

DESIGN AND ASSESSMENT OF TAX INCENTIVES IN DEVELOPING COUNTRIES

SELECTED ISSUES AND
A COUNTRY EXPERIENCE



UNITED NATIONS



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CIAT

Preface

Tax incentives have traditionally been used by governments as tools to promote a particular economic goal. They are preferential tax treatments that are offered to a selected group of taxpayers and take the form of exemptions, tax holidays, credits, investment allowances, preferential tax rates and import tariffs (or customs duties), and deferral of tax liability.

The generalized use of tax incentives has been justified by the need to: (i) correct market inefficiencies associated with the externalities of certain economic activities; (ii) target new industries and mobile investments that are subject to tax competition; (iii) generate a form of agglomeration economies, or concentration externalities; and (iv) subsidize companies during their sector's downturn. As a matter of fact, developed countries normally use tax incentives to promote research and development activities, export activities, and support the competitiveness of their enterprises in the global market; while developing countries use them to attract foreign investment and foster national industries.

Although at first, tax incentives appear to be costless because they do not seem to affect the current budget, they may entail significant costs, such as revenue loss, low economic efficiency, increased administrative and compliance costs, and excessive tax planning and tax evasion, which may exceed their benefits and considerably erode the general tax base.

Given that costs and benefits of tax incentives vary from country to country, the impact of tax incentives on the economic growth and expansion of the overall tax base is not uniform. While in some cases, tax incentives may clearly play an important role in attracting new investments that contribute to substantial economic growth and development of the country, in others, a particular tax incentive scheme may result in little new investments, with a significant cost to the government.

For this reason, the theoretical positive effect of tax incentives has been questioned and thus some governments have used different models, such as the computable general equilibrium (CGE) model, to conduct a cost-benefit analysis focused on their economic and revenue impact. This could ensure that a tax incentive program is worth pursuing and clear policies and laws delineating its scope, requirements and administration might be elaborated. Unfortunately, such a sophisticated model is often not an option for developing countries due to budget and resource constraints. However, in such cases micro-simulation models can be built. They are more easily accessible, since they are based on companies' financial statements and tax returns submitted to the tax authorities.

The purpose of this publication is to provide tax policy makers and administrations with a reasonable methodology that allows them to estimate the net benefit of a tax incentive program, in order to improve the design, assessment and administration of such a program, thereby supporting possible administrative reforms and improving tax procedures, with a view to fostering greater tax efficiency, economic growth and equity.

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Most of all, we would like to thank the experts who authored the chapters of this publication, namely: Ms. Duanjie Chen, Mr. Peter A. Harris and Mr. Eric M. Zolt. We are also grateful to the other experts who contributed to project activities, namely: Mr. Peter A. Barnes, Mr. Ricardo Fenochietto and Mr. Marcel Ramírez La Torre.

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Introduction

This publication is a result of a project, undertaken jointly by the Financing for Development Office (FfDO) of the United Nations Department of Economic and Social Affairs (UN-DESA) and the Inter-American Center of Tax Administrations (CIAT), aimed at strengthening the capacity of national tax administrations (NTAs) in developing countries in Latin America to measure net benefits of tax incentives. The ultimate goal of this project was to support the development of a theoretical framework and an empirical methodology to design and assess tax incentives, which could assist in identifying possible reforms aimed at improving their efficiency.

The project was funded through the United Nations Development Account. The work was coordinated by a small team comprising both United Nations and CIAT officials, under the respective supervision of Mr. Alexander Trepelkov, Director, FfDO/UN-DESA, and Mr. Márcio Verdi, Executive Secretary, CIAT.

Within the FfDO, the work was managed by Ms. Dominika Halka, Chief, Multi-stakeholder Engagement and Outreach Branch, and Mr. Harry Tonino, Chief, Capacity Development Unit. Within CIAT, the work was coordinated by Mr. Santiago Díaz de Sarralde, Tax Studies and Research Director.

The project was implemented with the support of three consultants, namely: Mr. Eric M. Zolt, Mr. Peter Harris and Ms. Duanjie Chen. Mr. Zolt was responsible for developing the theoretical background; Mr. Harris developed a checklist for drafting tax incentives legislation and an accompanying commentary; and Ms. Chen worked on the practical analysis of tax incentives for the tourist industry in the Dominican Republic, with the technical support of the Ministry of Finance. The result of their work is presented in this publication, which was drafted in coordination with FfDO and CIAT.

This publication is divided into three Parts. Part I deals with the theoretical background of tax incentives and comprises two Chapters. Chapter I offers an overview of key concepts and issues

regarding tax incentives and their use to attract investment; Chapter II examines the benefits and costs of using tax incentives and presents important considerations for designing, granting and monitoring the use of tax incentives to increase investment and growth.

Part II focuses on practical considerations regarding the use of tax incentives. It encompasses two Chapters. Chapter I provides a list of items to be considered and addressed when drafting a tax incentive scheme to ensure consistency between the legal framework of such scheme and the policy underlying it, as well as clarity with respect to the scope of application and easiness in its administration. Chapter II proposes a cost-benefit analysis as an approach to assess the effectiveness of tax incentives. It includes a conceptual framework for such analysis, a comparative study of two existing schemes used in the United States of America, and a prototype model of cost-benefit analysis for assessing tax incentives without involving sophisticated economic modelling tools.

Part III contains a detailed report on the cost-benefit analysis of tax incentives granted to the tourism industry in the Dominican Republic. It includes a review of the performance of the tourism industry in the Dominican Republic from a historical and regional perspective, as well as an assessment of the benefits and costs (including the opportunity cost) of such a program.

It is important to note that all the considerations and recommendations presented in this publication are based on several approaches that have proven to be good practices in various countries. However, tax administrators should be cautious in applying them to different contexts and should consider the legal framework and the degree of institutional development required to adapt such practices to the situation in any specific country.

The electronic version of this publication is available free of charge in English at http://www.un.org/esa/ffd/wp-content/uploads/2018/02/tax-incentives_eng.pdf, and Spanish at http://www.un.org/esa/ffd/wp-content/uploads/2018/02/tax-incentives_sp.pdf.

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Part I

Tax Incentives—Theoretical Background

Chapter I

An overview of key concepts and issues*

I. Introduction

The present chapter seeks to provide an overview of key concepts and issues regarding tax incentives and their use to attract investment.¹ Some contend that tax incentives, particularly for foreign direct investment, are bad in both theory and in practice. Tax incentives are bad in theory because they distort investment decisions. Tax incentives are bad in practice because they are often ineffective, inefficient and prone to abuse and corruption.

Yet almost all countries use tax incentives. In developed countries, tax incentives often take the form of investment tax credits, accelerated depreciation and favourable tax treatment for expenditures on research and development. To the extent possible in the post-World Trade Organization world, developed countries also adopt tax regimes that favour export activities and seek to provide their resident corporations a competitive advantage in the global marketplace. Many transition and developing countries have an additional focus. Tax incentives are used to encourage domestic industries and to attract foreign investment. Here, the tools of choice are often tax holidays, regional investment incentives, special enterprise zones and reinvestment incentives.

Much has been written about the desirability of using tax incentives to attract new investment. The United Nations,² the

* Prepared by Eric M. Zolt, Michael H. Schill Distinguished Professor of Law, UCLA School of Law.

¹ Parts of the discussion in the present chapter rely on Alex Easson and Eric M. Zolt, "Tax Incentives", World Bank Institute (Washington, D.C., World Bank Group, 2002), available from <http://siteresources.worldbank.org/INTTPA/Resources/EassonZoltPaper.pdf>.

² See, for example, United Nations Conference on Trade and Development, *Incentives and Foreign Direct Investment* (United Nations publication, Sales No. E.96.II.A.6); and *Tax Incentives and Foreign Direct Investment: A Global Survey* (United Nations publication, Sales No. E.01.II.D.5).

International Monetary Fund (IMF),³ the Organization for Economic Cooperation and Development (OECD)⁴ and the World Bank⁵ have produced useful reports that provide guidance to policymakers on whether to adopt tax incentives and how best to design them. The empirical evidence on the cost-effectiveness of using tax incentives to increase investment is inconclusive. While economists have made significant advances in determining the correlation between increased tax incentives and increased investment, it is challenging to determine whether tax incentives caused the additional investments. This is partly because it is difficult to determine the amount of marginal investment associated with the tax benefit; that is to say, the investments that would not otherwise have occurred “but for” the tax benefits. While foreign investors often claim that tax incentives were necessary for the investment decision, it is not easy to determine the validity of the claim. Governments often adopt tax incentives in a package with other reforms designed to improve the climate for investment, making it difficult to determine the portion of new investment that is attributable to tax

³ See, for example, George E. Lent, “Tax Incentives for Investment in Developing Countries”, *IMF Staff Papers*, vol. 14, No. 2 (Washington, D.C., IMF, 1967); Howell H. Zee, Janet Gale Stotsky and Eduardo Ley, “Tax Incentives for Business Investment: A Primer for Tax Policy Makers in Developing Countries”, International Monetary Fund (Washington, D.C., IMF, 2001); Alexander Klemm, “Causes, Benefits and Risks of Business Tax Incentives”, International Monetary Fund (Washington, D.C., IMF, 2009); and David Holland and Richard J. Vann, “Income Tax Incentives for Investment”, in *Tax Law Design and Drafting*, Victor Thuronyi, ed., vol. 2 (Washington, D.C., IMF, 1998).

⁴ See, for example, Organization for Economic Cooperation and Development, *Tax Effects on Foreign Direct Investment: Recent Evidence and Policy Analysis*, Tax Policy Study No. 17 (2007); Organization for Economic Cooperation and Development, “Tax Incentives for Investment: A Global Perspective: experiences in MENA and non-MENA countries”, in *Making Reforms Succeed: Moving Forward with the MENA Investment Policy Agenda* (Paris: OECD, 2008).

⁵ See, for example, Robin W. Boadway and Anwar Shah, “Perspectives on the Role of Investment Incentives in Developing Countries”, World Bank (Washington, D.C.), World Bank, 1992); Sebastian James, “Effectiveness of Tax and Non-Tax Incentives and Investments: Evidence and Policy Implications”, World Bank Group (Washington, D.C., World Bank Group, 2013); Sebastian James, “Incentives and Investments: Evidence and Policy Implications”, World Bank Group (Washington, D.C., World Bank Group, 2009); and Alex Easson and Eric M. Zolt, “Tax Incentives”, World Bank Institute (Washington, D.C., World Bank Group, 2002), available from <http://siteresources.worldbank.org/INTTPA/Resources/EassonZoltPaper.pdf>.

benefits and the portion that relates to other pro-investor reforms. With these qualifications, it is sometimes easy to conclude that a particular tax incentive scheme has resulted in little new investment, with a substantial cost to the government. In other cases, however, tax incentives have clearly played an important role in attracting new investment that contributed to substantial increases in growth and development.

One place to start thinking about tax incentives is to consider what role governments should play in encouraging growth and development. Governments have many social and economic objectives and a variety of tools to achieve those objectives.⁶ Tax policy is just one option, and taxes are just one part of a complex decision as to where to make new domestic investment or commit foreign investment. Governments have a greater role than to focus on relative effective tax burdens. Governments need to consider their role in improving the entire investment climate to encourage new domestic and foreign investment, rather than simply doling out tax benefits. Thus, while much of the focus on tax incentives is on the taxes imposed by government, it is also important to examine the government spending side of the equation. Investors, both domestic and foreign, benefit from government expenditures. A comparison of relative tax burdens requires consideration of relative benefits from government services.

II. Definition of tax incentives

At one level, tax incentives are easy to identify. They are those special provisions that allow for exclusions, credits, preferential tax rates or deferral of tax liability. Tax incentives can take many forms: tax holidays for a limited duration, current deductibility for certain types of expenditures or reduced import tariffs or customs duties. At another level, it can be difficult to distinguish between provisions considered part of the general tax structure and those that provide special treatment. This distinction will become more important when countries become

⁶ See, generally, Richard M. Bird and Eric M. Zolt, “Tax Policy in Emerging Countries”, in *Environment and Planning C: Government and Policy*, vol. 26 (UCLA School of Law, 2008); Richard M. Bird, “Tax Incentives for Investment in Developing Countries”, in *Fiscal Reform and Structural Change in Developing Countries*, Guillermo Perry, John Whalley and Gary McMahon, eds., vol. 1 (London: Canada: Macmillan in association with the International Development Research Centre, 2000).

limited in their ability to adopt targeted tax incentives. For example, a country can provide a 10 per cent corporate tax rate for income from manufacturing. This low tax rate can be considered simply an attractive feature of the general tax structure as it applies to all taxpayers (domestic and foreign) or it can be seen as a special tax incentive (restricted to manufacturing) in the context of the entire tax system.

Tax incentives can also be defined in terms of their effect on reducing the effective tax burden for a specific project.⁷ This approach compares the relative tax burden on a project that qualifies for a tax incentive to the tax burden that would be borne in the absence of a special tax provision. This approach is useful in comparing the relative effectiveness of different types of tax incentives in reducing the tax burden associated with a project.

Commentators contend tax incentives may now play a larger role in influencing investment decisions than in past years. Several factors explain why tax considerations may have become more important in investment decisions.⁸ First, tax incentives may be more generous now than in past years. The effective reduction in tax burden for investment projects may be greater than in the past, as tax holiday periods increase from 2 years to 10 years or the tax relief provided in certain enterprise zones comes to include trade taxes as well as income taxes. Second, over the past several decades there has been substantial trade liberalization and greater capital mobility. As non-tax barriers decline, the significance of taxes as an important factor in investment decisions increases. Third, business has changed in many ways. Firms have made major changes in organizational structure, production and distribution methods and the types of products being manufactured and sold. Highly mobile services and intangibles are a much higher portion of cross-border transactions than in past years.

Fewer firms now produce their products entirely in one country. Many of them contract out to third parties (either unrelated

⁷ See Howell H. Zee, Janet Gale Stotsky and Eduardo Ley, "Tax Incentives for Business Investment: A Primer for Tax Policy Makers in Developing Countries", International Monetary Fund (Washington, D.C., IMF, 2001).

⁸ See Alex Easson, "Tax Incentives for Foreign Investment, Part I: Recent Trends and Countertrends", *Bulletin for International Fiscal Documentation*, vol. 55. (2001).

third parties or related “contract manufacturers”) some or all of their production. With improvements in transportation and communication, component parts are often produced in multiple countries, which results in increased competition for production among several countries. In addition, distribution arrangements have evolved, where the functions and risks within a related group of corporations are allocated to reduce tax liability through so-called commissionaire arrangements. Finally, there has been substantial growth in common markets, customs unions and free trade areas. Firms can now supply several national markets from a single location. This will likely encourage competition among countries within a common area to serve as the host country for firms servicing the entire area.

While tax incentives can make investing in a particular country more attractive, they cannot compensate for deficiencies in the design of the tax system or inadequate physical, financial, legal or institutional infrastructure. In some countries, tax incentives have been justified because the general tax system places investments in those countries at a competitive disadvantage compared with other countries. It makes little sense, however, to use tax incentives to compensate for high corporate tax rates, inadequate depreciation allowances or the failure to allow companies that incur losses in early years to use those losses to reduce taxes in later years. The better approach is to bring the corporate tax regime closer to international practice, rather than grant favourable tax treatment to specific investors. Similarly, tax incentives are a poor response to the economic or political problems that may exist in a country. If a country has inadequate protection of property rights, rigid employment laws or a poorly functioning legal system, it is necessary to engage in the difficult and lengthy process of correcting these deficiencies rather than provide investors with additional tax benefits.

The effectiveness of tax incentives is directly related to the investment climate (including investor confidence that a revenue authority will actually honour tax incentives without controversy) in a particular country.⁹ While two countries could provide identical tax

⁹ See Stefan Van Parys and Sebastian James, “Why Tax Incentives May be an Ineffective Tool to Encouraging Investment?—The Role of Investment Climate”, International Monetary Fund, World Bank Group (Washington, D.C., IMF; World Bank Group, 2009), available from <http://ssrn.com/abstract=1568296>.

incentives (for example, a 10-year holiday for corporate income taxes), the relative effectiveness of the incentive in attracting foreign direct investment is substantially greater for the country with the better investment climate.¹⁰

III. Different types of tax competition

Tax incentives are all about tax competition—how can a country attract investment that otherwise would have gone to a different region or country? Countries may seek to compete for different types of investments, such as headquarters and service businesses, mobile light assembly plants or automobile manufacturing facilities. The starting point in thinking about tax competition is to consider the reasons why foreign investors invest in a particular country. At a highly stylized general level, there are three primary reasons to engage in cross-border investments: (a) to exploit natural resources; (b) to facilitate the selling or production of goods or services in a particular market; and (c) to take advantage of favourable conditions in a particular country (such as relatively low wages for qualified workers) to produce goods for export (either as finished products or as components). The competition for foreign investment will differ depending on the reason for the investment. For example, tax competition will exist among countries of a common customs union for the manufacturing or distribution facility that will service the entire region. In contrast, for export platforms, the competition will be among countries that have similar comparative advantages. As such, the competition for investment may be global, among countries in a particular region or even among States within a particular country. The key point is that the design and the effectiveness of tax incentives will differ depending on the type of investment.

IV. Additional investment incentives

Countries will compete for foreign investment using any means available to them. Non-tax incentives, such as training grants,

¹⁰ See Sebastian James, “Providing Incentives for Investment: Advice for Policy-makers in Developing Countries”, *Investment Climate in Practice*, No. 7, World Bank Group (Washington, D.C., World Bank Group, 2010). He estimates that tax incentives in a country with a good investment climate may be eight times more effective in attracting foreign investment than in countries with less favourable investment environments.

low-cost loans or infrastructure improvements can be substitutes or complements to tax incentives. If challenges exist to using tax incentives (for example, due to agreements not to use particular types of tax incentives or because of the structure of the tax regime in the foreign investor’s home country), then countries will likely make greater use of non-tax incentives.

A different form of investment incentives is tax-related, but not generally included in the list of types of tax incentives. These disguised tax incentives can include liberal safe harbours in transfer pricing rules, provisions that facilitate aggressive tax planning and even tacit forms of lax tax enforcement. For example, the United States “check-the-box” regulations can be viewed as a tax incentive to allow United States multinational entities to compete more effectively with non-United States multinational entities by using hybrid entities to minimize foreign tax liability in high-tax countries.

V. Role of non-tax factors

Deciding whether and where to invest is a complex decision. It is not surprising that tax considerations are just one factor in these decisions. Commentators have listed several factors that influence investment decisions, particularly those of foreign investors.¹¹ A partial list of these factors is set forth in the box below.

Non-tax factors influencing investment decisions

1. Consistent and stable macroeconomic and fiscal policy.
2. Political stability.
3. Adequate physical, financial, legal and institutional infrastructure.
4. Effective, transparent and accountable public administration.
5. Skilled labour force and flexible labour code governing employer and employee relations.
6. Availability of adequate dispute resolution mechanisms.

¹¹ Sebastian James, “Incentives and Investments: Evidence and Policy Implications”, World Bank Group (Washington, D.C., World Bank Group, 2009).

7. Foreign exchange rules and the ability to repatriate profits.
8. Language and cultural conditions.
9. Factor and product markets—size and efficiency.

Most surveys of business executives conclude that taxes were often not a major consideration in deciding whether and where to invest. For most types of investments, there is a two-part decision. First, from a business perspective, which country would be the best choice for achieving a particular investment objective? Second, from a tax perspective, how would activities be structured to minimize tax liabilities (both on a country basis and an aggregate worldwide basis)?

VI. Review of empirical evidence

Several economic studies have examined the effect of taxes on investment, particularly foreign direct investment. While it is not easy to compare the results of different empirical studies, scholars have attempted to survey the various studies and to reach some conclusions as regards the effect of taxes on levels of foreign investment.¹² Such surveys note the difficulty of comparing the results of different studies because the studies contain different data sources, methodologies and limitations. The studies also report different types of elasticities in measuring the responsiveness of investment to taxes.

Part of the difficulty in determining the effect of taxes on foreign investment is getting a good understanding of the different types of foreign investment and the different sources of funding for foreign investment. Foreign investment consists of both portfolio and direct

¹² See Commission of the European Communities, *Report of the Committee of Independent Experts on Company Taxation* (Brussels, Office for Official Publications of the European Communities, 1992); see also James R. Hines, Jr., “Tax Policy and the Activities of Multinational Corporations,” in *Fiscal Policy: Lessons from Economic Research* (Cambridge, Massachusetts: MIT Press, 1997), Alan Auerbach, ed., and James R. Hines, Jr., “Lessons from Behavioral Responses to International Taxation”, *National Tax Journal*, vol. 52 (1999); Ruud A. de Mooij and Sjef Ederveen, “Taxation and Foreign Direct Investment: A Synthesis of Empirical Research”, *International Tax and Public Finance*, vol. 10, No. 6 (2003); and Alexander Klemm and Stefan Van Parys, “Empirical Evidence on the Effects of Tax Incentives”, International Monetary Fund (Washington, D.C., IMF, 2009).

investment. While different ways to distinguish portfolio and direct investment exist, a common approach is to focus on the foreign investor's percentage ownership of the domestic enterprise. For example, if the foreign investor owns a greater than 10 per cent stake in an enterprise, the investment is likely more than a mere passive holding for investment purposes. Foreign direct investment can be further divided into direct transfers from a parent company to a foreign affiliate through debt or equity contributions and reinvested earnings by the foreign affiliate.

The different forms of foreign investment are also important, as each form may respond differently to taxes. Types of foreign investment include: (a) real investments in plant and equipment; (b) financial flows associated with mergers and acquisitions; (c) increased investment in foreign affiliates; and (d) joint ventures. Finally, commentators have noted that taxes may affect a decision as to the source of financing more than decisions as to the level of investment.¹³ Investors have several alternatives on how to fund new ventures or expand existing operations. Taxes likely play a role in the choice of whether to make a new equity investment, use internal or external borrowing or use retained earnings to finance investments.

When the results of tax incentive regimes are examined seriously, there are successes and failures.¹⁴ A good review of the results of incentives is set forth in a 1996 United Nations study. The United Nations study concluded that "as other policy and non-policy conditions converge, the role of incentives becomes more important at the margin, especially for projects that are cost-oriented and mobile". OECD reached a similar conclusion in finding that host country taxation affects investment flows and that it is an increasingly important factor in locational decisions.¹⁵

¹³ See Alan Auerbach, "The Cost of Capital and Investment in Developing Countries", in *Fiscal Incentives for Investment and Innovation*, Anwar Shah, ed., vol. 1 (Washington, D.C., World Bank Group, 1995).

¹⁴ See Ngee Choon Chia and John Whalley, "Patterns in Investment Tax Incentives Among Developing Countries", in *Fiscal Incentives for Investment in Developing Countries*, Anwar Shah, ed. (Washington, D.C., World Bank, 1992).

¹⁵ See W. Steven Clark, "Tax Incentives for Foreign Direct Investment: Empirical Evidence on Effects and Alternative Policy Options", *Canadian Tax Journal*, vol. 48 (2000).

Chapter II

Tax incentives: benefits and costs, design and administrative considerations*

I. Introduction

The present chapter examines the benefits and costs of using tax incentives and important considerations for designing, granting and monitoring the use of tax incentives to increase investment and growth. Tax incentives are often criticized on the grounds that they erode the tax base without any substantial effects on the level of investment. It is not easy to separate criticism of the tax incentive regimes that are currently in place from criticism of all tax incentives. Tax experts have recognized that certain well-designed tax incentives have been successful in increasing investment.

II. Benefits and costs of tax incentives

A. Benefits of tax incentives

If properly designed and implemented, tax incentives are a useful tool for attracting investments that would not have been made without the provision of tax benefits. Tax incentives are justified if they correct market inefficiencies or generate positive externalities. Scholars view such tax incentives as desirable, given that, without government intervention, the level of foreign direct investment would be suboptimal.¹⁶

It is not surprising that Governments often choose tax incentives over other types of action. It is much easier to provide tax benefits than to correct deficiencies in the legal system or to dramatically improve the communications system in a country. In

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¹⁶ Yoram Y. Margalioth, "Tax competition, foreign direct investments and growth: using the tax system to promote developing countries", *Virginia Tax Review*, vol. 23, issue 1 (2003).

addition, tax incentives do not require an expenditure of funds by the Government as do some alternatives, such as the provision of grants or cash subsidies to investors. Although tax incentives and cash grants may be similar in terms of their economic cost to Governments, for political and other reasons, it is easier to provide tax benefits than to actually provide funds to investors.

New foreign direct investment may bring substantial benefits, some of which are not easily quantifiable. A well-targeted tax incentive programme may be successful in attracting specific projects or specific types of investors at reasonable costs compared with the benefits received. The types of benefits from tax incentives for foreign investment are the benefits commonly associated with foreign direct investment, including increased capital, knowledge and technology transfers, increased employment and assistance in improving conditions in less developed areas.

Foreign direct investment may generate substantial spillover effects. For example, the choice of location for a large manufacturing facility will not only result in increased investment and employment in that facility but also in firms that supply and distribute the products emanating from it. Economic growth will increase the spending power of the country's residents and that, in turn, will increase demand for new goods and services. Increased investment may also increase government tax revenue either directly from taxes paid by the investor, such as taxes paid after the expiration of the tax holiday period, or indirectly through increased tax revenue received from employees, suppliers and consumers.

The positive view of the benefits of foreign direct investment has recently been challenged by those who question whether tax incentives actually increase the level of foreign direct investment and whether foreign direct investment actually generates economic growth that is beneficial to development.¹⁷ In this view, even if tax incentives succeed in attracting new investment, it is not clear, with many types of foreign investments, whether the developing country benefits.

¹⁷ Yariv Brauner, "The future of tax incentives for developing countries", in *Tax, Law and Development*, Yariv Brauner and Miranda Stewart, eds. (Cheltenham, United Kingdom of Great Britain and Northern Ireland, Edward Elgar Publishing, 2014).

Although a general description can be provided of the possible types of benefits from the additional investment that results from tax incentives, it is difficult to quantify them with any degree of certainty and, at times, benefits accrue to persons other than the firm receiving the tax benefits.

B. Costs of tax incentives

In considering the costs of a tax incentive regime, it may be useful to examine four different types of costs: (a) revenue costs; (b) resource allocation costs; (c) enforcement and compliance costs; and (d) the costs associated with corruption and lack of transparency.¹⁸

Revenue costs

The tax revenue losses from tax incentives come from two primary sources: forgone revenue from projects that would have been undertaken even if the investor did not receive any tax incentives and lost revenue from investors and activities that improperly claim incentives or shift income from related taxable firms to those qualifying for favourable tax treatment.

Policymakers seek to target tax incentives to achieve the greatest possible benefits for the lowest cost. The ideal scenario would be to offer tax incentives only to those investors at the margin who would invest elsewhere but for the tax incentives. Offering tax incentives to those investors whose decisions to invest are not affected by the proposed tax benefit merely results in a transfer to the investor from the host Government without any gain. It is very difficult to determine on a project-by-project basis which ones were undertaken solely due to tax incentives, much as it is difficult to estimate for an economy as a whole what the levels of investment would be with or without a tax incentive regime.

For those projects that would not have been undertaken without tax incentives, there is no real loss of tax revenue from those

¹⁸ Howell H. Zee, Janet Gale Stotsky and Eduardo Ley, "Tax incentives for business investment: a primer for policymakers in developing countries", *World Development*, vol. 30, No. 9 (2002).

firms. To the extent that the firms become regular taxpayers or that their operations generate other tax revenue, such as increased profits from suppliers or increased wage taxes from employees, there are revenue gains from those projects.

An additional revenue cost of tax incentives results from the erosion of the revenue base due to taxpayers abusing the tax incentive regimes to avoid paying taxes on non-qualifying activities or income. This can take many forms. Revenue losses can result when taxpayers disguise their operations to qualify for tax benefits. For example, if tax incentives are available only to foreign investors, local firms or individuals can route their local investments through foreign corporations; or if tax benefits are available only to new firms, taxpayers can reincorporate or set up many new related corporations to be treated as a new taxpayer under the tax incentive regime.

Other leakages occur when taxpayers use tax incentives to reduce their tax liability from non-qualified activities. For example, when a firm qualifies for a tax holiday because it is engaged in a type of activity that the Government believes merits tax incentives, it is likely quite difficult to monitor the firm's operation to ensure that it does not engage in additional non-qualifying activities. Even for cases in which the activities are separated, it is very difficult to monitor related-party transactions to make sure that income is not shifted from a taxable firm to a related one that qualifies for a tax holiday.

Resource allocation costs

If tax incentives are successful, they will cause additional investment in sectors, regions or countries that would not otherwise have occurred. On the one hand, the additional investment will occasionally correct for market failures; on the other hand, the tax incentives may cause allocation of resources that could result in too much investment in certain activities or too little investment in other non-tax favoured areas.

It is difficult to determine the effects of tax provisions in countries where markets are relatively developed. It is even more difficult to determine the consequences of tax provisions in developing countries where the markets do not reflect the existing competitive models. As such, where markets are imperfect, it is not clear whether

providing tax incentives to correct market imperfections will make markets more competitive.¹⁹

Enforcement and compliance costs

As with any tax provision, there are resource costs incurred by the Government in enforcing the tax rules and by taxpayers in complying. The cost of enforcement relates to the initial grant of the incentive and the costs incurred in monitoring compliance with the qualification requirements and enforcing any recapture provisions upon termination or failure to continue to qualify. The greater the complexity of the tax incentive regime, the higher the potential enforcement and compliance costs. Tax incentive schemes that have many beneficiaries are also more difficult to enforce than narrowly targeted regimes.

It is difficult to motivate revenue authorities to spend resources monitoring tax incentive schemes. Revenue authorities seek to use their limited administrative resources to improve tax collection, so it is not surprising that they prefer auditing fully taxable firms rather than those firms operating under a tax holiday arrangement.

Costs associated with corruption and lack of transparency

Corruption can constitute a major barrier to foreign investment in a country but it does not, however, prevent foreign investors from benefiting from a corrupt system. In recent years, scholars have focused on the corruption and other rent-seeking behaviour associated with the granting of tax incentives. Several different policy approaches exist for designing the qualification requirements for tax incentives. Policymakers can choose between approaches that are automatic and objective or those that are discretionary and subjective. The opportunity for corruption is much greater for tax incentive regimes in which officials have a large amount of discretion in determining which investors or projects receive favourable treatment. The potential for abuse is also greater in cases in which no clear guidelines exist for qualification.

¹⁹ Richard George Lipsey and Kelvin Lancaster, “The general theory of second best”, *Review of Economic Studies*, vol. 24, No. 1 (1956–1957).

The International Monetary Fund, the Organization for Economic Cooperation and Development (OECD) and the World Bank have projects that try to reduce corruption and provide assistance to countries to establish anti-corruption programmes.²⁰ One element of such programmes should be the monitoring of foreign investment projects and particularly the granting of investment incentives. If a tax incentive is found to have been improperly obtained, the attendant privileges should be withdrawn and any tax that has been avoided should be repaid, in addition to any other legal sanctions.

Estimates of the costs of tax incentives

Even when tax incentives succeed in attracting investment, the costs of the incentives may exceed the benefits derived from the new investment. This is difficult to substantiate, since problems exist with regard to estimating the costs and benefits of tax incentives. One method of cost-benefit analysis is to estimate the cost in terms of forgone revenue and/or direct financial subsidies for each job created. Studies using that approach may not provide a true measure of efficiency, because they measure only the cost, and not the value, of the jobs created. The cost of jobs varies widely according to the country and the industrial sector, and the more “expensive” jobs may bring with them greater spillover benefits, such as technology transfer.

All revenue estimates are based on a set of assumptions about the responses of taxpayers to particular tax law changes. In assessing the performance of tax incentive schemes, the objectives are to determine the amount of incremental investment resulting from tax incentives and the costs and benefits associated with attracting that investment.

Those objectives require that assumptions be made about: (a) the amount of investment that would have been made without the tax incentive programme; (b) the amount of leakage from the tax base due

²⁰ See Organization for Economic Cooperation and Development (OECD), United Nations Office on Drugs and Crime and World Bank, *Anti-Corruption Ethics and Compliance Handbook for Business*; Asian Development Bank and OECD, *Anti-Corruption Initiative for Asia and the Pacific*. Available from www.oecd.org/site/adboecdanti-corruptioninitiative; Vito Tanzi, “Corruption around the world: causes, consequences, scope and cures”, *Staff Papers, International Monetary Fund*, vol. 45, No. 4 (December 1998).

to taxpayers improperly claiming the tax incentives or shifting income from taxable to related tax-exempt or lower-taxed entities; and (c) the tax revenue gained from the activities, undertaken after the incentive expires, of taxpayers who were granted a tax incentive or from those activities generating other sources of tax revenue.

Two methods for increasing the accountability and transparency of tax incentives are implementing tax incentive budgets and analysing general tax expenditure. As discussed below, in many countries the tax authorities do not have sole responsibility or discretion in designing and administering tax incentive programmes. In those countries, different government agencies, such as foreign investment agencies or ministries of economy, have a role in designing investment regimes, approving projects and monitoring investments. Their major objective is to attract investments; they are often less concerned with protecting the tax base.

An approach that merits consideration is setting a target monetary amount of tax benefits to be granted under a tax incentive regime, which would require both the tax authorities and other government agencies to agree on both a target amount and a methodology for determining the revenue costs associated with a particular tax incentive regime.

Another method is to include tax incentives in a formal tax expenditure budget. All OECD countries and several other countries require estimates to be prepared on the revenue impact of certain existing and proposed tax provisions. The goal of those budgets is to highlight the consequences for revenue of providing tax benefits. That approach seeks to treat tax expenditure in a manner similar to direct spending programmes and thus effectively equates direct spending by the Government with indirect spending by the Government through the tax system. Although the scope of tax expenditure analysis goes beyond tax incentives, countries can choose to follow this approach for only certain types of tax incentives or for a broader class of tax provisions. For those countries that do not have a formal tax expenditure requirement, it is advised that they undertake the exercise to decide whether to adopt or retain a tax incentive regime.²¹

²¹ Sebastian James, “Effectiveness of tax and non-tax incentives and investments: evidence and policy implications” (Washington, D.C., World Bank Group, September 2013).

