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Evaluation of Fiscal Incentives in the Philippines

Danileen Kristel C. Parel

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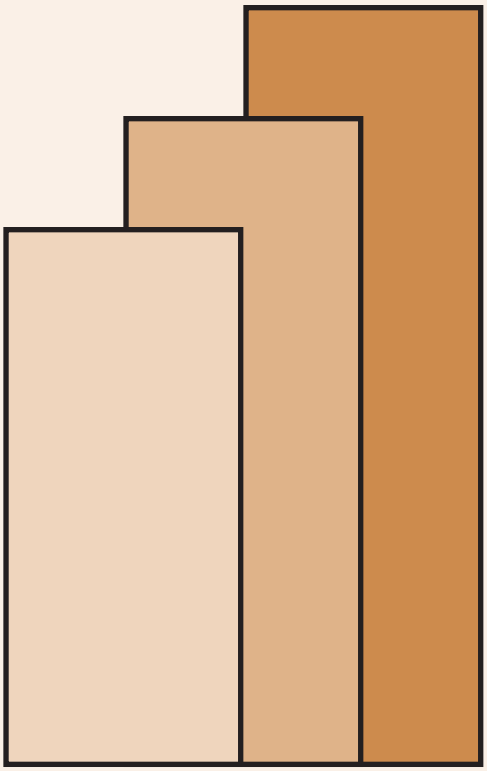

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For comments, suggestions or further inquiries please contact:
The **Research Information Department,** Philippine Institute for Development Studies
18th Floor, Three Cyberpod Centris – North Tower, EDSA corner Quezon Avenue, 1100 Quezon City, Philippines
Tel Nos: (63-2) 3721291 and 3721292; E-mail: publications@mail.pids.gov.ph
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Abstract

The advantages of foreign direct investment to host countries, particularly on economic growth, have long been recognized. The amount of investment that enters a country is influenced by various factors, including tax rates and the provision of fiscal incentives. This paper (1) assesses how the Philippines fares in attracting investments compared with its neighboring countries, and (2) evaluates pending incentive reforms in the country. As the corporate income tax does not take into account other tax rules, effective tax rates, which provide a single measure reflecting the combined effect of all tax rates and incentives, were computed and used in the assessment.

Keywords: Fiscal incentives, tax incentives, foreign direct investment, effective tax rates, tax holiday

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Danileen Kristel Parel

INTRODUCTION

The advantages of foreign direct investment (FDI) to host countries, particularly in terms of economic growth, have long been recognized. Foreign direct investment not only provides direct capital financing, but also provides technology and know-how, and promotes linkages between firms in a certain locality. In this sense, it can provide a boost to an economy, which tends to explain why countries provide both fiscal and non-fiscal incentives to attract foreign investments (Alfaro 2013).

Global flows of foreign direct investments recovered significantly in 2015, reaching $1.76 trillion. Developing countries in Asia were the largest recipients of FDI at $541 billion. Meanwhile, inflows in East and Southeast Asian economies[1] reached $445.6 billion (25% of global inflows) compared to $261.46 billion in 2008 (17% of global inflows). China, Hong Kong, and Singapore registered the highest inflows in 2015.

In the Philippines, an increase in the absolute size of FDI inflows improved the country's ranking in the World Investment Report (World Bank 2016) by four notches relative to 2008. The Philippines overtook the Republic of Korea, Macao, China, and Taiwan and Japan during this period. Other gainers include Indonesia, Vietnam, Malaysia, and Thailand, while FDI inflows in Japan declined significantly (Table 1).

[1] East Asia includes China, Hong Kong, Macau, Taiwan, Japan, South Korea, North Korea, and Mongolia. Southeast Asia includes Brunei, East Timor, Vietnam, Laos, Cambodia, Thailand, Myanmar, Malaysia, Indonesia, Singapore, and the Philippines.

