equilibrium models would also enable one to infer the macroeconomic and overall welfare implications of tax incentives. If one is unable to quantify these indirect effects, it might still be helpful to analyze the direct effects as a starting point.

TAX EXPENDITURE ASSESSMENT

This section discusses how to undertake a tax expenditure assessment, discussed and advocated in the main body of the paper. Tax expenditures (TEs) usually refer to provisions in the tax code (or in Ministerial decrees with the force of law) in deviation of some benchmark tax system and to the benefit of the taxpayer. A TE review quantifies the revenue forgone for each provision thus identified. The core objective of a TE review is to improve transparency and support policy evaluation, thus contributing to better informed decision making and better governance. Indeed, TEs and their revenue costs are inherently less visible than direct public expenditures, with the consequence that they often undergo less scrutiny and evaluation. This makes them prone to lobbying and pressures from special interest groups, leading to inefficient policy design and

corruption risks. By supporting transparency and evaluation, TE reporting enables greater control over the use of public funds. TE assessments should be carried out by the Ministry of Finance and reported as part of the budget process, for example being appended to budget documents or released as a separate document.

TEs are not necessarily bad policy. Indeed, offering provisions through the tax code may sometimes have distinct advantages over direct spending measures, for instance because the tax administration can exploit economies of scale by utilizing information it already collects for tax purposes. The purpose of a TE assessment is thus not necessarily to reduce TEs, but rather to enable a proper assessment and allow for a comparison with alternative (spending) measures to achieve certain policy objectives.

A. Measuring Tax Expenditures

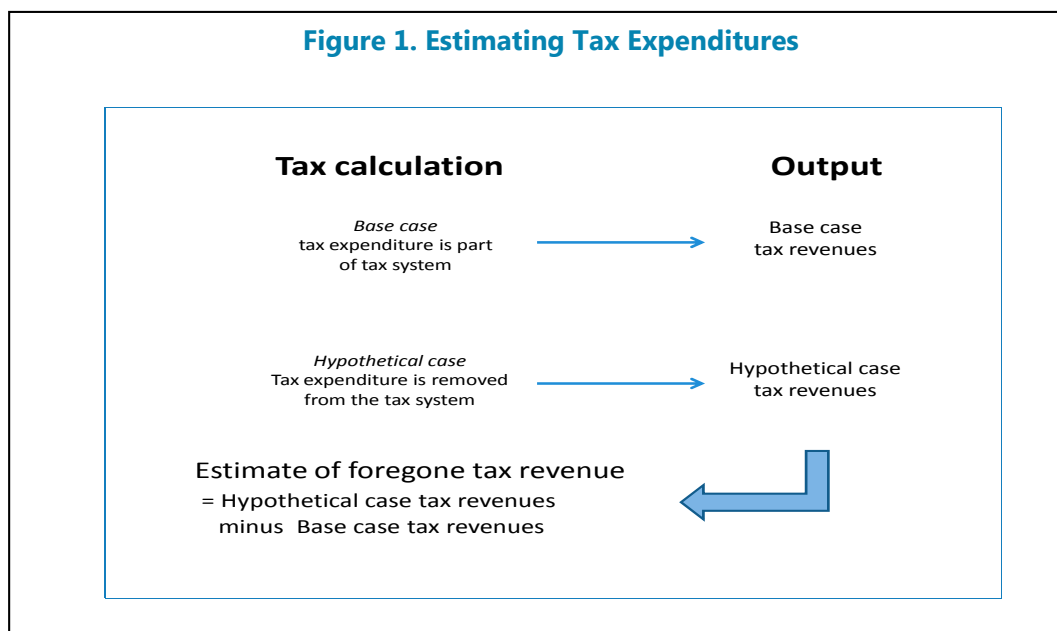
A TE report generally includes the following elements:

- **A list of tax expenditures**, with a clear description (e.g., full/partial profit exemption, tax allowance, tax credit), duration, and identification of the law/decrees that provides for its legal basis. Each TE should come along with a stated policy objective. In some countries, there are hundreds of TEs, often scattered throughout the chapters/articles of an Act and across different Acts.
- For each tax expenditure in the list, **an estimate of total tax revenue foregone**. The report should provide an indication of the model and data used in the quantification (e.g. micro-simulation model, data from tax returns).
- **Supplementary material**, such as an analysis of the distributional impact of the tax relief across taxpayers (e.g. corporations, by size, or sector). Moreover, tax expenditures can be presented alongside direct expenditures classified by type/ category of expenditure to indicate total expenditures (direct plus tax expenditure).

When quantifying the revenue forgone from tax expenditures (as in step 2 above), analysts need to make two calculations. The first is a simulation of tax revenues under the scenario that the given TE is in place, along the lines of the actual tax code (or Decrees) of which it is part. This revenue is called the 'base case'. The second is a simulation of tax revenues under a scenario where the TE is removed from the code, along the lines of a specified 'benchmark' tax system. This revenue is called the 'hypothetical case'. The difference measures the revenue foregone from the tax expenditure (see Figure 1).

The specification of the relevant benchmark tax system to which tax incentives are to be compared is often a contentious issue. For some taxes (such as personal income taxes), there is no internationally agreed benchmark. Indeed, diverse benchmark systems are observed in TE analyses, with countries typically adhering closely to their existing tax system. As these often differ from each other, international comparisons of TEs are usually problematic (see for example OECD, 1996). For

other taxes (such as VAT and CIT), the benchmark system is usually defined more uniformly across countries. Still, several choices need to be made with respect to details.



When a benchmark tax system is specified, tax expenditures can be estimated by using alternative methods:¹

- *The revenue foregone method.* This is a calculation of the static revenue loss incurred by government due to a TE. It does not take into consideration changes in behavior of taxpayers due to the removal of the TE. For example, a tax credit that reduces tax liability by \$100, given current behavior, would involve a TE of \$100. This is the easiest and most popular method of calculating TEs as it uses simple accounting principles, usually based on tax returns (or documents provided to customs). This method is likely to be the most attractive for LICs to pursue.
- *The revenue gain method.* This method calculates the revenue gain from removing a TE, taking into account behavioral changes by taxpayers. For example, if an investment tax credit is removed, this might result in lower investment and, therefore, a narrowing of the CIT base. The computation of the TE would take this behavioral effect into account. In the example above, if removing the tax credit would cause a loss in revenue of \$10 due to a reduction in investment, the TE associated with the tax credit would be \$90 instead of \$100. This method better accounts for the purpose of certain incentives, but can be more contentious given the inevitable

¹ A third method, not discussed here, is the so-called outlay equivalent method, under which a TE is calculated as the direct spending equivalent that would result in the same benefit for the taxpayer as the TE. It may differ from the revenue foregone method if direct spending is itself taxable. For example, the equivalent to a \$100 tax deduction if the tax rate were 50 percent would be a taxable transfer of \$200. The outlay equivalent method is less popular than the revenue foregone method because the outcome is often viewed as less intuitive.

uncertainty on the extent of behavioral responses. It is also much more complex and therefore unlikely to be attractive for LICs.

In calculating TEs, a model is needed to simulate tax revenue under the two different policy scenarios—that is, with and without the tax incentive. Different models based on different data can be used for this purpose. For personal income tax and corporate income tax, good practice in this regard is to use micro simulation models (MSMs) for, respectively, households and firms. They are usually based on administrative tax return data, sometimes complemented with survey data on certain characteristics. The next section elaborates in more detail on corporate MSMs.

A possible estimation error can arise when different tax expenditures are calculated separately and then added up. For example, when a tax rate for certain businesses is reduced while, at the same time, tax depreciation for certain assets is made more generous, the total revenue foregone measured by adding up two tax expenditure estimates (under *ceteris paribus* assumptions) erroneously ignores the interaction between those two measures. Such cross-effects can lead to an underestimation of the revenue effect (Box 1).

Box 1. Estimation Error in Adding-up Tax Expenditures

Consider a CIT system with a reduced tax rate and reduced tax base for targeted (qualifying) investment. Let (T) denote the basic CIT rate, and (t) denote the reduced CIT rate (with $t < T$). Let (B) denote the CIT base measured without tax incentives, and (b) denote the base with incentives (e.g. accelerated depreciation).

In principle, the ‘true’ total tax expenditure from the two incentives would be measured as the difference between CIT revenues where the basic CIT rate and CIT base without incentives apply, and CIT revenues where the reduced CIT rate and base apply:

$$TE^* = T \cdot B - t \cdot b \quad (1a)$$

This measure may be expressed alternatively as follows:

$$TE^* = (B - b)T + (T - t)b = (B - b)t + (T - t)B \quad (1b)$$

If tax expenditures are calculated separately for each incentive and then added up, the total tax expenditure estimate is measured as:

$$\hat{TE} = (B - b)t + (T - t)b \quad (2)$$

Comparing (1b) and (2), we see that the sum of two tax expenditures understates the true CIT revenue loss:

$$\hat{TE} = TE^* - (T - t)(B - b) \quad (3)$$

Also important to note is that TE estimates obtained from the revenue-foregone method using aggregate data (e.g. National Accounts or input-output tables) may not reflect the expected true revenue effect of the removal of tax concessions. Indeed, the revenue calculations not only ignore behavioral effects, but might also ignore tax non-compliance. In reality, however, there can be a significant tax compliance gap: a gap, that is, between the expected revenue from a tax under full compliance and the true revenue. In principle, one could infer the expected true revenue effect from the removal of tax concessions by applying an estimated compliance gap to both scenarios (on the assumption that the incentive itself does not affect the extent of non-compliance). When relying on taxpayer-level data from tax returns or macroeconomic data, effects of less than full compliance are reflected in the base case and hypothetical case estimates.

B. Country Examples

A growing number of countries now prepare TE reports on a regular basis, including several developing countries. In some cases, TE reporting is supported by regional coordination initiatives. For example, the Inter American Center of Tax Administrations (CIAT) has been active for a number of years in organizing workshops and events to encourage Latin American countries to report their TEs. The countries thus share modeling and data gathering experiences and use similar methods in performing their TE estimates (CIAT, 2011). Table 1 shows TEs in selected countries in this region, both by type of tax and by type of tax expenditure.