III. Design considerations for tax incentives

A. Eligibility issues

Tax incentives are departures from the benchmark system that are granted only to those investors or investments that satisfy prescribed conditions. These special tax privileges may be justified only if they attract investments that are both particularly desirable and that would not be made without such tax benefits. The first question to answer when designing a tax incentive system is what types of investment the incentives are intended to attract.

Targeting incentives

Incentives may be broadly targeted, aiming at all new investment, foreign or domestic, or they may be very narrowly targeted, designed for one particular proposed investment. The targeting of incentives serves two important purposes: (a) it identifies the types of investment that host Governments seek to attract; and (b) it reduces the cost of incentives because it reduces the number of investors that benefit.

The concept of targeting incentives raises the questions of whether a Government should treat some types of investment as more desirable or beneficial than others; and whether a Government should seek to attract tax incentives and target them at particular types of investments or decide that investment decisions should be left solely to market forces. Justifiable doubt exists about the ability of politicians to choose winning investors, particularly in countries where markets are less than perfect. Furthermore, there are some types of investment that, although not completely prohibited, may not deserve encouragement in the form of tax benefits. In the ideal scenario, incentives would be given only for incremental investment, that is, for investments that would not otherwise have occurred but for the tax benefits.

An initial question is whether the granting of tax incentives should be discretionary or automatic, once the prescribed conditions are met. In many cases, it may be advisable to limit discretion, but if qualification for incentives is made largely automatic, it would be necessary for the qualifying conditions to be elaborated clearly and in detail.

Many countries grant preferential tax treatment to certain sectors of the economy or to certain types of activities. Sectoral targeting has many advantages, such as restricting the benefits of the incentives to those types of investment that policymakers consider to be most desirable and making it possible to target those sectors that are most likely to be influenced by tax considerations. Among the sectors of the economy and types of activities commonly preferred are manufacturing activities and pioneer industries, as well as export promotion, locational incentives and investments that result in significant transfers of technology.

Countries may elect to restrict investment incentives to manufacturing activities or provide for those activities to receive preferential treatment, which is the case in China and Ireland. Such preferential treatment may reflect a perception that manufacturing is somehow more valuable than the provision of services, perhaps because of its potential to create employment, or a view that certain services tend to be more market-driven and therefore less likely to be influenced by tax considerations.

Some countries adopt a more sophisticated approach and restrict special investment incentives to certain broadly listed activities or sectors of the economy. Those countries can restrict tax incentives to pioneer enterprises. To be accorded pioneer status, an enterprise must manufacture products that are not already produced domestically or engage in other specified activities that are not being performed by domestic firms yet are considered especially beneficial to the host country.

Many countries provide tax incentives to locate investments in particular areas or regions within the country. The incentives may be provided by regional or local governments, in competition with other parts of the same country. In other cases, the incentives are offered by the central Government, often as part of its regional development policy, to promote investment in less developed regions of the country or in areas of high unemployment.

One benefit of foreign direct investment is the creation of new employment opportunities and, not surprisingly, incentives are frequently provided with the express intent of encouraging job

creation. Policymakers could provide for tax incentives for investment in regions of high unemployment or tie the tax incentive directly to employment, with the creation of a stipulated number of new jobs as a qualifying condition for the tax holiday or other incentive.

Foreign direct investment often results in the transfer of technology. Even critics of tax incentives concede that they may be useful for promoting activities such as research and development, if only as a way to correct market imperfections. Countries attempt to attract technologically advanced investment in several ways: (a) by targeting incentives at technologically advanced sectors; (b) by providing incentives for the acquisition of technologically advanced equipment; and (c) by providing incentives for carrying out research and development activities.

The experience of many developing countries is that export promotion and the attraction of export-oriented investment is the quickest and most successful route to economic growth. It is therefore hardly surprising that competition to attract such investment is especially fierce, and investment incentives are frequently targeted at export-oriented production. Incentives targeted specifically at export-oriented investment may be more effective than other tax incentives, due to the higher degree of mobility of such investment.

Forms of tax incentives

The present chapter examines three different types of tax incentives: tax holidays, investment credits and allowances, and tax credit accounts. Whereas the first two types of incentives are used frequently, the tax credit account approach has received too little attention from policymakers. Designing tax incentives requires a determination of the types of investment that qualify and the form of tax incentive to adopt. Tax incentives for investment take a variety of forms, the most common of which are set out in the table below.

Tax holidays

In developing countries, tax holidays are by far the most common form of tax incentive for investment. A tax holiday may take the form of a complete exemption from profits tax and occasionally also from other

Tax incentives worldwide

	Number of countries surveyed	Tax holiday/tax exemption	Reduced tax rate	Investment allowance/tax credit	VAT exemption/reduction	Research and development tax incentive	Super deductions*	SEZ/free zones/EPZ/free port	Discretionary process
		Percentage							
East Asia and the Pacific	12	92	92	75	75	83	8	83	25
Eastern Europe and Central Asia	16	75	31	19	94	31	0	94	38
Latin America and the Caribbean	24	75	29	46	58	13	4	75	29
Middle East and North Africa	15	73	40	13	60	0	0	80	27
OECD countries	33	21	30	61	79	76	18	67	27
South Asia	7	100	43	71	100	29	57	71	14
Sub-Saharan Africa	30	60	63	73	73	10	23	57	47

Source: Sebastian James, "Effectiveness of tax and non-tax incentives and investments: evidence and policy implications" (Washington, D.C., World Bank Group, September 2013).

Abbreviations: VAT, value added tax; SEZ, special economic zone; EPZ, export processing zone; OECD, Organization for Economic Cooperation and Development.

* Super deductions are deductions that exceed those normally granted to taxpayers, such as depreciation at a rate which is two to three times the standard depreciation rate.

taxes, a reduced rate of tax or a combination of the two, for example, two years' exemption plus a further three years at half the standard rate. The exemption or reduction is granted for a limited duration.

Tax holidays can vary in duration from as little as 1 year to as long as 20 years. In determining the length of the tax holiday, a clear trade-off exists between the attractiveness to investors and the revenue cost to the host country's treasury. Most studies have concluded that short tax holidays are of limited value or interest to most potential investors and are rarely effective in attracting investment, other than projects that are short-term and "footloose", or not tied to a particular location and able to relocate in response to changing economic conditions. Substantial investments often take several years before they begin to show a profit, by which time the tax holiday may have expired. Short tax holidays are of the greatest value to investments that can be expected to show a quick profit and are thus quite effective in attracting investment in export-oriented activities such as textile production. Since that sector is highly mobile, it is not uncommon, however, for a firm to enjoy a tax holiday in one country and, when it expires, move its entire operation to another country that is willing to give a new holiday. Consequently, the benefit of the investment to the host country may be quite limited.

Tax holidays have the apparent advantage of simplicity for both the enterprise and the tax authorities. The simplest tax holiday regime, and the most investor-friendly, provides not only that no tax is payable during the holiday period but that taxpayers are not required to file information or tax returns, which results in an absence of compliance and administrative cost. The better approach is to require the filing of a tax return during the holiday period. For example, if the enterprise is permitted to carry forward losses incurred during the holiday period or claim depreciation allowances after the end of the holiday period for expenditure incurred during the holiday, it would need to at a minimum keep appropriate records.

In addition, tax holidays are especially prone to manipulation and provide opportunities for tax avoidance and abuse. Another disadvantage is that the revenue cost of tax holidays cannot be estimated in advance with any degree of accuracy, nor can the cost related to the amount of the investment or to the benefits that may

accrue to the host country. Furthermore, tax holidays exempt profits with no regard to the level or amount of profits that are earned. For potential investments that investors believe will earn above market returns, tax holidays will result in a loss of tax revenue without any benefits. Because of the high return, investors would have undertaken these projects even without the availability of tax incentives.²²

Investment allowances and credits

As an alternative, or sometimes in addition, to tax holidays, some Governments provide investment allowances or credits. They are given in addition to the normal depreciation allowances, with the result that the investor may be able to write off an amount that is greater than the cost of the investment. An investment allowance reduces taxable income, whereas an investment tax credit is set against the tax payable, therefore, with a corporate income tax rate of 40 per cent, an investment allowance of 50 per cent of the amount invested equates to an investment credit of 20 per cent of that amount.

Investment allowances or credits may apply to all forms of capital investment, or they may be restricted to specific categories, such as machinery or technologically advanced equipment, or to capital investment in certain activities, such as research and development. Countries occasionally limit eligibility to contributions to the charter capital of the firm, an approach that may encourage investors to increase the relative amount of equity capital rather than related-party debt capital in the firm's initial capital structure.

One objection to the use of investment allowances and credits is that they favour capital intensive investment and may be less favourable towards employment creation than would tax holidays. They may also distort the choice of capital assets, possibly creating a preference for short-lived assets so that a further allowance or credit may be claimed on their replacement.

Investment allowances and credits seem preferable to tax holidays in almost every respect: (a) they are not open-ended; (b) the

²² Vito Tanzi and Howell H. Zee, "Tax policy for emerging markets: developing countries" (Washington, D.C., International Monetary Fund, 2000).

revenue cost is directly related to the amount of the investment, so there should be no need for a minimum threshold for eligibility; and (c) their maximum cost is more easily estimated. However, a recent study does find that investment credit and allowances are significantly less effective in attracting foreign investment than are tax holidays.²³

Tax credit accounts

An interesting approach to offering tax benefits to potential investors that allows tax authorities to determine with great certainty the revenue costs of the tax incentive programme is to provide each qualifying investor a specific amount of tax relief in the form of a tax credit account, such as a potential exemption of \$500,000 of corporate income tax liability.²⁴ The investor would be required to file tax returns and keep books and records just like any other taxpayer. If the investor determines it has \$60,000 of tax liability in year one, it would pay no tax, but the amount in its tax account would be reduced to \$440,000 for future tax years. The tax credit account has the advantage of providing transparency and certainty to both the potential investor and the Government.

The tax credit account may be regarded as a hybrid of a tax holiday and an investment tax credit. It resembles a tax holiday, except that the tax exemption period, instead of being a fixed number of years, is related to the amount of taxes due on the income earned, such as in the above-mentioned example in which the exemption applies to the first \$500,000 of taxable income. There are two important advantages: the cost of the incentive to the host Government is known and there is no strong built-in advantage for those investments that make quick profits. The tax credit account resembles an investment tax credit in that the amount of the credit is a fixed sum, but it differs in that the amount is not determined by the amount of the investment and consequently does not provide a preference to capital-intensive investments.

²³ Alexander Klemm and Stefan Van Parys, “Empirical evidence on the effects of tax incentives” (Washington, D.C., International Monetary Fund, 2009).

²⁴ Vito Tanzi and Howell H. Zee, “Tax Policy for Emerging Markets” (see footnote 7 above).

B. Implementation issues

Initial compliance with qualifying conditions

Initially, it must be determined whether an investor meets the qualifying conditions. Some incentive provisions require initial approval or another positive decision. For example, officials may need to determine whether the investment is in a priority sector, if the investor will meet prescribed employment or export targets and/or comply with environmental requirements. Generally, tax authorities will require some form of written certification of qualification. Another type of qualifying condition requires a determination of the nature of the investor, such as whether: the foreign participation in a joint venture exceeds a stipulated percentage; a certain number of new jobs have been created; a particular capital investment falls within a category qualifying for accelerated depreciation; or imported equipment can be classified as advanced technology. Tax authorities sometimes carry out this verification or they can require written confirmation from the appropriate authority or department. Another type of condition requires a valuation of assets. For example, investors may be required to establish that the amount invested exceeds the minimum amount stipulated to qualify for a tax holiday or that an investment qualifies for a tax credit of a given amount.

Reporting and monitoring continuing compliance

Conditions are sometimes attached to incentives that are related to ongoing performance, such as requirements that, throughout the tax holiday period, a given number of jobs are maintained or a certain percentage of production is exported. Such incentives require continual monitoring. Although it imposes an additional administrative burden on authorities, it does have the merit of providing the host Government with a reasonably accurate idea of how an investment is performing. Without a formal monitoring mechanism, investors have little reason to make realistic projections as to the number of jobs that will be created or the volume of exports that will be produced, and some studies have shown large discrepancies between investor prediction and performance. However, it is important to consider the Government's administrative capability to conduct the necessary

monitoring when incentive legislation is drafted so that unnecessary supervision is avoided.

Common abuses of tax incentive regimes

Ongoing monitoring of investments is necessary not only to ensure continuing compliance with qualifying conditions but to detect tax avoidance or evasion. Tax avoidance presents greater difficulties, because countries have different attitudes as to what constitutes avoidance and what to do about it. For example, granting a tax holiday may be conditional upon an investor's employing a given number of people. In some countries an investor could legitimately make up the qualifying number by hiring employees with minimal duties and at low wages. In other countries, that course of action might be considered an abuse of the legislation and result in the denial or withdrawal of the tax privilege.

Ten of the most common abuses associated with tax incentives, some of which are elaborated upon below, are:

- (a) Existing firms transforming into new entities to qualify for incentives;
- (b) Domestic firms restructuring as foreign investors;
- (c) Engaging in transfer pricing schemes with related entities (sales, services, loans, royalties, management contracts);
- (d) Churning investments or creating fictitious investments due to lack of recapture rules;
- (e) Schemes to accelerate income or defer deductions at the end of a tax holiday period;
- (f) Overvaluation of assets for depreciation, tax credit or other purpose;
- (g) Employment and training credits, such as fictitious employees and fake training programmes;
- (h) Leakages from export zones into the domestic economy;
- (i) Regional investment incentives and enterprise zones diverting activities to outside the region or zone;
- (j) Disguising non-qualifying activities or burying them in qualifying activities.

Round tripping

Round tripping, when one company sells an unused asset to another company under the agreement that it will buy it back for the same price, typically occurs in countries where tax incentives are restricted to foreign investors or to investments with a prescribed minimum percentage of foreign ownership. Domestic investors may seek to disguise their investments to qualify for those incentives by routing their investments through a wholly controlled foreign corporation. Similar practices have occurred in a number of countries with economies in transition, especially in connection with the privatization of State-owned firms in which the existing management has acquired ownership of the firm through the vehicle of an offshore company. Round tripping is not always undertaken in order to meet foreign ownership requirements; it may also be used to take advantage of favourable tax treaty provisions.

Double dipping

Many tax incentives, especially tax holidays, are restricted to new investors. In practice, such a restriction may be ineffective or counter-productive. An existing investor that plans to expand its activities will simply incorporate a subsidiary to continue the activity and the subsidiary will qualify for a new tax holiday. A different type of abuse occurs when a business is sold towards the end of the tax holiday period to a new investor who then claims a new tax holiday. Sometimes the “new” investor is related to the seller, although the relationship is concealed. A more satisfactory approach for policymakers may be to use investment allowances or credits, rather than tax holidays, so that new investments, rather than investors, qualify.

Transfer pricing

Transfer pricing has been described as “the Achilles heel of tax holidays”,²⁵ although it can be a problem with other forms of investment incentives. There is a tendency to think of transfer pricing as a phenomenon that occurs internationally in transactions between

²⁵ Charles E. McLure, Jr., “Tax holidays and investment incentives: a comparative analysis”, *Bulletin for International Fiscal Documentation*, vol. 53 (1999).

related enterprises in different countries. Transfer pricing can also take place in a single country in which an investor has two or more operations or derives income from more than one activity. If one of those operations, or one type of income, enjoys a tax preference, the investor will tend to allocate profits to the preferred activity.

Transfer pricing is likely to take place in the following scenarios: (a) an investor undertakes two or more activities, one of which qualifies for an incentive, such as manufacturing or exporting, and another does not; (b) an investor has operations in two or more locations, one of which is in a tax-privileged region and another is not; or (c) an investor owns two or more subsidiaries, one of which enjoys a tax holiday and another does not. In each case, the investor will wish to allocate as much profit as possible to the tax-exempt or tax-privileged entity or activity. In cases (a) and (b) there may be only a single entity, in which case there is no transfer pricing as such, but an equivalent result is achieved through the allocation of revenue and expenditure.

Substantial challenges exist for monitoring transfer pricing, especially for small or less developed countries. One approach may be to use tax incentives that are less prone to transfer pricing abuses. For example, in contrast to tax holidays, investment allowances or credits provide an exemption from tax of a given amount, rather than for a given period, therefore artificial transfers of profits to a firm that has been granted an investment allowance or credit may result in its tax liability being postponed but not eliminated.

Overvaluation

Overvaluation, and sometimes undervaluation, is a constant problem in any tax system, and tax incentives may provide additional temptation to inflate the value of assets. For example, when granting a tax holiday is conditional upon a firm investing a certain minimum amount, the value of assets contributed to the new firm can be manipulated to achieve the target figure. This may be done legitimately, for example, by purchasing machinery rather than leasing it from independent lessors. In other cases, however, an inflated value is attributed to the property contributed, especially in cases of intellectual property. When investors also receive an exemption from customs duties for newly contributed

capital, there is no motivation in terms of compensation for investors to correctly state the value or for customs authorities to monitor the declared value. A further problem may be encountered when foreign investment agencies have an incentive to boost their investment figures, resulting in a common interest between the agency and the investor to inflate the amount of the investment. It is thus important for the tax administration to be involved in the valuation process.

Abuse of duty-free privileges

A common investment incentive is an exemption from customs duty on imported equipment. Once imported, however, items may be resold on the domestic market. A partial solution is to restrict the exemption to those assets that are contributed to the charter capital of the enterprise, but it still may be necessary to verify periodically that the assets remain in the enterprise. Another approach is to restrict the exemption to assets such as machinery, which are less likely to be resold, and to exclude items such as passenger vehicles and computer equipment.

Asset stripping and “fly-by-night” operations

Many countries have experienced problems with “fly-by-night” operators that take advantage of tax incentives to make a quick, tax-free profit and then leave to begin operations in another country that offers tax privileges. This problem most often arises with the use of tax holidays and export processing zones. Another problem occurs when a foreign investor acquires control of an existing local enterprise and, instead of contributing new capital to modernize the enterprise, strips it of its useful assets and leaves the country. The latter problem is not necessarily linked to the availability of tax incentives, although the ability to make a tax-free capital gain is an added attraction to the investor stripping the assets.

Some countries have attempted to counter the fly-by-night operator problem by introducing “clawback” provisions. For example, a country can grant a tax holiday for a 5-year period only if the venture continues for a period of 10 years. If the venture is terminated before the end of the 10-year period, any tax that was foregone must be repaid. The difficulty with such a provision is that the

investor may have left the country before it is possible to claw back any of the forgiven tax liability.

C. Review and sunset provisions

The costs and benefits of tax incentives are not easy to evaluate and are difficult to quantify and estimate. Incentives that may work well in one country or region may be ineffective in another context. Tax incentive regimes in many countries have evolved from general tax holidays to incentive regimes that are more narrowly targeted.

It may therefore be advisable: (a) to limit the duration of tax incentive regimes to reduce the potential costs of unsuccessful or poorly designed programmes by including a specific sunset provision as part of the original legislation; (b) to design incentive regimes that require beneficiaries to report to investment agencies and that specify which government agency is responsible for monitoring and enforcing qualification and any recapture provisions; and (c) to require an evaluation as to the costs and benefits of specific tax incentive regimes and to specify the timing of the evaluation and the parties responsible for conducting the review.

D. Guidance for policymakers

No shortage exists of advice to policymakers; a relatively concise prescription on how to design and implement tax incentives is to keep them simple.²⁶ Attempts to fine-tune incentives to achieve detailed policy goals are likely to be costly to administer and unlikely to produce the desired result. The Government should diligently record the beneficiaries of tax incentives, their duration and the costs in forgone revenue. That information is necessary to ensure transparency and accountability. Governments must evaluate tax incentives' effectiveness in achieving the desired results and be willing to terminate or modify those incentive programmes that fail to achieve their objectives.

²⁶ Richard M. Bird, "Tax incentives for investment in developing countries", in *Fiscal Reform and Structural Change in Developing Countries*, vol. 1, Guillermo Perry, John Whalley and Gary McMahon, eds. (London, United Kingdom, and Canada, Macmillan in association with the International Development Research Centre, 2000).

OECD has prepared a best practices guide to enhance the transparency and governance of tax incentives in developing countries.²⁷ The following actions by Governments are needed in order to implement the best practices:

- (a) Make public a statement of all tax incentives for investments and their objectives within the governing framework;
- (b) Provide tax incentives for investment through tax laws only;
- (c) Consolidate all tax incentives for investment under the authority of one government body, where possible;
- (d) Ensure tax incentives for investments are ratified through the law-making body or parliament;
- (e) Administer tax incentives for investment in a transparent manner;
- (f) Calculate the amount of forgone revenue attributable to tax incentives for investment and publicly release a statement of tax expenditure;
- (g) Carry out periodic review of the continuance of existing tax incentives by assessing the extent to which they meet the stated objectives;
- (h) Highlight the largest beneficiaries of tax incentives for investment by specific provision in a regular statement of tax expenditure, where possible;
- (i) Collect data systematically to underpin the statement of tax expenditure for investment and to monitor the overall effects and effectiveness of individual tax incentives;
- (j) Enhance regional cooperation to avoid harmful tax competition.

IV. Conclusion

Tax incentives can play a useful role in encouraging both domestic and foreign investment. The extent of their usefulness, and at what cost, depends upon how well the tax incentive programmes are designed,

²⁷ OECD, Draft Principles to Enhance the Transparency and Governance of Tax Incentives for Investment in Developing Countries. Available from <http://www.oecd.org/ctp/tax-global/transparency-and-governance-principles.pdf>.

implemented and monitored. The present chapter has examined the costs and benefits of tax incentives and the relative advantages and disadvantages of different types of incentives, as well as set out important factors to consider in designing, granting and monitoring the use of tax incentives to increase investment and growth.

The questions of whether to use tax incentives and what form they should take are not easy to answer. The following, however, are some clear guidelines which may improve the chances of success of tax incentive programmes: the objectives of the tax incentive programme should be clearly set forth; the type of tax incentive programme should be crafted to best fit the objective; the Government should estimate the anticipated costs and benefits of the incentive programme in a manner similar to other types of tax expenditure analysis; the incentive programme should be designed to minimize the opportunities for corruption in the granting of incentives and for taxpayer abuse in exploiting the tax benefits; the tax incentive regime should have a definite sunset provision to allow for a determination of the merits of the programme; and the Government should be required at a specific time to assess the success and failure of each incentive programme.

Part II

Tax Incentives—Practical Aspects

Chapter I

Checklist for drafting tax incentives legislation: focus on income tax*

I. Introduction

The design of broad based taxes such as income tax is typically assessed by reference to general principles such as fairness, efficiency and simplicity. By definition, tax incentives are exceptions to general rules. Inevitably, they are inconsistent with fairness, in the sense of the tax applying equally irrespective of the type of activity conducted. Tax incentives also necessarily raise complexity through the exceptions they make as those exceptions must interface with the general rules applicable to the tax. Tax incentives are usually justified by reference to the government seeking to promote a particular economic goal, and if this goal is sufficiently important then it may outweigh the negative fairness and complexity issues raised by the incentive. Tax incentives always raise questions as to the balance between competing tax principles.

The economic case for a tax incentive is critical to its justification and here the policy and expected benefits of the incentive need to be clear for many reasons. The residual position with a broad based tax such as income tax is that all earning activities should be treated equally. Historically, it was thought that this would be the best way to ensure that resources are allocated to where they are most productive. This is the principle of neutrality. In the twenty-first century the position on neutrality has become confused, particularly as a result of globalisation. It is also argued that in cases of imperfect market allocation of resources (market failures) it is appropriate for a tax to intervene to improve the market allocation. This is the manner in which tax incentives are most commonly sought to be justified.

This background is critical when designing and drafting the legal rules to implement a tax incentive. If earning activities are treated similarly under a tax law, then the need to pay close attention

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to the borders between different types of activity is minimised. If some activities are singled out for special treatment under a tax incentive, those activities must be particularised accurately. If they are not, people will seek to arrange their affairs so that they fall within the incentive even if the actual activities they conduct do not fall within the rationale for granting the incentive. This is often viewed as tax avoidance and causes tension between the tax administration and taxpayers. However, the source of the problem is often that the tax policy underlying the incentive is not clear, the law is not clear or the manner in which the tax incentive is to be administered is not clear.

As its name suggests, the purpose of the *Checklist for Drafting Tax Incentives Legislation* is to serve as a list of things that should be considered and addressed when drafting a tax incentive so as to maximise clarity of scope and administration. It seeks to ensure that the legal drafting of a tax incentive is as consistent as possible with the policy underlying the tax incentive. It may also be used in the reverse, that is to say as a list of the policy decisions that need to be made to ensure that the tax policy underlying an incentive is sufficiently comprehensive and particularised.

What the *Checklist* does not do is provide any guidance on how a particular tax incentive should be justified from an economic perspective. It is critical that governments engage in economic justification both for the introduction and continuation of tax incentives and the *Checklist* presumes that this happens.

II. Checklist for drafting tax incentives legislation

1. Policy
 - 1.1 Develop broad policy (who, what, when, why, which taxes)
 - 1.2 Make the economic and social case (including forecasts, projections, externalities)
 - 1.3 Detail policy and draft (addressing the points below)
 - 1.4 Review policy periodically (using reporting requirements below)
2. Responsible/administering authority
 - 2.1 Ministry of Trade/Investment Board, Ministry of Finance, Tax administration

- 2.2 Co-ordination among authorities (need for memorandums of understanding, joint audits)
3. Legal basis
 - 3.1 Tax law, separate law, other law, agreements
 - 3.2 Detail (regulation, rulings, agreements)
 - 3.3 Discretion (who, what criteria, what review)
 - 3.4 Reconciliation with general rules that are sought to be modified
 - 3.5 Legal basis for requiring authorities applying general rules (for instance, tax authority) to apply the modified rules
4. Eligible persons
 - 4.1 Types (company, individual, trust, partnership, etc.)
 - 4.2 Timing (when formed)
 - 4.3 Location (resident or non-resident, nationality)
 - 4.4 Relationship (connected persons getting multiple incentives)
 - 4.5 Change of ownership of entities
5. Qualifying activity
 - 5.1 Primary (business, employment, investment)
 - 5.2 Specific (type of business, for instance defined by registration, interface with sector laws)
 - 5.3 Timing (existing or new, time limit of incentive)
 - 5.4 Location (international, national, regional)
6. Allocate use of assets to the activity
 - 6.1 Type (tangible, intangible, current, non-current)
 - 6.2 Ownership (owner, finance lease, operating lease)
 - 6.3 Value (historic cost, fair value, depreciation, related party transactions)
 - 6.4 Timing (new, second hand, existing ownership, disposals)
 - 6.5 Location (international, national, regional)
7. Allocate use of labour to the activity
 - 7.1 Type (employee, new recruits, graduates, independent contractors)

- 7.2 Value / number
- 7.3 Timing (new, existing, retrenchment)
- 7.4 Location (international, national, regional)
- 8. Allocate payments (made or received) to the activity
 - 8.1 Type (cash, in-kind benefits, related party)
 - 8.2 Allocation
 - 8.3 Quantification (transfer pricing)
 - 8.4 Timing (cash, accruals)
 - 8.5 Character (sales proceeds, capital proceeds, investment receipts, etc.)
 - 8.6 Location (source of payments)
- 9. Calculate result from activity
 - 9.1 Separation (treat as separate from other activities)
 - 9.2 Apportionment of external dealings (transfer pricing)
 - 9.3 Intra-entity dealings (transfer pricing)
 - 9.4 Ring-fencing of losses (how to define, what breaches)
- 10. Apply rates/benefits
- 11. Provision of information
 - 11.1 Reporting to the tax administration under general tax rules
 - 11.2 Specific reporting to responsible authority (proposals and performance against criteria)
 - 11.3 Transparency versus confidentiality (public registers and public disclosure)
 - 11.4 Reporting by tax authority and responsible authority to the Ministry of Finance
 - 11.5 Public reporting of tax expenditure and perceived benefits
- 12. Dispute Resolution
 - 12.1 Courts (tax court, regular courts, special tribunal)
 - 12.2 Arbitration (domestic, international)
- 13. Non-compliance
 - 13.1 Regular interest and penalties
 - 13.2 Claw-back of previous benefits

III. Checklist for drafting tax incentives legislation: commentary

This Commentary seeks to expand on and explain the various headings and subheadings used in the *Checklist*.

1. Policy

This heading lists the matters that need to be decided in order to sufficiently particularise a tax incentive so that it can be accurately translated into law. It also provides some guidance as to the order in which those decisions might be made.

1.1 Develop broad policy (who, what, when, why, which taxes)

Typically, the policy for a particular incentive is developed or at least decided in the Ministry of Finance (MoF), for instance in a tax policy unit. Depending on the nature of the topic, it is likely that the MoF will consult with the relevant sector ministry (for instance, Industry, Tourism, Natural Resources) and other interested ministries and agencies within the government. The tax administration should also be consulted at an early stage so that it can provide input into the administrative aspects of designing the tax incentive. It is likely that discussions with the private sector are also relevant, but these may also be part of the reason for the government investigating a particular tax incentive.

The time of developing government policy is not the time for full public consultation with respect to the proposal. The government needs to take some time to develop a position before releasing that for public comment. This is the *who* part of this item, that is to say who is involved or responsible for developing the tax policy underlying a tax incentive.

The *what* part of this item is the first attempt to identify and articulate the scope of a potential tax incentive. A tax incentive is often a response to a particular problem (for instance, increasing employment in a particular sector), but at this stage there needs to be a plan for how a tax incentive may address the problem.

When just means that from the earliest development stage there should be a schedule for the time from which the tax incentive

will apply (sunrise) and for how long it should apply (sunset). The schedule should then be detailed as to who must do what in order to meet the proposed introduction date.

The *why* part of this item is not just about the rationale for a proposed tax incentive, but also about why particular stakeholders (for instance, ministries) should be allocated particular roles in developing the policy.

The manner in which a particular problem can be addressed through the tax system is limited by reference to the taxes imposed by that system. This is the *which taxes* part of the item. It may be obvious that a particular problem can only be addressed through a tax incentive in a particular tax, but in other cases, the government may have a number of taxes that could be used for incentive purposes. So there needs to be consideration and then clarity regarding which taxes are to be used to develop the tax incentive. If more than one tax is to be the target, then there also needs to be clarity as to the way in which the adjustments to each tax should integrate so as to best address the problem.

1.2 Make the economic and social case (including forecasts, projections, externalities)

This is a most critical part of developing the policy underlying a tax incentive. It is also a part that is often done poorly and leads to confusion and dissatisfaction with particular tax incentives. A tax incentive provides particular taxpayers with special beneficial treatment in order to encourage certain behaviour that is expected to produce some benefit to the public that is greater than the cost of providing the incentive. There is no substitute for putting figures to these costs and benefits and outlining how those figures are calculated and on what assumptions.

In some cases, the incentive is just a question of improving the overall financial situation. For example, reduction of taxes in a particular sector may increase activity in that sector such that more taxes are actually raised from that sector under a lower rate than under a higher rate. In other cases, the tax incentive may not be simply targeted at the overall financial situation, but may involve other social benefits, for instance clean water, education, revamping deprived areas, etc.

Whether the case for a tax incentive is made on economic or social grounds or both, the detailed way in which the case is made is critical in terms of translating the incentive into law. It is also critical in terms of reviewing the success of the incentive during its operational phase.

1.3 Detail policy and draft (addressing the points below)

The broad economic and social case for a particular tax incentive should then be detailed addressing in particular the issues that must be faced when translating the policy into law. These are the matters referenced in the rest of the *Checklist* and means that the *Checklist* should be consulted at the point the policy is developed and not just at the time that policy is to be translated into law.

1.4 Review policy periodically (using reporting requirements below)

No tax incentive should be considered permanent. By definition a tax incentive is a special treatment of particular taxpayers which is justified by reference to a particular (beneficial) outcome. If at any time the tax incentive does not produce that beneficial outcome, the justification for the special treatment falls away and the tax incentive should be removed or adjusted.

This means that all tax incentives require constant review and evaluation to ensure that they are producing the results that justify them. How often tax incentives should be reviewed depends on the particular circumstances, but as a rule of thumb it should be years and not decades (long term projects such as infrastructure may be a special case).

2. Responsible/administering authority

2.1 Ministry of Trade/Investment Board, Ministry of Finance, Tax administration

As noted, in developing policy for a tax incentive there needs to be an allocation of roles between various government stakeholders. In addition, the tax incentive needs to be administered and monitored on an ongoing basis and roles need to be assigned in this regard.

Inevitably, the tax administration will be responsible for administering tax incentives.

However, depending on the manner in which the incentive is structured it may need to coordinate closely with other government stakeholders such as sector ministries. For example, access to a tax incentive may be dependent on the taxpayer holding a licence or qualifying in some other manner under sector legislation. The tax administration should not be involved in determining the qualification other than to check with the sector ministry that the requirements have been met.

In most cases, it is obvious which is the appropriate government ministry or agency for determining qualification for an incentive, for instance with respect to natural resources, energy, telecommunications, education etc. Problems are more likely to arise when the tax incentive requires more than just checking a qualification under sector legislation. For example, access to a tax incentive may depend on meeting certain targets, such as turnover, employees, emissions reductions, etc.

There can be disputes as to which authority is to check whether the targets are met. The sector regulator may believe this is a matter for it to check and verify and that the tax administration should simply accept that verification. The tax administration may take the view that it is responsible for administering tax laws and so it must independently verify that targets have been met.

As a matter of law, this sort of issue is often regulated by the legal manner in which the tax incentive is implemented. For example, if the tax incentive is implemented through the tax law, which is most common, it will be the tax administration that must determine these additional criteria/targets. If the tax incentive is implemented through sector legislation it may be the sector regulator that determines the tax incentive.

Nevertheless, in either case tensions can arise as to the extent to which the tax administration is required to follow the views of the sector regulator. It is important to pay attention to this potential for tension when designing and drafting a tax incentive and provide clear role allocation.

As noted, it is important to provide for monitoring the effectiveness of a tax incentive, that is to say to ensure that it continues to meet its objectives. Inevitably, this is a financial matter and so a matter for the MoF. However, the information that the MoF needs in order to fulfil its role as evaluator will be in the hands of other government agencies. For example, information about the cost of the tax incentive in terms of forgone revenue will most likely be in the hands of the tax administration.