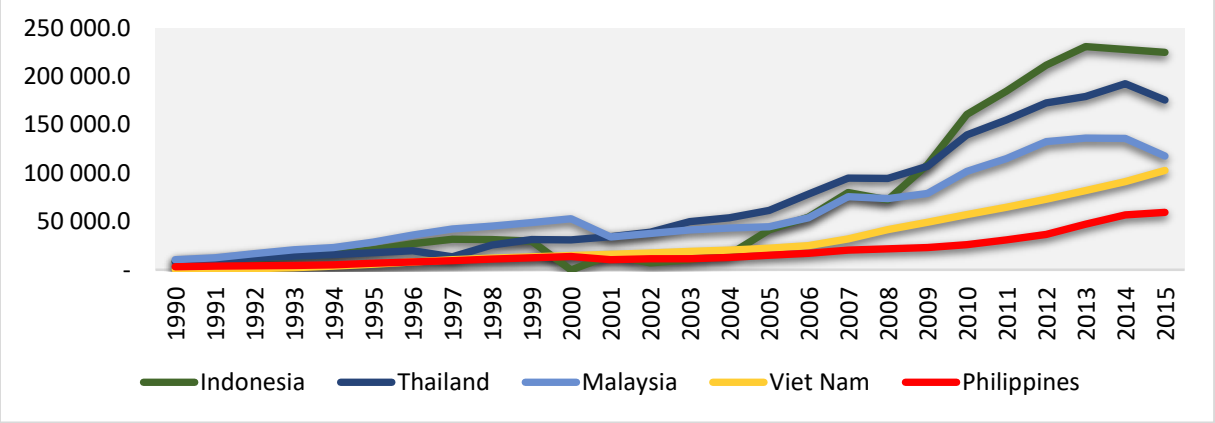
Table 1. Foreign direct investment inflows in East and Southeast Asia

	2008	2015	2008 Rank	2015 Rank
Hong Kong, China	58,315	174,892	2	1
China	108,312	135,610	1	2
Singapore	12,201	65,262	4	3
Indonesia	9,318	15,508	7	4
Viet Nam	9,579	11,800	6	5
Malaysia	7,172	11,121	9	6
Thailand	8,455	10,845	8	7
Philippines	1,544	5,234	12	8
Korea, Republic of	11,188	5,042	5	9
Macao, China	2,591	3,907	11	10
Myanmar	603	2,824	15	11
Taiwan Province of China	5,432	2,415	10	12
Cambodia	845	1,701	13	13
Lao People's Democratic Republic	228	1,220	17	14
Mongolia	845	195	14	15
Brunei Darussalam	323	173	16	16
Korea, Democratic People's Republic of	44	83	18	17
Timor-Leste	40	43	19	18
Japan	24,425	(2,250)	3	19

Source: World Investment Report 2016

In terms of FDI stock, however, the Philippines continues to lag behind some of its neighboring countries. The biggest improvements can be observed in Indonesia, Thailand, and Malaysia. FDI stock in Vietnam has also been increasing at an accelerated rate in recent years, despite the decline in Indonesia, Thailand and Malaysia, and the slowdown in the Philippines (Figure 1).

Figure 1. Foreign direct investment stock in selected economies



Source: World Investment Report 2016

The FDI Performance Index ranks countries by the FDI they receive relative to economic size, and hence may be used as a measure of investment attraction. A ratio lower than 1 suggests that a country's FDI share is lower than its gross domestic product (GDP), while a ratio higher than 1 suggests that FDI share is larger than GDP.

From 2008 to 2014, Hong Kong and Singapore sustain their strong performance, while China, which had among the highest FDI inflows in absolute terms, registered an FDI share lower than its GDP in 2014. The Philippines improved significantly from a ratio of 0.4 in 2008 to 1.3 in 2014. A similar improvement may be observed for Indonesia and Brunei (Table 2).

Table 2. Foreign direct investment performance index, East and Southeast Asia

	2008	2014	2008 Rank	2014 Rank
China, Hong Kong SAR	10.7	21.2	1	1
Singapore	2.6	13.3	5	5
Lao People's Dem. Rep.	1.7	3.7	6	6
China, Macao SAR	5.0	3.3	3	3
Viet Nam	4.2	2.9	4	4
Mongolia	6.1	2.7	2	2
Brunei Darussalam	0.9	2.2	11	11
Malaysia	1.3	2.0	7	7
Thailand	1.2	1.8	8	8
Indonesia	0.7	1.6	12	12
Philippines	0.4	1.3	15	15
Myanmar	0.9	0.8	10	10
China	1.0	0.8	9	9
Korea, Republic of	0.5	0.4	14	14
China, Taiwan Province of	0.5	0.3	13	13
Japan	0.2	0.0	16	16