Table 1. Tax Expenditures in Select Countries in Latin America, 2012

	Tax expenditure, by tax					Tax expenditure, by type		
				Total CIT and PIT		Exemptions, reduced rates regimes	Deductions and credits	Deferrals, reimbursements , other
	VAT	CIT	PIT	PIT	Others			
	(percentage of GDP)					(percentage of total revenue foregone)		
Argentina	1.19	0.08	0.52	0.61	0.8	64.8	0.2	35.0
Brazil 1/	1.12	0.86	0.73	1.59	0.6	81.5	18.5	0.0
Chile (2008)	0.88	0.86	2.73	3.58	-	13.7	18.3	68.0
Colombia (2010)	1.68	1.24	0.32	1.56	-	23.2	25.0	51.8
Costa Rica	3.54	0.8	1.02	1.82	0.26	98.4	1.3	0.3
Ecuador	2.09	2.31	0.46	2.77	-	77.8	14.4	7.8
El Salvador (2010)	1.97	na	na	1.42	-	87.9	12.1	0.0
Guatemala (2008)	1.96	na	na	5.90	0.54	40.7	59.3	0.0
Honduras	3.63	1.08	0.27	1.35	1.48	80.7	-	19.3
Mexico 2/	1.51	0.92	0.83	1.75	0.56	41.0	23.7	35.2
Panama	2.27	-	-	-	-	100.0	-	-
Paraguay (2010)	1.48	0.23	0.2	0.43		99.2	0.8	0.0
Peru	1.3	0.21	0.15	0.37	0.24	79.8	3.4	16.8
Dominican Republi	3.23	0.42	0.1	0.52	1.37	70.9	2.3	26.8
Uruguay	2.95	1.66	0.63	2.29	1.16	83.8	15.6	0.6

Source: *Tax Expenditures in Latin America 2008-2012*, CIAT Working Paper No. 2-2014.

na=not reported; - (dash) = not measured

Footnotes: 1/ = Federal tax expenditures only. 2/ = Excludes tax expenditure for IEPS oil.

An example of a country that has recently released its first TE report is the Philippines. The Ministry of Finance provided its analysis in 2011 to help guide policy regarding tax incentives. In the CIT, the Philippines employ income tax holidays, special (reduced) tax rates on business income, additional deductions for labor costs, tax credits for certain raw materials used in exported products, and VAT and duty exemptions for imported capital equipment. Data availability currently limits TE reporting to tax revenues foregone from income tax holidays and reduced tax rates. Table 2 shows detailed TE reporting by type of business activity. For 2011, the total TEs from the two categories add up to an estimated foregone tax revenue of 4.5 per cent of 2011 government revenues (ignoring cross-effects).² This has induced the government in the Philippines to push for the enactment of a Tax Incentives Management and Transparency Act. Its aim is to provide resources to establish a TE measurement and analysis unit and a Fiscal Incentives Rationalization reform bill to coordinate the use of tax incentives.

² The Department of Finance explains (Tax Expenditure Account of the Philippines, Fiscal Year 2011) that its 2011 tax expenditure estimates cover 1,318 firms (submitting electronic returns), reflecting roughly 29 per cent of all registered investors.

Table 2. Tax Expenditure by Type of Activity, Philippines, 2011

Activity	Number Of Firms	Special Rate	Income Tax Holiday	Total Tax Expenditures
Manufacturing	125	4,691,319,535	8,809,582,762	13,500,902,297
Manufacture of Semi-Conductor Devices	39	2,112,493,372	10,774,248,015	12,886,741,386
Business Processing Outsourcing	23	3,105,925,504	3,785,154,373	6,891,079,877
Generation, Collection and Distribution Of Electricity	14	974,437,378	5,882,612,972	6,857,050,350
Metallic Mining	12	131,277,092	2,092,900,292	2,224,177,384
Non-Metallic Mining (Coal Mining)	1	-	2,020,790,902	2,020,790,902
Hotels	6	-	1,890,902,880	1,890,902,880
Collection, Purification, Distribution of Water	4	52,563,291	1,590,511,854	1,643,075,145
Database and Other Computer Related Activities	7	147,349,668	954,173,706	1,101,523,374
Air Transport	2	-	892,071,822	892,071,822
Buying, Selling, Renting, Leasing, Operation of Dwellings	16	44,960,495	746,257,626	791,218,121
Real Estate Buying, Developing, Subdividing, Selling	22	86,779,506	589,403,119	676,182,625
Building Components Installation Contractors	12	319,699,378	339,764,577	659,463,955
Telecommunications	8	49,535,755	481,200,071	530,735,826
Wholesale and Retail Trade	10	124,800,720	137,638,146	262,438,865
Other Business Activities	5	78,725,442	180,726,700	259,452,142
Radio and Television Activities	1	-	153,210,804	153,210,804
Design, Detailing, Fabrication and Pre-Assembly Works of Heavy Steel	1	9,225,591	136,076,888	145,302,479
Recreational and Sporting Activities	2	117,211,910	-	117,211,910
General Public Service Activities	1	115,270,249	-	115,270,249
Generation of Industrial Gases	1	32,125,369	25,325,698	57,451,067
Private Medical, Dental and Other Health Activities	1	-	19,234,414	19,234,414
Electrical and Mechanical Work At Site	1	-	14,802,518	14,802,518
Inland Water Transport	1	-	6,835,217	6,835,217
Electroplating or Painting of Electronic Parts, Building Decorations, Fashion Accessories, Jewelleries, Interior Decorations and Light Engineering Fixtures with Zinc, Gold, Nickel, Aluminum, Zinc	1	4,563,403	-	4,563,403
Non-Life Insurance	1	1,831,126	-	1,831,126
Restaurants, Cafes and Fastfood Center	1	1,162,326	-	1,162,326
Cargo Handling	1	-	-	-
Developer	1	-	-	-
Financial Holding Company Activities	2	-	-	-
Life Insurance	1	-	-	-
Ocean Fishing, Commercial	1	-	-	-
Other Real Estate Activities with Owned or Leased Property	1	-	-	-
Other Supporting Land Transport Activities	2	-	-	-
Sea and Coastal Water Transport	2	-	-	-
Total large corporations	329	12,201,257,110	41,523,425,354	53,724,682,463
Total non-large corporations		3,543,299,134	4,062,877,896	7,606,177,031

1. Figures report income tax expenditures.

Source: Tax Expenditure Account of the Philippines, Fiscal Year 2011, Department of Finance, Philippines

<http://www.dof.gov.ph/?p=9417>

C. Corporate Income Tax Incentives

The benchmark of the corporate income tax (CIT) may be defined in different ways. One approach is to specify a normative benchmark, reflecting a system that is generally perceived to be desirable. However, even specialists usually differ as to the optimal design of the CIT. Given the many contentious issues regarding a normative benchmark, in practice most countries take their existing system applying to ‘most companies’ as the benchmark CIT system. This means that profit under the benchmark is taxed at the standard CIT rate. The benchmark corporate tax base thus typically includes allowances for depreciation and interest, but no deduction for the cost of equity and no other special provisions for particular sectors or firms.

The (annual) corporate TE on providing a tax holiday may be calculated *ex post* as the aggregate amount of CIT revenue foregone by not taxing, at the basic CIT rate, the amount of corporate profit sheltered by the tax holiday. To obtain such information, qualifying firms need to file a corporate tax return and report exempt amounts of profits. TE estimates of CIT foregone each year over a holiday period may suffice to bring about transparency and information for evaluation. A more comprehensive analysis would also analyze the profile of hypothetical CIT payments over time, taking into account transitional rules governing ‘pools’ (balances) of tax depreciation and business losses, and ‘stability clauses’.

Accelerated depreciation might be another form of TE, but one that raises both conceptual and measurement issues.³ To circumvent them, standard practice in TE estimation is to take the generally applied existing depreciation rules used in the CIT system as the benchmark. Accelerated depreciation is then taken to be the application of rates (and possibly methods) that provide for faster write-offs for certain asset classes targeted at certain sectors or taxpayers. The corporate TE from providing accelerated depreciation may then be calculated as the aggregate amount of CIT revenue foregone in a given year by accelerated as opposed to regular (or normal) depreciation. Reporting may also include estimates of the difference in the present value of tax depreciation claims under the two scenarios (requiring more complex analytics).

CORPORATE MICRO SIMULATION MODELS

This section elaborates on the development and use of a micro-simulation model (MSM) of corporate income taxes (CIT). The models (essentially corporate tax calculators) can be developed in a straightforward manner and used in common spreadsheets, such as Excel. For many countries, the main hurdle has been allocating scarce resources to building datasets (based on tax returns) as an input to the models. Where resources are limited, steps can be taken (as analyzed below) to limit the resource requirement (e.g. by focusing on large taxpayers). Experience shows that the payoff can be great.

³ Conceptual issues relate to the appropriate benchmark regarding depreciation, such as economic depreciation or current tax rules. Measurement difficulties arise if economic depreciation is chosen as a benchmark in light of considerable uncertainty.

A CIT MSM is essentially a firm-level CIT calculator, with flexibility in the adjustment of tax policy parameters and economic variables. An important feature is that it can analyze the revenue and distributional impacts of detailed tax policy changes, such as preferential CIT rates, alternative tax depreciation rates and methods (with separate calculations for different categories of depreciable assets), tax allowances and credits and other specific tax incentives.

A CIT-MSM may be used by Ministries of Finance for policy simulations, and for revenue forecasting purposes. CIT-MSMs contribute to transparency and can improve the quality of information that is needed for policy preparation. Especially relevant for the underlying paper, is that a CIT MSM is the preferred instrument to estimate the revenue foregone from corporate TEs. Indeed, models relying on aggregate data, such as from the National Accounts data, yield less reliable revenue estimates and can usually not be used to explore detailed tax policy changes. Moreover, unlike tools based on aggregate data, CIT MSMs can yield insight in how CIT reform affects the distribution of tax liabilities across firms (by, for example, industry, firm size and location). This may be helpful in addressing political-economy concerns associated with CIT reform, such as with the removal or scaling back of tax incentives.