Information about the impact of the tax incentive, such as in terms of increases in activity, is more likely to be in the hands of the sector regulator. In any case, there is a need to be sure that the tax administration and sector regulator are collecting the information that the MoF needs for evaluation purposes, and that they have a legal right to do so.

2.2 Co-ordination between authorities (need for memorandums of understanding, joint audits)

In any case, there may be a need for the tax administration to coordinate with the sector regulator and it is appropriate and important that the manner of coordination is formally recorded. This is commonly done through agreement between the relevant agencies in the form of a Memorandum of Understanding. The form and contents of any Memorandum should be considered during the design process of the tax incentive. This is because that content needs to be balanced with the manner in which the legal implementation of the tax incentive assigns roles and responsibilities.

As a rule of thumb, where it is important that the taxpayer has clarity regarding identity of the responsible authority for determining a particular matter, that identification should be provided by law. Things that are purely a matter of the internal workings of government should be in a Memorandum of Understanding, which is a private document. For example, the law needs to be clear about which public officers can participate in an audit of compliance with a tax incentive. Clearly the tax administration should be involved, but often it is appropriate or necessary for public officers from the sector regulator to also be present. The potential involvement of public officers from the regulator should be clearly specified in law. However, the manner

in which the tax administration and the sector regulator coordinate participation in a joint audit may be considered an appropriate matter for a Memorandum of Understanding. Similarly, coordination as to the manner and form in which information about the impact of a tax incentive is collected and how it is provided to the MoF is often a suitable subject for a Memorandum of Understanding.

3. Legal basis

When it comes to translating detailed policy for a tax incentive into law the focus is on the operational features of the incentive and they are considered in subsequent headings of the *Checklist*. However, in structuring legal implementation of a tax incentive there are also some preliminary design matters that need to be addressed.

3.1 Tax law, separate law, other law, agreements

The first matter that needs to be addressed when implementing the tax incentive is where to locate the legal rules providing the incentive. This requires careful thought and planning. The most common position is that tax incentives appear in the tax law that they are to affect, and this may be viewed as good practice. This is less obvious when what is involved is a package of incentives that affect a range of taxes. Rather than split up the package, it may be considered that they are best addressed in a separate or new tax law. This may be a general tax incentives law that contains not just this package but also other tax incentives or it may be a dedicated law for a particular tax incentive.

It is rarely a good idea to locate tax incentives in sector legislation. One of the reasons for this is that the ministry responsible for introducing amendments to the sector legislation is not the same as that which is responsible for amending tax law, that is to say the MoF. This can lead to tension and inaction, and many countries have examples of inconsistent tax rules in sector legislation and tax legislation.

In the worst cases, there are attempts to address inconsistencies in the tax law alone, without amending the sector legislation provision. The point is that as discussed above tax incentives often involve multiple government stakeholders and their respective responsibilities with respect to an incentive need to be coordinated carefully from the start.

The tax administration is inevitably responsible for administering taxes and so tax incentives. The tax administration is most always subject to instruction of MoF, even if the tax administration is a semi-autonomous body.

The tax administration is typically instructed to administer tax laws, laws that are under the direction and control of the MoF. It is clearly problematic to incorporate a tax incentive in a law, such as sector legislation, that is not under the direction and control of the MoF. It may be that the tax administration simply has no authority to administer such a provision, for instance because the tax administration's establishment law only authorises it to administer tax laws (and not tax provisions in sector laws).

The same issue arises with respect to supporting secondary legislation, such as regulations. The tax administration is familiar with administering regulations sponsored by the MoF under tax laws, but it is not clear what the responsibility of the tax administration would be regarding administering regulations made by the sector ministry with respect to a tax incentive incorporated in sector law. More confusing would be regulations supported by the MoF under the tax law with respect to a tax incentive incorporated in sector legislation.

Sometimes a government may implement a tax incentive through private agreement with the taxpayer. This can raise similar issues with respect to the responsibility of the tax administration regarding administration of the incentive as when tax incentives are implemented in sector legislation. Residually, the tax administration may have no authority to give effect to government agreements that are inconsistent with the tax laws that the tax administration is responsible for administering.

One issue is whether or not the government agency that purports to conclude the agreement has authority to affect a tax law if the tax law does not authorise the agreement. However, even if the agreement is binding on the government that does not mean the tax administration has authority to give effect to it. This can lead to the unfortunate risk that the tax administration legally collects taxes that are in breach of a government agreement, rendering the government liable for damages for breach of contract in an equivalent amount.

The point is that there must be clear and forward planning with respect to the legal implementation of a tax incentive. It is best to implement tax incentives in the tax law in question, perhaps in a dedicated division of the tax law dealing with concessions and other temporary provisions.

If there is to be a separate law dealing with tax incentives, this should clearly be under the control and direction of MoF and included on the list of tax laws that the tax administration is required to administer. If sector legislation or government agreements are to have an impact on tax legislation (typically not a good practice) then care needs to be taken to ensure that the tax law recognises these adjustments and requires the tax administration to give effect to them.

3.2 Detail (regulation, rulings, agreements)

It is unrealistic to believe that tax laws can cover in primary legislation all scenarios they need to address. Tax laws can (and do) set the general rules applicable, but tax laws always need detailing in lower level rules. This is also typically true of the legal rules implementing tax incentives. There needs to be planning and provision for making lower level rules for implementing a tax incentive. There are different options available in this regard, with different attributes that need to be considered. In all cases, there needs to be clarity that the subsidiary rules are only effective to the extent that they are consistent with the primary legislation.

Detail for a tax incentive can be provided through subsidiary legislation such as regulations. The benefit of this mechanism is that (presuming there is consistency with the primary legislation) subsidiary legislation is binding on both the taxpayer and the tax administration. Different countries have different procedures for the passage of subsidiary legislation. Sometimes it is enough that the legislation is authorised by the relevant ministry and published in the government gazette. In other cases, the subsidiary legislation must go through the government legal drafting department (such as the Attorney General's office), be tabled in Parliament and then be published in the gazette. The flexibility with which subsidiary legislation can be implemented has an impact on its utility for purposes of detailing a tax incentive.

Most tax administrations have power to issue rulings (practice notes, circulars, statements, etc.) that bind them to particular positions or interpretation of tax laws. This is a particularly flexible method of detailing tax rules (including those for tax incentives), as there is usually less formality than in the case of subsidiary legislation (such as no requirement to lay before Parliament or publish in the government gazette).

Tax administration rulings may be public, in which case all taxpayers can rely on them. They may also be private, in the sense that they are not public (and so can deal with sensitive matters) and so only the taxpayer to whom they are issued can rely on them. The downside is that rulings only bind the tax administration and not the taxpayer.

It is possible for the detailed implementation of a tax incentive to be provided for in private agreements between the government and the taxpayer. This is the same mechanism as discussed under the previous item and the discussion at that point is again relevant.

Whatever the mechanism through which a tax incentive is detailed, again there needs to be careful planning. Mention has already been made that the location of the primary legal rules for a tax incentive determines which ministry can make secondary legislation with respect to the tax incentive. This can raise issues for the tax administration where the incentive is in sector legislation.

Similarly, the tax administration typically has a limited power to make binding rulings, that is to say limited to matters covered by the tax laws the tax administration is authorised to administer. It would be particularly strange to find a tax administration issuing a tax ruling under a power in a tax law under the control and direction of the MoF with respect to a tax incentive in sector legislation under the control and direction of a different ministry.

3.3 Discretion (who, what criteria, what review)

Typically, executive discretion is to be avoided and raises issues regarding consistency with separation of powers and the rule of law. Taxes are general contributions and there should be clear and general criteria regarding when a tax is to be imposed and when it should not. The same is true of tax incentives: as a general rule, the availability

of an incentive should not rest on the discretion of particular public officers. This type of discretion is not only inconsistent with the rule of law but adds to the risk of corruption.

However, there are some areas where it is difficult if not impossible to avoid granting discretion to public officers and this is also true with respect to tax incentives. In these cases, the discretion should be heavily circumscribed. Firstly, the discretion should be provided by law and the law should be clear and narrow as to who can exercise the discretion. Secondly, no discretion should be unfettered. There should be clear criteria according to which the discretion is to be exercised. Sometimes these criteria may need to be fluid in which case the law may provide for detailing of the criteria in secondary legislation (this is not usually an appropriate role for tax administration rulings).

There should also be a clear procedure by which the exercise of discretion can be reviewed. The review may take place as part of the exercise of the discretion, such as where the primary discretion is exercised by one party but only with the approval of another. This can be one of the best ways to limit the scope for abuse of discretion and the more the independence between the two authorities involved the less the scope for abuse. The review may also be ex-post, such as where the discretion may be reviewed by a tax tribunal or the general courts.

3.4 Reconciliation with general rules that are sought to be modified

As noted, tax laws are general rules and tax incentives are effectively exceptions or modifications to the general rules. When translating a tax incentive into law, it is not sufficient to simply focus on the rules that are needed to implement the incentive. There must be a close and careful consideration of the ways in which the tax incentive rules impact on the general rules and the ways in which the rules for a particular tax incentive may impact on the rules for other tax incentives. This is the reconciliation process.

For example, a tax incentive may involve the immediate deduction of certain capital expenditure. Reconciliation requires that as a result the same capital expenditure is not available for depreciation or amortisation. Similarly, there may be another tax incentive already

applicable to that type of expenditure which provides a tax credit. The two tax incentives will require reconciliation. It is rarely (if ever) appropriate to provide both a deduction and depreciation or both a deduction and a tax credit. However, this has been known to happen in practice due to poor design and implementation of tax rules.

The reconciliation issue needs to be considered not just at the time the tax incentive is implemented, but on an ongoing basis. It may be that there is reconciliation between tax incentive rules and general tax rules at the time the tax incentive is implemented. However, it may be that subsequent amendment of the general rules produces inconsistency. This can be a particular problem where the tax incentive takes the form of an agreement with a particular taxpayer.

For example, a taxpayer proposing to make a large long-term investment may seek a private agreement with the government which regulates the tax arrangements for the taxpayer for the duration of the investment, for instance through a fiscal stability clause. That is a balanced and negotiated settlement and the taxpayer will rely on it to ensure that the government does not change the tax situation to the detriment of the taxpayer.

However, what happens if there is a reform of the general tax rules which, as is commonly the case, involves benefits and detriments for taxpayers? Often taxpayers with fiscal stability clauses use the clause to protect themselves from the detriments of the reform, but argue that they are entitled to the benefits of the reform. This creates an imbalance compared to the basis on which the agreement was first concluded. Again, governments should look ahead to such eventualities and when designing tax incentives incorporate reconciliation mechanisms on a forward looking basis.

3.5 Legal basis for requiring authorities applying general rules (for instance, tax authority) to apply the modified rules

This has already been touched on. The issue is most acute for the tax administration that is expected to administer a tax incentive. The tax administration requires a clear legal authority for administering the tax incentive in priority to the general tax rules. It is possible to provide this authority no matter how the tax incentive is implemented.

However, some legal forms of implementing a tax incentive raise further issues.

Most straightforward is where the tax incentive is incorporated into the tax law. Here there is some scope for conflict or confusion between the general rules and the tax incentive rules (lack of reconciliation), but the matter is essentially one of interpretation by the tax administration. The tax administration's interpretation will be subject to court review in the usual manner. Things are more complex where the tax incentive rules are triggered by the action of another government agency, such as the grant of a licence, certificate or approval. Can the tax administration be certain that the other agency has exercised its powers properly?

Best practice suggests that this is an internal matter for the government. The taxpayer is entitled to rely on government action and not be a party to a dispute between different parts of government as to whether a particular agency has properly performed its tasks. If the tax administration is concerned, the appropriate thing to do is to raise the issue within the government and the involvement of the Ministry of Justice (Attorney General's office) may be appropriate in a particular case.

It is a different matter when the other government agency is exercising a non-statutory power, such as often happens when a sector ministry purports to conclude an agreement that affects a tax law. The simple answer may be that the ministry has no authority to do so. Even if the ministry has that authority, that does not mean that the tax administration is authorised to give effect to the tax provisions in the agreement (as discussed above). However, presume that there has been some forward planning and there is a provision in the tax law that requires the tax administration to give effect to agreements concluded by other government agencies. What are the limits of such a provision?

Clearly, such a provision should not cover all agreements that any government agency purports to conclude. At the least, the provision should be limited to agreements that have been concluded under a statutory authority that includes a power to alter a tax law, for instance so as to provide a tax incentive. Where such a power

exists (such as it is often the case with respect to extractive industry agreements) the MoF will usually be represented on the negotiating team and the Attorney General's office will sign off on the agreement. The tax administration may or may not be represented. If it is not, there is a secondary issue as to whether the tax administration has a right to receive a copy of the agreement.

It may be that the tax administration has no right to a copy of the agreement due to confidentiality of the agreement. There have been cases where the first the tax administration knows of a particular agreement is when the taxpayer provides the agreement in seeking to claim the tax benefits of the agreement, and the agreement may be provided in a sensitised form. This shouldn't happen because the tax administration has no simple way of checking the authenticity and validity of the agreement. It is true that the tax administration could check with other government agencies but they often find that there is some resistance in this regard.

One solution to deal with these issues is to require the MoF to keep a formal list of government agreements affecting tax and to provide the tax administration with an official copy of such agreements. The authority for a tax administration to administer the tax provisions of a particular agreement would be strictly limited to those that are on the MoF register and where the official copy of the agreement has been received. This is what the provision in the tax law for implementing government agreements might say.

This approach provides a level of certainty for the tax administration. They do not have to question the validity of a government agreement provided by the taxpayer (as often happens). Of course, this does not resolve the reconciliation issues discussed above: while the tax administration will be clear that it must administer the tax provisions of the agreement, it will still have to determine how those provisions interface with the general tax rules of the tax law.

4. Eligible persons

When drafting a tax incentive, persons that are eligible to qualify should be clearly identified. There are various aspects regarding types of persons and their characteristics that should be considered.

4.1 Types (company, individual, trust, partnership, etc.)

Different types of persons and entities are treated differently under tax laws. There is a fundamental distinction between individuals and entities such as companies, trusts and partnerships. In developing the policy underlying a tax incentive, there should be consideration as to the types of persons/entities that can qualify, and qualification should be no broader than it needs to be.

For example, if a tax incentive is targeted at a particular commercial activity, perhaps only commercial entities that typically conduct such activities should qualify and no other entities such as trusts and foundations. If the incentive is targeted at large investment projects, it may be appropriate to exclude individuals from qualification.

In drafting a tax incentive applicable to a particular industry, it must be remembered that the types of entities that can qualify to conduct activities in the industry (such as who can be a licence holder) may not be consistent with the tax categorisation of those entities. For example, in many countries partnerships are transparent for tax purposes, that is to say it is the partners that are the taxpayers for tax purposes not the partnership.

However, a partnership may qualify as a licence holder for a particular industry. Care must be taken in drafting a tax incentive to ensure policy objectives are met. Extending the example, if the policy is that partnerships (that are transparent for tax purposes) can qualify for the tax incentive, but the incentive requires the holding of a licence, then partners (the relevant taxpayers) will not qualify. In such a case the tax incentive may have to treat partners as if they held the relevant licence or provide some other special rules for partnerships.

4.2 Timing (when formed)

As a general rule, the age of an individual or the time when an entity is formed is not a relevant factor in determining qualification for a tax incentive. However, this issue should be considered when designing and drafting a tax incentive. For example, some incentives may only be available to individuals of retirement age. In some cases, the tax incentive may be targeted at new businesses and in this context, it

may be viewed as appropriate that the incentive only apply to entities formed after a certain date.

4.3 Location (resident or non-resident, nationality)

Whether the residence or nationality of a person (including the place of formation of an entity) is relevant to eligibility for a tax incentive is also a factor that depends on the nature of the tax incentive in question. However, this is a matter that should be considered when a tax incentive is being designed and drafted.

4.4 Relationship (connected persons getting multiple incentives)

When designing a tax incentive, authorities should be aware of the risk that the benefit of the incentive might be obtained multiple times through application to a number of related parties. This is most commonly a problem where there is some maximum cut off for qualification, for instance an incentive with respect to a turnover below a certain limit. It can also happen where the incentive is proportionately a greater amount for some lower threshold. Here there is an incentive to create multiple entities to access the benefit to the maximum extent multiple times. Families of individuals can also be a problem where one member of a family is effectively using another member of the family to access a tax benefit multiple times.

Again, this factor is not relevant in all cases, but should be considered when designing and drafting a tax incentive. Where it is relevant, it is common to provide that the benefit is available based on the aggregation of a person together with their relatives, associates, connected persons or whatever else is the usual manner for a tax law to describe the connection between persons.

4.5 Change of ownership of entities

In some cases, a tax incentive will be granted based on forward plans and proposals. In the case of entities such as companies, these will be the proposals of the owners and controllers at the time of application for the incentive. In other cases, it may be that local ownership is important, for instance where the intention is that a tax incentive is

only available to businesses ultimately owned by nationals. In these cases, there may be some concern if the tax incentive continues to be available where the ownership of an entity changes, such as where a foreign person acquires all of the shares in a local company.

The point of this item in the *Checklist* is that the relevance of ultimate ownership of the beneficiary of a tax incentive should be considered at the time a tax incentive is developed. If it is relevant, then suitable rules prescribing disqualification on change of ownership should be incorporated.

5. Qualifying activity

The greatest scope for abuse of tax incentives occurs where they are not accurately targeted at the issue that is sought to be addressed. Specifying with precision the type of activity that qualifies for a tax incentive is critical to ensuring its effectiveness. The items under this heading are intended to focus attention on the ways in which a tax incentive may be targeted at particular activities.

5.1 Primary (business, employment, investment)

Tax laws, and particularly income tax laws, identify broad categories of activity that are relevant for tax purposes. At their broadest these are commonly business, employment and investment but the precise categorisation can vary substantially from country to country. In designing a tax incentive, consideration should be given to the types of activities that qualify. Where possible, these should be broadly consistent with the relevant categories in the general rules of the tax law or at least the rules in the tax incentive should be clear as to how they interface with the general rule categorisation. This is important because tax incentives are necessarily a modification of general tax rules and so coordination with those general rules is crucial.

5.2 Specific (type of business, for instance defined by registration, interface with sector laws)

Within the broad categorisations of activities of a tax law, a tax incentive may be more focused at particular activities. In designing a tax incentive consideration should be given to the particular activities

at which the incentive is targeted and under what conditions those activities may be conducted under the general (non-tax) law. In regulated industries, such as banking, insurance, extractive industries, telecoms, imports, etc., a licence or registration may be required.

It is not appropriate to provide the benefit of a tax incentive to a person unless the person complies with the general law requirements for conducting the activity in question, for instance by holding the relevant licence. Here the tax law should not seek to rewrite the sector legislation that regulates the activity. It should simply cross-refer to the requirements of the sector legislation. This is part of the process of allocation of responsibilities for the administration of tax incentives between the sector regulator on the one hand and the MoF and tax administration on the other.

5.3 Timing (existing or new, time limit of incentive)

Most tax incentives are targeted at the promotion of new activities, usually in order to stimulate particular parts of the economy. A problem is that often all that happens is that existing activities are repackaged so as to fall within the tax incentive provisions. If this happens then the government will not succeed in achieving the goal of the incentive and it will lose money in the process by granting the incentive to existing activities that did not need the encouragement of the incentive for their establishment. If the goal of the tax incentive is to only target new activities, there will need to be carefully crafted rules in order to achieve that end.

For example, if the tax incentive is granted for increased employment, care must be taken to ensure that new employment is genuine and not simply employment that is moved from one member of a corporate group to another member of a corporate group. Again, anti-fragmentation rules for associated or connected entities may be necessary.

A similar problem can arise where a tax incentive is intended to encourage the establishment of certain activities with a withdrawal of the incentive at a later date. A classic example is the granting of tax holidays. As an entity comes to the end of a tax holiday it may transfer its activities to a newly established related entity which in turn

claims the benefit of the tax holiday. Again, anti-fragmentation rules should be included in the design of a tax incentive to prevent this. For example, a rule may provide that there is a limit of one tax holiday per group of associated or connected persons.

5.4 Location (international, national, regional)

Commonly, tax incentives are intended to stimulate activities in a particular region. This may be activities generally within the country in question, but sometimes the stimulation is targeted only at particular regions of the country. Whatever the target in this regard, consideration should be given to how to define when a particular activity is considered to have a sufficient nexus to be considered a local activity.

For example, this may be based on the number of resident employees, or turnover of local outlets or physical use of local premises. Again, a lack of particularity in this regard can cause a tax incentive to be ill-targeted, open to abuse and lead to confusion and dispute with the government administrators of the incentive. In some cases, what a tax incentive targets is activities with a certain international connection. This is particularly the case with incentives provided by countries that are financial centres. No matter what the situation is, care needs to be taken in targeting the incentive at the relevant activity.

6. Allocate use of assets to the activity

Sometimes a tax incentive is intended to encourage the acquisition and use of particular assets. A common example is an incentive targeted at capital expenditure. Again, in designing and drafting such an incentive attention should be given to the following matters to ensure that the incentive is appropriately targeted and protected.

6.1 Type (tangible, intangible, current, non-current)

Considering the activity that a tax incentive is intended to encourage, it may be best targeted at the acquisition or use of particular assets. If this is the case, care needs to be taken to ensure that the incentive is only available with respect to relevant assets. For example, if the intention is to encourage the acquisition of plant and machinery used in manufacturing, there may be little use making the tax incentive available for say the acquisition of intangible assets or luxury cars.

Governments all around the world are prone to drafting tax incentives more widely than is relevant for the activity sought to be encouraged. In the worst cases, governments then complain about abuse when taxpayers do things that fall within the letter of the law providing the incentive but which don't promote the thing that the government is seeking to encourage. Often taxpayers are accused of abuse (and may be guilty of that) when the government should share a large part of the blame because it did not protect itself through careful and considered drafting.

In seeking to target the acquisition and use of particular assets, it is again useful if the tax incentive takes into account the broad manner in which assets are characterised for purposes of the general tax law rules. Again, the issue is one of ease in ensuring reconciliation between the general rules and the specific tax incentive rules. So, it may be appropriate to refer to tangible or intangible assets, movable or immovable property, fixed or circulating assets, current or non-current assets, depreciating or non-depreciating assets, or inventory or trading stock. The precise terminology or categorisation will depend on the tax law in question. Within the broad categories the tax incentive may be more specific, such as targeted at particular types of tangible fixed assets.

6.2 Ownership (owner, finance lease, operating lease)

Tax laws need rules that allocate assets to particular persons and then prescribe tax consequences arising as a result of that allocation. There can be different forms of allocation depending on the nature of the rights the person holds with respect to the asset in question. For example, depreciation is typically available to the owner of an asset and not a lessee of the asset.

Finance leases cause difficulties in this regard and some countries treat a lessee of an asset under a finance lease as the owner for tax purposes and other countries accept the legal form of a finance lease. If a tax incentive is targeted at the acquisition and use of assets it must consider who is to be treated as acquiring and using an asset for purposes of qualifying for the incentive. In particular, will a person qualify if they acquire an asset for purposes of finance leasing the asset to another person that uses the asset? Again, these are matters that should be considered when a tax incentive is designed and drafted.

And an effort should be made to retain as much consistency as possible with the general tax law rules.

6.3 Value (historic cost, fair value, depreciation, related party transactions)

In some cases, the value of an asset may be relevant for the purposes of a tax incentive, such as where an incentive is available for the acquisition or use of assets of a certain value. General tax law rules can allocate a number of different values to assets and a tax incentive should be precise regarding the position it takes. It may be the historic cost that is relevant, or that value as written down by depreciation. Alternately, the fair or market value may be used. Related parties can again be an issue and engage in transfers in order to manipulate values so as to secure a particular outcome under a tax incentive. Whenever a tax incentive uses the value of an asset as a relevant factor, care should be taken to incorporate rules to prevent related or connected parties from manipulating that value.

6.4 Timing (new, second hand, existing ownership, disposals)

This issue is related to the similar item for eligible persons and qualifying activities. In designing and drafting a tax incentive that incorporates acquisition or use of assets as qualifying criteria, consideration should be given to the timing of the acquisition or use. The intention of the tax incentive may be to encourage the acquisition of new assets, in which case it should be made clear that second hand assets are excluded.

Similarly, the rules should be clear as to whether the use of existing assets qualifies. If only fresh acquisitions qualify then consideration should be given to churning, that is to say continual buying and selling of qualifying assets. A holding period rule may be a mechanism for removing the benefits of churning.

6.5 Location (international, national, regional)

Again, this is similar to the related item for eligible persons and qualifying activities. The location of a particular asset may be relevant to ensuring that a tax incentive is appropriately targeted. This can be straightforward in the context of tangible assets. It can raise challenges

if the asset rule extends to intangible assets. Intangible assets have no obvious location and some form of proxy will be necessary.

For example, consideration may be given to the place of use, or the place of legal protection or the place of development. Each of these has its own problems and may raise difficult issues. The important thing is that the issue is identified at the design stage and a rule selected that is most consistent with the purpose of the tax incentive in question. Such an investigation may show that a test other than one based on location of intangible property is most suitable.

7. Allocate use of labour to the activity

Tax incentives may also make the use of labour a qualifying criterion for eligibility and benefits. Again, in designing and drafting the incentive attention should be given to the following matters to ensure that the incentive is appropriately targeted and protected.

7.1 Type (employee, new recruits, graduates, independent contractors)

Conceptually, the issues here are similar to the case where assets are used as qualifying criteria for a tax incentive. The general rules of a tax law inevitably draw a distinction between employees and independent contractors (sometimes referred to as self-employed). While these rules may be built on the general law distinction between these two categories, tax laws often make qualifications and adjustments for tax purposes, for instance with respect to company directors and other officeholders. Again, it is important when designing and drafting a tax incentive to consider and particularise what the target is and then be clear about it in the law. Is the purpose of the incentive really promoted by targeting it at employment or is the use of independent contractors equally consistent with that purpose? If only employment is to be targeted, should there be any further limits, such as disqualification of employment of relatives?

After providing clarity regarding the broad characterisations for general tax law rules and thereby promoting reconciliation, the rules for a tax incentive may become more particular. Is the incentive to target only certain types of employment, such as in certain industries?

Will the employee require a specific qualification in order to meet the criteria? Does it matter for how long that qualification has been held? For instance, do only new graduates qualify? Again, the success of a tax incentive at encouraging certain behaviour depends on how accurately it is targeted and that requires forethought and planning in drafting the incentive.

7.2 Value/number

If labour is used as a relevant criterion for a tax incentive then the labour will have to be enumerated. There are different ways of doing this and again this should be given careful consideration in terms of ensuring that the incentive is targeted accurately. Is it simply the number of employees that matters? How are part-time employees counted, or are they ineligible? Are employees weighted depending on their remuneration or is remuneration a factor that can cause loss of qualification (such as disqualification of employee's with remuneration over a certain limit)? This is not to suggest that all of these things should be used in determining criteria, but each requires careful consideration. As discussed in the introduction, the accurate targeting of a tax incentive necessarily involves a balance between economic effectiveness and simplicity/administrability.

7.3 Timing (new, existing, retrenchment)

This issue is related to the similar items considered under previous headings. If employment or labour is used as criteria for a tax incentive consideration should be given to the timing of the engagement. If the target is, for instance, new employment, then again consideration should be given to the potential for intentional retrenchment and reemployment by an employer for the purposes of engaging the incentive. Given that employment is often subject to substantial protection by law, this form of churning may not be as straightforward as say it is where assets are the relevant criteria. However, it should nevertheless be considered in designing and drafting a tax incentive using labour as a criterion.

7.4 Location (international, national, regional)

This issue is related to the similar items considered under previous headings. Consideration should be given to whether where labour is

performed is relevant and whether adding a location criterion will improve targeting of the tax incentive. Often this is the case if labour is to be a criterion for a tax incentive. In most all cases, it is the physical location of the person when performing the labour that is relevant, rather than say the place where the benefits of the labour are received (if different).

8. Allocate payments (made or received) to the activity

Businesses and other activities generate economic benefits through exchanges that pass value between persons. This passing of value is broadly referred to as “payments”, that is payments made and payments received. Tax incentives are typically targeted at promoting particular activities and the payments associated with them. If a tax incentive uses the making or receiving of payments as relevant criteria then issues surrounding the concept of payment should be considered in designing and drafting the incentive.

Payments may be relevant to qualification for a tax incentive, such as where the incentive requires minimum expenditure before it is activated. Payments may also be relevant to the overall quantum of benefit received under a tax incentive. This is particularly the case with an income tax, which relies on payments made and received to build the tax base, that is to say to build the concept of net income. For example, presuming a taxpayer has qualified for a tax holiday, the quantum of the benefit from the tax holiday is determined by reference to the income that is allocated to the activity falling within the holiday. The quantum of that income depends on the payments that are allocated to the activity.

“Payments”, in the broad sense, may also be relevant in building the tax base with respect to tax incentives applicable to other taxes. For example, under value added tax the tax base is supplies, which are essentially payments (in the broad sense). The base for taxes on transfers of assets, such as stamp duty, is also built on a similar concept, typically consideration received for the transfer, which is effectively a payment. In the case of other taxes, such as taxes on the holding of property, other issues discussed under the previous headings may be in issue, for instance the valuation of assets.

8.1 Type (cash, in-kind benefits, related party)

Making or receiving payments may be relevant criteria for the application or quantum of a tax incentive. Consideration should be given to whether only certain types of payment qualify. Typically cash payments do qualify, although even here there can be issues as to what constitutes a cash payment. Often more consideration needs to be given to whether in-kind payments and benefits qualify and if so how. For example, suppose a tax incentive requires minimum expenditure of US\$ 2 million on assets before a deduction is granted for the expenditure.

Cash spend of that amount clearly qualifies, but what if the acquisition is in the form of an asset exchange? What if the asset is acquired through the provision of services, forgiveness of debt or granting the use of an asset already owned by the acquirer? In-kind payments of these types may or may not meet the policy objectives of the tax incentive. Again, this should be considered carefully at the design and drafting phase.

Related party payments can also give rise to issues and potential abuse where a payment criterion is attached to a tax incentive. Often related parties can manipulate payments between themselves which amount to little more than the shuffling of resources between entities with little to no economic impact for the ultimate owners. Tax laws typically incorporate general rules for dealings between related parties, such as the transfer pricing rules mentioned below.

It is often appropriate to apply those general rules for the purposes of a tax incentive and use the general definition of related or connected persons for this purpose. However, these rules should be considered carefully when designing and drafting a tax incentive so as to reflect on whether any special rules are appropriate. For example, if there is a threshold of expenditure for triggering a tax incentive, perhaps a simple rule is to exclude related party payments from qualifying.

8.2 Allocation

Tax laws, and in particular income tax, allocate payments at various levels to the matters discussed under previous headings. At the broadest level, a tax law must allocate payments as made by a particular person and received by a particular person. It may also

be important to allocate payments to particular activities of these persons, such as a particular business, employment or investment. It may also be important to allocate the payments to particular assets, for instance so as to calculate a gain or loss on disposal of an asset. It may also be important to allocate payments to a particular location, such as when determining the quantum of income sourced within a particular location.

Most tax incentives use the general payment allocation rules in a tax law for purposes of determining qualification for and quantum of the incentive. Commonly, these general tax rules follow to a large extent the allocation under general law, for instance under contract law. However, tax laws often incorporate at least a few specific allocation rules that apply irrespective of allocation under general law, for instance with respect to payments made or received by members of a corporate group. The point is that when designing and drafting a tax incentive, close consideration should be given to whether the general allocation rules applicable under the tax law are appropriate or fit for purposes of the tax incentive.

In particular, the manner in which the tax incentive is structured may mean that the general payment allocation rules for the tax law are not sufficiently specific for purposes of the incentive. For example, the incentive may require that the payment is for or have a certain nexus with a particular activity or perhaps the payment must be made for a particular purpose.

Often tax incentives incorporate general statements about such things with little detail of how a taxpayer should determine the allocation of the payment to the activity or purpose. This is not necessarily inappropriate because there may be no easy way of providing specific additional guidance or rules. However, in designing and drafting a tax incentive consideration should be given to whether more detailed rules can be provided and if not any expected difficulties in the allocation process should be identified and highlighted, at least for purposes of warning the tax administration.

This issue of payment allocation is particularly important in the context of some types of tax incentives. Once a particular activity qualifies for a tax incentive, there is an incentive to increase the size

of the base benefiting from the incentive and decrease the size of any continuing general tax base. This can happen between related parties, such as where a member of a corporate group seeks to shift its tax base to the base of another group member that is protected by a tax incentive. Transfer pricing is an important issue here. It can also happen between the activities of a particular taxpayer, such as where the taxpayer has some activities that benefit from the tax incentive and some that do not.

In other cases, it may be thought that loosening the general allocation rules is appropriate for the purposes of a tax incentive. For example, one issue might be whether a minimum expenditure of say US\$ 2 million can be met by aggregating payments made by various members of a corporate group. In all these matters, additional or supplementary rules are likely to add to the complexity of the tax incentive and potentially its interaction with the general tax law rules. The need for balance has been mentioned previously.

8.3 Quantification (transfer pricing)

Tax laws, and in particular income tax, must quantify payments in terms of local currency and this is particularly an issue with respect to in-kind payments. Reference is usually made to the general tax law rules for quantification in order to determine qualifying criteria and quantum of a tax incentive. However, in designing and drafting a tax incentive law there should be a careful consideration as to the appropriateness of these general quantification rules and whether there is a need for some supplementary or additional rules for the purposes of the tax incentive.

Related parties cause issues, particularly as a result of manipulation of prices in transactions between related parties. If a payment made between related parties is appropriately allocated to an activity covered by a tax incentive there will still be a need to assess the appropriateness of the quantum of the payment. Here there is a strong need for transfer pricing rules that are at least as strong as those that apply, for instance, for cross-border related party transactions in an income tax context. Without this protection, results covered by the tax incentive will be inflated through the manipulation of prices by related parties. If payments between related parties count for purposes of a monetary threshold attached to a tax incentive then there may also be transfer pricing issues.

For the purposes of the threshold, it may be appropriate to quantify payments between related parties at the arm's length amount. Care must be taken to ensure that the tax incentive triggers transfer pricing rules.