Source: Author's calculations

The amount of investments that flow into an economy is influenced by tax-related and non-tax factors. Tax-related factors pertain to tax rates and fiscal/ tax incentives. Non-tax factors include (i) market size, (ii) access to raw materials, (iii) availability and cost of skilled labor, (iv) access to infrastructure, (v) transportation cost, (vi) access to infrastructure, (vii) political stability, (vii) macroeconomic stability, and (viii) financing costs. On the other hand, there are tax factors, which include (i) transparency, simplicity, stability and certainty in application of tax laws and tax administration, (ii) tax rates, and (iii) fiscal/ tax incentives (OECD 2007).

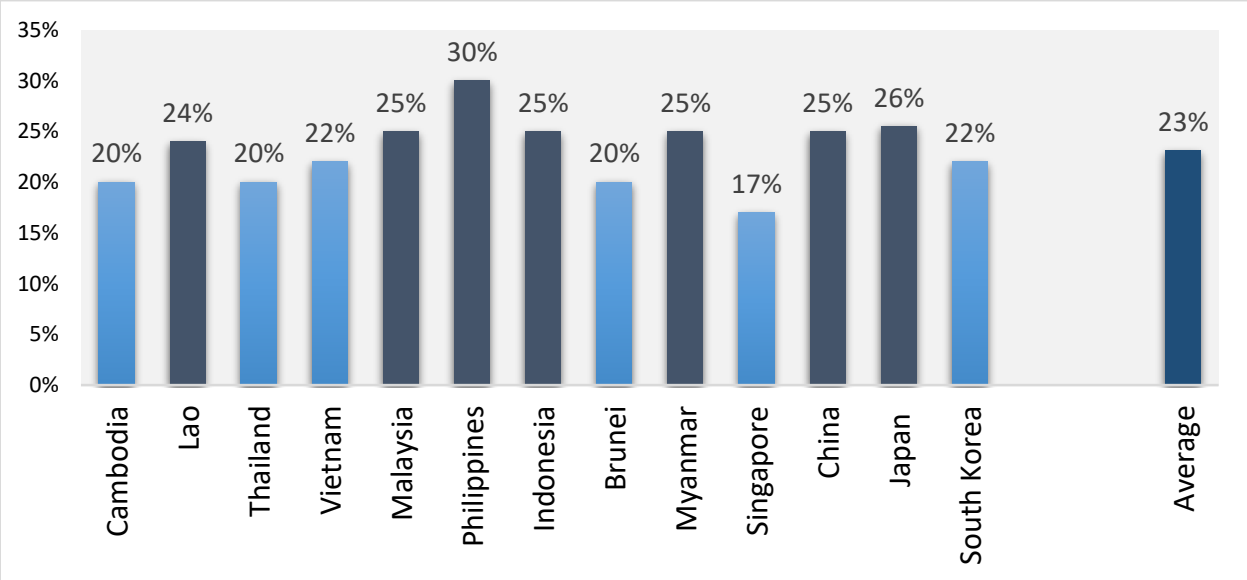
This paper focuses on tax-related factors that influence FDI, specifically tax rates and fiscal/ tax incentives. The paper will assess how the Philippines fares compared with its neighboring countries. The following section will provide an overview and comparison of different tax systems and fiscal incentives in the Association of Southeast Asian Nations (ASEAN) and selected East Asian economies, a comparison of ETRs, and an evaluation of incentive reforms in the Philippines.

Overview of Tax Systems and Fiscal Incentives in ASEAN

Statutory tax rates (i.e., legally enforced tax rates) are typically used in home country tax comparison by investors. In Southeast Asia and East Asia, the Philippines, Lao, Malaysia, Indonesia, Myanmar, China and Japan have corporate income tax (CIT) rates higher than the regional average of 23%. Meanwhile, Singapore has the lowest CIT rate at 17% (Figure 2).

In the Philippines, the CIT rate was raised to 35% in 2005 as a provision of the Expanded Value-Added Tax Law. It was reduced to 30% in 2009 to make the country more comparable with Indonesia and Thailand. However, Indonesia's rate has decreased since 2008 (now at 25%), while Thailand's CIT rate has decreased since 2012 (now at 20%), making the Philippines' CIT rate the highest in the region.