When deciding to develop an in-house CIT MSM, one should of course consider the benefits as well as costs of developing and maintaining such as model, most notably staff costs. Moreover, one has to identify constraints regarding the availability (and confidentiality) of data or possibly political resistance to the use of such data. Problems may arise also when modeling a proposed but currently non-existing tax instrument, such as a tax credit for regional development, for which one requires information on existing levels of investment in targeted region(s) which may not be available. In such cases, other sources of information (such as survey data) would need to be found and incorporated into the dataset to be able to analyze the tax measure. Before developing a CIT MSM, moreover, it is important to identify the most relevant applications, guided by the demand for tax policy analysis in the Ministry of Finance and Revenue Administration.

A. Developing a Model

A CIT MSM uses a structured programming language or software (such as Excel) to calculate CIT payments at the firm level. The models requires (exogenous) input information and produces (endogenous) output.

- The *input data* to a MSM calculation include receipts, expenses and balance sheet items from individual corporate tax returns. These values are exogenous to the model and are held fixed when calculating CIT under alternative tax policies. The other important category of exogenous input variables are tax policy parameters, such as statutory CIT tax rates (basic CIT rate and possibly other rates), tax depreciation rates (of which there may be many), and investment tax credits. The base-case values are obtained from the current tax law. These parameters can be varied when simulating the revenue implications of tax reform or when calculating the magnitude of TEs (hypothetical cases).

- The *output* of the CIT MSM is a number of endogenous variables, which are ‘modeled’ and calculated by the MSM. Examples include claims for depreciation allowances, which change when the tax depreciation rate changes, investment tax credit claims, which change with investment tax credit rates change, taxable income, and final CIT liability. The output variables, based on sample data, can be weighted and aggregated to give economy-wide estimates of CIT revenue under current law. They can also be calculated under alternative hypothetical laws, for example in the estimation of corporate TEs. Estimates can also be presented for various aggregates (by industry, firm-size, or other dimensions).

Some tax allowances can be endogenous in the model, for instance, if they depend on firm-specific characteristics or outcomes. For example, some CIT systems provide a deduction as a non-linear function of income based on some qualifying indicator (e.g. small firms under a certain turnover, income, or asset level). Rather than treating the deduction in the model as fixed, it needs to be modeled as a function $D=\theta(q)$, where q measures income based on a qualifying indicator as reported in the tax return and θ is a function of q that determines the deductible amount. The policy function θ can be changed in the MSM, reflecting tax policy. The model yields an estimate of the deduction, D , and CIT revenue.

Some variables have a dynamic character and need to be traced over time. For example, depreciable capital costs are written off gradually over time. CIT systems typically require that accounts be kept of balances (stocks) of undepreciated capital to determine tax depreciation claims that can be made in the current year and those that are carried forward to future years. This is illustrated in Figure 2—beginning of year balances (‘pools’) are increased by Additions (current investment) and reduced by Deductions (current year claims). Similarly, balances (pools) are used to track unused business losses and investment tax credits.

Figure 2. Pooling of Unused Tax Depreciation, Business Losses and Tax Credits

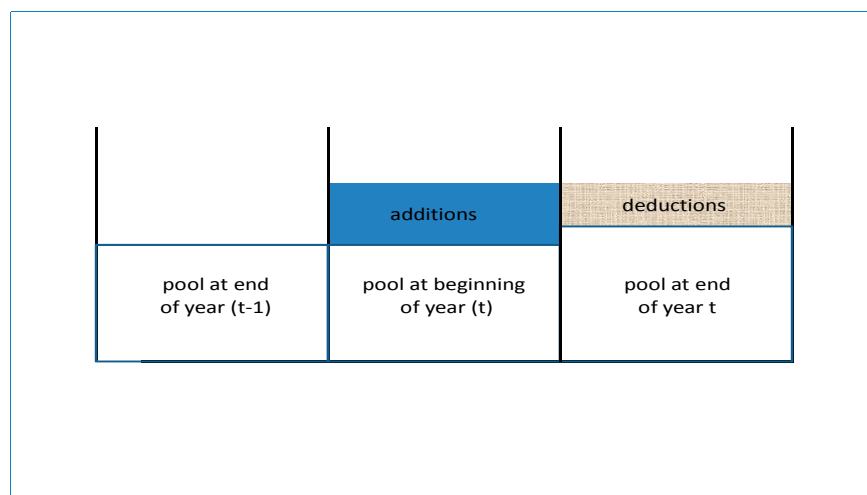


Table 3. Illustration of Creation of Excel-based CIT MSM

1		D	E	F	
2		Tax return data	Base Case	Hypothetical Case	Code used to create Base Case (column E)
3	Tax Parameters				
4	Corporate income tax rate		40.0%	40.0%	
5	Tax depreciation allowance rate		30.0%	30.0%	
6	Investment tax credit (ITC) rate		5.0%	0.0%	
7	Income Statement (millions \$)				
8	Total revenues	1,600.0	1,600.0	1,600.0	+\$D8
9	Cost of sales, interest expense	1,000.0	1,000.0	1,000.0	+\$D9
10	Book depreciation	100.0	100.0	100.0	+\$D10
11	Total expenses	1,100.0	1,100.0	1,100.0	+\$D11
12	Net income before tax	500.0	500.0	500.0	+\$D12
13	Income tax - book purposes	93.0	93.0	93.0	+\$D13
14	Net income financial after tax	407.0	407.0	407.0	+\$D14
15	Income Tax Payable (millions \$)				
16	Reconciliation Statement				
17	Net income financial after tax	407.0	407.0	407.0	+\$D17
18	+ Book depreciation	100.0	100.0	100.0	+\$D18
19	+ Income tax - book purposes	93.0	93.0	93.0	+\$D19
20	- Tax depreciation allowance claim	117.9	117.9	117.9	=MIN(E5*E32,E17+E18+E19)
21	Net income for tax purposes	482.1	482.1	482.1	+E17+E18+E19-E20
22	- Prior year losses claimed	200.0	200.0	200.0	=MIN(E36,E21)
23	Taxable income	282.1	282.1	282.1	=E21-E22
24	Income Tax Payable				
25	Income tax	112.8	112.8	112.8	=E4*E23
26	Investment tax credit claimed	27.2	27.2	20.0	=MIN(E46,E25)
27	Income tax payable	85.7	85.7	92.8	=E25-E26
28	Tax depreciation, loss carryforward, ITC				
29	Tax depreciation				
30	Opening balance UCC	250.0	250.0	250.0	=\$D30
31	Investment - current year	143.0	143.0	143.0	=\$D31
32	UCC available	393.0	393.0	393.0	=\$D32
33	tax depreciation claim	117.9	117.9	117.9	=E20
34	Closing balance UCC	275.1	275.1	275.1	=E32-E33
35	Business Loss carryforward				
36	Opening balance (unused losses)	200.0	200.0	200.0	=\$D36
37	Prior-year loss claim	200.0	200.0	200.0	=E22
38	Closing balance (unused losses)	0.0	0.0	0.0	=E36-E37
39	Investment Tax Credit (ITC)				
40	Opening balance unused ITC	20.0	20.0	20.0	=\$D40
41	Investment - current year	143.0	143.0	143.0	=\$D41
42	ITC earned - current year	7.2	7.2	0.0	=E6*E41
43	Unused ITC available for carryback	27.2	27.2	20.0	=E40+E42
44	ITC carryback	0.0	0.0	0.0	=\$D44
45	Unused ITC available for current year	27.2	27.2	20.0	=E43-E44
46	Investment tax credit claim - current year	27.2	27.2	20.0	=E26
47	Closing balance unused ITC	0.0	0.0	0.0	=E45-E46

Table 3 gives an illustrative example of how a CIT MSM works, showing tax parameters in rows 4-6, exogenous tax return data in column D and a mix of exogenous data (copied from column D) and endogenous 'base case' variables calculated by the spreadsheet model in column E. In the example, columns D and E are equivalent since they both reflect the actual tax system. Column F shows 'hypothetical case' values, where the investment tax credit rate is set to zero (elimination of the credit). Current year investment expenditure (143 currency units) no longer generates credits, but credits (20 units) carried over from prior years reduce CIT. The example reflects the importance of taking into account opening balances of undepreciated capital costs (UCC), business losses and tax credits.

An important step in the development of a CIT MSM is the validation of the model. In particular, a comparison should be made between the estimated base case aggregate CIT revenue as simulated by the MSM and the actual aggregate CIT revenue reported in the government accounts. At this point, a process begins to check for errors and to adjust the sample size until differences between estimated and actual aggregate CIT revenue are small enough by some metric.

B. Data Issues

A critical step in the development of a CIT MSM is the creation of a dataset, based on corporate-level tax returns, which serves as input to the model.⁴ Ideally, one would copy data from tax returns for the entire population of corporations. This might be feasible in countries with complete electronic filing of tax returns. If this is impossible or deemed too resource intensive (for example because it is necessary to manually transcribe data and take information from paper corporate tax returns into an electronic database), an alternative is to construct a representative sample. The results based on the sample can then be weighted to replicate economy-wide results for the entire population of corporations. Where a sample is used, CIT data transcription generally involves the creation of two files: a 'population file' and a 'sample file':

- The population file includes limited data entries for all corporations. It is used as a basis for establishing the sample file and to cross-check estimated aggregate CIT revenues from the MSM. The population file may be adjusted compared to the raw data, e.g. by the removal of inactive corporations, corporations with limited activity (e.g. less than two months in the fiscal year), and very small corporations identified using an asset and income threshold test.
- The sample file is drawn from the population file by first identifying firm-level characteristics ('dimensions') to create sub-groups (strata) of firms with common characteristics. For example, the population file may be stratified (grouped) using the following dimensions: 25 industry sectors; 4 asset sizes; 10 locations; 2 ownership types (resident, non-resident); 2 types of tax status (taxable, tax-exempt). These dimensions would create 4000 (25x4x10x2x2) sub-groups. Each sub-group is relatively homogeneous. Independent sampling of each sub-group provides a better representation of the population than random sampling from non-stratified population

⁴ Corporate tax return data are also frequently used by tax administrations to calculate various ratios, which are inputs to their risk-based auditing practices. The same data can thus be used also to build a MSM.

data. The stratified population file is used to create the sample file, which has the same number of sub-groups as the stratified population file. Given the significant contribution of large corporations to total CIT, it is important to include all large corporations in the sample file. For each remaining sub-group in the population file, a random sample of firms is drawn and assigned to the corresponding sub-group in the sample file.