8.4 Timing (cash, accruals)

Tax laws also incorporate general rules regarding the time at which payments are recognised, that is to say on a cash or accruals basis. Commonly these rules simply apply to tax incentive provisions, but there should be reflection and consideration when designing and drafting an incentive as to whether this is appropriate. For example, if a tax incentive requires a minimum investment within a minimum period of time, then it may be appropriate that an actual cash transfer must occur before qualification. Similarly, if a tax incentive is time bound, such as a tax holiday, then there is an incentive towards the end of the period to manipulate the receipt of payments so that they fall within the holiday period (or delay expenses so they fall outside the tax holiday). There should be consideration as to whether any special rules are required in this regard.

8.5 Character (sales proceeds, capital proceeds, investment receipts, etc.)

Tax incentives may also be circumscribed by reference to the character of payments received, for instance by reference to certain types of investment return. Tax planners are particularly adept at structuring or restructuring transactions so as to produce payments of a particular character. In designing and drafting a tax incentive, consideration should be given to whether using character of payments as a qualifying or quantifying criterion can be avoided. If the character of payments is used, then it is appropriate to use the general tax rules for characterising payments for the purposes of the tax incentive. However, consideration should be given to whether any anti-abuse rules are needed.

8.6 Location (source of payments)

If payments are used for the purposes of qualifying or quantifying a tax incentive, then consideration should also be given to whether the source or location of a payment is relevant. Tax laws, particularly

income tax laws, commonly have general rules for determining the source of payments. These typically look to the locality of the reason for which the payment is made, rather than the location of funds from which the payment is made (for instance, rent being sourced where the asset is used rather than the bank account from which the rent is paid). Should the source of payments be relevant for the purposes of a tax incentive, then it is likely that use of the general rules for this purpose is appropriate. However, this is also a matter that should be considered when designing and drafting a tax incentive.

9. Calculate result from activity

Tax incentives typically apply a beneficial treatment to the results of a particular activity, such as a lower rate for income from farming or traditional handicrafts. Tax laws, particularly income tax laws, usually require calculation of income on a broader basis, for instance income from business generally or income from a particular business. A problem is that calculation based on these broader categories covers more than the scope of the incentive.

For example, it may be that a particular business involves both farming and a small brewery. Generally, there would be no need to separate the farming income and the brewery income for tax purposes. However, as soon as a tax incentive is targeted at only one of these activities then it is necessary to separate them. Tax incentives are often poor at considering this, leading to disputes with taxpayers or overinclusion within the tax incentive such that the incentive is poorly targeted. The following items on the *Checklist* are things that should be considered in this regard.

9.1 Separation (treat as separate from other activities)

If a particular activity is the subject of a tax incentive then the taxpayer should be instructed to keep dealings with respect to that activity separate from dealings with respect to other activities. In an extreme case, the incentive may only be available if the target activity is the only activity conducted by the taxpayer. In some cases, this can simplify the administrability of a tax incentive. In such a case, the tax incentive activity may be conducted, for instance, by a special purpose member of a corporate group. This will force dealings between the group

members to be based on legal relations, with the potential application of transfer pricing rules.

If the decision is taken that both tax incentive and non-incentive activities can be conducted by the same person, consideration should be given to treating the incentive activities as if they were carried on by a different person than the non-incentive activities. The following items deal with the issues raised by this possibility.

9.2 Apportionment of external dealings (transfer pricing)

If a taxpayer is conducting both tax incentive and non-incentive activities then dealings between the taxpayer and other persons will have to be allocated or apportioned between each. Conceptually, this is similar to the issue of apportioning external dealings between a permanent establishment and its head office. In designing and drafting a tax incentive, consideration may be given to adapting the rules applicable to permanent establishments for purposes of the tax incentive. Where the dealings are with related parties then, as discussed above under the allocation of payments heading, it is appropriate to apply transfer pricing rules.

9.3 Intra-entity dealings (transfer pricing)

There will also be dealings within an entity that is conducting both tax incentive and non-incentive activities. This will happen where assets or services flow between the activities. In designing and drafting the tax incentive a question will be how to treat these intra-entity dealings. Again, the tax incentive rules may be fashioned after those that are applicable to dealings between a permanent establishment and its head office.

The choices are broadly between ignoring the dealings and just allocating third party dealings or recognising the dealings and treating them as made between two separate but related parties. Treating intra-entity dealings as made between separate but related parties should ensure that the transfer pricing rules are triggered. In the usual manner, the point here is to design the rules for the tax incentive in such a way as to produce maximum consistency with the general tax rules.

9.4 Ring-fencing of losses (how to define, what breaches)

The separation of tax incentive and non-incentive activities naturally means that, for instance, income from each of the activities is calculated separately. Of course, it may be that the actual result is a loss with respect to one activity and a profit with respect to another. This then raises the question of whether losses from one activity should be available to reduce profits from another activity. If the tax incentive activity makes the loss, it is generally inappropriate to permit the loss to offset profits from fully taxable activities. This is because full relief should not be given for a loss where if the loss were a profit it would not be fully taxed. In this case it is said that the losses are “ring-fenced”, that is to say a loss from the tax incentive activities is only available to set against profits from the incentive activities.

There is usually less concern about use of the losses in the opposite direction, that is to say losses from fully taxed activities being set against profits from tax incentive activities. This is often referred to as “breaching” a ring-fence. Breaching a ring-fence in this way can be detrimental to the taxpayer: for instance, forcing a taxpayer to set losses from a taxable activity against profits from a tax holiday may be viewed as effectively a denial of either the loss or the tax holiday. Whether profits from tax incentives activities should “eat up” loss relief is a policy matter, but one that requires clear consideration when designing and drafting a tax incentive.

There are different ways in which a ring-fence can be designed. Ring-fences are common subjects of dispute between tax administrations and taxpayers and so the applicable rules need to be carefully and clearly drafted.

10. Apply rates/benefits

If care has been taken in designing and drafting a tax incentive, this should be a straightforward matter.

11. Provision of information

The discussion now turns from drafting the rules as to how a tax incentive is to operate to drafting rules for the administration of the incentive.

11.1 Reporting to the tax administration under general tax rules

Tax laws, particularly income tax laws, contain broad powers for the collection of information by the tax administration. If a tax incentive is incorporated into a tax law then the general information collection powers for that law are suitable for most purposes of the tax incentive. The situation should especially be checked if the tax incentive does not appear in the tax law, for instance if it is incorporated into sector legislation. This is related to the issue of the source of the tax administration's powers if the tax incentive is not in a tax law.

The administrative powers of the tax administration are typically limited to the administration of tax laws. So, care needs to be taken in designing and drafting a tax incentive to ensure that the general administrative powers of the tax administration are engaged. It is inappropriate and confusing to grant the tax administration different administrative powers, for instance under sector legislation, when administering a tax incentive compared to when generally administering tax laws.

11.2 Specific reporting to responsible authority (proposals and performance against criteria)

As noted above under the heading *Responsible/administering authority*, tax incentives raise issues regarding the division of responsibilities between government agencies. This is typically a division between the tax administration and the sector regulator. A tax incentive may have some thresholds or other criteria that are appropriately regulated and administered by the sector regulator. This may involve the assessment of proposals when a tax incentive is applied for or assessing the ongoing performance of the taxpayer against relevant criteria.

In designing and drafting a tax incentive care must be taken to ensure that the sector regulator has appropriate information gathering powers for this purpose. Often these powers exist under general information collection powers of the regulator, but this needs to be checked.

It was also noted previously that tax incentives often require coordination of administrative action between the sector regulator and

the tax administration. For this purpose, the two authorities need to have power to share information. Again, this is a matter that requires careful consideration in designing and drafting a tax incentive.

11.3 Transparency versus confidentiality (public registers and public disclosure)

Tax forgone through the granting of tax incentives is government expenditure and it is accepted practice that tax expenditures must be reported in government budgets in the usual way (although tax expenditures are notoriously difficult to quantify). An important issue to consider when designing and drafting a tax incentive is what further transparency is required with respect to the granting of tax incentives.

Public interest groups lobby hard for the disclosure of full information regarding tax incentives on the basis that the public have the right to know how the government is spending public funds. This has produced results in projects such as the Extractive Industries Transparency Initiative. The government's commitment to any relevant project should be considered when designing and drafting a tax incentive to ensure compliance and coordination with any such commitment and associated laws.

By contrast, taxpayers lobby hard for confidentiality regarding the tax incentives they are granted, particularly if they are granted through or associated with a private agreement with the government. This is often viewed as an extension of the general requirement for confidentiality of tax matters. Governments are often concerned about making tax incentive information public on the basis that it may discourage taxpayers from doing the very thing that the tax incentive is designed to encourage. There are difficult choices here for a government in balancing transparency and confidentiality. The current trend is that best practice is to provide as much transparency as possible.

11.4 Reporting by tax authority and responsible authority to the Ministry of Finance

At a minimum, the MoF needs information regarding the amount of tax relief granted through tax incentives in order to quantify and

report on tax expenditures. Typically, this information is collected by the tax administration and passed on in an anonymised form to the MoF through the use of the tax administration's general information collection and reporting powers. However, in designing and drafting a tax incentive consideration should be given to whether the MoF needs any further information.

In some cases, it may be useful for the MoF to have forward projections of activity with respect to particular projects in a non-anonymised form, for instance for projects that are particularly important to the economy. If this is desirable, it is best to provide a clear legal basis regarding the right of the MoF, particularising the information that must be reported. It should not be assumed that the tax administration has a right to this information (and can pass it to the MoF). The tax administration has power to administer tax laws and asking for forward projections may fall outside the scope of that power.

11.5 Public reporting of tax expenditure and perceived benefits

As noted, tax forgone through tax incentives should be reported through the budget procedure as part of tax expenditures. However, in designing and drafting a tax incentive consideration should be given to what further public reporting is appropriate. Good practice is to provide as much transparency as possible to recognise government accountability because tax incentives involve spending public money. As noted under the heading *Policy*, the policy underlying a tax incentive should be reviewed periodically to assess the effectiveness of the incentive. Good practice is that as a matter of transparency the government (MoF) should make a public report of these reviews and that the legal obligation for the MoF to do so should be clear. This is another matter that should be considered carefully in designing and drafting a tax incentive.

12. Dispute resolution

Disputes arise with respect to the administration of tax incentives in the same way as they arise with respect to the general administration of tax laws. There are particular issues that need to be considered regarding dispute resolution when designing and drafting a tax incentive.

12.1 Courts (tax court, regular courts, special tribunal)

Inevitably, taxpayers with a dispute regarding tax incentives have access to the court system. In the case of tax laws, there is often a special procedure and special court or tribunal for hearing tax disputes at lower levels of the judicial structure. As a precondition to access to the courts in tax matters, a taxpayer may be required to give the tax administration an opportunity to internally review the matter in dispute. This is often referred to as an objection procedure. If a tax incentive is implemented through a non-tax law, there may be issues regarding access to this internal review mechanism. Usually it is appropriate to access this mechanism in the case of a tax incentive and this should be looked at carefully when designing and drafting the incentive.

If the sector regulator has been assigned responsibility for certain action under the tax incentive, disputes with respect to those actions will not pass through the internal review procedure for the tax administration. The sector legislation may have its own review procedure. Whether or not any such procedure should apply with respect to actions of the sector regulator under the tax incentive is a matter to be considered when designing and drafting a tax incentive.

The same applies with respect to independent review of disputes. Often there is a special tax court or tribunal that is the first point of referral for disputes with respect to tax laws. It will commonly be the case that access to the specialist court or tribunal is appropriate for disputes with respect to tax incentives, at least for actions taken by the tax administration. Consideration should also be given to independent appeals with respect to matters falling within the administration of other government bodies such as the sector regulator. These are again matters that should be considered carefully when designing and drafting a tax incentive.

12.2 Arbitration (domestic, international)

Arbitration is another potential avenue for dispute resolution. It is not common with respect to tax matters, especially regarding the actions of the tax administration. Whether the potential for arbitration with respect to disputes regarding tax incentives is an issue is again likely to depend on the manner in which a tax incentive is implemented. If

implemented by law then commonly arbitration won't be available, but if a tax incentive is implemented through a private government agreement with a taxpayer, such agreements often incorporate an arbitration procedure. Complex issues can arise with respect to the interaction of such procedures and the general tax dispute review procedure mentioned under the last item. It may be appropriate to exclude tax disputes from arbitration under such agreements, but the point is that this is a matter that should be considered at the design and drafting stage.

There may be other circumstances not involving a private agreement where arbitration is relevant with respect to a tax incentive. For example, there have been cases of attempts to engage the arbitration procedure in bilateral investment treaties with respect to tax matters including the use of tax incentives. It is common for countries to seek to exclude tax disputes from that procedure. In any case, this is a matter for reflection when designing and drafting a tax incentive.

13. Non-compliance

The primary issues here once again are driven by the manner in which a tax incentive is implemented. If the incentive is implemented through a tax law, non-compliance with the specialist rules for the tax incentive will trigger the general tax procedures and penalties for non-compliance.

13.1 Regular interest and penalties

Tax laws tend to be sophisticated regarding the consequences of non-compliance by taxpayers with special rules regarding collection of tax such as seizure of property and special penalties and interest rules. If a tax incentive is implemented through sector legislation a consequence may be a lack of access to these special tax rules. This can be confusing and limiting for a tax administration and it is usually best practice to ensure coordination with the special tax rules. How this is to be achieved needs to be considered when designing and drafting a tax incentive. For example, if a taxpayer provides false or misleading information to a tax authority with respect to a tax incentive it seems clear that the taxpayer should suffer the same penalty as generally provided for by tax legislation for such conduct.

When a tax incentive is implemented through a non-tax law, there is also a risk of doubling up of interest and penalties. This might happen when a single action of the taxpayer breaches both the sector legislation and the tax legislation with potential penalties being imposed by both the sector regulator and the tax administration. Again, this sort of risk deserves consideration when a tax incentive is being designed and drafted.

13.2 Claw-back of previous benefits

One special issue regarding tax incentives is whether the benefits of tax incentives that have been granted should be clawed back (retrieved) in the case of non-compliance with the terms of the incentive. Often this sort of scenario does not fit easily into the general penalty and interest regime of a tax law and best practice suggests it should be specifically catered for or at least considered at the design and drafting stage. It will typically require an additional assessment being raised on the taxpayer in an amount equal to the previously granted benefits, or the reopening and amendment of previous tax assessments.

Chapter II

The framework for assessing tax incentives: a cost-benefit analysis approach*

I. A few fundamentals

Tax incentives in this chapter are *preferential* tax treatments that *deviate* from the general tax structure and are provided only to a *selected* group of taxpayers. When a generous tax provision, ranging from a lower tax rate to a higher tax allowance, is universally available to all taxpayers, regardless of their business lines, nationalities, investment and/or employment size, and business locations, it is not a special tax incentive but an integral part of the general tax structure. This conceptual specification is critical to our focus here: we are assessing the cost and benefit of special tax incentives; we are not estimating the tax expenditure resulting from the general tax codes that provide universal tax subsidies (e.g., accelerated depreciation allowance for all investment in computers).²⁸

A classical justification (see below) for using tax incentives is to mitigate a market failure associated with the externality of certain economic activities (e.g., research and development). Aside from this classical justification, tax incentives are often a result of policymakers' ad hoc judgment on their jurisdiction's need. To these policy makers, a selected group of taxpayers are so crucial to national or regional economic growth that they deserve an exclusive tax break.

To judge the merit or demerit of tax incentives, one needs to go back to the fundamentals of taxation: why tax in the first place? The ultimate purpose of taxation is raising revenue to fund government functions and to enhance social welfare. And the ultimate tax base is

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²⁸ The overlap between these two approaches is that the estimate of the overall tax expenditure should include the revenue loss resulting from the special tax incentives, which is a cost component of the special tax incentives.

GDP, or value added by all types of economic activities in the form of investment returns, labour compensation, or consumption drawn from investment and labour incomes. Therefore, providing tax incentives to selected economic activities is an intended erosion of the tax base within a limited timeframe but with the expectation of ultimate growth in GDP; that is, the ultimate expansion of the tax base. To this extent, a tax incentive program is worth pursuing only if it leads to ultimate economic growth and hence the ultimate expansion of the overall tax base.

Furthermore, taxation is a government monopolistic power, which unavoidably distorts market efficiency. With an added task in income redistribution, taxation also grows over time into greater complexity that burdens both tax administration and taxpayers. It is mainly for these reasons that economists have long established three principles for an optimal tax structure. They are:

- Efficiency: to minimize tax distortion to resource allocation by market forces.
- Equity: to ensure taxing according to ability to pay. And
- Simplicity: to minimize both administration and compliance cost.

It is self-evident that, except for dealing with market failure (see below), tax incentives, given their discretionary nature, generally violate these three principles of optimal taxation. It is these violations, as outlined below, that lead to the cost of tax incentives in addition to eroding the general tax base.

- Tax incentives violate the efficiency principle by lowering the tax cost below average, as implied by the general tax provisions, for a selected group of taxpayers. That is, tax incentives allow their targeted group of taxpayers to operate below the average of effective tax-inclusive returns to capital while still reaping the average, or above average, tax-exclusive return to capital. As a result, tax incentives further distort resource allocation by encouraging low-efficiency activities to crowd out market-efficient activities; in the long run, tax incentives may even work against economic transformation.²⁹

²⁹ For example, the almost perpetual manufacturing tax incentives provided

- Tax incentives violate the equity principle by treating taxpayers not by their ability to pay but by their economic significance as judged by the policy makers. Therefore, they naturally induce excessive tax planning and even open the door for tax evasion, particularly during the early stage of establishing a modern tax system.³⁰
- Tax incentives violate the simplicity principle by adding discretionary layers, or loopholes, to the general tax system. As a result, they instantly increase administrative and compliance cost and could even debase the entire tax structure in the long run.³¹
- Moreover, providing tax incentives in an ad hoc manner and outside of the normal tax legislation also damages the integrity of the overall tax system. This is the main reason that transparency and predictability are often added as additional principles of a desired tax structure.

It has been broadly acknowledged that, in addition to eroding tax bases, these violations of optimal tax principles are also significant costs of tax incentives.³² Then, why do tax incentives never die? And why did tax incentives even become trendy from time to time in all parts of the world? The reasoning for such sustainability of tax incentives can be outlined below, in the order of their legitimacy.

by Canadian governments through reduced corporate income tax rates, investment tax credits and fast write-offs have neither helped grow manufacturing investment, nor stopped Canadian manufacturing industry from shrinking over the first decade of the 21st century. See Chen and Mintz, “2012 Annual Global Tax Competitiveness Ranking—A Canadian Good News Story,” SPP Research Paper, 5(28), September 2012, figures 1–2.

³⁰ According to a CCTV (China Central Television) news report (<http://news.cntv.cn/special/tan/11/0519/>), from 1995 to 2000, China’s annual tax revenue loss due to tax evasion was over RMB400 billion, ranging from 4 to 7 per cent of GDP. Note that the Chinese government offered numerous tax incentives targeting a wide range of categorized investors before and during that period.

³¹ According to the Taxpayer Advocate Service (TAS) of the Internal Revenue Service in the U.S., between 2001 and 2008, there had been more than 3,250 changes to the tax code, an average of more than one a day. TAS also estimated that the costs of complying with the income tax requirements in 2006 amounted to US\$ 193 billion, or 14 per cent of aggregate income tax receipts!

³² For example, see Klemm (2009) and James (2013).

First, tax incentives may help compensate investment projects that can produce positive externalities that benefit society but are at the cost of the project investors (e.g., R&D, job training). This is the theoretical justification for tax incentives required to mitigate market failure associated with positive externalities, of which the producer's cost cannot be fully recovered by the market force itself.

Second, tax incentives may be an explicit tool targeting only the new industry and mobile investments that are highly sensitive to tax competition without causing revenue loss from existing capital and immobile activities (assuming revenue leakages induced by tax incentives remain limited). This is a realistic concern for policy makers facing economic globalization and tax competition.³³

Third, some location-based and firm-specific tax incentives may help generate a form of agglomeration economies, or concentration externalities. In particular, such tax incentives may be justified if it is expected that the targeted firm can offer higher spill-overs through its highly skilled workers, or broad scope of industrial activities, or great attractiveness to a wave of following firms, or a combination of all these advantages.³⁴

Fourth, politicians often think they are smart to hand-pick winners and losers and hence providing tax incentives only to the winners would benefit society as a whole. They may also feel obliged to subsidize a given significant economic player during his/her sector's downturn.³⁵ Such phenomena can be attributed to common politicians' naivety and/or "good will" because they forget that the success of any tax incentive program lies in a jurisdiction's pre-conditions, i.e., non-tax conditions, for profitability.³⁶ That is, without a suitable

³³ Refer to Klemm (2009).

³⁴ Refer to Glaeser (2001), particularly his "Positive Theory #2: Agglomeration Economies," and Garcia-Mila and McGuire (2002).

³⁵ For example, against global steel industry overcapacity, Saskatchewan, a Canadian province, in its 2015 budget provided a corporate income tax rebate for primary steel producers on a minimum capital investment of US\$ 100M in the province (refer to www.finance.gov.sk.ca), which to this author is an obvious misuse of tax incentives.

³⁶ Both Klemm (2009) and James (2013) make a convincing case for this argument. Also, see James (2013) for a general list of such pre-conditions.

non-tax climate for profitability, a tax incentive itself won't work. On the other hand, tax incentives often appear to be a costless fiscal tool because they do not seem to affect the current budget and hence tie the hands of politicians in power.

And finally, tax incentives can be a pure play of politics and even intentional bad governance. However, because pure politics and bad governance do not allow any professional assessment of tax incentives, we will ignore these types of tax incentives in our discussion.

Whatever the argument might be, tax incentives can be justified only if they bring net benefit to society as a whole. That is, the well-anticipated losses in revenue and economic efficiency and increased cost in administration have to be outweighed by the intended and achievable long-term economic and revenue growth to justify a tax incentive program, both before its introduction (i.e., appraisal) and on an on-going basis (i.e., evaluation). To estimate this net benefit, we need to conduct cost-benefit analysis starting from concrete specification of costs and benefits.

The rest of this chapter is structured in the following sections: a conceptual preparation for analysing the cost and benefit of tax incentives (Section II), a comparative critique of two existing state government studies of their respective tax incentive programs in America (Section III), and a prototype model of cost-benefit analysis for assessing tax incentives without involving sophisticated economic modelling tools (Section IV). The final section concludes the chapter.

II. A conceptual preparation

As identified above, the benefit of a tax incentive program (TIP) lies in its ultimate impact on overall economic growth and hence the long-term expansion of the overall tax base; and its cost includes the anticipated revenue loss, efficiency loss and increased administration and compliance costs. In this section, we focus on identifying and deliberating on these benefits and costs so as to facilitate a quantitative assessment for any intended or existing tax incentive programs. For descriptive convenience, we narrowly frame the economic activities targeted by tax incentives as “investment projects” only, since they are also the most popular target of existing and intended tax incentives.

But our discussion can be equally applied to any TIP-targeted economic activities (e.g., job creation).

Before specifying the terms of these benefits and costs, we want to limit our analysis of tax incentives to those associated with direct taxes. That is, in our analytical framework, we do not consider tax incentives under the value-added tax (VAT), import duty, excise tax and local sales taxes. Our reasoning for excluding these indirect taxes is the following:³⁷

- VAT is a consumption tax by nature: any exemption or zero rating for capital or material inputs are not tax incentives by nature but most likely a remedy for a taxpayer's loss in tax value (and their grievance) caused by an inefficient VAT administration in refunding input-tax credits.
- Local sales tax on capital and material inputs is a direct addition to investment and production cost that causes a cascading impact on final products. It is an impediment on the economy and hence should be reformed for the sake of the economy as a whole. Targeted exemption from local sales taxes, although a tax incentive to local investors, is not an incentive to foreign investors from jurisdictions with a VAT system.
- Similarly, import duty and excise tax on capital and material inputs, as a direct addition to investment and production cost, should be exempted for all investment and business operations.

³⁷ Also refer to A Klemm (2009), p15, "Exemptions from other taxes, particularly those assessed at the border, can be important, but are second-best solutions. Often such exemptions address more fundamental problems in tax policy or administration that should ideally be fixed directly. Exemptions from VAT on imports, for example, are not necessary if, in cases of excess credits, the tax law provides for VAT to be refunded on all goods including capital goods, and provided the tax administration has a record of timely refunds. Similarly, exemptions from excises on inputs should ideally be dealt with in a more general way, so that all firms using such inputs benefit—in many cases, the simplest solution would be the abolition of excises on many capital goods. Equally, any other small nuisance taxes should be abolished right away rather than wasting resources on both their collection and on monitoring their exemptions".

We can now proceed to define the quantifiable terms of cost and benefit and related terminologies that are required for assessing the net benefit of a planned or existing tax incentive program. All the costs and benefits should be monetized as much as possible and ultimately linked to government revenues and expenditures. This is because government tax revenue reflects overall economic activities, which is the aim or the ultimate goal of tax incentives in general; and government expenditure should have a positive economic impact in theory. Any non-quantifiable benefits and costs should be diligently noted as memorandum items in any assessment of a tax incentive program.

A. Defining cost and benefit

Both the costs and benefits of any given tax incentive program (TIP) can be wide ranging.³⁸ In assessing any given tax incentive program in a quantitative manner, it is common to focus on its economic impact—ranging from increased capital investment, jobs and gross domestic product—and its revenue consequence, or revenue impact. Therefore, it is a consensus that, the cost of any given tax incentive program can be defined as the direct revenue loss,³⁹ efficiency loss and the increased administrative and compliance cost caused by such a tax incentive program; and the benefit can be defined as the increased economic activities attributable to such a tax incentive program and the revenue gains generated by all these increased economic activities.

However, the above general definitions of the cost and benefit of tax incentives are only conceptual. To arrive at the concrete and measurable definition of cost and benefit associated with any given tax incentives, many critical questions need to be answered. Below is our list of such critical questions, which by no means is an exhaustive one. Some of these questions may appear to overlap with each other.

³⁸ For example, Klemm (2009) states that the cost of tax incentives is “wide ranging” from any immediate revenue loss to economic distortion, administration costs (including preventing fraudulent use of incentive schemes), and social costs of rent-seeking behaviour including possibly an increase in corruption.

³⁹ As we shall see later, this direct revenue loss can arise from the efficiency loss of tax incentives, which can be categorized as the displacement effect and “crowding out” effect of tax incentives.

Nevertheless, they deserve to be asked individually to ensure analytical diligence.

First, *additionality*:⁴⁰ Is the increased number of investment projects within the TIP target a true addition to the existing capital stock, which would not be possible in the absence of the TIP?

It is clear that only a true addition to the existing capital stock that is solely attributable to the TIP can be counted as the TIP's net direct economic impact. And only such a true additional investment project can produce a possible net revenue gain to the government.

Several terminologies and measurements are involved here:

- **Redundancy ratio**:⁴¹ the amount of investment that is within the TIP target *but* would be in place even without the TIP, as a share of the total investment within the target of TIP. The higher this redundancy ratio, the more wasteful is the TIP. That is, a higher redundancy ratio indicates a smaller additionality associated with the given TIP and hence a smaller benefit and greater revenue loss of a TIP; and vice versa.
- **Displacement share**: A “net addition” of investment within the TIP target (e.g., the targeted geographic area, or business line, or capital size, or investor's nationality, etc.) may include a relocation (i.e., displacement) of existing capital from outside of the TIP target; such a net addition within the TIP target represents a “washout” within the overall economy and a sure loss in both economic efficiency and government revenue. This displacement effect should be measured as a share of the additional investment truly attributable to TIP. A high displacement share indicates a great efficiency and revenue loss; and vice versa.
- **Crowding out effect**: Even if the number of investment projects within the TIP target is a net addition with zero displacement share, they may have crowded out potential

⁴⁰ Refer to HM Treasury, *The Green Book: Appraisal and Evaluation in Central Government* (2011), Annex 1.

⁴¹ Refer to James (2013), page 16 and Appendix 1.

investment projects being intended outside of the TIP target in the absence of the TIP. In this case, a potential expansion of the economically more efficient investment activities is crowded out and its “normal” tax base is eroded by the actual expansion of less efficient economic activities within the TIP target, which results in a narrower tax base. Admittedly, this effect is harder to identify, not to mention quantify. Nevertheless, it’s an effect that should always keep us vigilant.

Second, *opportunity cost*: What is the opportunity cost of the anticipated revenue loss associated with the intended tax incentive program?

Estimating the opportunity cost of the anticipated or estimated revenue loss can help prevent rushed decisions in providing, or preserving, any tax incentives. Within a budget constraint, anticipated revenue loss may be saved for a more effective fiscal measure such as direct spending to improve infrastructure required for the targeted investment, or a loan guarantee that can be more cost effective. That is, a thorough assessment of the cost of any tax incentive should include estimating its opportunity cost by exploring alternative measures that may achieve the same goal at a lower cost (also see the next subsection).⁴²

Third, *additional cost*: What is the additional cost to the government other than the anticipated revenue loss associated with the given tax incentive program?

For example, will the additional investment activities within the TIP target require additional government spending on infrastructure (e.g., transportation) and other public services (e.g., public utilities and schools) to accommodate both the investment project and increased population associated with such a project?

The above list of critical questions can grow longer. Nevertheless, within this limited deliberation, two extremes of

⁴² For example, according to Brown and Earle (2013), the per-job-based cost of a loan guarantee provided by the U.S. Small Business Administration is only US\$ 14,000; this is much more cost-effective compared to a general fiscal stimulus (which costs US\$ 158,000 to US\$ 407,000 per job created), or an employment tax credit (US\$ 37,000 to US\$ 75,000).

quantifiable costs and benefits emerge: nil cost if both redundancy and displacement ratios are zero, or nil benefit if either the redundancy ratio or displacement ratio is 100 per cent. The reality is often in-between with both redundancy and displacement ratios between zero and one; our task is a careful assessment of *net* benefit, which can be positive or negative.

Moreover, when designing a tax incentive program, its opportunity cost and additional cost should be assessed concurrently to minimize the overall cost. For example, if the intended TIP requires government spending on infrastructure that may help bring in a much broader range of business activities including that targeted by the intended TIP, then this “additional” cost of the intended TIP may be a better use of government funds than the direct revenue loss of the TIP. That is, this additional cost may provide a gauge for the opportunity cost of the intended TIP and, therefore, help arrive at a better and wiser fiscal option than the intended TIP.

B. Assessing cost and benefit by stage

Standard cost and benefit analysis of a given tax incentive program covers both its economic impact and revenue impact. By economic impact, we **mean** economic activities ranging from capital investment and business operations that generate additional jobs and gross domestic product (GDP); by revenue impact, we mean both the revenue loss directly caused by the tax incentive program and possible revenue gains from additional GDP generated from the tax incentive program, including both investment and labour income, and its subsequent spending on consumer goods and services. More specifically, such economic and revenue impacts of tax incentives can be estimated through the following three stages:

- **Direct impact**—net economic activities directly stimulated by TIP and their revenue consequence. By “net”, we exclude the “redundant” economic activities that are within the target of TIP but would occur in the absence of TIP.
- **Indirect impact**—economic activities triggered by the “direct impact” (see above) through inter-industry linkages (or supply chains), and tax revenues generated from these economic activities.

- **Induced impact**—the multiplier effect of the income generated by economic activities through both direct and indirect impacts of TIP (see above) and its revenue consequence.

To estimate the direct and indirect economic impacts, diligent bookkeeping is the key. In many developed economies, where more sophisticated analytical tools such as the national and regional input-output accounts are available, policy analysts can borrow the total requirements coefficients⁴³ derived from the input-output accounts, as an *output* multiplier, to directly estimate the total economic impact, including both direct and indirect impacts, of the initial net investment associated with a TIP. However, in many low-income countries, where no input-output accounts are available, book keeping is the only tool that can help construct a useful database for estimating direct and indirect impact of ITP.

As for the induced impact, although the concept of the *income* multiplier⁴⁴ is straightforward, it is uncommon that policy makers acknowledge the negative multiplier impact of the revenue loss from tax incentives. Under a common budget constraint, the revenue loss from a given TIP must be offset by a spending reduction or tax increase outside of such a TIP. As well known, a spending reduction or tax increase can have a negative multiplier impact on the economy. Without estimating such a negative multiplier impact of a ITP cost, any cost-benefit analysis cannot be said to be complete.

⁴³ As noted in Horowitz and Planting (2009), “total requirements coefficients are based on the concept of gross output and differ significantly from macro-economic multipliers used to assess the effects of fiscal stimulus on gross domestic products”. For conceptual clarity, in April 2009, the Bureau of Economic Analysis replaced the term “multiplier” with “requirement” in the total requirements tables, a component of its input-output tables.

⁴⁴ An income multiplier is also determined by the marginal propensity to consume in a macro-economic sense: the higher the marginal propensity to consume and hence the lower the share of income withdrawn from economic activities, the greater the multiplier. For example, if 80 per cent of the national income is spent on consumer goods and services produced “domestically”, the marginal propensity to consumption is 80 per cent, and the multiplier is 5 [=1/(1-80%)].

C. Exploring alternative options

For any intended tax incentive program, there are always possible alternatives that should be included in the preliminary assessment stage to be appraised simultaneously to verify whether the intended TIP is truly the most worthy. These alternatives can be divided into two groups: one consists of alternatives to providing tax incentives, and the other alternative packages of tax incentives.

Examples of non-tax alternatives to tax incentives may include the following: direct government spending to foster agglomeration economies (e.g., laying down an infrastructure foundation for diversified industrial parks), loan guarantees for the potential infancy sectors (e.g., for high-tech start-ups), funding training programs for skills required by the new investment projects, etc.

The alternative tax incentive programs should also be explored to obtain a reliable appraisal of the intended tax incentive program. For example, if the objective of an intended TIP is to create jobs through encouraging investment and the initial design includes a per-job-based tax credit, then alternative tax incentives may range from a tax allowance for training cost, or partial exemption from payroll taxes.

Both types of alternatives share the same critical concern: what is the opportunity cost of the estimated revenue loss from the intended tax incentive program? If any possible alternative can achieve more than the intended tax incentive program at the same or lower cost, then that alternative should replace the intended TIP to reduce the cost to the government.