Figure 2. Corporate Income Tax Rates, ASEAN Counties, 2015



Source: Various sources

In addition to prevailing statutory tax rates, host countries also offer fiscal incentives in order to attract investments. Fiscal incentives are preferential treatment, usually in the form of tax breaks, given to qualified investors (Fletcher 2002). They have been argued to provide a number of benefits, including the promotion of investments, provision of new jobs, and can serve as a signal of a country's good business environment. In addition, incentives are believed to have positive

spillover effects, which include the diffusion of new knowledge and technology and an upgrade in the skills of a country's workforce. Incentives also encourage the dispersion of investments to less developed areas and toward more economically desired industries (Manasan and Parel 2014).

There are various fiscal incentives offered by host countries. These include income tax holidays (ITH), investment allowances and tax credits, reduced CIT rates, accelerated depreciation, exemptions from indirect taxes, and the establishment of export processing zones. As the CIT alone does not take into account other tax rules, a new measure that considers all incentives would be largely beneficial to aid foreign and domestic investors in making investment decisions.

Comparison of Effective Tax Rates

Effective tax rates (ETRs) provide a single measure reflecting the combined effect of all tax rules. Two types of ETRs are used in this analysis: (i) the effective average tax rate (EATR), and (ii) the effective marginal tax rate (EMTR). The EATR measures the impact of tax rules on firms' post-tax profits, and would generally influence the decision to produce overseas. On the other hand, the EMTR measures the tax burden on the cost of capital and influences incremental domestic investment decisions. Thus, a host country may implement strategies to attract foreign capital via the EATR and use the EMTR to boost the investment (Botman et al. 2008).

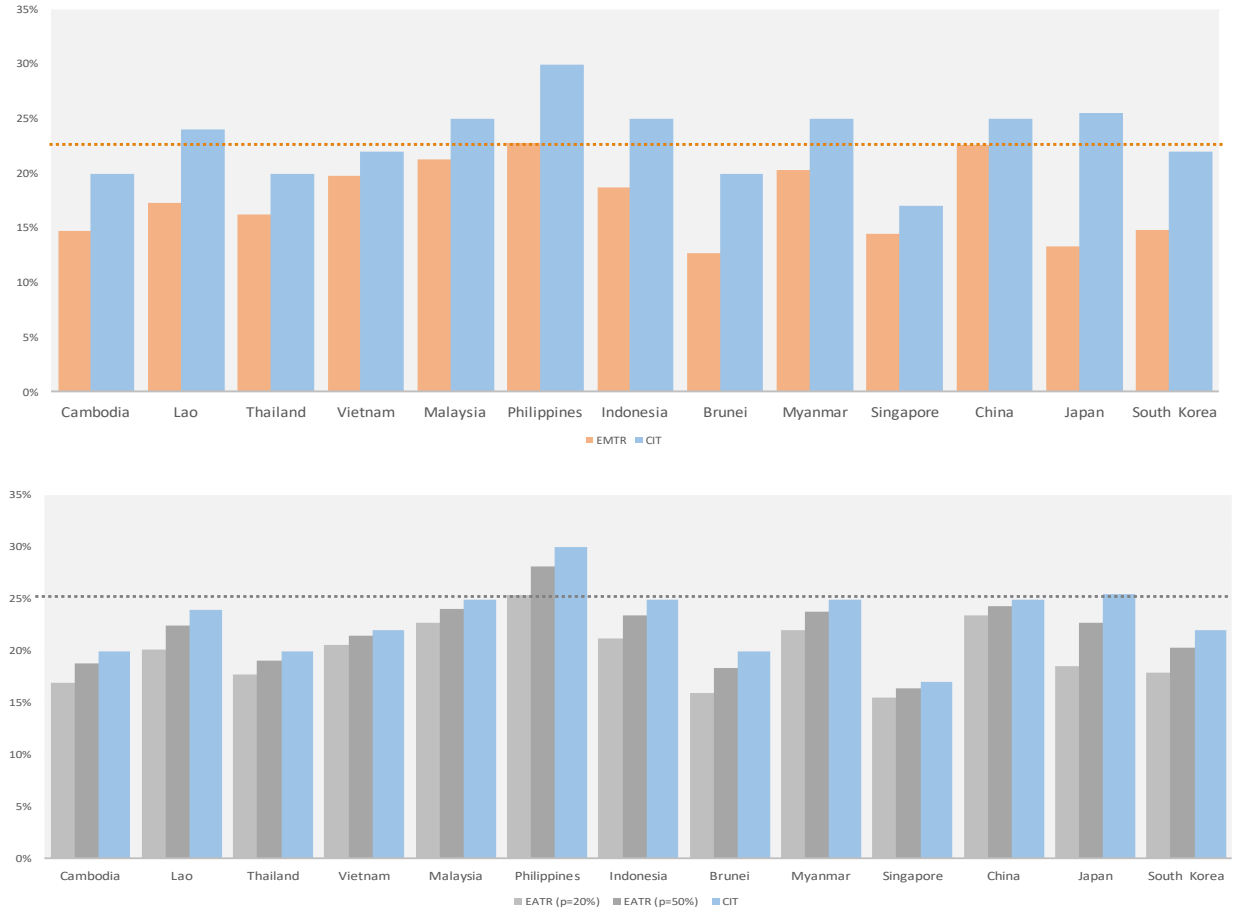
This paper updates the results of Botman et al. (2008) using more recent data and increases the coverage to include other ASEAN and East Asian economies. The impact of taxes on the cost of capital were computed using the methodology of Deveraux and Griffith (2003) (Appendix 1). The methodology not only includes combined effects of tax rules, but takes into account the characteristics of the investment project as well.