Table 4 provides a simplified example of the creation of a sample file from a population file. In the example, firms are stratified into two dimensions: industry (A, B, C) and size (Large, Medium, Small). This gives a total of 9 sub-groups. The total population consists of 40,100 corporations, 100 of which are large. All large corporations are automatically assigned to the sample, given their importance in determining total CIT revenues. From the remaining 40,000 tax returns, a random selection is made, with a target of including 5 per cent of the returns in the sample. In the example, this results in 2000 corporations being included in the sample (in addition to the 100 large corporations automatically included).

Table 4. Simplified Example of a Sample File Created from a Population File

	Population			Sample			Weights		
	P= 40,100			S= 2,100					
Industry	L	M	S	L	M	S	L	M	S
A	50	5,550	10,400	50	278	520	1.00	20.40	19.89
B	40	1,060	19,900	40	53	995	1.00	19.63	19.98
C	10	390	2,700	10	20	135	1.00	18.57	20.45
Total	100	7,000	33,000	100	350	1,650			

The last three columns of Table 4 show weights to be applied to MSM firm-level results for firms in each of the sub-groups in the sample when constructing estimates for the full population. Large firms all have a weight of one, as they are all included in the sample. For each of the other (6) sub-groups, the weight is determined by dividing the total number of firms in that sub-group in the population by the total number of firms in that sub-group in the sample. Weighting firm-level results from any exercise with the MSM will yield aggregate (economy-wide) estimates.

The representativeness of the sample needs to be validated through the comparison of simulated aggregate outcomes with actual aggregate data. For instance, Table 5 compares actual data on total assets, total taxable income, and total CIT revenue with the simulated MSM calculation for these variables, using a weighted sample. The ratio between the two in the last column is between 99 and 102 percent, which suggests a reasonable approximation by the MSM of the true aggregated data. If the differences are large, the sample size must be increased (e.g. revising upward the target percentage (5 per cent in the example above)), and possibly new dimensions added, to improve the accuracy of the sample.

Table 5. Diagnostic of the representativeness of the sample

Population			Weighted Sample			Weighted Sample/ Population		
assets	taxable income	CIT liability	assets	taxable income	CIT liability	assets	taxable income	CIT liability
190,000,000	7,000,000	2,000,000	193,800,000	6,930,000	1,980,000	102%	99%	99%

Differences in values between the population and weighted sample may be reduced by increasing the sample size and/or increasing (or revising) the number of dimensions used to group corporations. In general, a good stratification of taxpayer characteristics (one that results in largely homogeneous firms in each strata) allows for a smaller sample size. The degree of homogeneity of firms within each stratum may be tested by calculating the coefficient of variation for selected variables (e.g. assets, taxable income, CIT liability) for firms within each stratum and ensuring that the values are not greater than roughly 5 per cent.

EFFECTIVE TAX RATE MODELS

This section derives effective tax rates (ETRs) and elaborates on their use. These have been routinely used in technical assistance work by the IMF and World Bank for many years, and have proved instructive in better understanding the nature and magnitude of the incentives that various corporate tax provisions and concessions create for business investment decisions.

ETRs are summary tax burden indicators aimed at measuring what firms effectively pay on their investment returns. They account for not only statutory CIT rates, but also key features of the tax base, which are important for the distortionary impact of taxation on investment.

There exist various types of ETRs.⁵ This section focuses on so-called ‘forward looking’ ETRs, which are derived from algebraic formulae that assess the net present value of a representative investment project.⁶ The formulae are transparent and flexible, allowing users to separately identify various factors influencing net investment returns, including statutory tax rates, depreciation allowances, interest deductibility and tax incentives. Two types of forward-looking ETRs are discussed:⁷

- **Marginal effective tax rates** (METRs) measure the extent to which taxation causes the pre-tax hurdle rate of return on investment to deviate from its normal (minimum) after-corporate tax rate of return, which shareholders could obtain elsewhere. METRs reflect the “tax wedge” on

⁵ See OECD (1991, 2001, 2003), Nicodeme (2001), Sorensen (2004) and Clark and Klemm (2015) for reviews.

⁶ Alternatively, backward looking effective tax burden measures are calculated at the firm or aggregate level as actual tax payments in prior years, divided by adjusted book profits. They have appeal in that they measure the true tax burden, accounting for tax base measures, tax incentives, enforcement, and income shifting. These aspects, however, cannot separately be identified. Moreover, backward looking effective tax rates cannot measure distortions on future investment.

⁷ Seminal work on METR analysis includes Jorgenson (1963), King and Fullerton (1984), Boadway and Bruce (1984). Devereux and Griffith (2003) introduced AETR analysis.

investments that just break even. They are routinely used to assess how taxes distort the level of investment (scale decisions).

- **Average effective tax rates** (AETRs) are usually calculated as the present-discounted value of CIT payment on returns on investment, divided by the present discounted value of the (before-tax) income from the investment. They measure the tax burden on profitable investment projects, i.e. those earning an above-normal rate of return (due, for instance, to patents, market power, or location rents). AETRs are used to assess tax effects on discrete investment choices, and in particular MNC decisions of whether and where to locate FDI (location decisions).

A. Workhorse Model

We derive ETRs from a simple workhorse model of investment, which can easily be extended in various directions to capture other aspects of taxation. Suppose there is an investment project in period 0 of size I_0 , which is purchased at price Q_0 . After period 0, the capital stock (K_t) depreciates every year (t) at a declining balance rate δ_t . At the same time, the capital stock is increased by new investments every year, I_t , which are purchased at price Q_t . The physical capital stock thus accumulates according to $K_t = (1 - \delta_t)K_{t-1} + I_t$. The net present value of the cash flow associated with the investment is given by:

$$NPV = -Q_0 I_0 (1 - uA) + \sum_{t=1}^{\infty} \frac{P_t F(K_t)(1 - u) - (1 - uA)Q_t I_t}{((1 + r)(1 + \pi))^t} \quad (11)$$

where $F(\cdot)$ is a production function with properties $F_K > 0$, $F_{KK} < 0$, P_t is the price of output, π is the general rate of inflation and r is the minimum (normal) real rate of return required by shareholders (which they could obtain on alternative investments, such as government bonds). The gross returns to the investment are taxed at the statutory CIT rate u . For now, we assume that financing costs are not tax deductible—reflecting equity-financed investment in most countries. Moreover, we abstract from personal income tax (PIT) on investment returns or withholding taxes. Tax depreciation allowances (which are assumed not to be indexed for inflation) are deductible at a declining balance rate α_t , which may differ from economic depreciation, δ , where the tax depreciation rate is constant. The NPV of tax depreciation allowances in terms of the cost of investment is denoted by A and given by:

$$A = \sum_{s=1}^{\infty} \frac{\alpha(1 - \alpha)^{s-1}}{((1 + r)(1 + \pi))^{s-1}} = \alpha \frac{(1 + r)(1 + \pi)}{r(1 + \pi) + \pi + \alpha} \quad (12)$$

Parameter A generally lies between 0 and 1, since depreciation for tax purposes is not immediate (in which case we would have $A = 1$). Multiplying A by the tax rate u gives the value of tax depreciation allowances in terms of tax savings. According to (11), uA effectively reduces the price of investment.

In the remainder, for simplicity, we assume that replacement investment in each period t is just enough to maintain the capital stock at its initial level, i.e. $I_t = \delta_t K_{t-1}$ so that we can drop time indices for $K_t = K_0 = K$. Also, we assume that P and Q increase annually at the general rate of

inflation, π . We normalize prices $P_0 = Q_0 = 1$ so that we express investment and output in real value terms. Using the geometric sequence, we can rewrite (11) as

$$NPV = \frac{F(K)(1-u) - (r+\delta)(1-uA)K}{r} = \frac{(p+\delta)(1-u) - (r+\delta)(1-uA)}{r} K \quad (13)$$

where $p = F(K)/K - \delta$ is the average pre-tax rate of return on the investment project, net of economic depreciation. In the absence of taxation ($u = 0$), the NPV of the stream of investments is proportional to the rate of economic profit (i.e. the rate of return in excess of the normal rate of return), measured by $p - r$.

The profit-maximizing level of investment is at the point where an additional unit of physical capital yields no further increase in the NPV:

$$\frac{\partial NPV}{\partial K} = F_K(1-u) - (r+\delta)(1-uA) = 0 \quad (14)$$

Equation (14) can be rewritten in terms of the so-called ‘hurdle’ rate of return, defined as the real gross (i.e. before-tax) rate of return net of depreciation (RG).⁸

$$RG = F_K - \delta = (r+\delta) \frac{(1-uA)}{(1-u)} - \delta \quad (15)$$

In the absence of tax, the hurdle rate equals the normal rate of return, r , i.e. where incremental investment yields no economic profit. Taxation may affect the hurdle rate in (15), but not necessarily so. For instance, if $A = 1$ (i.e. if tax depreciation allowances are 100 percent of investment cost), taxation is neutral with respect to investment. However, if $A < 1$ (the usual case in most countries), the hurdle rate of return exceeds the normal rate of return, implying that taxation is predicted to reduce the optimal level of investment.