D. Conducting sensitivity analysis

We have emphasized that assessing the cost and benefit of any intended tax incentive program should be aimed at its overall and long term economic and revenue impact; and all the impacts should be quantified in monetary terms as much as possible. Such an assessment for appraisal purposes always requires some basic assumptions. For example, if a TIP is to encourage a certain amount of increased investment projects that would ultimately increase the growth rate of GDP and hence tax revenue by a half percentage point, then, naturally,

a required assumption is the “normal” GDP growth rate that is compatible with the “do-nothing” scenario without the intended TIP. If the “normal” GDP growth rate is assumed to be 2 per cent, then a half-percentage-point increase targeted by the intended TIP should lead to an annual GDP growth rate of 2.5 per cent.

The assumption for this “normal” GDP growth rate is often based on the average of the GDP growth rate over the past five to ten years, or as long as recent statistics are available. But what if an un-forecasted external shock, either positive (e.g., the global investment boom before year 2000) or negative (e.g., the 2008 global financial crisis), occurs? That’s where the sensitivity analysis is required to ensure our estimate of the intended TIP impact is accountable.

That is, sensitivity analysis involves varying economic scenarios across which the input parameters are being varied accordingly. Such input parameters may include the real interest rate, normal GDP growth rate, the national or regional multiplier, which is in turn determined by the corresponding marginal propensity to consume and the inter-industry linkages, the split of capital and material inputs between imported and locally produced, and the split of output between exporting and local absorption.

E. The toolkit for cost-benefit analysis

Based on our deliberations in defining the cost and benefit of tax incentives, there are theoretically two extreme models. One extreme is a primitive model that counts only the direct cost (e.g., the direct revenue loss) and benefit (e.g., the net investment increment) of a given tax incentive program. This extremely primitive model can be derived solely with *conventional accounting*, or use of the so-called “head count” approach.

And the other extreme is an ultra comprehensive model that is the *computable general equilibrium (CGE) model*⁴⁵ built upon the

⁴⁵ For a brief and practical explanation of the CGE model and its use for impact analysis, refer to the World Bank website with the entry “Computable General Equilibrium (CGE) Models”.

national (and/or regional) *input-output accounts*⁴⁶ with both overall and sectoral output *multipliers*⁴⁷ being readily available for simulating the impact of various specified tax and non-tax parameters and behavioural reactions. Such a comprehensive model is supposed to be able to capture all three-stage (i.e., direct, indirect and induced) economic and revenue impacts of any given tax incentive program by simply plugging in the input data. However, as we shall see in the next section, even a comprehensive model may produce a questionable assessment when the input data were not carefully thought through or well covered.

While the primitive and purely “head count” approach is unacceptable to any serious analysts, the well-established input-output accounts and computable general equilibrium model are often beyond the reach of many of us due to the usual budget and resource (e.g., human capital and/or statistics) constraints. Therefore, within such constraints, we always need to search for a practically accessible analytical model that allows us to approach, as much as possible, a reliable cost-benefit assessment of any intended tax incentive program. Fortunately, with integrated revenue administration and computerized data management that are making progress in most countries,⁴⁸ it is possible to build micro-simulation models that are solely based on companies’ financial statements and tax returns submitted to the tax authority. Such a firm-based micro-simulation model can work wonders in the absence of sophisticated input-output accounts and a computable general equilibrium model. We shall provide such a prototype micro-simulation model in Section IV, after reviewing two existing government studies of tax incentives in the next section.

III. A review of two official studies

Many existing studies are devoted to identifying and quantifying the effectiveness of tax incentive programs.⁴⁹ But most of them are not

⁴⁶ For an informative discussion of the concepts and use of the input-output accounts, see Horowitz and Planting (2009).

⁴⁷ Refer to footnote 17 for conceptual clarity.

⁴⁸ Chen (2010).

⁴⁹ For example, see Brown and Earle (2013), Chirinko and Wilson (2008), James (2013), Kalko and Neumark (2009), Klemm (2009), and Klemm and Van Parys (2009).

intended to be full-fledged cost-benefit analyses. For our purposes, the revision includes only two official studies for a detailed comparison of their analytical thoroughness. One study is the Massachusetts Government's latest annual report, issued by its Commissioner of Revenue, on its state film industry tax incentives (hereafter the Massachusetts Study). And the other is the assessment report issued by the Nevada Governor's Office of Economic Development (GOED) on the economic impact of its tax incentive package offered to Tesla's Gigafactory, a gigantic battery-producing factory for Tesla's electrical cars (hereafter the Nevada Study). The Massachusetts film industry tax incentives appear to fall into the category of cross-jurisdiction tax competition for a selected industry (e.g. film production), and the Nevada tax incentives for Tesla seem to be a firm-specific program hoping to produce some agglomeration effect (see below).

Both of these two studies fit the standard framework of a cost-benefit analysis. That is, they measure the cost and benefit of their respective tax incentive programs along the lines of economic impact and revenue impact and in three stages: direct impact, indirect impact and induced impact (refer to Section II.B. above). And both of these two studies used the most sophisticated modelling tools (i.e., the input-output accounts and computable general equilibrium models).⁵⁰ Therefore, they are readily comparable.

The review of these two studies is not intended to validate their conclusions. Instead, it focuses on exploring analytical ideas, or deficiencies, embedded in these studies, which we can borrow, or avoid, while building our own prototype cost-benefit analytical model (see the next section).

⁵⁰ For example, both studies employed the REMI (Regional Economic Models Incorporated) model that is popular in America. According to its website (<http://www.remi.com/the-remi-model>), the REMI model “incorporates aspects of four major modelling approaches: Input-Output, General Equilibrium, Econometric, and Economic Geography. Each of these methodologies has distinct advantages as well as limitations when used alone. The REMI integrated modelling approach builds on the strengths of each of these approaches”.

A. **The Massachusetts study: a report on the Massachusetts film industry tax incentives, April 20, 2016** ⁵¹

The Massachusetts film industry tax incentives, as amended in July 2007, are composed of a tax credit equal to 25 per cent of a film's production cost, 25 per cent of a film's payroll costs and an exemption from sales tax for film productions. The tax credits can be used to reduce the production company's tax liability, and to the extent that the tax credits exceed that tax liability, production companies may receive cash refunds from the Department of Revenue equal to 90 per cent of the amount of the tax credit remaining. The tax credits may also be transferred or sold by production companies to third parties, which can use the tax credits to reduce their Massachusetts corporate, insurance, financial institutions, or personal income tax liabilities. In some cases, sales to third parties are direct sales from the production company to such third parties. In other cases, the credits may be sold to tax credit brokers, who in turn may resell the credits to Massachusetts taxpayers who use the credits to reduce their state tax payments.⁵² In summary, by ignoring the sales tax exemption, the Massachusetts film industry tax incentives (MFITI) are a tax credit equivalent to 25 per cent of the total film production cost including the payrolls, and this tax credit is refundable and transferable and can be used to offset any direct tax liabilities to the state. We therefore use the term (Massachusetts') "film tax credit" interchangeably with the MFITI.

The report reviewed here is the seventh annual report on the Massachusetts film industry tax incentives (MFITI) issued by the State Department of Revenue (DOR). One of the primary purposes of this report is to estimate the impact of the film tax incentives on the state economy. The study employs a Massachusetts' version of the REMI model,⁵³ which incorporates aspects of four major modelling

⁵¹ Massachusetts Department of Revenue (2016).

⁵² As an example of good governance and tax transparency, Massachusetts publishes its annual Tax Credit Transparency Report, as required by state legislation and starting from calendar year 2011, with respect to such credits awarded or issued for the previous calendar year. The report publishes details for each tax credit program including the administering agency, period covered, identity of the taxpayer receiving an authorized tax credit, amount of authorized tax credit and the date for such credit issued and received.

⁵³ See footnote 24.

approaches, including Input-Output accounts and a General Equilibrium model, to estimate the *net* economic and fiscal impacts of the film tax incentive program. The following statistical information is used for the study:

- (1) The total amount of tax credits generated, claimed, and paid by calendar and fiscal year;
- (2) The types of productions claiming the tax credits;
- (3) An estimate of the film production activity that would have occurred in Massachusetts even in the absence of the tax incentives;
- (4) The dollar amount of wage and non-wage spending for film productions that claimed the tax incentives;
- (5) The dollar amount of wages and salaries that were paid to Massachusetts residents and non-residents;
- (6) The dollar amount of non-wage spending that was paid to Massachusetts-based and out-of-state businesses;
- (7) The number of new jobs generated by film productions that claimed the tax incentives, for both residents and non-residents; and
- (8) The net increase in the amount of spending that occurred in Massachusetts as a result of the film tax credits.

In this list, item (3) is the most noteworthy. It is an estimate of the film production activity that would have occurred in the state even without the film tax credit but would nevertheless have been eligible for the film tax credit.⁵⁴ By taking this estimate seriously, the state administration clearly understands that the film tax credits issued to such film production activities are not generating net benefits but are a waste of public funds. As such, this part of the film tax credits issued is excluded from the government estimate of direct “local spending” due to its film tax credits that can generate additional economic impact.

Similarly, items (5)–(6) are painstakingly segregating the direct spending triggered by the film tax credit between the state resident and non-resident groups. With this segregation, only the direct

⁵⁴ Refer to the report, pages 6–7, for the detailed methodology and assumptions used to arrive at this estimate.

spending that went to the employees and vendors as Massachusetts residents is counted as the direct impact of the film tax credit.

The most intriguing point in the study, however, is its estimate of negative economic impact and negative “multiplier” impact. A conventional cost-benefit analysis may estimate the tax expenditure associated with the tax incentives as the cost and then stop there. The Massachusetts Government went further with the cost-benefit assessment of its film tax credit. Since the film tax credit is refundable and transferrable and the state’s balanced budget requirement also obliges the government to make spending cuts corresponding to the film tax credits issued, the state administration equates the film tax credits issued to the “state spending cuts or tax/fee increases” required to maintain a balanced budget.⁵⁵ By making this point clearly and openly, this study links the film tax credit instantly and directly to a budget cut or new tax measure that has economic consequences. As such, estimating the “negative multiplier impact” became an integral part of Massachusetts’ cost-benefit analysis of its film tax credit.

As a result of all the above due-diligence, the Massachusetts Government estimated that, over the course of 2006–2013, the annual *direct* impact of its film tax credits ranged from only 22 to 41 per cent of the film production total spending (see table 4 in the study). In other words, only 22 to 41 per cent of the annual film production spending in the state were *both* truly relevant to its film tax credit *and* benefited the Massachusetts film producers and residents. More specifically, these rather low annual *direct* economic impacts of the film tax credit are arrived at by subtracting the following items from “film production total spending” in the state: (a) spending in the absence of tax incentives (i.e., “redundant” film spending), (b) wages paid to non-residents (i.e., not benefiting residents), (c) non-wage spending on non-MA vendors (i.e., having no indirect impact on the state economy), and (d) reduced MA spending to balance the budget (i.e., offsetting the impact of film production spending).

With a clear step-by-step explanation, the report is relatively easy for voters to understand its numbers, analysis and conclusion. Taking its reporting for year 2013 as an example, the dollar amount of

⁵⁵ Refer to the report, pages 8–9 for detailed analysis and reasoning on this issue.

tax credits generated by film production is US\$ 69.3 million (Table 3) corresponding to total film production spending of US\$ 277.2 million (Table 4), which reflects the exact 25 per cent tax credit as an incentive. The net spending that is accounted for as a “direct impact” is US\$ 68.9 million after the aforementioned four subtractions (Table 4). By running the REMI model, the estimated total impact, including direct, indirect and induced impacts of the film tax credit, is an increase in the state GDP by only US\$ 132.3 million (Table 5), of which a large proportion was spending paid to non-MA employees and businesses, and an increase in state personal income (PI) by only US\$ 33.6 million (Table 5), which is less than half of the total film tax credits issued (US\$ 69.3 million).

Finally, it is noteworthy that the Massachusetts study reveals the net impact of its film tax credit program on government finances. Again, taking year 2013 as example, the total of the film tax credit issued is US\$ 69.3 million, and the total tax revenue generated from the total economic impact of the film tax incentive program is US\$ 9.7 million. As a result, for every dollar of tax expenditure associated with the film tax incentives, the government generated only 14 cents in tax revenue. From this perspective, the Massachusetts film industry tax incentive program is not a worthy one to keep. But for the Massachusetts’ government and residents, the film tax credit might help enhance their pride for the films produced in the state, a benefit that is not quantifiable but seemingly worth pursuing to them.

In summary, this official annual assessment of the Massachusetts film industry tax incentives have an A-plus grade for five reasons: (1) its thorough report and deliberation of the direct impact (including both cost and benefit) of the film tax credits issued, (2) its coverage of efficiency loss (through its careful estimate of “redundant” film production), (3) its estimate of the negative multiplier impact of revenue loss caused by the film tax credit, (4) its exclusion of the costs and benefits “leaked out” of the state, and (5) its revelation of the negative government revenue impact. With these merits, the omission of the increased administration and compliance cost is forgivable; in particular, this cost can be judged as rather negligible since the program itself is rather simple and straightforward and can be claimed through filing a tax return.

B. The Nevada Study: economic impact of Tesla on Washoe and Storey counties, September 11, 2014 ⁵⁶

In September 2014, the Nevada state government signed a tax incentive package for Tesla, the California-based electrical carmaker, to build its gigantic battery-producing factory (hereafter Gigafactory) in Nevada. In this tax incentive package, the State government offered US\$ 1.25 billion of tax-abatements, tax exemptions and tax credits in return for Tesla's promise of a US\$ 3.5 billion direct investment and 6,500 direct jobs.

The government assessment report appears professional as it employed three popular economic modelling tools in America—IMPLAN,⁵⁷ REMI (see above) and EMSI⁵⁸—to provide three sets of impact estimates for reaching a seemingly sound conclusion. However, compared with the Massachusetts' assessment of its film tax credit program, as reviewed above, the Nevada Report seemed to be hyper on the benefit side and mute on the cost side. It also seems to lack details while taking Tesla's gigafactory plan as a net addition to the state economy, which reflects the government's casual attitude towards its assessment.

The Tesla plan for its Gigafactory:⁵⁹

- (1) Facility construction with a total cost of US\$ 1.0 billion over the first three years.
- (2) Equipment investment totaling US\$ 10 billion with an initial US\$ 3.95 billion over the first four years and replacement equipment purchases of US\$ 5.0 billion in subsequent years through 2028.

⁵⁶ Nevada Governor's Office of Economic Development (2014).

⁵⁷ IMPLAN stands for "Impact analysis for PLANning" and is a data and analytical software that combines classic input-output analysis with regional specific Social Accounting Matrices and Multiplier Models. It was originally developed and is now maintained by the Minnesota IMPLAN Group (MIG). IMPLAN allows the user to develop local-level input-output models that can estimate the economic impact of new entities moving into an area. Refer to <http://cier.umd.edu/RGGI/documents/IMPLAN.pdf>

⁵⁸ EMSI stands for Economic Modelling Specialists International. The modelling tool, using sound economic principles and good data, "turns labor market data into useful information that helps organizations understand the connection between economies, people, and work". Refer to <http://www.economicmodelling.co.uk/about-ems/>

⁵⁹ Nevada Governor's Office of Economic Development (2014).

- (3) New manufacturing jobs up to 6,500 at a full operational level by 2018.
- (4) Significant power consumption that could generate substantial utility fees to the host county.

Nevada offered the following tax incentives for Tesla's Gigafactory:

- (1) A 100 per cent real and personal property tax abatement through June 2024.
- (2) A 100 per cent exemption of both state and local sales taxes on equipment purchases and construction materials for 20 years.
- (3) A 100 per cent abatement for the modified business tax (MBT), a gross-payroll-based tax.
- (4) A per-job based US\$ 12,500 transferable tax credit for the first 6,000 new jobs created, totaling US\$ 75 million. And
- (5) A transferable tax credit totaling US\$ 120 million combining 5 per cent of the first US\$ 1 billion investment and 2.8 per cent of the next US\$ 2.5 billion investment.

This package of tax abatements, reimbursements and credits for Tesla's Gigafactory is estimated to be between US\$ 1.1 billion and US\$ 1.3 billion in total. It is apparently a location-based-firm-specific tax incentive program aimed at its agglomeration impact.⁶⁰

Unlike the Massachusetts Study, which is an annual evaluation of an ongoing tax incentive program, the Nevada study is an appraisal of the intended tax incentive package for its total economic and revenue impact over a 20-year horizon. And its input data consists of mainly Tesla's investment plan (e.g., when to invest at what size and when to hire however many employees) and the government tax incentives. By entering these two datasets into the readily available analytical tools, the government was happy to show a range of both economic and revenue impacts to make a persuasive case.

⁶⁰ According to GOED (2014), page 3, the Tesla investment in its Gigafactory "would also support improvements in transportation and utility infrastructure that would greatly enhance the region's competitiveness for future manufacturing and logistics projects".

The main findings of Nevada Study are the following:

- (1) Economic impact:
 - Direct impact (as included in the Tesla plan): 6,500 jobs with annual incomes of US\$ 370 million
 - Indirect and induced impact (estimated by the government through its use of modelling tools): 6,400–16,200 jobs with annual incomes of US\$ 334 million–US\$ 953 million
 - Total impact: 12,900–22,700 jobs with annual incomes of over US\$ 700 million–US\$ 1.3 billion.
- (2) Revenue impact (note that Nevada does not have an income tax):
 - Direct impact (i.e., based on the Tesla plan and net of government incentives): US\$ 460 million over 20 years
 - Indirect and induced impact (based on indirect taxes payable through estimated additional jobs and population): US\$ 776 million–US\$ 1,487 million.

Note that within the range of the indirect and induced impact, the lower number is associated with the regional output multiplier and the higher one with the national output multiplier; and both output multipliers are generated through the modelling tools used by the government. The regional output multiplier is lower because it excludes the indirect and induced impact on the nationwide economy that is outside of Nevada. (See below for further analysis.)

A fiscal economist, not familiar with either Tesla or Nevada, would raise the following questions simply out of the critical thinking required for a balanced cost-benefit analysis.

First, how critical is Nevada's tax incentive package to luring Tesla to land its gigafactory in Nevada? More specifically, would Tesla choose Nevada without getting a tax incentive package of this size? If the answer to this second version of our question is YES, then the redundancy ratio is greater than zero, indicating a sizable loss of potential revenue.

Tesla was originally seeking only US\$ 500 million in government support and had broken the ground for its gigafactory in

Nevada two months before this billion-dollar-tax-incentive deal was sealed. According to Mark Rogowsky at Forbes (2014/09/04), among the five potential competitor states,⁶¹ Nevada was actually Tesla's best bet for its Gigafactory even without the tax incentives. That is, Nevada has no competitors in the country as the most desirable location for Tesla's Gigafactory because of its unique possession of all the following attributes: (a) geographic proximity to Tesla, (b) active lithium resources, (c) rich solar energy resources desired by Tesla, (d) "right politics" as a "right to work" state,⁶² (e) "right people" (i.e., human capital needed for Tesla's construction), and (f) on-site high-tech facilities (i.e., Apple and Amazon manufacturing facilities) that provide Tesla with locational security as a "follower". The other four states at most have three of these six non-tax advantages, and none of them has the "active lithium resources" required for Tesla's Gigafactory's production of batteries. Moreover, according to the Tax Foundation, Nevada is ranked as the third most competitive in business tax climate among the 50 states, and number one among its four potential rivals.

It is therefore only natural to suspect that the government paid an excessive premium on the Tesla deal. But verifying this suspicion is beyond our focus here.

Second, is it true that there would be no additional cost to Nevada's government even if its underlying assumption of a "zero redundancy ratio" were true? In other words, the study sees Tesla's investment as a net gain to the government coffers with no additional cost outside of its tax incentive package. But this "zero-cost" conclusion cannot be true.

⁶¹ Besides Nevada, which was ranked as the top third by the Tax Foundation's 2014 State Business Tax Index, the other four states (and their ranking in the same tax index) are: California (#48), Arizona (#22), New Mexico (#38) and Texas (#11). The order of relative ranking among these five states stays the same for 2016 (<http://taxfoundation.org/article/2016-state-business-tax-climate-index>).

⁶² A right-to-work state is a state that introduced a right-to-work law. There are currently 26 right-to-work states in the U.S. According to Wikipedia, Right-to-work laws do not aim to provide a general guarantee of employment to people seeking work, but rather are a government regulation of the contractual agreements between employers and labor unions that prevents the former from excluding non-union workers, or requiring employees to pay a fee to unions that have negotiated the labor contract all the employees work under.

For example, since the population expansion on the Tesla site is estimated to be 49,000 (or a 50 per cent addition to the existing local population), a substantial increase in public spending would be required to accommodate this substantial population expansion (e.g., transportation, water, sewage and school expenses). Unfortunately, the study did not make note of this spending requirement at all.

Neither did it look at the opportunity cost of the foregone tax revenue. For example, what if a small portion of this package, particularly the transferrable tax credit (see below) is saved for making up the shortfall in the state's educational system (which may face an even greater shortfall due to the aforementioned population expansion), or government direct spending on the state's infrastructure,⁶³ or simply reducing its ever growing budget deficit?⁶⁴ It is also noteworthy that the State introduced a biennium tax package of US\$ 1.4 billion on 31 May 2015, which appeared almost like a direct funding for the Tesla tax incentive package of US\$ 1.25 billion. Ironically, the full abatement for the gross-payroll-based modified business tax (MBT) offered to Tesla is now "paired" by a generally higher MBT rate, broader MBT base, and hence more MBT taxpayers. A new commerce tax on annual gross-receipts exceeding US\$ 4 million, with 26 categorized tax rates, further hindered Nevada's tax efficiency.⁶⁵

Third, the Nevada Study provides two scenarios of economic and revenue impact by applying the regional multiplier and national multiplier respectively to the Tesla plan (see above for its findings). The scenario associated with the regional multiplier represents a lower economic and revenue impact because the regional multiplier is lower, reflecting the fact that a substantial portion of the supply chain for Tesla's battery-producing factory in Nevada is located outside of Nevada. The scenario associated with the national multiplier represents a higher economic and revenue impact because the national

⁶³ According to Wikipedia, "Nevada is one of a few states in the U.S. that does not have a continuous interstate highway linking its two major population centers. Even the non-interstate federal highways aren't contiguous between the Las Vegas and Reno areas".

⁶⁴ According to Ballotpedia, Nevada's state debt per capita was US\$ 19,152 in 2012, ranking 13th highest in the nation. https://ballotpedia.org/State_debt

⁶⁵ Refer to Walczak (2015).

multiplier is higher and covers nationwide economic activities related to Tesla's battery producing factory in Nevada. Instead of making a sound judgment about the most possible scenario that lies between these two scenarios, the government assumed the higher-impact scenario associated with the national multiplier is the most likely because "the local economy adjusts over time to the presence of this new industry".⁶⁶ This assumption ignores the fact that a modern manufacturing supply chain no longer requires traditional locational concentration. The fact that Tesla is building its battery-producing facility in Nevada rather than in its home state (California) is a typical example of the geographic spread of a modern supply chain.

Fourth, within the government offer, the most questionable element is the Transferrable Tax Credits of US\$ 12,500 per job for the first 6000 jobs, which amounted to US\$ 75 million in total. The question here is twofold: (1) Given that government has offered an incentive for capital investment, and the labour input is technically determined by the industry characteristics, is it necessary to offer a further tax credit for job creation? (2) Even if only half of these 6,000 jobs are by nature a within-state job displacement, there would be an outright waste of US\$ 37.5 million of government expenditure on jobs that do not help generate additional jobs and payroll taxes. For those jobs filled by out of state residents, the tax credit represents a reward for a cross-state job transfer to Nevada; this would certainly be a net loss to Nevada for its wasted tax credits in addition to being a lower job-creation effect.

Fifth, the rest of the *transferable* tax credit, totalled to US\$ 120 million, includes a 5 per cent credit on the first US\$ 1.0 billion in capital investment, and a 2.8 per cent credit on the next US\$ 2.5 billion in capital investment. These credits would extend through 2020 and would be offset by current tax programs. Without the government spelling out the content of these "current tax programs", such a transferable tax credit appears to be a pure giveaway of public funds. In a closer look at the study, this tax credit appears to be provided solely to satisfy Tesla's demand for paying no tax whatsoever by 2020.

Sixth, the estimate of indirect revenue (including both property tax and sales tax) gains "generated by direct and indirect

⁶⁶ Nevada Governor's Office of Economic Development (2014), page 15.

employees” and their families appears to assume all the employees of Tesla are a net addition to Nevada’s population. Here again, the study assumed there would be no displacement or relocation within Nevada and hence no revenue loss in other parts of the state to partially offset the revenue gains estimated in the study.

And finally, the Nevada Study appears prone to double counting the benefit. For example, by combining our fourth and sixth points above, either the per-job-based transferable tax credit (Point 4) is a pure waste of government money, or the estimate of indirect revenue gains is untrue. That is, if Nevada counted all the increased population associated with Tesla Gigafactory, including both the employees and their families, as a net addition to the pool of taxpayers for property tax and sales tax (Point 6), that would imply all the jobs created by the Tesla Gigafactory are filled by out of state residents. By this assumption, all the per-job-based transferable tax credit (Point 4) would be helping out-of-state jobseekers and hence be a pure waste of Nevada’s taxpayers’ money. On the opposite side, if all the Tesla jobs would be filled by Nevada residents and hence help reduce the state’s unemployment rate, then the estimate of indirect revenue gains (Point 6) would be an overestimate. Of course, the reality would be mostly between these two extreme scenarios, but any realistic combination between these two extremes will include a partial waste of the transferable tax credit on aiding out-of-state jobseekers and lower revenue gains resulting from within-state relocation of Nevada residents.

In comparison with the Massachusetts’ study reviewed above, the Nevada study did not pass the test. It appears to be a zero-cost-all-benefit analysis that reveals the government’s eagerness in pleasing an investor whose location decision had been pre-made. It is legitimate for any business investors to minimize their cost by bargaining hard with the government. But the same business attitude should be adopted by the government to serve the interest of all of its taxpayers rather than a selected one. A fiscally irresponsible government can induce irresponsible behavior from taxpayers if they see the hardest bargainer as being the winner.⁶⁷

⁶⁷ For a recent criticism of the growing trend of business cajoling governments for tax handouts in the U.S., refer to Gardner (June 5, 2016).

Technically, the lesson from the Nevada Study is that the intention for a full accounting of cost and benefit is often more critical than the availability of analytical tools. In other words, use of analytical tools, regardless of their professional appearance, can always be dictated by the intentions of policymakers. When the intention is to accommodate the interest group's demands, which is Tesla in this Nevada case, the cost factors are often ignored from the start, either intentionally or unintentionally.

IV. A prototype model for cost-benefit analysis

As reviewed above, an ideal model for assessing the cost and benefit of any tax incentive program, or more broadly any government fiscal program, is a computable general equilibrium model built upon the detailed input-output accounts. While the input-output accounts allow analysts to derive various output multipliers (i.e., total requirements coefficients) through formularized inter-industry linkages (i.e., the total requirements tables) for a given jurisdiction or industry, the computable general equilibrium model is assumed to catch all behavioural reactions to the initial changes resulting directly and indirectly from the concerned tax incentive program. Since many countries do not have the input-output accounts, not to mention a computable general equilibrium model, the lack of data and analytical tools is often seen as the foremost technical hurdle to a proper assessment of the tax incentive program.

However, also as reviewed above, the availability of data and analytical tools do not automatically guarantee a sound cost-benefit assessment of intended tax incentive programs. More often than not, data and analytical tools are serving the will and intention of policy makers. Therefore, professional integrity and critical thinking can play the role of crosschecking to ensure a reliable cost-benefit analysis. Furthermore, despite the crucial role of accurate multipliers in estimating the second-round impact combining both indirect and induced impacts, identifying and quantifying the first-round cost and benefit to all stakeholders, ranging from the government, business sector and society as a whole, are the most critical. The good news is: obtaining such first-round sets of data can be done with a straight "head-count" approach; that is bookkeeping.

In fact, even if both I-O accounts and a CGE model are available, firm-based accounting and tax data are still required to build a micro-simulation model for estimating revenue impact. And this is where bookkeeping also becomes critical. Although the two official studies reviewed above did not mention the term “micro-simulation model” explicitly, the Massachusetts Study is actually based on accounting information for film-production firms in the state. The Nevada Study involved Tesla only hence it is a “micro-simulation” by nature.

Keeping this realistic view in mind, below is a prototype model for assessing the cost and benefit of any given tax incentive program in the absence of input-output accounts and other sophisticated economic modelling tools. The only data requirement here is a combination of firm-based financial and tax data, which are assumed accessible by the revenue authority, and fine national accounts, from which we can draw the *income* multiplier based on the propensity to consume. Again, for descriptive convenience, assume the tax incentive program targets capital investment and involves only direct taxes such as company income tax. Also, assume the tax incentives are granted by the national government and hence assessed at the national level.

Our prototype model here is focused on estimating the economic and revenue impacts of an intended or on-going tax incentive program. The model is divided into three steps corresponding to the three stages of economic and revenue impact specified in Section II.B. These three stages of economic and revenue impact of a given tax incentive program are: direct impact, indirect impact and induced impact. By assuming the absence of IO accounts and a CGE model, our approach solely relies on data obtained through firm-based financial statements and tax returns, both of which are assumed to be available at the revenue authority. For simplicity, we also ignore the issues involving opportunity cost and additional cost as discussed in Section II.A.

Step 1: Estimating the direct impact

- 1.1 Estimate the total capital investments as reported by the targeted firms that are entitled to the tax incentives.
- 1.2 Estimate the total of the “redundant” investments within the target of tax incentives. This estimate can be based on an

open-ended survey (a sample question in such a survey may include: “what’s the main motivation for your investment in our country?”). The “redundant” investments are those that would occur even without tax incentives and hence are “redundant” in relation to the target of tax incentives being assessed.

- 1.3 Estimate the “genuine” additional capital investment size that solely results from the tax incentives. This genuine additional capital investment size is the difference between the total and the redundant investments within the target of tax incentives.
- 1.4 Estimate the increased jobs and corresponding labour income and taxable profits (i.e., pre-tax profits) associated with the genuine additional capital investment. This estimate can be made according to firm-based accounting/reporting, and with a reference to the industry-specific capital-labour ratio by international standards if foreign investors are involved. (Note: the “international” reference is particularly important if the targeted industry is new to the country.)
- 1.5 Estimate the revenue gains by (1) applying the personal income tax (PIT) and company income tax (CT) rates, respectively, to labour income and taxable profits, as result from Step 1.4; and (2) by applying the rate of the sales tax, say VAT, on consumption spending out of income.
- 1.6 Estimate the revenue loss corresponding to tax incentives granted to those investors whose investments are accounted as “redundant”. For example,
 - If the tax incentive is an income tax exemption (or reduction), then the revenue loss can be estimated by multiplying the taxable income arising from the redundant capital investment by the statutory income tax rate (or the gap between the standard and the reduced income tax rates).
 - If the tax incentive is an investment tax credit in proportion to the investment size, then the revenue loss is the product of the investment tax credit (in percentage) and the size of the redundant investment.
- 1.7 Estimate the direct revenue impact associated with the direct economic impact by summing up the results from Steps 1.5 and 1.6 above.

For this step, the *sensitivity parameters* may include the redundancy ratio, displacement share, and crowding-out probability. A higher level of any of these three parameters will lead to a lower level of direct, indirect and induced impacts as well as a higher level of revenue loss. And vice versa.

Step 2: Estimating the indirect impact

- 2.1 Estimate the total purchase of capital goods, including both building materials and machinery and equipment) associated with genuine additional capital investment resulting from Step 1.
- 2.2 Estimate the split of the total purchase of capital goods into domestically purchased and imported. Only the domestically purchased capital goods can be counted as the first round of *indirect* impacts. (This estimate can be made based on firm-based accounting and customs itemized records by importer.)
- 2.3 Estimate the economic impact of domestically purchased capital goods in terms of the increased investment and labour inputs required for producing such additional capital goods and the resulting pre-tax profit and labour income. This is also a genuine addition to existing economic activities, and it can be based on accounting and tax filing by existing firms involving the production of these specific capital goods.
- 2.4 Estimate the total purchase of material inputs for production, including both raw and processed materials) associated with the genuine additional capital investment resulting from Step 1.
- 2.5 Estimate the split of total purchase of material inputs into domestically purchased and imported. Only the domestically purchased materials can be counted as the first round of *indirect* impact. (This estimate can be made based on firm-based accounting and customs itemized records by importer.)
- 2.6 Estimate the economic impact of domestically purchased materials in terms of the increased capital investment and labour inputs required for producing such additional materials and the resulting pre-tax profit and labour income. This is also a genuine addition to existing economic activities, and it can be based on accounting and tax filing by existing firms involving the production of these specific types of materials.

- 2.7 Estimate revenue gains by (1) applying the PIT and CT rates, respectively, to labour income and pre-tax investment profits generated by the above additional capital-goods-producing activities (Step 2.3) and material-producing activities (Step 2.6); and (2) by applying the VAT rate to the consumption spending out of the income.
- 2.8 Repeat Steps 2.1–2.7 as many times as the industrial linkage indicates and existing data allows, in order to account as thoroughly as possible for the indirect economic and revenue impact of the tax incentives.

For this step of estimation, the *sensitivity parameters* may include the split of any physical/material inputs between those imported and those domestically purchased. The higher share for the imported inputs will lead to lower indirect and induced impacts. And vice versa.

Step 3: Estimating the induced impact

- 3.1 Estimate the national income multiplier based on the national accounts. That is, in the national accounts, the national income (Y) based on the expenditure approach provides a clear share of consumption (C), including both consumers' expenditure and public current spending, within the total income, based on which, the multiplier ($= 1/(1-C/Y)$) can be derived. For example, if 80 per cent of national income is allocated to consumption spending, then the income multiplier is 5.
- 3.2 Summing up the total incomes generated from direct and indirect economic impacts, net of the direct revenue loss caused by the redundant investment associated with TIP, to form the base to which the national income multiplier can be applied.
- 3.3 Estimate the induced economic impact by multiplying the total additional income (Step 3.2) by the national multiplier (Step 3.1) minus one to single out the "induced" impact.
- 3.4 Estimate the "induced" revenue impact by multiplying the sales tax (e.g., VAT) rate on the consumption share (e.g., 80 per cent by our assumption above) of the total induced income. Note that, for simplicity, we ignore any possible direct taxes on the induced incomes.

For this step of estimation, the *sensitivity parameters* may include the propensity to consume, which can change in either direction as the national income changes and the social safety net improves. What is relevant here is that, the lower the national income per capita (or the sounder the social safety net) and hence the higher the propensity to consume, the greater the multiplier and hence the greater the induced impact.

As illustrated above, our prototype model can help identify and quantify the economic and revenue impact of any given tax incentive program without the use of sophisticated input-output accounts and other economic models. What is useful and generally accessible is a firm-based micro-simulation model that requires only financial and tax information contained in a general company income tax return. Therefore, the most critical technical procedure required in constructing our prototype model is thorough bookkeeping and a computerized database. Given that large-taxpayer units are now well established in many developing countries, constructing such a micro-simulation model is no longer impossible.

Figure 1 in the Appendix provides a simplified numerical illustration of this prototype model covering all three steps. It is simplified because it covers only a single accounting period with simple and arbitrary numerical assumptions, it skips sensitivity analysis although it provides possible parameters for such analysis, and it ignores the assessment of opportunity cost and additional cost.

V. Conclusion

Tax incentives by nature are base-eroding tax measures and violate the three basic principles of tax optimization: efficiency, equity and simplicity. However, tax incentives may be justified for mitigating market failure, competing for mobile investment projects while preserving a general tax base, or pursuing agglomeration economies. Regardless, only those tax incentive programs that can pass cost-benefit assessments of both economic and revenue impacts are worth attempting or preserving.

As broadly accepted, the benefit of any given tax incentive program can be defined as the increased economic activities directly

and indirectly traceable to such a program and their positive multiplier impact on the overall economy and government revenue. And the cost of any given tax incentive program can be defined as the direct revenue and efficiency loss, the increased administrative and compliance cost, and their negative multiplier impact on the overall economy and government revenue.

Our review of two state government assessments of their tax incentives programs demonstrated that the analytical tool that combines a computable general equilibrium model with input-output accounts is ideal but not indispensable. Only professional integrity combined with critical thinking and diligent bookkeeping can ensure a reliable cost-benefit assessment of any tax incentive programs.

This chapter provides a prototype model in the absence of both input-output accounts and a computable general equilibrium model. With a simplified step-by-step illustration, we showed that a cost-benefit analysis of any tax incentive for its economic and revenue impacts can be done with straight accounting and simple math, as long as firm based accounting and tax information are thoroughly recorded. Also to this extent, it is critical that tax incentives are designed and administered by the tax authority, rather than by non-tax government bodies (e.g., an investment promotion agency), so that all the accounting and tax-filing records are kept under the roof of the revenue agency.

From a purely analytical point of view, tax incentives are always inferior to nationwide tax reforms that tax all investment activities across all economic sectors indifferently. The countries that provide the least tax incentives and hence preserve the broadest tax base are able to tax all at the minimum rate, which in turn is the most effective in inducing the economic activities to obtain their full potential.

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Appendix: A simplified numerical illustration (for a single accounting period and with a national annual wage rate = 2)

	Input data (by assumption)	Output estimate	Sensitivity parameters
<p>Step 1: Direct impact: GDP increase=210</p>	<p>I = total investment within TIP target = 200 (by accounting) I₀ = redundant investment = 100 (by survey) K/L/M = capital-labour-material ratio = 1/2/2 (by international standard & domestic stats) W = domestic wage rate = 2 (by accounting) r = estimated pre-tax return to capital = 10% (based on industrial statistics)</p>	<p>$I_1 = I_1 - I_0 =$ genuine impact of TIP = 100 (derived from I and I₀) $L_1 = I_1 / (K/L) = 100 / (1/2) = 200 (= M_1)$ $P_1 =$ profit from I₁ = rI₁ = 10% x 100 = 10 Hence, increased GDP: $\Delta Y_1 = L_1 + P_1 = 210$ And job creation $J_1 = L_1 / W = 200 / 2 = 100$</p>	<p>Redundancy ratio = I₀/I (by survey, assumed as 50% here) Displacement share (by statistics, assumed as 0 here) Crowding-out probability (by survey, assumed as 0 here) Pre-tax return to capital (by accounting, assumed as 10% here)</p>
<p>Step 2: Indirect impact (GDP increase ≥ 75 (Note: similar calculations can be repeated as long as the inter-industry linkage implies. Therefore, the increased GDP is 75 at a minimum))</p>	<p>K₁ = I₁ = 100 K_{1,m} = imported capital goods (by firm reporting and customs accounting) = 50 K_{1,d} = K₁ - K_{1,m} = 100 - 50 = 50, from industry K₁ Where I/O = 0.9 and K/L/M = 4:4:1</p>	<p>Estimating required increment in capital and labour corresponding to K_{1,d} and M_{1,d} according to their respective I/O and K/L/M ratios. That is, For K_{1,d} = 50, with I/O = 0.9 and K/L/M = 4:4:1</p>	<p>(1) The proportional split of both capital and material inputs between imported and domestically produced is assumed as 50:50, which should vary by industry and by type of inputs (i.e., capital vs. materials) and can be estimated using both firm based</p>

Appendix: (cont'd)

	Input data (by assumption)	Output estimate	Sensitivity parameters
<p>Step 3: Induced impact (GDP increase ≥ 1060)</p>	<p>Similarly, M_1 = total purchase of material inputs = 200 M_{1m} = imported material inputs (by firm reporting and customs accounting) = 100 $M_{1d} = M_1 - M_{1m} = 200 - 100 = 100$, from industry M_I, with $I/O = 0.9$ and $K/L/M=2:4:3$</p>	<p>$K_{2k} = 20$, $L_{2k} = 20$, $M_{2k} = 5$, and $P_{2k} = 5$ Similarly, for $M_{1d} = 100$, $I/O = 0.9$ and $K/L/M = 2:4:3$ $K_{2m} = 20$, $L_{2m} = 40$, $M_{2m} = 30$ and $P_{2m} = 10$ Hence, the indirect economic impact consists of: (1) Increased GDP, or ΔY_2 is 75. That is $\Delta Y_2 = L_{2k} + P_{2k} + L_{2m} + P_{2m} = 20 + 5 + 40 + 10$. And (2) increased jobs = $(L_{2k} + L_{2m})/2 = 60/2 = 30$</p>	<p>accounting and records at customs. (2) The pre-tax profit is assumed to be 10% of total output for illustrative simplicity; it can vary widely using firm-based accounting information.</p>
<p>Step 3: Induced impact (GDP increase ≥ 1060)</p>	<p>The direct and indirect GDP impact = $\sum \Delta Y_i$ (with $i = 1, 2, 3 \dots$) > 285 (= 210 + 75), as resulted from Steps 1&2; and assuming a short-term multiplier = 2 for small open economy, with an overall propensity to consume = 80%</p>	<p>The induced GDP impact = $1 \times (\sum \Delta Y_i - R) \geq 265$ [= 1 x (285 - 20)] (Note: Revenue loss, R, is obtained from Step 4 below, which is assumed to be offset by a reduction in spending on social welfare.</p>	<p>The assumed propensity to consume should be derived from the national accounts but can be changed according to economic forecasting. Note: induced impact does not include direct/indirect impacts hence we have (multiplier -1).</p>

Appendix: (cont'd)

	Input data (by assumption)	Output estimate	Sensitivity parameters
<p>Step 4: Revenue impact ≥ 32.25 (For simplicity, we ignore the CIT/PIT impact of induced economic activities.)</p>	<p>For revenue loss: assume TIP is a 20% investment tax credit. For revenue gain, assume: CIT rate = 20%, applicable to $\sum Pi$; PIT rate = 10%, applicable to $\frac{1}{2} \sum Li$ assuming a 50% exemption for labour income; and VAT rate = 5%.</p>	<p>Revenue loss $Rl = -sI_0 = -20\% \times 100 = -20$ Revenue collection Rg due to CIT/PIT/VAT: $RCIT = 20\% \times \sum Pi, -sI_1 \geq 20\% \times 25 \ 20 = -15;$ $RPIT = 10\% \times (1-50\%) \sum Li \geq 10\% \times 130 = 13;$ $RVAT = 550 \times 80\% \times 5\% = 22$ Net revenue impact $\geq 0 = -20 -15 + 13 + 22$</p>	<p>Any of the sensitivity parameters that may affect any of the three stages of TIP impact above can affect the revenue impact of TIP.</p>

Quantitative Summary: (1) total economic impact: increased GDP $\geq \Delta YI=550$ ($=210+75+265$) and new jobs ≥ 130 , and (2) Revenue impact ≥ 0 .

Main Finding: The redundancy ratio (I0/I) affects the economic and the revenue outcomes of any tax incentive program negatively.

Part III

A Country Experience

Chapter I

The tax incentives for tourist industry in the Dominican Republic*

I. Introduction

The Dominican Republic (hereafter DR) has long been providing tax incentives to numerous business activities. Its tax incentive program targeting the tourism industry (hereafter TIPT) was reintroduced in 2001, after being repealed in 1992; the program initially exempted all approved⁶⁸ tourism investment projects in “selected” areas from all direct and indirect business taxes for ten years, regardless of their nationality and investment size. A 2013 amendment on TIPT expanded its geographic coverage to the whole country and extended such a wholesale 10-year tax holiday for another 15 years.

The non-nationality- and non-geographic-discretionary feature of DR’s TIPT was intended to attain a level playing field *within* the tourist industry. However, the lost tax revenues attributable to TIPT were alarming; they accounted for over a half per cent of the total tax revenue during the period of 2011–2015, for which the official estimates are available.⁶⁹

In the meantime, DR’s annual tax revenue as a share of GDP has been persistently well below the regional average among major Latin American and Caribbean countries since 1990. From 2001 to 2014, DR’s tax revenue has been well below 14 per cent of GDP except for 2006–2008

* Prepared by Duanjie Chen, with data and technical support from DR’s Ministry of Finance.

⁶⁸ All projects only need to be approved by the Consejo de Fomento Turístico (CONFOTUR). There is no minimum requirement of investment amount or job creation. The general principle applicable is that benefits are limited to new projects, or projects undergoing massive renovation (at least 50 per cent of the existing facility). Each project only needs to be financially and economically feasible and to have all standard permits (e.g. environmental).

⁶⁹ The DR official estimate of total revenue loss due to the overall tax incentive regime, of which TIPT is only a small component, amounted to over 15 per cent of the annual tax revenue.

and 2014, while the counterpart of its regional average was well above 17 per cent for 2001–2005 and reached 20 per cent or higher since 2006. Within this period of 14 years, DR's tax-to-GDP ratio fell to the lowest in the region three times; only Guatemala had a worse record.⁷⁰

Such a persistent tax revenue shortfall has constrained the government budget for public spending. For example, DR's nationwide infrastructure has been a major concern to multinational companies,⁷¹ but the Government does not have the financial capacity to deal with this concern. Therefore, the ongoing debate around DR's TIPT, along with its overall tax incentive regime, is centered on the following issues: How relevant is TIPT to the development and growth of DR's tourist industry? Is there any measurable benefit to the economy that is truly attributable to TIPT? What is the cost of TIPT including its revenue and efficiency losses? And what is the opportunity cost of TIPT? Put it in another way: Did the generous tax exemptions for tourism investment truly contribute to the tourism growth in DR, or were they largely wasted? Furthermore, is there a better way to spend the government money than giving away the tax revenue in the form of TIPT? Answering these questions requires quantifying the cost and benefit of TIPT in DR.

By reviewing DR's tourism development from a historical and regional perspective and quantifying the cost and benefit of its TIPT, this study draws out three findings: First, like most tourism-oriented economies that possess natural beauty and climate advantage, the tourism industry in DR has been mainly determined by global economic conditions with irregular domestic economic and non-economic shocks. Second, among all the factors that might have contributed to DR's tourism growth and development, TIPT showed no noticeable relevance. And finally, the TIPT in DR has not been a cost-efficient fiscal instrument for the government to support its tourist industry. Based on our estimate, within the period of 2002–2015 and measured

⁷⁰ Refer to OECD, Revenue Statistics in Latin America and the Caribbean 2016, table 3.1.

⁷¹ Refer to the World Economic Forum, The Travel & Tourism Competitiveness Report 2015, in which DR's score on infrastructure is well below those of most of its major regional competitors. Note that the WEF's Global Competitiveness Index (GCI) as well as the Travel & Tourism Competitiveness Index are based on its Executive Opinion Survey.

in 2015 Dominican Republic peso (DOP), TIPT has caused a direct tax revenue loss of DOP 22.6 billion (table 4), a negative GDP impact of around DOP 21 billion, and further revenue losses (table 8). In contrast, should the TIPT-associated tax expenditure be invested instead in public infrastructure, the potential total GDP gain could amount to DOP 43 billion with a net spending of DOP 17 billion, which can be seen as the opportunity cost of TIPT (table 8).

This chapter is structured in five sections. After this introduction, DR's tourist industry's performance is first reviewed from a historical and regional perspective to *observe* the TIPT impact on its tourism performance (Section II). Then an assessment is made of the benefit of TIPT (Section III), as measured by its impact on tourism investment, tourism GDP and total GDP, and the cost of TIPT (Section IV), including its direct revenue loss and the related negative multiplier effect and its efficiency loss. Mainly for illustrative purposes, the opportunity cost of TIPT is also estimated. The final section summarizes the cost-benefit assessment.

It should be borne in mind that, within the limited timeframe and resource constraint, the static approach was adopted. That is, no behavioral reactions to any technical assumptions were employed in this analysis. For example, estimating the opportunity cost of TIPT is based on the assumption that TIPT associated tax expenditures were redirected to other government outlays. Such a structural change in fiscal policy is bound to cause behavioral changes by various stakeholders. Such behavioral changes were ignored to simplify the analysis and assume these behavioral changes in various directions could offset each other.

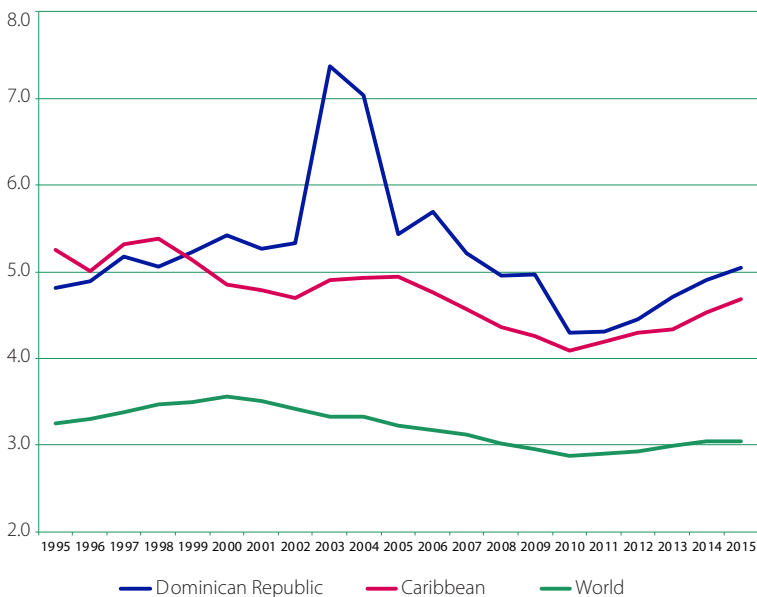
II. Dominican Republic's tourism industry: a historical and regional review

Tourism has a long history in the Caribbean region,⁷² which can be traced back to 1778 when the first hotel was built on the island

⁷² According to World Travel & Tourism Council (WTTC), the Caribbean region includes the following countries: Anguilla, Antigua & Barbuda, Aruba, Bahamas, Barbados, Bermuda, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Puerto Rico, St Kitts & Nevis, St Lucia, St Vincent & the Grenadines, Trinidad & Tobago, UK Virgin Islands, and US Virgin Islands.

of Nevis. The Caribbean region is often described as “the most tourism-dependent region in the world”⁷³ mainly because of its warm climate, natural beauty and largely peaceful geopolitical environment. As shown in figure 1, over the past two decades, the direct contribution of tourism to GDP, or tourism GDP, in the Caribbean region — between 4 to 5 per cent — has been consistently higher than the global average, which has been hovering around 3 per cent.

Figure 1:
Tourism's direct contribution to GDP (%), 1995–2015



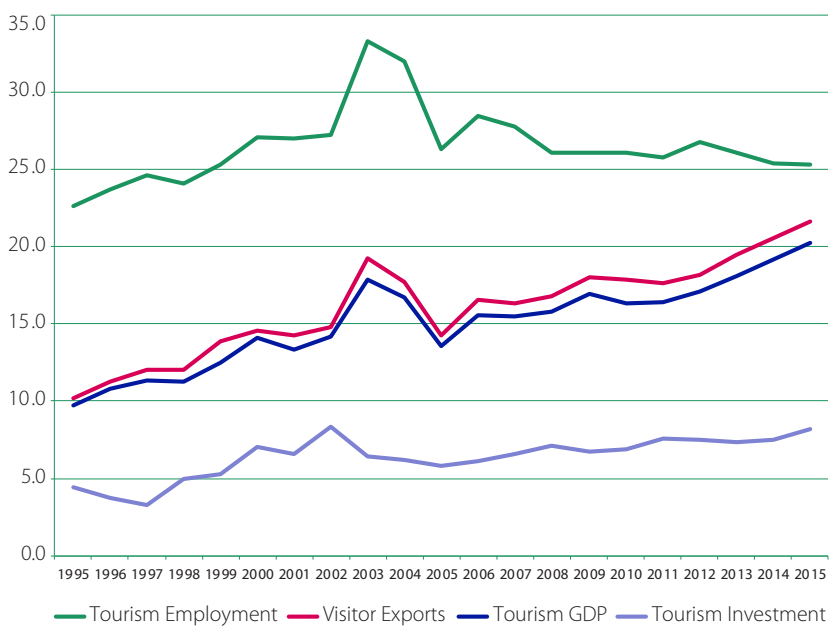
Source: World Travel & Tourism Council, Data Getaway (online: <https://www.wttc.org/datagateway/>).

The Dominican Republic, despite being a latecomer, is now taking a lion’s share of the Caribbean tourist economy, with a persistently higher contribution of tourism to GDP than its regional average (figure 1) since year 2000. In 2015 (figure 2), DR’s total inbound tourism expenditure (US\$ 6.4bn) accounted for 21.6 per cent of Caribbean inbound tourism expenditure (US\$ 29.8bn), and its

⁷³ Wikipedia, Tourism in the Caribbean.

tourism GDP⁷⁴ (US\$ 3.4bn) and tourism employment (179,197 jobs) accounted for 20 per cent and 25 per cent, respectively, of its regional counterparts.⁷⁵

Figure 2:
The Dominican Republic's tourism share in Caribbean (%), 1995–2015



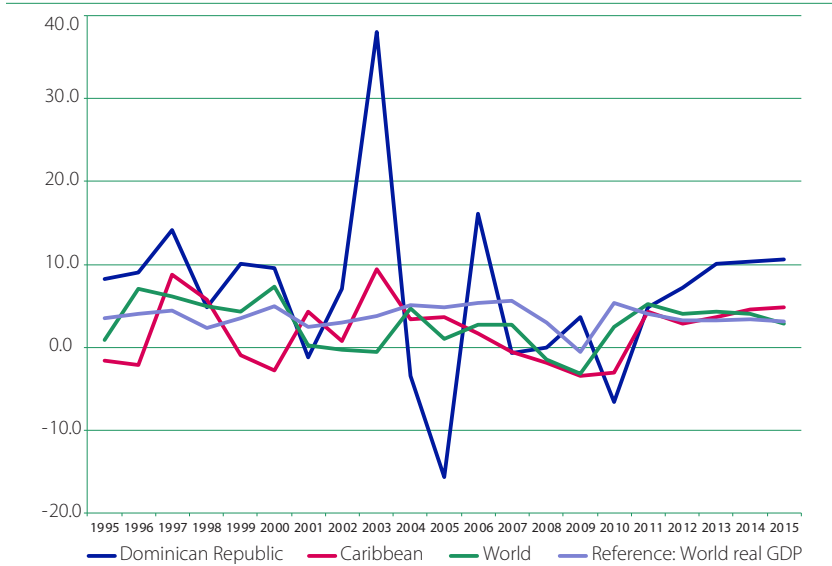
Source: Author's estimate, based on *World Travel & Tourism Council*, Data Getaway.

⁷⁴ In this report, “tourism GDP” and “the direct contribution of tourism to GDP” are used interchangeably. According to WTTC, “the direct contribution of Travel & Tourism to GDP is calculated to be consistent with the output, as expressed in National Accounting, of tourism-characteristic sectors such as hotels, airlines, airports, travel agents and leisure and recreation services that deal directly with tourists”. It is “calculated from total internal spending by ‘netting out’ the purchases made by the different tourism industries. This measure is consistent with the definition of Tourism GDP, specified in the 2008 Tourism Satellite Account: Recommended Methodological Framework (TSA: RMF 2008)”. Refer to *Travel & Tourism Economic Impact 2016 Dominican Republic*, page 2.

⁷⁵ Author's estimates based on World Travel & Tourism Council (WTTC), *Travel & Tourism Economic Impact 2016 Dominican Republic* and *Travel & Tourism Economic Impact 2016 Caribbean*.

Further comparing the growth trend in DR’s tourism GDP with its regional and global counterparts reveals some interesting facts (figure 3):

Figure 3:
Annual real growth of tourism GDP (%), 1995–2015



Source: World Travel & Tourism Council, Data Getaway, for the real tourism GDP growth rate and OECD-Data for the world real GDP growth rate.

First, the global trend in real tourism GDP growth is dictated by the global economic condition although non-economic shocks (e.g., the September 11th terrorist attack in 2001) can disrupt this normal causal relationship on the global scale.

Second, DR’s tourism growth largely followed the global trend, except for a few sharp deviations caused by localized or domestic shocks in either positive or negative directions.

For example, in the early 2000s up to 2005 when global tourism appeared to be flat after the sudden drop caused by the September 11th terrorist attack, the 2003 Pan-American Games held in Santo Domingo was a one-time powerful stimulator for DR’s tourism. The unprecedented domestic financial system crisis erupted in early 2003

that caused a sustained currency depreciation also helped attract foreign tourists *initially*. Then the tropical storm Jeanne and an outbreak of malaria in 2004 intensified the anticipated drop in foreign tourists after the Pan-American Games. The large scale sudden closure of some 3,000 hotels rooms in late 2005 and subsequent reopening of most of these hotel rooms were behind the further drop and sharp reversal in tourism GDP within 2005–2006.⁷⁶

Third, given DR's substantial share in the Caribbean tourism GDP, its sharp deviations from the global trend contributed to the Caribbean's deviations from the global trend in a similar pattern, albeit to a milder degree.

Finally, and the most relevant to this study, there does not seem to be any noticeable impact of TIPT on DR's tourism growth pattern since year 2001 when TIPT was reintroduced, or since year 2013 when TIPT was expanded. That is, how favorably a tourism investment project is taxed had little noticeable impact on the overall tourism industry growth.

These observations are not unique to DR but common to the global tourism industry as a whole. That is, the global tourism demand, as a form of consumption, is a function of the global economic condition and played a dominant role in individual countries' tourism growth, although country-specific disruption can occur from time to time; special tax incentives for tourism investment (such as TIPT in DR) has no noticeable impact on tourism growth, although a country's accommodation capacity, along with its public infrastructure, can be a critical determinant of tourism growth from the supply side.⁷⁷ Appendices A and B, by comparing DR's tourism-relevant tax environment and tourism performance with those of its major regional competitors, further reinforces these observations.

⁷⁶ This paragraph is based on DR's official explanatory notes for figure 3.

⁷⁷ A host of literature studying tourism demand can be found online by typing the key words "tourism demand: a panel data approach". The consensus among this literature is that GDP per-capita is the most important demand determinant for tourism growth; on the supply side, other things being equal, the overall level of welfare is the most important determinant. Depending on the development stage of individual countries, the factors of the overall level of welfare consist of, in the order from basic to ideal, safety, infrastructure, education, life expectancy and GDP per-capita.

In the next section, the benefit of TIPT as measured by its investment impact, direct GDP impact and total GDP impact is assessed.

III. Assessing the benefit of TIPT

DR's TIPT is purposed to attract tourism investment in order to facilitate tourism growth; it is based on an assumption that the tax holiday helps stimulating investment in tourism facilities, which in turn attracts more tourists. However, as observed above, DR's tourism GDP growth pattern since 2001, when the current TIPT was introduced, did not display any visible impact of TIPT. Furthermore, despite DR's rather high tourism GDP share in the Caribbean region — up to 20 per cent in 2015, its tourism investment share has been far lower, hovering between 6 to 8 per cent since 2000 (figure 1).⁷⁸

In this section, the benefit of TIPT as measured by its investment impact, direct GDP impact and total GDP impact is assessed.

To investigate the investment impact of TIPT, there are two steps. First in subsection A, compare DR's tourism investment pattern, respectively, with those of its regional and global counterparts and with its domestic overall capital investment to *observe* any possible TIPT impact. And then in subsection B, investigate the split of DR's tourism investment between the firms with and without TIPT to estimate the portion of the overall tourism investment that is truly attributable to TIPT. By “truly attributable” (hereafter “attributable”), means to count only the tourism investment that would not have been made without TIPT.

To estimate the direct and total GDP impact of TIPT, utilize the parameters derived from the DR's firm dataset (2007–15) and

⁷⁸ It is also noteworthy that, in contrast to its tourism capital investment, DR's regional share in tourism employment has been consistently higher than its share in tourism GDP; does this indicate that DR's capital to labour ratio in its tourism industry is consistently lower than the Caribbean region as a whole? Note that the focus here is not judging whether DR's capital to labour ratio is appropriate but assessing whether DR's TIPT is necessary, or wasteful. For example, if a relatively low capital to labour ratio fits the unique tourist capital-labour structure in DR, then the TIPT might not be necessary even without a cost-benefit analysis.

input-output table (2012) and WTTC's database (1995–15). It should be alerted that the estimate here implicitly assumes that *all* the tourism investment including that *attributable* to TIPT is as “efficient” as that of DR's economy as a whole. Therefore, all the parameters derived from the official statistics (e.g., DR's input-output accounts and WTTC dataset) to estimate the benefit of TIPT arising from TIPT-associated tourism investment can be applied. This assumption contradicts our later assessment that a large portion of capital investment made by TIPT-firms is “inefficient”. While the assumption (of “efficiency”) here is prone to overestimating of the benefit of TIPT, cautiously avoid overestimating of the cost of TIPT by “suppressing” the share of “inefficient” capital allocation caused by TIPT. That is, by allowing “overestimating” the benefit and possibly “underestimating” the cost to avoid underestimating the net benefit of TIPT.

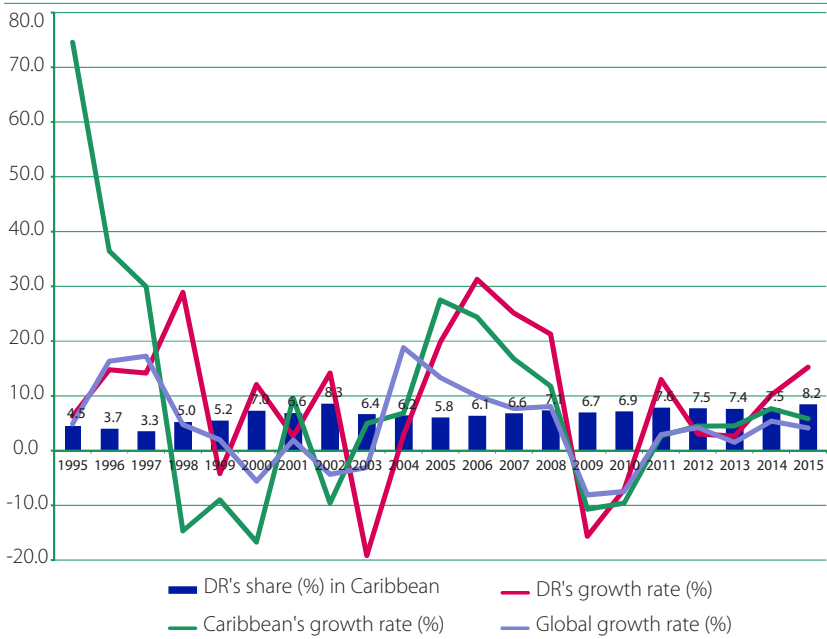
A. The tourism investment pattern: multiple perspectives

Figure 4 compares DR's tourism investment trend with its regional and global counterparts over the past 20 years. Note that, in the current context, both the tourism investment (as estimated by WTTC⁷⁹) and the gross fixed capital formation (GFCF, as published in DR's national accounts) include both government and private investment.

As shown in figure 4, DR's tourism investment pattern has largely coincided with its regional and global counterparts *since year 2004*. And its regional share has been rather steady, hovering around 6 to 7.5 per cent since year 2000, except for 2002 and 2015 when it exceeded 8 per cent. The significant diverging period appeared to be from 1998 to 2003. During this period, DR's tourism investment growth rate went in a direction, year by year, opposite to those for the regional and global tourism investments. These divergences were mainly caused by various domestic shocks, such as Hurricane George in September 1998, the construction slowdown in 2001 and the aforementioned domestic financial crisis in 2003.

⁷⁹ These data series are obtained from WTTC, Data Getaway. For detailed methodology used to arrive at these data series, refer to Oxford Economics, Methodology: WTTC / Oxford Economics 2016, Travel & Tourism Economic Impact Research, March 2016, pp. 26–27.

Figure 4:
The Dominican Republic’s tourism investment vs. Caribbean and global trends: 1995–2015

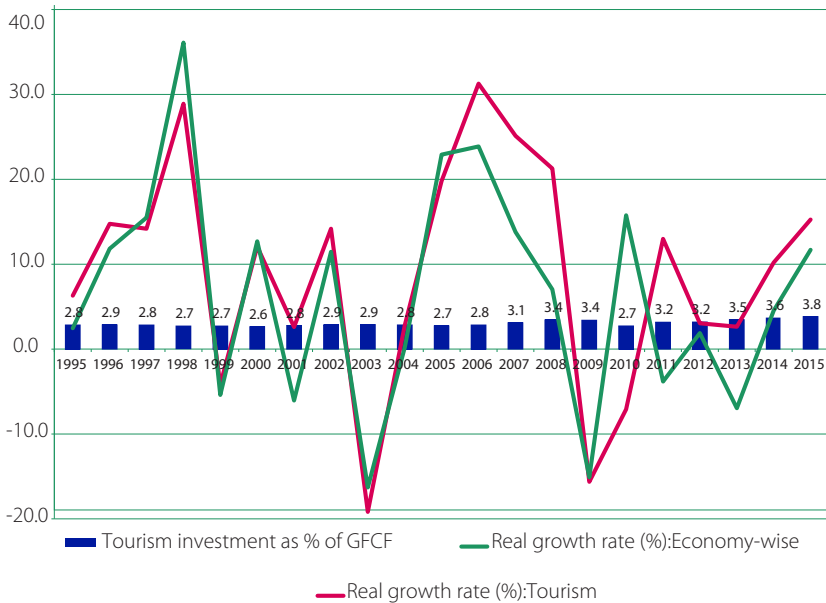


Source: Author’s estimate, based on Dominican Republic’s National Accounts for GFCF and *World Travel & Tourism Council*, Data Getaway, for tourism investment.

Figure 5 illustrates how DR’s tourism investment pattern had almost seamlessly followed its domestic pattern in gross fixed capital formation (GFCF) before 2006. (Recall that, as shown in figure 4, DR’s tourism investment appeared in a pattern that was so incompatible with its regional and global counterparts before year 2004.) For the post-2005 period, the tourism investment appeared to be growing faster than that of the overall economy, except for 2009–2010 when the global financial crisis hit hard on tourism investment globally (recall figure 4). Moreover, the share of tourism investment in the economy-wide GFCF had been hovering around 3 per cent up to 2013 when it reached 3.5 per cent and slowly crept up to 3.8 per cent by 2015. This tourism share increment is understandable given the faster growth in tourism investment compared to that in GFCF. It is also noteworthy that, between 2012 and 2015, the government investment

in tourism infrastructure (roads and airports) grew over 250 times (from DOP 8 million to over DOP 2 billion);⁸⁰ within the same period, the FDI flow into tourism was more than quadrupled.⁸¹

Figure 5:
Capital investment in the Dominican Republic: tourism vs. economy-wise, 1995–2015



Source: Author's estimate, based on DR's National Accounts for GFCF and CPI index and *World Travel & Tourism Council*, Data Getaway, for tourism investment.

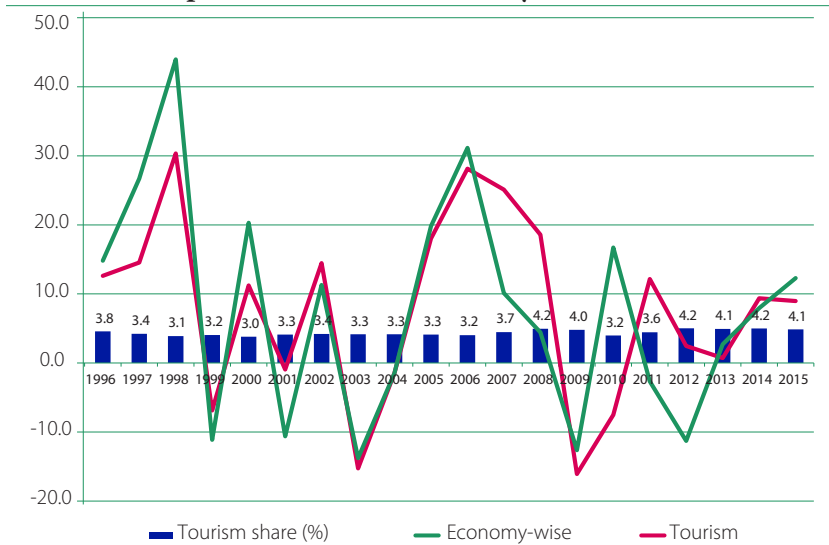
Figures 4 and 5 imply that it is the overall investment environment, rather than TIPT, that dominates the tourism investment in the long term. TIPT might have induced capital to flow into the tourism industry from time to time (e.g., large-sized FDI projects during 2005–2008 and 2013–2015), but such stimulating effects appeared to be sporadic rather than persistent or even predictable. Moreover, such sporadic TIPT-induced tourism investment might also have paired with capital misallocation as discussed later.