The marginal effective tax rate (METR) is generally derived from the hurdle rate as follows:

$$METR = \frac{RG - r}{RG} \quad (16)$$

The METR thus measures the difference (‘tax wedge’) between the hurdle rate and the after-tax required rate of return r , as a percentage of the hurdle rate. Combining (15) and (16), the METR can be rewritten as:

⁸ The so-called ‘cost of capital’ is closely related to this hurdle rate and is generally defined as the before-tax return on investment for the project to yield an after-tax rate of return that equals the interest rate plus the rate of economic depreciation.

$$METR = \frac{u(1-A)(r+\delta)}{r(1-uA) + u\delta(1-A)} \quad (17)$$

The METR will be positive as long as $A < 1$ and $u > 0$. In that case, the CIT causes the hurdle rate of return to rise. Fewer investment projects will then be profitable and investment will decline.

The average effective tax rate (AETR) does not use the optimality condition for investment above, but rather divides the net present value of total CIT payments of any (profitable) project by the net present value of (pre-tax) profit for that project:

$$AETR = \frac{(p+\delta)u - Au(r+\delta)}{p} = \frac{(p-r)u + (r+\delta)(1-A)u}{p} \quad (18)$$

The numerator of the second expression in (18) contains two terms. The first term measures the CIT on economic profit per unit of investment. The second term measures CIT, net of tax depreciation allowances, on the minimum required normal return, per unit of investment. For projects that earn a high rate of economic profit, the first term carries a large weight and is important for the AETR. For projects that generate a low economic profit, the first term is of minor importance and the second term becomes more important. This second term is similar to the METR in (17).

Expressions (17) and (18) can be used to numerically compute METR and AETR values, by making assumptions about the rate of inflation, the real interest rate, the rate of economic depreciation, and by substituting from the tax code the statutory CIT rate and the rate of tax depreciation. For the AETR, the additional parameter needed is the assumed profitability of the investment. Illustrative applications are shown in Box 2.

Such calculations can be made for investments that differ with respect to their (economic and tax) depreciation rates. Moreover, the METR and AETR in (17) and (18) can be easily modified to allow for the tax deductibility of financing costs—relevant if investment is financed by debt—the inclusion of PIT on investment returns, or withholding tax rates on FDI. One can also extend the effective tax rate calculations to allow for cross-border income shifting or various types of investment tax incentives, as we will show below for the analysis of tax holidays.⁹

⁹ Klemm (2010) extends the AETR framework to include tax incentives, such as tax holidays and time-varying tax rates. Clark (2010) introduces multinational tax planning strategies, reflecting the fact that standard ETRs may not be particularly informative about tax incentive effects on investments by MNCs engaging in aggressive tax planning.

Box 2. Illustration of ETR Analysis

The following table shows calculations of marginal and average effective tax rates under alternative tax regimes. In the basic ETR model, there are two tax parameters – the statutory CIT rate (u), and the tax depreciation rate (α). In the base case (current tax regime), these rates are 21 and 8 per cent. Base Case A considers projects with a pre-tax rate of return of 15 per cent. Base Case B considers projects generating a higher pre tax rate of return (25 per cent). Other non-tax parameters are held constant.

Parameters	Symbol	Base Case A	Regime 1	Regime 2	Regime 3	Base Case B	Regime 3
statutory CIT rate	u	0.21	0.20	0.21	0.20	0.21	0.20
tax depreciation rate	α	0.08	0.10	1.00	0.06	0.08	0.06
economic depreciation rate	δ	0.08	0.08	0.08	0.08	0.08	0.08
real discount rate	r	0.03	0.03	0.03	0.03	0.03	0.03
real pre-tax rate of return	p	0.15	0.15	0.15	0.15	0.25	0.25
inflation rate	π	0.02	0.02	0.02	0.02	0.02	0.02
Calculated values							
PV of tax depreciation	$A = \alpha(1+r)(1+\pi)/(r(1+\pi)+\pi+\alpha)$	0.644	0.698	1.000	0.570	0.644	0.570
marginal effective tax rate	$METR = u(1-A)(r+\delta)/(r(1-uA)+u\delta(1-A))$	0.258	0.217	0.000	0.283	0.258	0.283
average effective tax rate	$AETR = ((p-r)u+(r+\delta)(1-A)u)/p$	0.223	0.204	0.168	0.223	0.218	0.214

In Regime 1, the CIT rate is lowered to 20 per cent, and tax depreciation is accelerated to a 10 per cent rate. Both reforms encourage investment, as reflected in lower METR and AETR values. The METR decreases from roughly 26 to 22 per cent; the AETR decreases from 22 to 20 per cent.

In Regime 2, the CIT rate is unchanged at 21 per cent, but expensing of capital costs is introduced. The METR is zero implying no tax distortion to scale (marginal investment) decisions. The AETR is also reduced, implying reduced impediments to locating investment in the country.

In Regime 3, the CIT rate is lowered to 20 per cent (as in Regime 1), but tax depreciation is reduced to 6 per cent. The net effect is a higher METR, implying reduced investment. The AETR is unchanged, compared to Base Case A. The latter result is sensitive to the rate of pre-tax profit.

Base Case B considers projects earning a pre-tax rate of return of 25 per cent (versus 15 per cent in Base Case A). Introducing Regime 3 lowers the AETR, compared to Base Case B. While less generous tax depreciation puts upward pressure on the AETR, this is more than offset by the reduced rate CIT on the more significant economic profit (compared to Base Case A).

B. Use in Policy Analysis

ETRs are an important tool for policy analysis in many countries, including developing countries. For instance, by varying tax parameters—including tax incentives—ETRs shed light on how complex tax reforms are expected to influence investment. This includes also the variable impact of taxation on investment in different asset types or by alternative sources of finance. ETRs can be used to infer trends over time or to provide international comparisons of tax systems. ETRs are routinely used in technical assistance by the IMF and World Bank to explore the impact of policy reforms on investment incentives.

ETRs are often used as indicators of “international competitiveness” of tax systems. For example, Table 6 shows, besides statutory CIT rates, average METRs and AETRs in G20 countries in 2012, as computed by the Oxford University Centre for Business Taxation (Bilicka and Devereux, 2012).¹⁰ The average METRs and AETRs are computed as weighted averages for different types of assets and different sources of finance. In particular, the calculations assume that one quarter of investment is in the form of plant and machinery, another quarter in buildings, around 10 percent in intangible assets, and 40 percent is in inventories. Moreover, 35 percent of investment is assumed to be financed by debt, while the remainder is financed by equity. From Table 6, we observe that statutory CIT rates range from 20 percent in Russia and Saudi Arabia to almost 41 percent in Japan. The range of AETRs is similarly large, between 16.7 and 36 percent. The METRs range from –10 percent in Italy to 27 percent in Argentina and Japan.¹¹

A recent study by Chen and Mintz (2013) computes METRs for as many as 90 countries across the globe—again as a weighted average of METRs for different sectors and sources of finance. Their calculations, shown in Figure 3, indicate large cross-country differences in tax distortions at the margin of new investment. Figure 4 shows how effective tax rates can shed light on the impact of tax incentives for investment. For 15 countries in the Asia-Pacific region, it compares the AETR in the absence of tax incentives with that under alternative incentive policies, showing that investments in high-technology sectors or in specific geographic areas result in the lowest effective tax burdens.

ETR analysis is routinely used by academics, policy think-tanks, IOs and governments (notably Ministries of Finance) to analyze the impact on investment of tax policy, including reform of tax incentive policies. A main attraction is the limited informational requirement, as the values of the parameters entering ETR formulae are determined by tax policy. In other words, the input to ETR models is found in tax laws and tax regulations. For Ministries of Finance in developing countries wishing to implement ETR models in their tool-kit, some technical assistance may be required to adapt the general ETR formulae to capture country-specific tax policies.

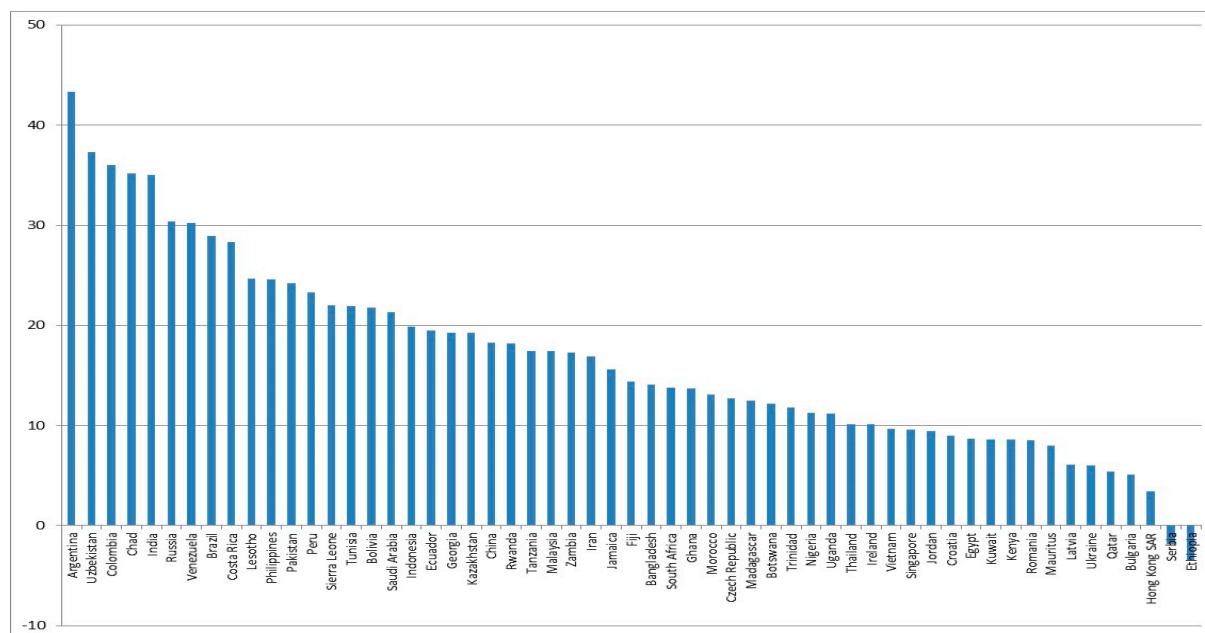
¹⁰ The European Commission publishes ETRs every year as part of its annual publication “Taxation Trends in the European Union”.