⁸⁰ Refer to the DR dataset “aggregate data”.

⁸¹ Based on the official statistics provided by DR's Ministry of Finance.

Figure 6 further compares DR's *private* capital investment in tourism⁸² with its economy-wide trend. It again shows that tourism investment, as a share of overall private investment has been rather stable, hovering between 3 to 4 per cent; and the growth pattern of private tourism investment has mimicked that of the economy-wide private investment except for two periods 1997–98 (slower) and 2007–12 (faster except for 2009–10).

Figure 6:
Annual growth rate (%) of private capital investment in the Dominican Republic: tourism vs. economy-wide, 1996–2015



Source: Author's estimate based on WTTC, Data Getaway, and DR Government Statistics.

Findings from figure 6 are similar to those from figure 5 except that the tourism share is higher than that in figure 5. This indicates that the government investment is insignificant in general and substantially lower for the tourism industry. Therefore, the government investment does not affect the investment pattern materially and the tourism

⁸² By comparing the government GFCF on tourism-related infrastructure for a limited period (2004–2015) with the WTTC data on tourism investment (which includes both government and private investments), the government tourism investment was almost negligible except for 2015.

share in the overall investment is lower when the government portion is included.⁸³

B. The TIPT impact on the Dominican Republic's tourism investment

To assess the investment impact of TIPT, it would be ideal to start with a regression of tourism investment against all of its determinants including TIPT over a sufficiently long period. By “sufficiently long”, we mean that the time series should be long enough to cover periods both before and after Year 2001, when TIPT was reintroduced, so as to allow differentiating the investment patterns (i.e., investors’ behavior) with and without TIPT. Given the limited period (2007–15) for which the firm-based financial data are available, and which covers only a portion of the period long after TIPT was introduced, we can only look into the relative investment pattern of the tourism firms associated with TIPT and that without.

Table 1 below compares the tourism firms that enjoyed TIPT with those that did not (hereafter “TIPT firms” and “non-TIPT firms”).⁸⁴ It shows that, in 2015, the TIPT firms are on average much bigger than the non-TIPT firms. More specifically, an average TIPT firm has an asset size more than 5 times that of non-TIPT firms, a gross revenue more than 3 times and an employment size of 2.6 times. However, the average net income of TIPT firms is only 1.2 times that of non-TIPT. In other words, the financial performance of TIPT-firms is way below its non-TIPT counterpart: the return on assets of TIPT firms is only 0.6 per cent (vs. 2.4 per cent for non-TIPT) and net profit margin is only 2 per cent (vs. 5 per cent for non-TIPT).

The most relevant observation to our study is that, despite the much larger size of the TIPT firms, the majority of tourism firms—88 per cent by number of firms, 59 per cent by total assets, 67 per cent by

⁸³ It would be interesting to find out the main causes of the downturns shown in figure 6 to better understand the driving forces behind DR's private investment, both economy-wide and in tourism. The official explanation of the 2003 downturn is a good example.

⁸⁴ Appendix C clearly explains how TIPT and non-TIPT samples were constructed.

Table 1:
Tourist companies in the Dominican Republic: with and without TIPT, 2015

	Number of firms	Total assets (In 2015 DOP Million)	Gross revenue	Net income before adj. for tax incentive	Number of employees
Industry total					
With TIPT	107	110 631	40 123	650	28 398
Without TIPT	781	158 661	80 306	3 935	78 725
Average firm size					
With TIPT		1 034	375	6.1	265
Without TIPT		203	103	5.0	101
Relative share: with TIPT vs. without TIPT					
With TIPT	12%	41%	33%	14%	27%
Without TIPT	88%	59%	67%	86%	73%
Average annual real growth: 2007-15*					
With TIPT	5.3%	14.9%	2.0%	-24.1%	2.4%
Without TIPT	3.5%	7.5%	2.9%	19.0%	2.8%
2015 Profitability: *		Return on assets	Net profit margin		
With TIPT		0.6	2%		
Without TIPT		2.4	5%		

Source: Author's estimate based on DR's firm dataset.

* Both groups incurred substantial losses for five varied years within 2007-2015.

gross revenue, 86 per cent by net income, and 73 per cent by number of employees—are non-TIPT. And these non-TIPT firms attained a much higher level of financial performance, as mentioned above.

Furthermore, by looking at the period of 2007–2015, the TIPT firms grew much faster in their average total fixed assets (14.9 per cent annually) but slower in their average gross revenue (2 per cent) with a substantial drop in their net income (-24 per cent). In contrast, the non-TIPT firms grew much slower in their total assets (7.5 per cent) but faster in their gross revenue (2.9 per cent) and net income (19 per cent). Note that, for analytical consistency, we based our estimate on the 2015 DOP so as to eliminate the inflation effect; we are also aware that both groups of firms experienced substantial financial losses for various five-year periods around the global financial crisis.

To investigate their different investment pattern, table 2 provides the split of total tourism investment from 2008 to 2015 between the TIPT firms and non-TIPT, it also provides the split of total assets at the end of 2007 and the end of 2015.

Table 2:
Tourism investment: relative share of TIPT firms
vs. non-TIPT firms

(Percentage)

	<i>Investment or asset</i>		<i>Number of firms</i>	
	TIPT	non-TIPT	TIPT	non-TIPT
2007: Year-end assets	29	71	10.7	89.3
2008	37	63	10.9	89.1
2009	20	80	10.7	89.3
2010	89	11	10.6	89.4
2011	12	88	11.4	88.6
2012	71	29	11.1	88.9
2013	84	16	11.6	88.4
2014	65	35	11.6	88.4
2015	71	29	12.0	88.0
2008–15 Accumulated investment	52	48	NA	NA
2015: Year-end assets	41	59	NA	NA

Source: Author's estimate based on the tourism firm-based sample dataset.

Three observations can be drawn from table 2:

First, as of the end of 2007, the TIPT firms accounted for only 29 per cent of the total tourism assets, and the non-TIPT 71 per cent. Given that the TIPT was introduced in 2001, it is reasonable to assume that 29 per cent of total assets *owned* by the TIPT firms in 2007 was the *maximum* share of pre-2008 accumulation of tourism investment that could be *attributable* to TIPT. This is because at least some of the TIPT firms might have been established before 2001 and made some of their investment before 2001 without benefiting from TIPT. In other words, unless all the TIPT firms were established after TIPT was reintroduced in 2001 and made their investment because of TIPT, the share of tourism investment *attributable* to TIPT could not possibly reach 29 per cent of total tourism assets at the end of 2007.

Second, by the end of 2015, the TIPT-group accounted for 52 per cent of accumulated investment within 2008–2015, which helped raise its share of total assets from 29 per cent in 2007 to 41 per cent in 2015. That is, within the total investment made by all the tourism firms, only 41 per cent has been *associated* with TIPT, which share is greater than that which can be truly attributable to TIPT.

And third, within the period of 2008–2015, the lowest investment share associated with the TIPT firms occurred in 2011, which was 12 per cent. Noting that 2011 was the year when tourism investment was up substantially, as measured by its annual growth rate as well as its share in the overall private investment (figure 6), it is reasonable to take the 12 per cent as the minimum investment share that is truly *attributable* to TIPT. That is, during a booming year for tourism investment presumably led by a bright prospect for tourism, a very small portion (i.e., 12 per cent) of such investment might not have been made without TIPT.

The above observations provide a starting point for estimating the share of tourism investment that is truly *attributable* to TIPT. That is, the 2007 TIPT share of total assets, i.e., 29 per cent of accumulated tourism investment up to the end of 2007, can be seen as the *maximum* share of the total tourism investment that is truly *attributable* to TIPT. And the 2011 TIPT share of the annual investment, i.e., 12 per cent, is

the upper end of the *minimum* share.⁸⁵

It should be born in mind that the investment share that is *attributable* to TIPT might include replacement effects,⁸⁶ or crowding out factors,⁸⁷ or both, caused by TIPT. In other words, the tourism investment *attributable* to TIPT within our assumed range, 12–29 per cent, includes a possible share of efficiency loss caused by TIPT. We shall investigate the scale of such efficiency loss when assessing the cost of TIPT.

C. The benefit of TIPT: investment and GDP impact and revenue gain

Since TIPT is aimed at stimulating tourism investment to foster tourism growth and overall GDP growth, which is expected to ultimately increase tax revenue, we focus our benefit assessment on the impact of TIPT on investment, GDP and possible revenue gain. On this assessment, we take the following four steps: first, estimate the annual tourism investment attributable to TIPT; then, estimate sequentially the direct GDP impact and total GDP impact of the tourism investment; and finally, estimate the ultimate revenue gain. Note that, because the TIPT was introduced in October 2001, we assume the usual time lag in implementation of any legislation and ignore the “instant” impact of TIPT in 2001. Appendix D documents the technical procedures within these four steps.

Note that, by converting all the annual monetary numbers to be based on 2015 constant DOP, we exclude the inflation effect from our assessment. However, we ignore the discount factor in summing up the annual numbers for 2002–2015 due to the lack of reliable time

⁸⁵ This assumed range of investment that is truly attributable to TIPT means a redundancy ratio (of total TIPT-associated investment) ranges from 44 per cent (=1-29/52) to 77 per cent (=1-12/52) based on the accumulation of investment within 2008–2015, or from 29 to 71 per cent based on the total assets by the end of 2015. However, there is no point to involve this concept of “redundancy ratio” from the *knowing* scale of the investment *attributable* to TIPT.

⁸⁶ This refers to the possibility that TIPT induced existing capital to relocate from a non-tourism industry to the tourism sector.

⁸⁷ This refers to the possibility that TIPT influenced the potential investment that was originally planned for non-tourism industry but went to the tourism industry.

series of the government real long-term bond rate. We accept this omission because we apply the same approach to our assessment on the cost of TIPT. That is, any possible biases caused by this omission on both the benefit and cost sides may largely cancel out each other.

Step 1: Estimate the annual tourism investment attributable to TIPT

WTTC provides its estimate of the annual tourism investment in DR. This data series covers investment in a range of sectors including both tourism industry and certain elements of transportation; it also includes investment made by the government.⁸⁸ By applying our estimate of the range of tourism investment share attributable to TIPT (i.e., 12–29 per cent) to the WTTC’s annual investment amount *net of the transportation elements and the government’s portion*,⁸⁹ we arrived at the *range* of tourism investment attributable to TIPT for 2001–2015.

Step 2: Estimate the direct GDP impact of TIPT

Estimating the direct GDP impact of TIPT is to estimate the GDP directly generated by the tourism investment attributable to TIPT. Step 1 has produced tourism investment attributable to TIPT, what we need is a quantitative linkage between the tourism investment and the tourism GDP.

The DR input-output account (IO) of 2012 (i.e., “table of detailed supply and use”) provides the gross value-added by the tourism industry, which is the tourism GDP. It also provides “total output” of the tourism industry. However, like any IO table in general, it does not provide any information on total assets that are used to produce the tourism output and generate tourism GDP.

Given that the “total output” on the IO table is equivalent to the “gross revenue” at the firm level, we can do the following: 1) estimate the ratio of “gross revenue” (R) to “total assets” (A) based on

⁸⁸ WTTC/Oxford Economics 2016: Travel & Tourism Economic Impact Research methodology, page 26.

⁸⁹ Based on DR’s official source, the government investment in tourism investment has been insignificant until 2015 when the government share in the total tourism investment reached 8 per cent.

the official firm dataset, 2) apply this ratio (R/A) to the total output provided in the IO table to estimate the total assets used to produce the total output, 3) with this estimate of “total assets”, estimate its ratio to GDP,⁹⁰ and 4) apply this ratio to the investment attributable to TIPT to arrive at the tourism GDP attributable to TIPT, *on an annual basis*.

Note that we do not want to derive the investment to GDP ratio based on the WTTC dataset, which provides both tourism GDP and tourism investment. This is because the WTTC data are generated in the spirit of relying on the actual statistics as much as possible. That is, the WTTC investment data does not have the direct link to the current year GDP. Therefore, our approach here is based on the reasoning that (1) “investment” is the capital flow and “total assets” the capital stock; and (2) capital flow and stock in any given industry share the “same” productivity of capital, as measured by the capital-to-GDP ratio.

Step 3: Estimate the total GDP impact of TIPT

With the tourism GDP attributable to TIPT, i.e., the direct impact of TIPT, one can estimate the total impact of TIPT *if* there is a known quantitative linkage between the tourism GDP (direct impact) and the total GDP impact of tourism. The existing WTTC dataset provides a solid methodology for doing this, although it does so by borrowing quantitative linkages derived from a sample of some other developing countries.

That is, based on WTTC’s data for DR, we can derive the quantitative linkage between the tourism *direct* contribution to GDP and the tourism *total* contribution to GDP; i.e., the ratio of the direct economic impact to the total economic impact of tourism investment attributable to TIPT (table 3). Note that the total economic impact defined in the WTTC database includes the *direct*, *indirect* and *induced* impact of tourism industry as a whole.

⁹⁰ Instead of estimating this single ratio for the purpose of generating a single number of GDP, one can derive three ratios: labor compensation to total assets, profit margin to total assets, and taxes on products and imports to total assets. The end result will be the same, but the latter approach provides more details when needed.

Step 4: Estimate the revenue collection associated with the total GDP impact of TIPT

Again, with a static approach and by applying the ratio of total tax revenue to GDP obtained from the OECD to the “total GDP” impact of TIPT, we arrived at the possible tax revenue collection from the total GDP attributable to TIPT.

Table 3 presents the result from the estimating steps described above (and documented in Appendix D). As the table shows, over the period of 2002–2015 and in 2015 constant DOP, the accumulated tourism investment attributable to TIPT ranged from DOP 24 billion to DOP 58 billion, with a corresponding total GDP impact ranged from DOP 22 billion to DOP 52 billion and a possible tax revenue collection ranging from DOP 3 billion to DOP 7 billion. (Note that the *instant* impact of TIPT after it was reintroduced in October 2001 is assumed to be negligible, given the usual time lag between the introduction of tax incentive legislation and any induced new investment placed in service.)

Table 3:
Benefit of TIPT: investment, GDP and tax revenue, 2002–2015

(In 2015 constant DOP billions)

With TIPT share =	Investment		Direct GDP		Total GDP		Tax revenue	
	12%	29%	12%	29%	12%	29%	12%	29%
2002	1.2	2.9	0.3	0.8	1.1	2.6	0.1	0.3
2003	1.0	2.4	0.3	0.7	0.9	2.1	0.1	0.2
2004	1.0	2.4	0.3	0.7	0.9	2.1	0.1	0.2
2005	1.2	2.8	0.3	0.8	1.1	2.5	0.1	0.4
2006	1.5	3.6	0.4	1.0	1.3	3.2	0.2	0.4
2007	1.9	4.6	0.5	1.3	1.7	4.0	0.2	0.6
2008	2.2	5.4	0.6	1.5	2.0	4.9	0.3	0.7
2009	1.9	4.5	0.5	1.3	1.7	4.1	0.2	0.5
2010	1.7	4.2	0.5	1.2	1.5	3.7	0.2	0.5
2011	1.9	4.7	0.5	1.3	1.7	4.2	0.2	0.5
2012	2.0	4.8	0.6	1.4	1.8	4.4	0.2	0.6
2013	2.0	4.8	0.6	1.4	1.8	4.4	0.3	0.6
2014	2.2	5.3	0.6	1.5	2.0	4.8	0.3	0.7
2015	2.4	5.7	0.7	1.6	2.1	5.2	0.3	0.7
Accumulated	24.1	58.3	6.8	16.4	21.6	52.3	2.9	7.0

There are two caveats to our approach.

First, it implies that the tourism investment generates GDP “instantly” and lasts for only one year, which is unrealistic and biased towards underestimate the GDP impact of TIPT-associated capital investment.⁹¹

And second, by using the “multiplier” of total GDP on direct (tourism) GDP derived from the WTTC data, which includes both travel (i.e., transportation of passengers) and tourism, our estimate of total GDP impact should be taken only as a proxy to reality rather than precise guidance.

These caveats, however, are “double-edged”: by applying the same investment-to-GDP ratio and the same multiplier of total GDP on direct (tourism) GDP to estimating *both* benefit and cost of TIPT, the biases associated with these caveats are expected to be self-offsetting at the end.

IV. Assessing the cost of TIPT

As mentioned in the introduction section, the cost of TIPT includes: direct revenue loss and its induced GDP loss, and efficiency loss and its related revenue loss. As a reference, we also assess the opportunity cost of TIPT.

A. The direct revenue loss associated with TIPT, and its negative multiplier effect

According to the government estimate, from 2011 to 2015, the annual tax expenditure associated with TIPT, on average, amounted to 0.54 per cent of total tax revenue. Assume this average annual ratio of TIPT-associated tax expenditures (TIPT-TE) to total tax revenue is applicable to the period of 2002–2010, the accumulated tax expenditures, or revenue losses, for 2002–2015 is DOP 22.6 billion (in 2015 DOP).

⁹¹ A theoretically correct approach is applying a multiplier on tourism investment, based on the net present value for the entire useful life of capital, to arrive at the accumulated direct GDP impact of investment within its useful life.

What would be the negative multiplier impact of this TIPT-TE if the DR government has to offset such a revenue loss with equivalent spending reduction or tax increment somewhere else? The key is locating a justifiable fiscal multiplier for DR. The fiscal multiplier is defined as the change in GDP in responding to a given change in a fiscal policy instrument such as a certain form of government spending or tax collection.

However, the size of fiscal multiplier is one of the most contested issues in macroeconomic policy research. As pointed out in a recent IMF study,⁹² the large divergence in the multiplier estimates suggested heterogeneity in the effects of government spending on output “both across countries and over time”. Moreover, variation in methodologies, both conceptually and technically, can lead to variation in estimates of fiscal multiplier even for the same country.

By applying a cumulative GDP multiplier of 0.3⁹³ on fiscal spending, as chosen by the technical team at the DR Ministry of Finance, the net negative multiplier effect of TIPT-associated tax expenditures is an induced GDP loss amounted to DOP 7 billion (in 2015 DOP) over the period of 2002–2015. By applying the annual ratio of total tax revenue to GDP over the same period as published by the OECD, this induced GDP loss has a potential revenue loss of DOP 1 billion to the government. Table 4 presents these estimates both on an annual basis and in their accumulated amounts.

It should be born in mind that the induced GDP loss in table 4 is the otherwise equivalent consumer spending net of the TIPT-TE. That is, the TIPT-TE should be counted only once either as revenue loss, or as part of the economic impact, but not both.

⁹² Refer to Kitsios, E. and M. Patnam, “Estimating Fiscal Multipliers with Correlated Heterogeneity”, IMF Working Paper, WP/16/13, February 2016.

⁹³ Refer to Estevão and Samake (2013), “The Economic Effects of Fiscal Consolidation with Debt Feedback”, IMF Working Paper WP/13/136, figure 3. As pointed out by the technical team at DR’s Ministry of Finance, this paper, “by focusing on the GDP impact of fiscal consolidation—cuts to current or capital expenditures, or tax increase—is better suited to explore responses to isolated fiscal shocks; it also explicitly accounts for “the effect of public debt feedback” and hence enables controlling for the effect of debt while working with a balanced-budget scenario—any foregone revenue is offset by reducing spending”.

Table 4:
Direct cost of TIPT: revenue loss, its multiplier effect and
"induced" revenue loss, 2002–2015

(In 2015 constant DOP billions)

	Revenue loss	Induced GDP loss	Induced revenue loss
2002	1.1	0.3	0.04
2003	1.1	0.3	0.04
2004	1.1	0.3	0.04
2005	1.3	0.4	0.06
2006	1.5	0.4	0.06
2007	1.7	0.5	0.08
2008	1.7	0.5	0.07
2009	1.5	0.5	0.06
2010	1.6	0.5	0.06
2011	1.3	0.4	0.05
2012	1.7	0.5	0.07
2013	2.2	0.7	0.09
2014	2.4	0.7	0.10
2015	2.4	0.7	0.10
Accumulated	22.6	6.8	0.90

Sources: DR's Ministry of Finance, CIAT dataset, OECD, and author's estimates.

B. The possible efficiency loss

Conceptually, efficiency loss attributable to any given tax incentive program (TIP) may be related to investment misallocation caused by such a TIP. There are mainly two possible scenarios: (1) the existing capital stock is “displaced” through its reallocation from outside of the TIP target to within the TIP target; and (2) the potential investment funds that were originally intended for the sector outside of the TIP target are redirected into the TIP target, which phenomenon is a “crowding-out” by TIP.

Ideally, we want to be able to directly measure, or gauge, such a “displacement share”, or the “crowding-out effect”, or both. But in reality, this is rarely attainable.

Given the existing firm data within the tourism industry, an alternative approach for assessing the TIPT-associated efficiency loss

is to explore the existing gap in profitability between the TIPT and non-TIPT firms. For example, what is the implication of the consistently lower rate-of-return on assets for the TIPT firms compared to that for the non-TIPT firms?

As shown in table 1 and the accompanied analysis, the profitability, as measured by the rate of return on asset, is only 0.6 per cent for the average TIPT firms but 2.5 per cent for the non-TIPT firms; the latter is certainly closer to the market-driven rate of return on asset and hence more efficient. Aiming on a more conservative estimate of the cost of TIPT, we take the overall rate-of-return on assets across both TIPT- and non-TIPT firms, which is 1.7 per cent, as an indicator of “efficient” rate of return on assets for tourism industry. By applying this lower “efficient rate-of-return on assets” to the profit earned by the TIPT firms, we estimated the total amount of efficient assets associated with the TIPT firms and further derived the share of misallocated tourism investment caused by TIPT within the total tourism investment, which is 27 per cent (hereafter “misallocated share”).

By applying the misallocated share to the tourism investment by the business sector,⁹⁴ we estimated the efficiency loss, as measured by the amount of investment misallocation and the related GDP loss and revenue loss, following the methodology used for estimating the benefit of TIPT (table 3). Therefore, the technical caveats existed in our estimate of the benefit of TIPT are equally applicable here. Moreover, it is incorrect, both theoretically and practically, to apply the same multiplier of the total GDP impact on the direct GDP impact, as derived from WTTC dataset, to our estimate of efficiency loss, since we should not assume the misallocated tourism investment would all stay within the tourism industry. We hope to correct this knowing caveat when more desirable data become available.

As shown in table 5, for the period of 2002–2015, the accumulated investment misallocation is estimated to be DOP 54 Billion, which may lead to a total GDP loss of DOP 51.5 billion and potential revenue loss of DOP 6.9 billion. (Refer to Appendix D, Step 3, for procedural explanation.)

⁹⁴ Refer to the second paragraph, page 16, on how this time series was produced based on the existing data from WTTC and DR’s Ministry of Finance.

Table 5:
Efficiency loss: investment, GDP and tax revenue, 2001–2015

(In 2015 DOP billions)

	Investment misallocation	Direct GDP loss	Total GDP loss	Revenue loss
2002	2.7	0.8	2.6	0.3
2003	2.3	0.7	2.1	0.2
2004	2.2	0.7	2.0	0.2
2005	2.6	0.8	2.5	0.3
2006	3.4	1.0	3.2	0.4
2007	4.2	1.3	3.9	0.6
2008	5.0	1.5	4.8	0.7
2009	4.2	1.3	4.1	0.5
2010	3.9	1.2	3.7	0.5
2011	4.4	1.3	4.1	0.5
2012	4.5	1.3	4.3	0.6
2013	4.5	1.3	4.3	0.6
2014	4.9	1.5	4.7	0.7
2015	5.3	1.6	5.1	0.7
Accumulated	54.1	16.2	51.5	6.9

C. The opportunity cost of TIPT

What is the opportunity cost of the TIPT? That is, what if there were no TIPT and hence no TIPT-TE and, instead, the government could have the equivalent amount of tax revenue to fund its more desirable investment projects? Such more desirable investment projects include investments in public infrastructure, or education, or health, or social protection, all of which are high on the government spending priority list.

As shown in table 6, the TIPT-associated revenue loss for 2011–2015, on average, accounted for over 2 per cent of total government capital expenditure. When considering some major government capital expenditure by function for the same period, the TIPT associated revenue loss accounted for 8 per cent of government expenditure on infrastructure, or 10 per cent on education, or 52 per cent on health, or 73 per cent on social protection.

Table 6:
Tourism tax expenditure as share of government capital expenditure

(Percentage)

	2011	2012	2013	2014	2015	Average
Total	1.6	1.2	2.4	3.0	2.8	2.2
Infrastructure*	3.5	2.1	9.1	14.5	11.0	8.0
Education	16.4	10.0	6.1	8.8	10.1	10.3
Health	22.5	19.9	88.6	83.3	47.6	52.4
Social protection	45.3	42.7	128.0	89.1	58.0	72.6

* Including irrigation, transport, natural resource conservation, water and sanitation.

Estimating the economic impact of government spending, equivalent to the TIPT-TE, on any of these government function will provide a gauge of the opportunity cost of the TIPT. Given DR's low mark on public infrastructure for its global competitiveness ranking, we choose public infrastructure—including irrigation, transport, natural resource conservation, and water and sanitation—for estimating the opportunity cost of TIPT assuming the accumulated TIPT-TE of 22.6 billion (in 2015 DOP) can be invested in public infrastructure.

Based on existing studies and given the current low ratio of public investment to GDP and the reasonable administrative effectiveness in DR, from a recent IMF study⁹⁵ two basic premises are adopted for the public infrastructure investment in DR: (1) it is sufficiently effective and productive; and (2) it will not crowd out (but possibly crowd in) private investment in the foreseeable future. By the same logic, from the same study a short-term (i.e., within a year) output multiplier of 0.6 for government spending on public infrastructure are adopted.

For technical consistency, the same approach is applied as that for estimating the *existing* cost and benefit of TIPT. That is, first, apply the short-term output multiplier (akin to the “instant” rate of return

⁹⁵ Refer to G. Ganelli and J Tervala, “The Welfare Multiplier of Public Infrastructure Investment,” IMF Working Paper, WP/16/40, February 2015. On the specific output multipliers, refer to tables 2 and 4 and the related analysis in this paper.

on capital) to the government infrastructure investment to estimate the direct GDP impact, then apply the same multiplier on the direct GDP, as the one derived from WTTC dataset, to estimate the total GDP impact of the government infrastructure, and finally apply the annual tax-revenue to GDP ratio published by the OECD to estimate the potential revenue gain.⁹⁶ Table 7 presents our results.

Table 7:
Opportunity cost of TIPT, an illustration with infrastructure investment, 2002–2015

(In 2015 constant DOP billions)

	Government spending	Direct GDP impact*	Total GDP impact	Revenue gain
2002	1.1	0.7	2.23	0.29
2003	1.1	0.6	1.92	0.22
2004	1.1	0.7	2.01	0.24
2005	1.3	0.8	2.56	0.35
2006	1.5	0.9	2.79	0.39
2007	1.7	1.0	3.22	0.48
2008	1.7	1.0	3.27	0.47
2009	1.5	0.9	3.00	0.38
2010	1.6	1.0	3.05	0.37
2011	1.3	0.8	2.40	0.30
2012	1.7	1.0	3.27	0.43
2013	2.2	1.3	4.19	0.58
2014	2.4	1.5	4.69	0.66
2015	2.4	1.4	4.64	0.65
Accumulated	22.6	13.6	43.2	5.8

* Assuming a short-term multiplier of 0.6, adopted from G&T (2015), table 3.

In summary, our estimate of the cost includes two parts: The first part concerns the existing cost associated with TIPT: a direct revenue loss of DOP 22.6 billion with an induced GDP loss of DOP 6.8 billion and further revenue loss of DOP 0.9 billion, and an efficiency

⁹⁶ Please refer to pages 19 and 21 for the technical caveats of our approach for estimating the existing cost and benefit of TIPT.

loss caused by the TIPT-induced capital misallocation including DOP 52 billion in GDP loss and DOP 7 billion in further revenue loss.

And the second part concerns the opportunity cost of the TIPT. By assuming an infrastructure investment equivalent to the existing TIPT-TE, this opportunity cost could amount to a GDP loss of DOP 43 billion and a net revenue loss of DOP 17 billion. Assuming the expanded and improved public infrastructure in DR will foster or facilitate (i.e., “crowd in”) greater private investment, its GDP impact could be greater and the net revenue loss could be smaller. That is, the opportunity cost of TIPT might be higher.

V. Conclusion: the net benefit of TIPT

Table 8 summarizes our cost-benefit assessment of DR’s TIPT. As the table shows, at accumulated revenue loss of over DOP 20 billion, TIPT did not generate a positive economic impact but significant efficiency loss. Investing in public infrastructure would be a more cost-efficient fiscal instrument for the government to support the tourism and overall economic growth.

Table 8:
TIPT-associated cost and benefit: a summary

(In 2015 DOP)

	Investment impact	Economic impact	Revenue impact
Benefit (table 3)	41.2	36.9	5.0
Lower bound	24.1	21.6	2.9
Upper bound	58.3	52.3	7.0
Cost	54.1	58.3	30.4
Direct loss (table 4)	NA	6.8	23.6
Efficiency loss (table 5)	54.1	51.5	6.9
Net benefit, against the existing cost	-12.9	-21.4	-25.5
Maximum benefit	4.2	-6.0	-23.4
Greater cost	-30.0	-36.7	-27.6

Table 8 (cont'd)

	Investment impact	Economic impact	Revenue impact
Reference: If TIPT-TE* were instead invested in public infrastructure			
Benefit—Economic and revenue impact	Unknown	43.2+	5.8+
Cost—Government investment			-22.6
Net benefit = Opportunity cost*	Unknown	43.2+	-16.8 or less

* TIPT-TE = Tax expenditures associated with TIPT (i.e., the direct revenue loss caused by TIPT)

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Appendices

Appendix A*

Statutory tax provisions: the Dominican Republic and its regional competitors*

Within the Caribbean region, the most relevant competitors to DR in the tourism industry are Barbados, Jamaica, and Trinidad and Tobago,⁹⁷ as assessed by their geographic proximity, similarity in their tourism products and business tax structure other than tax incentive programs for the tourist industry (TIPT). Among these four countries, DR and Jamaica are less developed, compared with Barbados and Trinidad and Tobago, in terms of their economic development and tourism infrastructure.⁹⁸

This appendix provides a comparative review of the statutory tax provisions (including tax incentives) concerning the tourism industry between DR and its three major regional competitors in the tourism industry.

As shown in table A, among the four countries, DR has the highest company income tax rate in general: 27 per cent vs. 25 per cent in the other three countries. It also provides the least generous allowances for capital investment. For example, both Barbados and Jamaica provide initial allowances for machinery and equipment (20 and 25 per cent respectively); they, together with Trinidad and Tobago, also provide more generous annual allowances for fixed assets in different manners. This comparison shows DR's overall tax disadvantage despite its numerous tax incentive programs including

* Prepared by Duanjie Chen, Research Fellow, School of Public Policy, University of Calgary.

⁹⁷ We select these four countries from the WTTC's list of 10 countries that "offer a similar tourism product and compete for tourists from the same set of origin markets" and "tend to be, but are not exclusively, geographical neighbours". The other six countries are Anguilla, Aruba, Bahamas, Cuba, Dominica, and Grenada; they are either too small in size, or have an unconventional tax system, or both.

⁹⁸ This observation is based on GDP per capita on the World Bank 2015 list and a WTTC publication, "Travel & Tourism Investment in the Americas", September 2014.

TIPT. Such an overall tax disadvantage appears to be one of the main factors contributing to DR's lowest ranking for its "business environment" among the four countries.⁹⁹

In terms of tax incentives provided to tourism industry, DR's TIPT—a 25-year blank tax exemption for all approved tourism investment—certainly stands out.¹⁰⁰

In comparison, Barbados provides the most sensible tax incentives for the tourism investment without a wasteful and prolonged tax exemption. It provides a duty exemption, a full income tax *allowance* for capital investment and other spending on tourism-relevant research and development, apprenticeship schemes and promotional activities. Barbados' tax support for tourism growth is through cost sharing rather than a wholesome forfeit of tax revenue.

The tourism incentive programs in Jamaica and Trinidad & Tobago are more cumbersome, but none of them is as generous as DR's TIPT. Jamaica does not provide a tax holiday but an income tax rate reduction in the form of an employment tax credit. Trinidad & Tobago provides an income tax holiday limited to 7 years.

In summary, among the four countries, DR provides the most generous tax incentive program for the tourism industry combined with the least generous overall business tax regime. This can be a further case study for "base erosion and profit shifting". But our focus is on whether DR's TIPT has contributed materially to its tourism industry's development and growth. Appendix B provides our observations.

⁹⁹ Refer to World Economic Forum, *The Travel & Tourism Competitiveness Report 2015: Growth through Shocks*, table 3 (page 12) and the "country/economy profiles" in Part 2.

¹⁰⁰ When first passed in 2001, the law provided a 10-year tax exemption. The 2013 amendment provided another 15 years, which extended to firms already enjoying the benefits. Since the benefit accrue to the firm undertaking the project, a firm with different projects could theoretically enjoy benefits indefinitely.