¹¹ Several countries have changed their rates since 2012. E.g. Japan reduced its statutory rate stepwise to a current level of 33 percent.

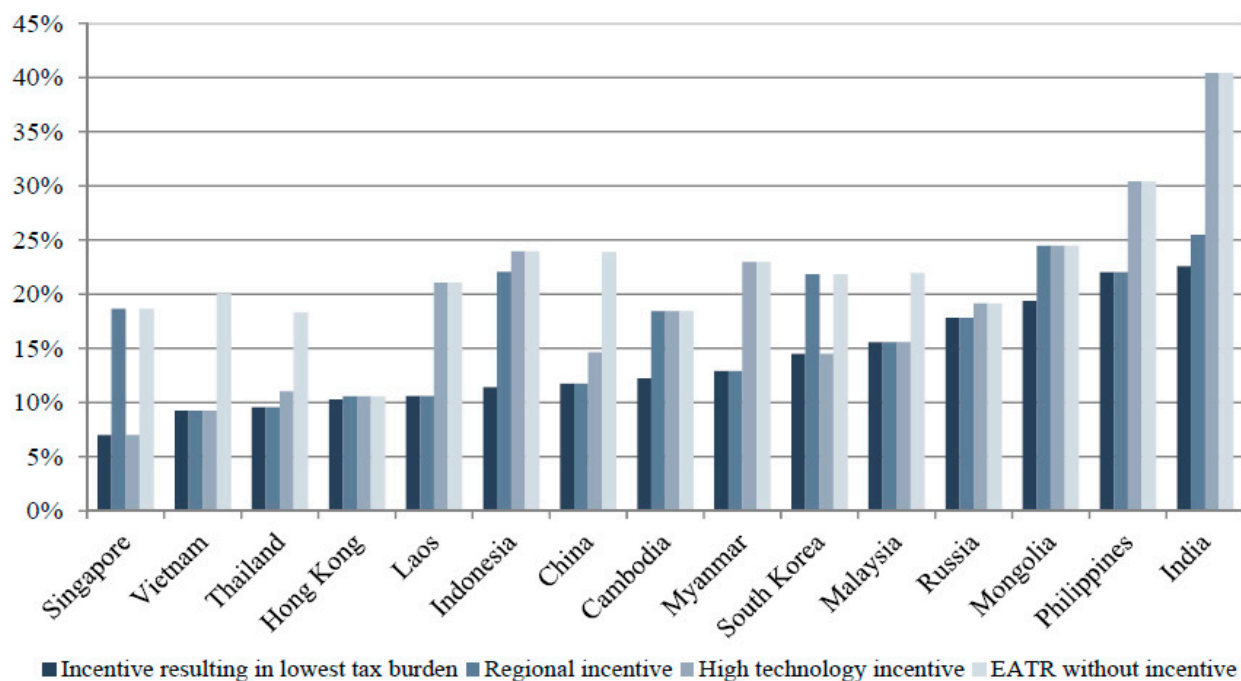
Table 6. Statutory and Effective Tax Rates for G20 Countries, 2012

	Statutory Rate	AETR	METR
Russia	20.0	16.7	7.9
Saudi Arabia	20.0	18.1	13.4
Turkey	20.0	16.9	8.7
South Korea	22.0	18.0	7.2
China	25.0	22.4	16.2
Indonesia	25.0	23.0	18.5
United Kingdom	26.0	24.8	22.3
Canada	28.0	24.4	15.8
Australia	30.0	26.6	19.1
Mexico	30.0	26.1	17.1
Italy	30.3	23.0	-10.0
Germany	30.9	27.0	18.2
India	32.4	28.8	21.1
Brazil	34.0	30.7	23.9
South Africa	34.6	29.8	19.3
France	35.0	29.8	17.9
Argentina	35.0	32.3	27.0
United States	40.5	34.9	23.2
Japan	40.8	36.0	27.0

Source: Bilicka and Devereux (2012)

Figure 3. Average METRs on Capital Investment in 56 non-OECD Countries, 2013

Source: Chen and Mintz (2013)

Figure 4. AETRs in Asia-Pacific Under Alternative Incentives

Source: Wiedemann and Finke (2015)

C. Tax Holidays

As Figure 4 makes clear, ETR analysis can be extended to include tax incentives, such as those discussed in the main body of the paper. To illustrate this, we extend ETR expressions above to include tax holidays for a limited duration. In that case, the NPV of the cash flow associated with the investment at $t = 0$ is:

$$NPV = -K + \sum_{t=1}^H \frac{F(K) - \delta K}{(1+r)^t} + \sum_{t=H+1}^{\infty} \frac{F(K)(1-u) - (1-uA)\delta K}{(1+r)^t} \quad (19)$$

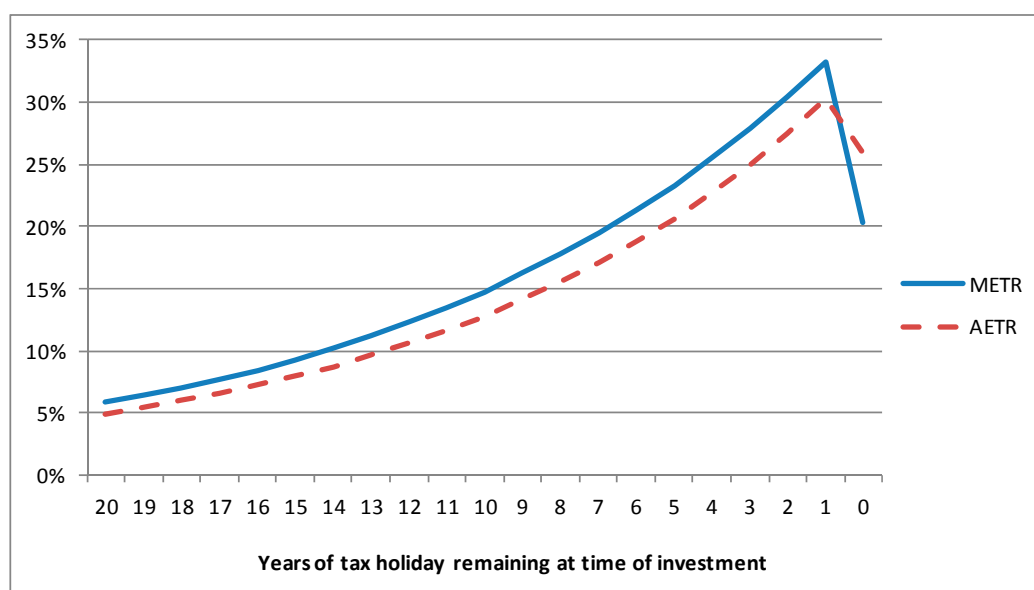
where $H > 0$ is the length of the tax holiday period. From this, the METR and AETR can be derived along the lines above. Yet, they will now depend on H , reflecting the remaining number of holiday years:

$$METR = \frac{ud^H(r + (1-A)\delta)}{r + ud^H\delta(1-A)} \quad (20)$$

$$AETR = \frac{d^Hu(p + (1-A)\delta)}{p} \quad (21)$$

where $d^H = 1/(1+r)^H$ for $H > 1$. This time-variant indicator effectively determines the relevant tax rate applying to investment in each year of the holiday period. Figure 5 shows METRs and AETRs assuming a 20 year tax holiday, expressed in each of the 20 years of its remaining duration. In the first year, with 20 years of holiday remaining, the METR and AETR are small but positive, close to 5 percent, reflecting future tax on the investment returns accruing after the 20-year holiday period. Over time, the ETRs gradually increase since an increasing fraction of the future returns to the investment will become subject to tax as the remaining holiday period gets shorter. After expiry of the tax holiday, the standard ETRs apply with no incentive. In that year, the METR and AETR are 20 and 26 per cent, respectively. Interestingly, the METR and AETR exceed this level in the years just before expiry: this holds for the METR for investments after the first 14 years of the holiday and the AETR after 18 years. Hence, the tax holiday discourages the firm to invest during these years, relative to the case with the normal tax regime. The reason is that, for investments in these years just before expiration of the holiday, the firm is unable to claim depreciation allowances. This increases in the CIT burden, an effect that more than offsets the CIT exemption for profits in these years.¹²

Figure 5. METRs and AETRs for 20 year Tax Holiday



Source: IMF FAD calculations. The analysis assumes $u=30\%$, $\alpha=25\%$, $\delta=12.3\%$, $r=10\%$, $\pi=3.5\%$.

¹² This finding was first reported by Mintz (1990). Klemm (2010) shows how the relative attractiveness of tax holidays, compared to investment allowances and reduced tax rates changes over time and depends on expected profitability.

DIAGNOSTIC ASSESSMENT OF GOVERNANCE

This section discusses two templates that can be used to assess transparency and governance practices in relation to tax incentives in LICs.

A. Ten Principles to Promote Better Management and Administration

The OECD's Task Force on Tax and Development has pressed for a more effective global transparency framework for tax incentives for investment—the purpose of which is to promote transparency in decision-making processes, increase the information available on costs and benefits, limit discretion and increase accountability. This led to the development of a set of principles to promote the management and administration of tax incentives for investment in a transparent and consistent manner (OECD, 2013).

1. Make public a statement of all tax incentives for investment and their objectives within a governing framework.

Tax incentives should only be granted in accordance with a comprehensive policy, which lays down principles and policy objectives for the introduction or continuation of a tax incentive. Governments should provide a justification for tax incentives (e.g. regional/territorial development, employment creation) with the expected costs and intended benefits. This should be communicated publicly through a regularly updated statement. Such a statement provides the basis for the assessment of the performance of tax incentives, any overlap and duplication and allows for governments to be held accountable for the tax incentives they have granted.

2. Provide tax incentives for investment through tax laws only.

Tax incentives for investment are currently provided through tax laws (e.g., income tax law), but in many cases are also provided by laws governing investment, Special Economic Zones, etc. and in other cases, through decrees, agreements and regulations. As a result their true extent may be hidden. All tax incentives provided, along with their eligibility criteria, should be consolidated and publicised in the main body of tax law. Bringing tax incentives into the tax laws (or mirrored in the tax laws) increases transparency and may empower the tax administration to administer them. Those tax incentives that are used should be as simple as possible to both apply for and administer.

3. Consolidate all tax incentives for investment under the authority of one government body, where possible.

All tax incentives should be placed under the authority of one government body, ideally the Ministry of Finance. Currently, the granting and administration of tax incentives may be the responsibility of finance, trade, investment or other ministries, increasing the risk of corruption and rent seeking. Consolidating them under a single body increases transparency, helps to avoid unintended overlap and inconsistencies in incentive policies, limits discretionary power and enables policy makers to address problems that may arise with the governance of tax incentives. In countries where the

granting and administration of tax incentives is decentralised and/or carried out by both the central and sub-national governments, to the extent possible, various levels of government should coordinate to maximize the efficiency and transparency of their efforts.

4. Ensure tax incentives for investment are ratified through the law making body or parliament.

Tax incentives provided through executive decrees or agreements when not scrutinized by the law making body do not provide sufficient transparency in their granting and operation. Parliamentary oversight, or its equivalent, is fundamental to transparency and accountability in the governance of tax incentives. This ensures incentives are subject to scrutiny on their intended purpose and their costs as well as benefits to the country.

5. Administer tax incentives for investment in a transparent manner.

Once provisions have been enacted in the relevant tax laws and regulations, tax incentives may be claimed by a taxpayer by meeting the necessary conditions as prescribed, without negotiating with any granting authority, except as provided for under the relevant tax laws. A minimum necessary condition to be met by taxpayers in the case of a tax incentive should be the requirement to file a tax return in the case of VAT and Income Tax, and in the case of other taxes a statement detailing the duty or other exemptions availed in the prescribed period. In addition to enhancing transparency, such taxpayer information contributes to data for determining the efficiency and equity of tax incentives. Tax authorities should also periodically carry out audits of cases where tax incentives have been claimed to ensure that they are not misused.

6. Calculate the amount of revenue forgone attributable to tax incentives for investment and publicly release a statement of tax expenditures.

The amount of revenue loss attributable to tax incentives should be reported regularly, ideally as part of an annual Tax Expenditures Report (covering all main tax incentives). While cash expenditure budgets are usually scrutinised on a yearly basis, the revenue cost of tax incentives is hidden when estimates of revenues forgone are not calculated and reported. Embedding estimates of revenues forgone by tax incentives in the yearly budget process provides policy makers with the required inputs on a timely basis to inform policy decisions. It also supports medium term fiscal planning as what seems like a small amount of foregone revenue in good fiscal times may become quite high during periods of fiscal strain. The calculation of revenue forgone should recognise that the benefits of some investments, mineral extraction, for example, may take many years to realise so losses should be assessed over the life of the business concerned.

7. Carry out periodic review of the continuance of existing tax incentives by assessing the extent to which they meet the stated objectives.

Once granted tax incentives usually remain in laws unless revoked or introduced with a 'sunset clause'. Hence there is a need to assess performance on a regular basis. Performance reviews may be conducted once every few years and would include the costs as well as the benefits of the tax

incentive and if it has met its intended goals. The results of such periodic reviews would inform decision-making around the continuation or removal of individual tax incentives. The review criteria and results should be reported publicly. To the extent possible, behavioural responses, both good (e.g., additional incremental investment) and bad (e.g., aggressive tax planning) should be tracked and communicated.

8. Highlight the largest beneficiaries of tax incentives for investment by specific tax provision in a regular statement of tax expenditures, where possible.

It may be possible that a few investors, or sectors, benefit from most tax expenditures. The tax expenditure statement should have sufficient detail to enable policy makers to identify which sectors benefit from specific tax provisions and, where this is compatible with the requirement of laws and regulations governing taxpayer confidentiality, authorities may wish to consider detailing the major beneficiaries and the amount by which they benefit from tax incentives. Making such information public can enhance the legitimacy of governments and their revenue authorities in the eyes of citizens which in turn can enhance compliance more broadly.

9. Collect data systematically to underpin the statement of tax expenditures for investment and to monitor the overall effects and effectiveness of individual tax incentives.

Analysis of tax incentives is data intensive – required for public statements, budgeting, periodic reviews, tracking of behavioural responses by business, etc. There is a need for the periodic collection of taxpayer data and on-going analysis of these data by revenue authorities. This may require introducing mechanisms to do so in some countries.

10. Enhance regional cooperation to avoid harmful tax competition.

In many cases tax incentives are provided in response to what neighbouring countries and competitors are offering or perceived to be offering. Hence the issue of tax incentives cannot be tackled in isolation. Governments can work together on a regional basis to increase cooperation in the area of tax to avoid a race to the bottom when they provide competing tax incentives. Efforts to enhance regional cooperation should also cover the use of non-tax instruments e.g., cash subsidies and loan guarantees, which also provide incentives for investment.

B. Benchmarking Investment Incentives

The World Bank Group has developed a template to assess tax incentives for investment in countries around the world, in four dimensions: i) the rule of law; ii) transparency; iii) efficient administration; iv) incentive reviews. This subsection discusses the most recent version of the template, which is dynamic in the sense that it is continuously being updated on-line.

Rule of law

The issues here are that i) fiscal incentives should be provided through tax laws only; and ii) ratification of fiscal incentives policies should be through a law-making body / parliament.

Questions	Score and Methodology	Data Source
<p>Are all available tax incentives given out through tax laws only, which consolidate and publicize in their main body the list of incentives offered together with eligibility criteria?</p> <ol style="list-style-type: none"> 1. Is there a legal basis for granting fiscal incentives? 2. Are tax incentives provided through individual MoUs? 3. Are tax incentives provided based on decisions of an investment board or another intra-ministerial body? 4. Are tax incentives provided or mirrored in the Tax Code/Customs Code and nowhere else? 5. Were all tax/customs laws/bylaws/statutes/agreements/decrees providing or mirroring fiscal incentives scrutinized by a law-making body, such as parliament? 6. Are tax incentives provided in a single non-tax law/bylaw/statute/agreement/de decree without mirroring in tax/customs laws? 7. Were all non-tax laws/bylaws/statutes/agreements/decrees providing tax incentives scrutinized by a law-making body, such as parliament? 	<p>1. The score will be defined based on the <u>existent legal framework</u> underlying granting of fiscal incentives (including customs duties exemptions).</p> <p><u>The best score:</u> all tax incentives are provided in the Tax and/or Customs Code (Tax and Customs Codes are under a single authority – Ministry of Finance) and nowhere else.</p> <p><u>The worst score:</u> all tax incentives are provided ad hoc, based on decisions of certain individuals.</p> <p>2. The questionnaire is divided into three sections, which determine a <u>score range</u>, where a country would fall depending on three scenarios:</p> <ul style="list-style-type: none"> - Fiscal incentives are provided in tax and/or customs laws only – highest score range; - Fiscal incentives are provided in non-tax/non-customs laws – middle score range; - There is no legal basis for granting fiscal incentives – lowest score range. <p>Further, negative answers to questions in each of the sections add to higher score within the pre-determined range.</p> <p>3. The <u>score will be adjusted</u> based on the share of fiscal incentives granted through: (i) tax/customs laws; (ii) non-tax/non-customs laws; (iii) without legal basis. Intuitively, the more fiscal incentives are granted without legal basis, the lower the score.</p>	<p><u>Survey of a few public sector representatives</u> in charge of tax investment incentives (specifically, Revenue and Customs Authorities) <u>and local law firms</u> complemented by desk research to cross-check and verify information.</p> <p><u>Desk research:</u> Review of national legal instruments that have been mentioned in the survey.</p>

Transparency

Issues here include the public availability of laws and regulations related to investment incentives, publication of a list of incentives, public statement of principles and policy objectives underpinning incentives regime and disclosure of the largest beneficiaries of investment incentives.