Table A:
Statutory tax provisions for tourism: the Dominican Republic and its regional competitors, 2016

	Dominican Republic	Barbados	Jamaica	Trinidad & Tobago
Company Income tax	27%	25%	25%	25%
Tax depreciation (SL = straight-line, and DB = declining-balance)	No special allowance other than annual depreciation allowance with DB: Buildings: 5%; Light vehicles & office equipment: 25%; Other assets: 15%. SL method applicable to intangibles with a definite useful life.	An initial allowance for equipment: 20%. Annual depreciation allowance with SL: Industrial Buildings: 4% Machinery & equipment: up to 33%	An initial allowance for certain non-building assets incl. office equipment, computers and plant and machinery: 25% Annual allowance with SL: Buildings: 4–12.5%; Plant & machinery: 12.5%; Motor vehicles: 20%	No special allowance other than annual depreciation allowance with DB: Buildings: 10%; Computers: 33.3%; Other fixed assets (except for heavy machinery and aircraft): 25%
Inventory accounting	Optional; LIFO is permitted.	Average cost or FIFO.	FIFO and weighted-average cost.	Cost or market value, whichever is lower.
Other taxes	<i>Assets tax</i> : 1%. <i>VAT</i> : 18%. <i>Property transfer tax</i> : 3%. Tax on <i>Sumptuary housing/land plot</i> : 1%. <i>Import duty</i> : 0–20%. <i>Internal tax</i> on top of import duty: 18%. <i>WH tax</i> on interest paid to foreign loans: 10%/25% Financial transaction tax: 0.15%.	<i>VAT</i> (17.5% in general) with a reduced rate (7.5%) for hotel accommodation and supplies related to tourism. <i>Excise tax</i> on imports of vehicles: 47–120%. <i>Import duty</i> : 5–20%.	<i>VAT</i> (16.5% in general) with a reduced rate (10%) for hotels (see below); <i>Property tax</i> : progressive up to 2%. <i>Property transfer tax</i> : 5%. <i>Excise tax</i> on imports of vehicles: 47–120%. <i>Stamp duty</i> : See table below.	Cost or market value, whichever is lower. <i>VAT</i> : 12.5% in general. [to be completed]

Table A: (cont'd)

<p>Tax incentives for tourism</p>	<p>A 25-year tax holiday exempting approved tourism project from paying CIT, assets tax, property transfer tax, tax on sumptuary housing and land plots, custom duties and internal taxes, and withholding tax on interest paid on foreign loans.</p>	<p>Under the Tourism Development Act, approved tourism projects are entitled to:</p> <ol style="list-style-type: none"> 1) duty exemption on specified items, and 2) full CIT allowance of capital expenditure, expenditure on development of tourism product, tourism research, apprenticeship scheme, or organizing/hosting of tourism exhibitions and trade fairs. 	<p>Under the Omnibus Incentives framework, JTB licensed hotels are entitled to: an Employment Tax Credit (ETC) that may reduce CIT rate down to 17.5%; a reduced General Consumption Tax (GCT) rate of 10% (vs.16.5%); a capital allowance for hotel buildings; duty-free Importation of Equipment and Machinery and reduced tariff rates on other imports; income tax relief for certain overseas lenders; and duty exemption for productive inputs.</p> <p>Hotel projects can also benefit under the Income Tax Relief (Mega Projects and Pioneer Industries) Act.</p> <p>Source: http://www.jamaicatradeandinvest.org/faq-page/40#t40n322</p>	<p>The Tourism Development Act (TDA), 2000 (as amended) provides the following benefits for approved projects:</p> <p>A) Income tax exemption and allowances: a 7-year income tax holiday; a tax exemption on profits from the initial sale of properties built within an Integrated Resort Development; accelerated depreciation; capital allowance; carry-over of losses from the tax-holiday period; and tax exemption on the dividend received by a non-resident if it's non-taxable at his home country. B) Exemption from motor vehicles tax.</p> <p>C) Customs and excise duty exemptions for material and duty reduction for vehicles:</p> <p>Source: www.investf.co.tt</p>
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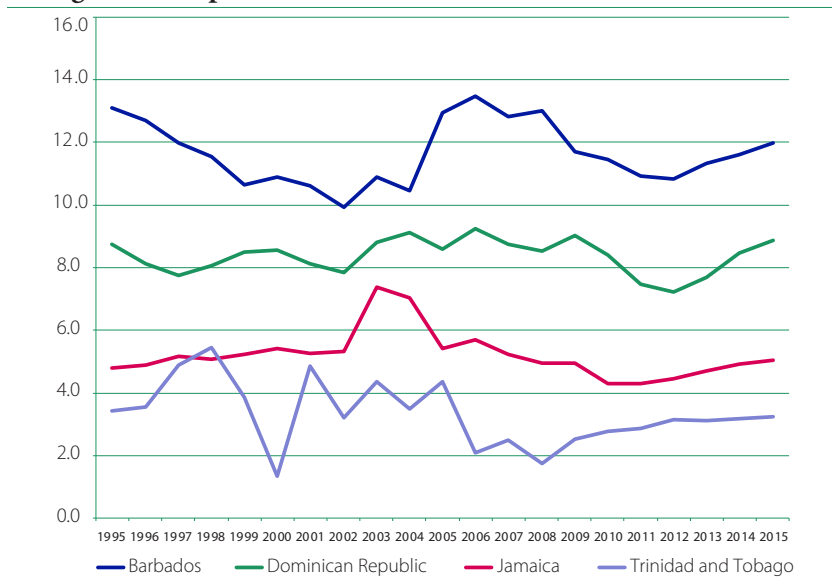
Appendix B*

Performance of the tourism industry: the Dominican Republic and its regional competitors

This appendix provides a brief comparative review of the tourism performances among DR and its three major regional competitors: Barbados, Jamaica, and Trinidad and Tobago, bearing in mind DR's most generous tax incentives for its tourism industry and least generous overall business tax regime among its three regional competitors (Appendix A).

Figure B1 shows that, as measured by the tourism GDP share, DR has been in the number-three spot during the period of 1995–2015. There were relative up and downs, but the general ranking stays the same through the whole period except for a smidgen of alternation in 1998.

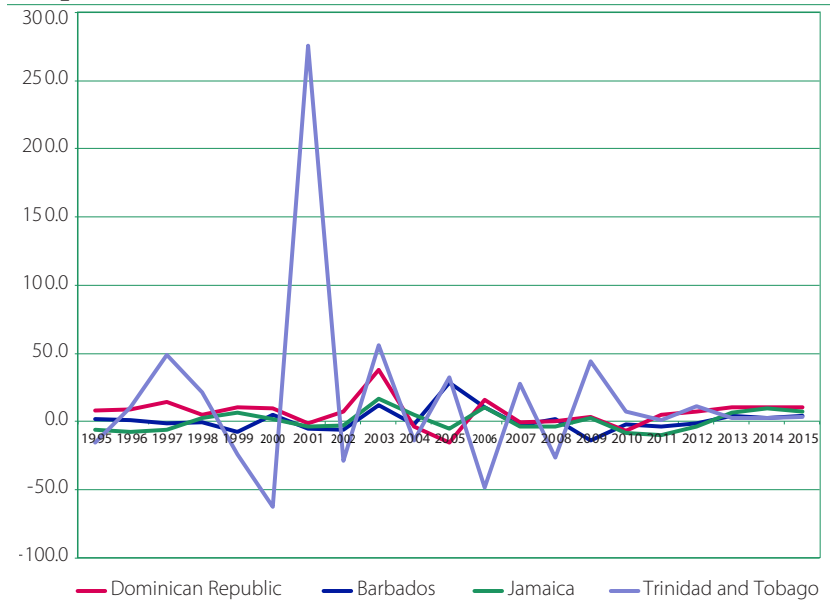
Figure B1:
Tourism direct contribution to GDP (%): the Dominican Republic vs. regional competitors, 1995–2015



*Prepared by Duanjie Chen, Research Fellow, School of Public Policy, University of Calgary.

Figure B2 shows that DR's tourism GDP growth has been largely in line with its regional competitors except for Trinidad and Tobago. As pointed out in the main text, an individual country's tourism GDP growth is largely dictated by the global trend but can be disrupted by various domestic shocks. For example, in Trinidad and Tobago, by looking at figures B2 and B3 together, the growth pattern in both tourism GDP and overall GDP fluctuates more drastically than those in the other three countries, but the pattern in its tourism growth reflects the interaction of domestic events (e.g., the 2001 FIFA U-17 World Championship) and global trend.

Figure B2:
Tourism GDP growth (%): the Dominican Republic vs. regional competitors, 1995–2015



Finally, figures B4 and B5 present, respectively, the pattern of tourism investment as measured by its annual growth rate and the tourism investment share in the Caribbean region for DR and its three competitor countries.

As figure B4 shows, tourism investment grew by almost 200 per cent in Barbados in 1995, which has since dropped back to a

normal cycle. Trinidad and Tobago also went through more remarkable roller-coaster cycles until the latest five years.

Figure B3:
National GDP growth (%): the Dominican Republic vs. regional competitors, 1995–2015

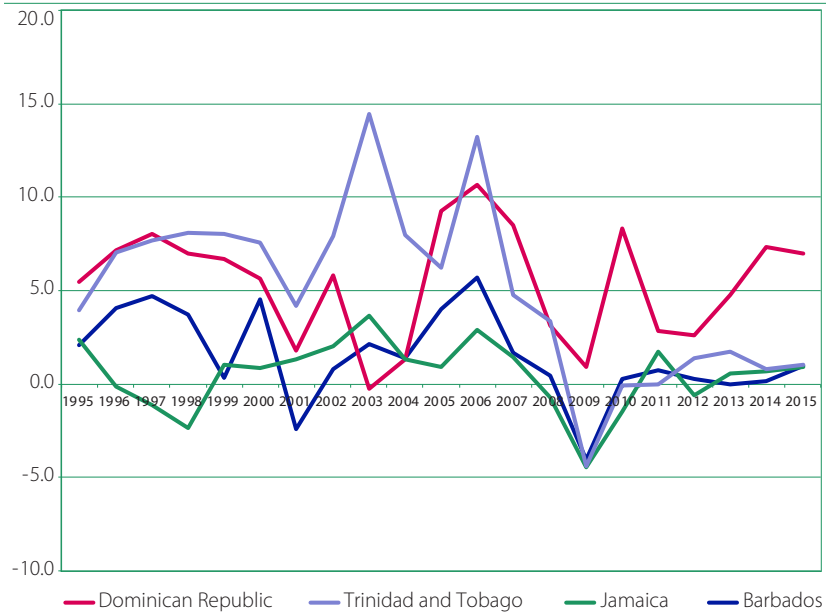


Figure B5 provides the investment share of each country in the Caribbean region. By looking at only 2015, DR's share of 8 per cent was followed by Trinidad and Tobago (6 per cent), Jamaica (5.2 per cent) and Barbados (2.2 per cent). This ranking looks good for DR until it is placed head-to-head with the GDP ranking among the same countries for the same year. In 2015 (and measured by the current US dollar), DR's GDP was US\$ 67.5 billion, which was almost 3 times that of Trinidad and Tobago (US\$ 24.6 billion), 5 times Jamaica (US\$ 13.9 billion) and more than 15 times Barbados (US\$ 4.4 billion).¹⁰¹ That is, DR's regional investment share was disproportionately low compared to its much smaller competitors in the tourism industry.

¹⁰¹ Refer to Keonma, World GDP Ranking, <https://knoema.com/nwnfkne/world-gdp-ranking-2016-data-and-charts-forecast>

Figure B4:
Tourism Investment growth (%): the Dominican Republic vs. regional competitors, 1995–2015

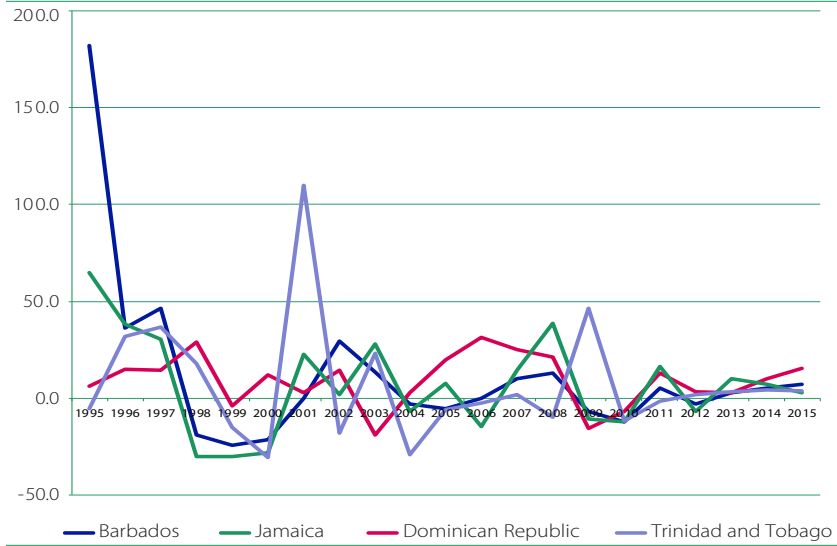
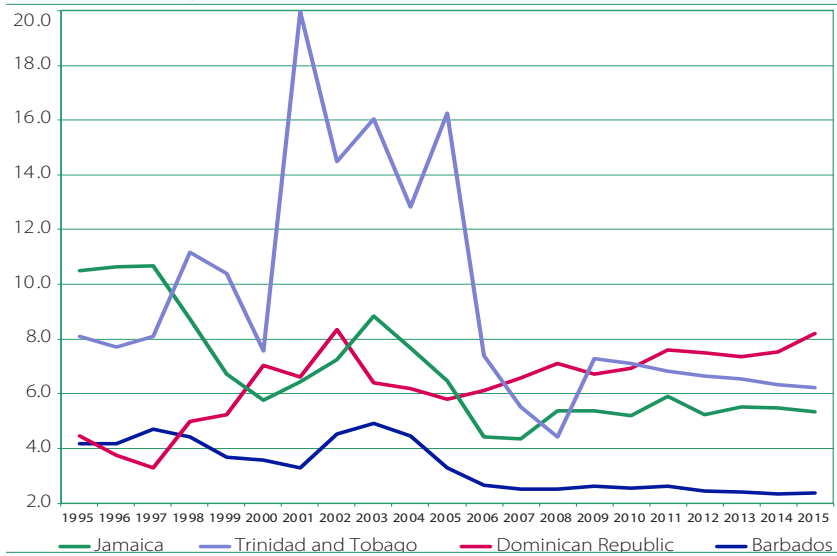


Figure B5:
Tourism investment share in the region (%): the Dominican Republic vs. regional competitors, 1995–2015



Appendix C*

Defining the database: technical procedures

In general, computable general equilibrium (CGE) models are considered an ideal mechanism to assess the impact of a government fiscal program, such as a tax incentive program (TIP). However, such models require detailed input-output accounts, as well as designing complex models that are not always readily available.

A common alternative is the definition of micro-simulation models that use as main input financial and tax information at the firm level, as it is understood the tax administration has access to this type of information. This makes feasible the coordination between the latter and the Ministry of Finance to carry out a cost-benefit analysis of a given tax incentive program.

In this scenario, for assessing the tax incentive program for the tourism industry (TIPT), the relative investment patterns of the firms associated with the tax incentive program (TIPT firms) were analyzed, as well as that of the non-beneficiary firms (non-TIPT firms). This appendix provides a methodological description of how the sample of firms was determined.

Sample definition

The starting point is to define which firms are included in the sample. Law 158-01—and amendments—states that any firm developing projects within a range of activities are eligible to enjoy tax incentives. The main emphasis is on the construction and/or remodelling of hotel accommodations, but also included are projects such as port infrastructures, theme parks, restaurants serving in tourist areas, among others.

Based on the records from the tax administration, firms enjoying benefits were identified in 18 different sectors (see table E1). Logically, the bulk of firms are dedicated to the construction and operation of hotel facilities. There are, however, other activities that

*Prepared by the technical team at DR's Ministry of Finance.

could be considered not ‘traditional’ within the tourism industry, but which according to legislation are entitled to tax reliefs.

This defines the first selection criterion. First, all firms that according to the tax administration are receiving tax benefits from the TIPT are included in the sample. In order to establish a comparison framework, it is also necessary to analyze firms not having incentives, but that are operating in the same sector. This results in a first sample of 1,321 firms, 113 of which are under the TIPT (table C1).

Table C1:
Initial sample 1

Sector or activity	non-TIPT	TIPT	Total
Lodging services in hotels, hostals, etc., exc. per hour services	348	9	357
Complementary tourist assistance services	303	4	307
Construction and restoration of touristic buildings	187	50	237
Hotels operators	101	5	106
Artistic shows and entertainment services (incl. theme parks)	95	1	96
Restaurant and cantine services, with shows	89	2	91
Resort Hotels	52	10	62
Temporary lodging services (incl. youth residences, tourist apartments)	21	1	22
Suites and apartahotels	12	1	13
Investment companies		10	10
Const. reform and repair of residential buildings		7	7
Real estate services		6	6
Management and exploitation of sports facilities		2	2
Casinos		1	1
Dry cleaning and related services		1	1
Healthcare services		1	1
Specialized construction activities (e.g. scaffolding rental)		1	1
Support services for water transport (e.g. exp. of terminal services)		1	1
Total	1 208	113	1 321

Note: Due to space constraints, only 2015 is shown. The pattern is similar throughout the years.

A second criterion was to focus on non-TIPT firms that would constitute “natural” competitors in the tourism industry. This is because there are multiple TIPT firms that belong to economic sectors that are not typical of the tourism industry (e.g. investment firms, dry cleaning firms). Therefore, including non-TIPT companies from these sectors would result in a biased sample. Once this criterion is applied, the sample is reduced to 1,137 firms, all of which are explained by a decrease in non-TIPT firms, particularly in the categories of entertainment and artistic services and restaurants (table C2).

Table C2:
Sample 2

Sector activity	non-TIPT	TIPT	Total
Lodging services in hotels, hostals, etc., exc. per hour services	348	9	357
Complementary tourist assistance services	303	4	307
Construction and restoration of touristic buildings	187	50	237
Hotels operators	101	5	106
Resort Hotels	52	10	62
Temporary lodging services (incl. youth residences, tourist apartments)	21	1	22
Suites and apartahotels	12	1	13
Investment companies		10	10
Const. reform and repair of residential buildings		7	7
Real estate services		6	6
Management and exploitation of sports facilities		2	2
Restaurant and cantine services, with shows		2	2
Artistic shows and entertainment services (incl. theme parks)		1	1
Casinos		1	1
Dry cleaning and related services		1	1
Healthcare services		1	1
Specialized construction activities (e.g. scaffolding-rental)		1	1
Support services for water transport (e.g. exp. of terminal services)		1	1
Total	1 024	113	1 137

Note: Due to space constraints, only 2015 is shown. The pattern is similar throughout the years.

Thirdly, the sample is further clarified based on firms' operations: Firms that only presented returns in either 2007 or 2008 were excluded. Firms which posted zero gross revenue, profits or assets were also excluded, regardless of the year. This allowed to further clean up the database without forgoing information about past investment made by each firm.

Fourthly, there were several cases of firms with zero entry in the categories of gross income, profits or assets. Among other reasons, this may have been due firms not submitting tax returns for those years, firms submitting incomplete tax returns, or firms not being active but not having been discharged from the tax registry. Because of this, the pattern of the sample is very scattered.

The final sample has 888 firms in 2015, of which 107 are TIPT firms (table C3). The overall sample constitutes an unbalanced panel of a maximum of 936 firms and 9 years.

Table C3:
Final sample

Sector activity	non-TIPT	TIPT	Total
Lodging services in hotels, hostals, etc., exc. per hour services	274	9	283
Complementary tourist assistance services	229	3	232
Construction and restoration of touristic buildings	121	47	168
Hotels operators	79	5	84
Resort Hotels	48	10	58
Temporary lodging services (incl. youth residences, tourist apartments)	18	1	19
Suites and apartahotels	12	1	13
Investment companies		9	9
Const. reform and repair of residential buildings		6	6
Real estate services		6	6
Management and exploitation of sports facilities		2	2
Restaurant and cantine services, with shows		2	2
Artistic shows and entertainment services (incl. theme parks)		1	1
Casinos		1	1

Table C3 (cont'd)

Sector activity	non-TIPT	TIPT	Total
Dry cleaning and related services		1	1
Healthcare services		1	1
Specialized construction activities (e.g. scaffolding rental)		1	1
Support services for water transport (e.g. exploitation of terminal services)		1	1
Total	781	107	888

Note: Due to space constraints, only 2015 is shown. The pattern is similar throughout the years.

Investment flows

In order to assess the effectiveness of a TIP, a key aspect is how much additional investment is generated or induced as a result of the incentives. For this, it is necessary to construct the investment variable of all the firms in the sample.

First, it is necessary to distinguish between the investment pledge made by firms when requesting the tax reliefs, and the investment actually made. Although the Consejo de Fomento Turístico (CONFOTUR)—the council granting the incentives—monitors the start of project operations, there is less focus on monitoring investment flows to verify if they match the amounts on file when submitting projects for consideration. These flows can understandably vary between project design and execution, and thus there is no systematic manner to verify whether investment flows are the same as those pledged.

An alternative way would be obtaining investment flows from the gross fixed capital formation of the tourism industry. Unfortunately, these require updated satellite accounts in the National Accounts, which satellite accounts are not available for the Dominican Republic.¹⁰²

Therefore, investment flows were constructed from the information of firms' tax returns. Assets belonging to categories 1, 2, 3 (based on the Tax Code classification) were taken. This includes both

¹⁰² The latest accounts date back to 2007.

buildings, structures and mobile assets such as furniture, which in the case of hotels one would expect to a non-negligible investment. This information is taken at face value, as reported in the returns, with no adjustment made for depreciation.

Investment flows are, thus, the year-on-year difference of firms' assets.

Adjustment for incentive law exemption

The profit—for the purposes of this assessment is the net taxable income—is defined as usual: income minus expenses. In addition both positive (increases net taxable income) and negative (decreases net taxable income) adjustments, allowed for in the Tax Code, are included. Negative adjustments include “incentives law exemption” (ILE)—the amount of tax relief to which a company is entitled if it is beneficiary of a TIP, including tourism.

The ILE posts an inconsistency for comparing the net income between both companies, since without adjusting for ILE, ROA values are distorted. In the sample, a net profit variable that neutralizes the ILE effect is included. This allows to assess the “true market” profit of a given firm.

Date of TIPT resolution

A final important element from a methodological standpoint is when firms began to enjoy tax benefits. This distinction is necessary to be able to segregate investment patterns between TIPT and non-TIPT firms.

In the sample there is the possibility that firms started out as non-TIPT firms and then became classified under the TIPT. This event needs to be isolated in the sample, in order to identify any changes in the investment pattern, benefits and ROA of firms once they changed their status.

To this end, firms were marked as belonging to the TIPT three years prior to their CONFOTUR resolution granting the incentives. This is so because the law enables a three year period for firms to make their investment before obtaining the final resolution that will allow them to be exempt from income tax, among other taxes.

During this investment period, the firm is subject to income tax, but is exempt from several other taxes that affect the investment process: VAT and tariffs on inputs and materials, real estate transfer taxes, etc. Most importantly, it is during this period where firms presumably make the bulk of the investment, and thus it is necessary to capture this effect.

Appendix D*

Estimating the benefit of TIPT: technical procedures

This appendix documents the technical procedures used to estimate the benefit of TIPT as measured by the economic and revenue impact of TIPT.

The economic impact is broken down into three components in their sequential order: capital investment, direct GDP impact and total GDP impact. We also estimate the revenue gain directly linked to the total GDP impact. On the other hand, we ignore the employment impact since it is not specifically targeted by TIPT.

The three data sources used for our estimation are: DR's tourism firm dataset for 2007–2015 (hereafter “firm data”), WTTC's time series for DR “Travel and Tourism investment” for 2001–2015 (“WTTC data”), and DR's 2012 input-output account, “use and supply table” (“IO table”). Note that DR's firm dataset covers only the conventional tourism industry targeted by TIPT: hotels, restaurants and tourism-oriented housing projects. In comparison, WTTC's time series covers both the conventional tourism industry and the transportation elements (e.g., airliners and the car-rental sector) that facilitate “travel”. We need to pay attention to such data gaps to preserve analytical consistency.

Note that, because the TIPT was introduced in October 2001, we assume the usual time lag in implementation of any legislation and ignore the “instant” impact of TIPT in 2001.

Step 1: Estimate the range of annual tourism investment attributable to TIPT (table 3)

- 1.1 In “IO table”, estimate the relative shares of transportation (“transport and storage”) and tourism (“accommodation and food and beverage services”) in their aggregated capital

*Prepared by Duanjie Chen, Research Fellow, School of Public Policy, University of Calgary.

investment, which are assumed to be the same as those of their aggregated “consumption of fixed capital”; the result is 12:88, or 12 per cent for transportation. [Note: this estimate needs to be fixed by following the methodology paper by WTTC/Oxford Economics (2016), pages 26–27, when the relevant data become available.]

- 1.2 Apply the relative share of transportation (12 per cent) to the WTTC time series for “Travel and tourism investment” to single out the time series for “tourism investment”, which includes investments made by both the business sector and the government.
- 1.3 Subtracting the government investment in tourism from the result of Step 1.2 to arrive at the tourism investment made by the business sector only, which is consistent with the firm data by definition.
- 1.4 Based on the “firm data”, estimate the range of tourism investment that is truly *attributable* to TIPT; the range is from 12 to 29 per cent, by taking the share *associated* with TIPT firms in total investment made in 2011 (12 per cent) as the “minimum” and that in the total assets up to 2007 (29 per cent) as the “maximum”.
- 1.5 Apply the TIPT range (Step 1.4) to the tourism investment by business sector (Step 1.3) to arrive at **the range of tourism investment attributable to TIPT** (table 3).

Step 2: Estimate the direct GDP impact of TIPT

- 2.1 Based on the firm data, estimate the average annual ratio of total assets to gross revenue across all the firms, A/R; the resulting ratio is 2.13 (tables 1 and 2).
- 2.2 Apply the *ratio of total assets to gross revenue* (A/R) to “total production” (DOP 288.9 billion) appearing on the “IO table” to estimate the total assets associated with the 2012 IO table; the number is DOP 617 billion. (Note that “total production” on the IO table is equivalent to gross revenue at the firm level.)
- 2.3 Based on the IO table and its associated “total assets” estimated in Step 2.2, estimate the ratio of GDP to total assets, G/A; the ratio is 28 per cent.

- 2.4 Apply the ratio of GDP to total assets to the range of tourism investment attributable to TIPT to arrive at **the range of “direct GDP impact of TIPT”** (table 3).

Step 3: Estimate the total economic impact of TIPT

- 3.1 Based on WTTC data, estimate the multiplier of tourism’s “total contribution to GDP” on its “direct contribution to GDP” to arrive at a time series of such a multiplier for 2001–2015.
- 3.2 Apply the annual multiplier of total GDP on direct GDP to the range of direct GDP impact of TIPT to arrive at **the range of “total GDP impact of TIPT”** (table 3).

Step 4: Estimate the revenue impact of TIPT

- 4.1 Applying the “total tax revenue as percentage of GDP” (i.e., the ratio of total tax revenue to GDP), published by OECD in Revenue Statistics in Latin America (various editions), to the total GDP impact of TIPT (from Step 3) to arrive at the possible revenue gain arising from capital investment *attributable* to TIPT, assuming “other things being equal”.

Appendix E*

Estimating the cost of TIPT: technical procedures

This appendix documents the technical procedures used to estimate the cost of TIPT, as measured by the revenue loss and other costs *associated* with TIPT.

Again, because the TIPT was introduced in October 2001, we assume the usual time lag in implementation of any legislation and ignore the “instant” impact of TIPT in 2001.

Step 1: Estimate the total revenue loss associated with TIPT for 2002–2015 (table 4)

- 1.1 Based on the annual tax expenditures associated with TIPT (TIPT-TE) estimated by the DR team for 2011–2015, estimating the average ratio of TIPT-TE to TTR (total tax revenue), the result is 0.54 per cent.
- 1.2 Applying the 0.54 per cent ratio of TIPT-TE to TTR to the annual tax revenue for 2002–2010, which is based on the CIAT dataset (2015), to arrive at the annual TIPT-TE for these years and complete the time series on TIPT-TE for 2002–2015. (CIAT stands for Inter-American Center of Tax Administrations.)
- 1.3 Converting the time series on TIPT-TE from its “current” value to the equivalent 2015 DOP value, based on the consumer price index (CPI).

Step 2: Estimate the negative multiplier effect of TIPT-TE (table 4)

- 2.1 Applying the multiplier of 1.3 (as explained in the text) to the annual TIPT-TE on the 2015 constant DOP, the result *net* of TIPT-TE is a time series of “induced GDP loss”, or the *net* negative multiplier effect of TIPT-TE on an annual basis for 2002–2015.

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- 2.2 Applying the annual ratio of total tax revenue to GDP, as published by OECD for DR, to the induced GDP loss, the result is a time series of “induced” revenue loss for 2002–2015.

Step 3: Estimate the possible efficiency loss (table 5)

The purpose is to gauge the efficiency loss from capital misallocation caused by TIPT. As shown in table 1, the return to assets is 0.6 per cent for TIPT-firms and 2.4 per cent for Non-TIPT. Based on this profitability gap, we can guesstimate the size of inefficient investment made by the TIPT-firms and its economic impact by taking the following steps.

- 3.1 Keeping a conservative approach in estimating the cost, we take the overall rate of return on assets across the whole tourism industry, which is 1.7 per cent, as an indicator of the “efficient” rate of return to assets for the tourism industry. (Theoretically, the non-TIPT firms’ rate of return on assets would be more appropriate as a proxy to the efficient rate of return on assets. But using this theoretically more appropriate rate would lead to an estimate of a higher portion of TIPT-associated investment that is *inefficient* and hence a higher efficiency loss.)
- 3.2 Dividing the current profit earned by TIPT firms (DOP 650 million) by the overall rate of return to assets (1.7 per cent), the result (DOP 38.2 billion) is the supposed efficient capital assets associated with TIPT-firms should there be no TIPT.
- 3.3 Subtracting the supposed efficient capital assets (DOP 38.2 billion) from the existing total assets (DOP 111 billion) for TIPT firms, the balance (DOP 72.5 billion) is the amount of inefficient assets, or accumulated inefficient tourism investment, caused by TIPT.
- 3.4 Dividing the amount of TIPT-associated inefficient assets by the total amount of tourism assets, the share of TIPT-associated misallocation in total tourism assets (hereafter the “misallocated share”) is 27 per cent.
- 3.5 Applying the 27 per cent misallocated share to the annual tourism investment made by the business sector (refer to Appendix D, Steps 1.1–1.3), the result is a 2002–2015 time series on the investment misallocation with an accumulated stock of DOP 54.1 billion.

- 3.6 In “Stock 2012”, estimating the accumulated private capital stock for 2012 in 2012 constant DOP by summing up the private net GFCF in 2012 DOP for 1991–2012, the outcome is DOP 6,263 billion.

Note that ignoring the pre-1991 capital stock might lead to underestimating the 2012 stock and hence overestimating the GDP-to-asset ratio in Step 3.7 below. However, further investigating the IO table shows that the multiplier of economy-wide GDP to “consumption of fixed capital” is 23 while that of tourism GDP to “consumption of fixed capital” is only 7. This investigation helped justify our estimate of an economy-wide GDP-to-asset ratio being 30 per cent (see below) as *non-overestimating*, given that its counterpart for the tourism industry is 28 per cent.¹⁰³

- 3.7 Estimating the economy-wide GDP to assets ratio by applying the 2012 private capital stock in 2012 constant DOP to the 2012 IO accounts, the result is 30 per cent.
- 3.8 Applying the economy-wide GDP-to-asset ratio of 30 per cent to the size of inefficient capital allocation caused by TIPT, the direct efficiency loss is DOP 16.2 billion.
- 3.9 By applying the *same* multiplier for the DR tourism industry (as derived from the WTTC database and used for our estimate of “benefit”) to the “direct GDP impact” of misallocated capital investment caused by TIPT, the total GDP impact is DOP 51.5 billion. (Note that, in reality, the multiplier of total GDP impact on direct GDP impact can vary widely across industries. It is always preferable to use realistic industry-specific parameters if the required data are available.)
- 3.10 By applying DR’s annual revenue-to-GDP ratio published by OECD to the “total GDP impact”, the estimated total revenue loss is DOP 6.9 billion.

Step 4: Estimate the opportunity cost of TIPT (table 7)

- 4.1 Applying the short-term output multiplier of 0.6, as adapted from Ganelli and J Tervala (2015), to the government

¹⁰³ Any guesstimate like this one should be improved when required data (i.e., pre-1991 capital stock in this case) becomes available.

infrastructure investment equivalent to TIPT-TE on an annual basis, the result is the direct GDP impact (DOP 13.6 billion).

- 4.2 Applying the same multiplier of total GDP impact on the direct GDP, as that derived from WTTC dataset, to the direct GDP impact produced from Step 4.1, the result is the total GDP impact of the government infrastructure investment (DOP 43.2 billion).
- 4.3 Applying the annual tax-revenue to GDP ratio published by the OECD to the total GDP impact resulting from Step 4.2, the result is the potential revenue gain from the government infrastructure investment (DOP 5.8 billion).

Appendix F

Three different multipliers: a conceptual clarification

There are three different multipliers used in this methodology. The table below provides a conceptual clarification among them.

Table F: Multipliers used in this methodology

Multipliers used	Theoretical meaning	Source and use in our methodology
Multiplier of total GDP impact on direct (tourism) GDP	<p>Total GDP impact includes direct, indirect and induced GDP impacts.</p> <p>Direct and indirect GDP impacts are the concepts associated with the I-O accounts. The direct GDP impact means the direct value-added from producing a unit of (e.g., tourism) output. The indirect GDP impact is associated with economic activities triggered by the direct impact. For example, a unit of tourism output requires input from restaurant and hotel sectors (direct), each of which requires input from food and utility sectors (indirect); both direct and indirect activities generate GDP including capital and labour incomes.</p> <p>Induced impact is the multiplier effect of the income generated by economic activities through both direct and indirect GDP impacts.</p>	<p>Without sufficient information from the existing DR's 2012 I-O accounts, the multiplier of total GDP impact on direct GDP impact is derived from the WTTC dataset for DR. This multiplier is used to estimate the total GDP impact from the direct GDP impact generated from the tourism investment attributable to TIPT to assess the benefits of TIPT.</p> <p>This multiplier is also used to assess the efficiency loss attributable to TIPT and the opportunity cost of TIPT.</p>
Fiscal multiplier	<p>The fiscal multiplier is defined as the change in GDP in responding to a given change in a fiscal policy instrument such as a certain form of government spending or tax collection.</p>	<p>It is adopted from Estevão and Samake (2013) to estimate the “negative” GDP impact of ITPT-associated tax expenditures.</p>
Output multiplier of infrastructure investment	<p>It is an “output” multiplier on government capital investment in public infrastructure. The “output” here means GDP, as commonly used in many IMF papers.</p>	<p>It is adopted from Ganelli and Tervala (2015) to estimate the opportunity cost of TIPT assuming the TIPT-associated tax expenditures were invested in public infrastructure.</p>