Questions	Score and Methodology	Data Source
<p>Are the laws and regulations pertaining to investment incentives published in a source that is available to all?</p> <ol style="list-style-type: none"> Are legal instruments available online? Are legal instruments available in publicly available published sources, such as an official gazette? Are legal instruments available in hard copy upon request through a Government agency? Are legal instruments available at no cost? Are legal instruments available in English, if this is not the native language? 	<ol style="list-style-type: none"> The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire Each question will be answered for <u>two categories of legal instruments</u>: <ul style="list-style-type: none"> Laws, legislative bills; Regulations, decrees, bylaws, administrative instructions, decisions, and other measures of general application. Within each category, a <u>partial credit</u> will be assigned, depending on the degree of compliance with the principle. For example, if only a certain portion of legal instruments is publicly available, a partial score proportionate to the share of available instruments will be given. 	<p><u>Survey of a few public sector representatives</u> in charge of investment incentives complemented by desk research to cross-check and verify information.</p> <p><u>Desk research</u>: Review of public legal databases and publications to perform a factual check of sources that have been mentioned in the survey.</p>
<p>Are all available investment incentives published in an accessible, publicly available format?</p> <ol style="list-style-type: none"> Does the Law mandate that the Government maintains and publishes an inventory of investment incentives that lists the types of incentives that are available to investors? Is the list of incentives available in published sources available to all (e.g. official gazette)? Is the list of incentives published online? Does the list include eligibility criteria? Does the list include documentation and procedures required to claim incentives? Does the list include value of the incentives? Does the list include awarding body or agency? Does the list include contact information for any questions or follow-up relating to the application and awarding process? 	<ol style="list-style-type: none"> The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative answer adds a segment to the circle). Within each category, a <u>partial credit</u> will be assigned, depending on the degree of compliance with the principle. For example, if only a certain portion of incentives is publicly available, a partial score proportionate to the share of listed incentives will be given. 	<p><u>Survey of a few public sector representatives</u> in charge of investment incentives complemented by desk research to cross-check and verify information.</p> <p><u>Desk research</u>: Review of national legal instruments and factual check of publications that have been mentioned in the survey.</p>
<p>Are principles and policy objectives for changes in the incentives regime publicly stated and subject to public consultations?</p> <ol style="list-style-type: none"> Is there an investment attraction strategy or another document, which outlines policy objectives and strategy behind incentives in place? 	<ol style="list-style-type: none"> The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative answer adds a segment to the circle). Within each category, a <u>partial credit</u> will be assigned, depending on the regularity of implementation of best practices (if applicable). For example, if the changes in 	<p><u>Survey of a few public sector representatives</u> in charge of investment incentives complemented by desk research to cross-check and verify information.</p>

<ol style="list-style-type: none"> 2. Is the process for reform/change of the incentives regime outlined in the Law? 3. When changes to the incentives regime are introduced, are the proposed changes formally communicated to the public before such changes are adopted? 4. Are these changes communicated to the public through media channels that are available to all (e.g. online, local broadcasting station, official gazette)? 5. Are there opportunities for interested parties to voice their concerns or offer comments on the proposed changes before they are formally adopted? 	<p>incentives regime are communicated to the public only sometimes, and not all the times, the score will be adjusted downwards.</p>	<p><u>Desk research:</u> Review of national legal instruments and factual check of media publications that have been mentioned in the survey.</p>
<p>Are largest beneficiaries of incentives publicly reported?</p> <ol style="list-style-type: none"> 1. Is the information on the companies – largest beneficiaries of incentives reported? 2. Is the information on the sums of received incentives by each beneficiary reported? 3. Is the reported information disaggregated by individual sector? 4. Is the reported information disaggregated by specific incentive? 5. Is the information communicated publicly through available to all channels, such as online, local broadcasting station, official gazette? 6. Is the information reported regularly? Does the Government possess information on concessions granted outside of the general incentive regime? 7. Is information on concessions granted outside of the general incentive regime available to the general public? 	<ol style="list-style-type: none"> 1. The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative answer adds a segment to the circle). 2. Within each category, a <u>partial credit</u> will be assigned, depending on: <ul style="list-style-type: none"> - Regularity of the implementation of best practices (if applicable). For example, if the information is reported less often than annually, the score will be adjusted downwards. - Share of incentives covered by the reported information. For example, if the information on largest beneficiaries is reported with respect to only a certain portion of available incentives, the score will be adjusted downwards proportionate to the share of incentives covered. 	<p><u>Survey of a few public sector representatives</u> in charge of investment incentives complemented by desk research to cross-check and verify information.</p> <p><u>Desk research:</u> Factual check of media publications that have been mentioned in the survey.</p>

Efficient administration

Issues under this heading include the transparent and non-discretionary administration of investment incentives, consolidation of all tax incentives under a single government authority, coordination mechanisms among authorities responsible for investment incentives, and risk-based audits of incentives beneficiaries.

Questions	Score and Methodology	Data Source
<p>Are revenue authorities (tax and customs authorities) the main Government agencies in charge of all tax incentives?</p> <ol style="list-style-type: none"> Are revenue agencies (tax and customs authorities), which are both under the Ministry of Finance, the only administrators of tax incentives? Are tax incentives administered by a single non-revenue authority (such as an IPA or a line ministry)? If tax incentives are administered through non-revenue authorities, do revenue authorities have control and overview over the fiscal incentives given out? If tax incentives are administered through non-revenue authorities, is there some coordination/information exchange with the revenue authority in place? 	<ol style="list-style-type: none"> The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative answer adds a segment to the circle). Within each category, a <u>partial credit</u> will be assigned, depending on the share of incentives administered by revenue agencies (tax and customs authorities). For example, if only a certain portion of fiscal incentives is administered by revenue authorities, a partial score proportionate to the share of the incentives under revenue authorities will be given. 	<p><u>Survey of a few public sector representatives</u> in charge of tax investment incentives <u>and local law firms</u> complemented by desk research to cross-check and verify information.</p> <p><u>Desk research:</u> Review of national legal instruments that have been mentioned in the survey.</p>
<p>Is there a coordination mechanism for authorities to avoid unintended overlap and inconsistencies in the incentives regulations and to address problems associated with the governance of incentives?</p> <ol style="list-style-type: none"> Is there an inter-agency coordination mechanism among the authorities in charge of investment incentives? Is there a formal inter-agency coordination mechanism among the authorities in charge of investment incentives? Do authorities in charge of investment incentives exchange information on the type, amount, and beneficiaries of incentives granted? Are there standard reporting requirements established on the type, amount, and beneficiaries of incentives granted? Are authorities in charge of investment incentives on sub-national and central levels well-coordinated? [If applicable] 	<ol style="list-style-type: none"> The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative answer adds a segment to the circle). Within each category, a <u>partial credit</u> will be assigned, depending on the regularity of implementation of best practices (if applicable). For example, if the authorities in charge of investment incentives meet less often than once a year under the coordination mechanism, the score will be adjusted downwards. 	<p><u>Survey of a few public sector representatives</u> in charge of non-tax incentives <u>and local law firms</u> complemented by desk research to cross-check and verify information.</p> <p><u>Desk research:</u> Review of national legal instruments, internal guidelines of the agencies involved in the administration of non-fiscal incentives that have been mentioned in the survey.</p>
<p>Are incentives granted automatically based on clearly articulated eligibility criteria prescribed in a law without individual negotiations with authorities?</p> <ol style="list-style-type: none"> Are all tax incentives granted automatically through self-declaration by the taxpayer without the need for a signature, decision, certificate from any government officials? Are applications for incentives reviewed based on clear pre-defined published criteria? 	<ol style="list-style-type: none"> The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative answer adds a segment to the circle). A <u>partial credit</u> will be assigned to question 1 proportionally to the share of tax incentives granted automatically. 	<p><u>Survey of a few public sector representatives</u> in charge of tax incentives <u>and local law firms</u> complemented by desk research to cross-check and verify information.</p> <p><u>Desk research:</u> Review of national legal instruments, internal guidelines of the agencies involved in the administration of fiscal</p>

<p>2. Are there timelines for each step of the approval identified and service standards published?</p> <p>3. Is it required that a negative decision communicated in writing to the investor?</p> <p>4. Is it required that a negative decision motivated (meaning that the implementing body has to provide justification for the negative decision)?</p> <p>5. Is a negative decision subject to appeal before a higher administrative authority or the courts of the country?</p> <p>6. Is the fact of granting of an incentive published and made available to the general public?</p>		incentives that have been mentioned in the survey.
<p>Are investors receiving an incentive required to file a tax return (in case of VAT or income tax exemptions), or a statement detailing a duty or other exemptions availed in the prescribed period (in case of other exemptions)?</p> <p>1. Are investors receiving a tax incentive required to file a tax return/statement?</p> <p>2. Is the information submitted sufficient for the revenue administration to carry out a cost-benefit analysis?</p>	<p>1. The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative answer adds a segment to the circle).</p> <p>2. The <u>score will be adjusted</u> based on the share of incentives beneficiaries that file a tax return/statement in practice [if such information is available].</p>	<p><u>Survey of a few public sector representatives</u> in charge of tax incentives and a few private sector representatives complemented by desk research to cross-check and verify information.</p> <p><u>Desk research:</u> Review of databases/reports that have been mentioned in the survey.</p>

Incentives reviews

Issues include statements and publication of costs of tax expenditures, reviews of continuance of existing investment incentives based on cost-benefit analysis and systematic collection of data to underpin effectiveness assessment.

Questions	Score and Methodology	Data Source
<p>Is the amount of revenue loss attributable to tax incentives regularly calculated and publicly reported?</p> <p>1. Has there been an exhaustive calculation of tax expenditures associated with tax incentives (including customs exemptions)?</p> <p>2. Are calculations carried out regularly?</p> <p>3. Are the results of calculations made publicly available?</p> <p>4. Is there a legal requirement that tax expenditures are calculated and published regularly?</p>	<p>1. The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative answer adds a segment to the circle).</p> <p>2. The <u>score will be adjusted</u> based on the regularity of tax expenditure calculations. If the calculations are carried out less often than annually, the score will be adjusted downwards.</p>	<p><u>Survey of a few public sector representatives</u> in charge of investment incentives complemented by desk research to cross-check and verify information.</p> <p><u>Desk research:</u> Review of internal guidelines and other sources that have been mentioned in the survey.</p>
<p>Is the performance of each type of incentives assessed on a regular basis, including the costs, benefits, and the effectiveness of attaining the intended policy objectives?</p>	<p>The score will be defined based on the <u>quantity of negative answers</u> to the questionnaire (each negative</p>	<p><u>Survey of a few public sector representatives</u> in charge of investment incentives complemented</p>

<ol style="list-style-type: none"> 1. Is cost-benefit analysis performed for each type of investment incentives ex post by analyzing a sample of beneficiaries (after an incentive has been granted automatically)? 2. Are behavioral responses to incentives by investors taken into consideration (e.g. through motivation surveys)? 3. Are the reviews carried out regularly (at the same frequency)? 4. Are criteria and results of the reviews made publicly available? 5. Are sunset clauses introduced in laws granting investment incentives? 	<p>answer adds a segment to the circle).</p>	<p>by desk research to cross-check and verify information.</p> <p><u>Desk research:</u> Review of national legal instruments, internal guidelines, and other sources that have been mentioned in the survey.</p>
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