The following assumptions have been made for this analysis: (i) inflation was assumed to be 3.5% for all countries; (ii) economic depreciation of buildings was assumed to be 3.61% while depreciation of plant and machinery was set at 12.25%; (iii) investments were assumed to be financed using equity; and (iv) the personal income tax was ignored. Fiscal incentives were also limited to the ITH and accelerated depreciation.

Scenario 1: Statutory tax rates

Effective marginal tax rates in the Philippines and China are slightly higher than those in neighboring countries. The EATR, on the other hand, is highest in the Philippines relative to its neighboring countries. Further, as profitability increases, EATRs also tend to increase and converge with the CIT rate, which is also highest in the Philippines. These findings validate Botman's results which indicate that, since ETRs are usually higher in larger and more advanced economies compared to those in emerging ones, the Philippines can be said to have a high ETR relative to its level of economic development. This makes the Philippines less attractive to investors in terms of ETRs.

Figure 3. Effective tax rates in ASEAN and selected East Asian countries



Source: Author's estimates

Scenario 2: With Tax Holidays

A tax holiday is a temporary period during which certain taxes are removed to encourage investments. Table 3 presents the maximum length of tax holidays offered in the ASEAN and selected East Asian countries. Brunei has the longest tax holiday at up to 20 years. Other countries with relatively long tax holidays include Singapore, Indonesia, and Lao. On the other hand, countries like China, South Korea, and Vietnam provide shorter holidays. The Philippines provides a maximum of 6 years, which is below the average ASEAN maximum tax holiday of 8 years.

Table 3. Maximum Length of Tax Holidays in ASEAN Countries

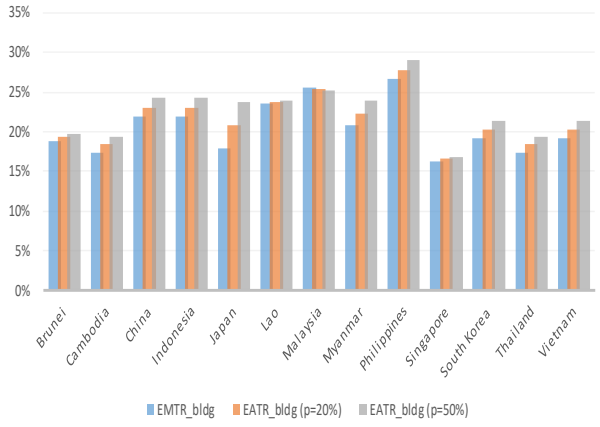
	Length of Tax holiday
Brunei	20
Cambodia	9
China	2
Indonesia	10
Japan	5
Lao	10
Malaysia	5
Myanmar	8
Philippines	6
Singapore	15
South Korea	3
Thailand	8
Vietnam	4

Source: Various sources

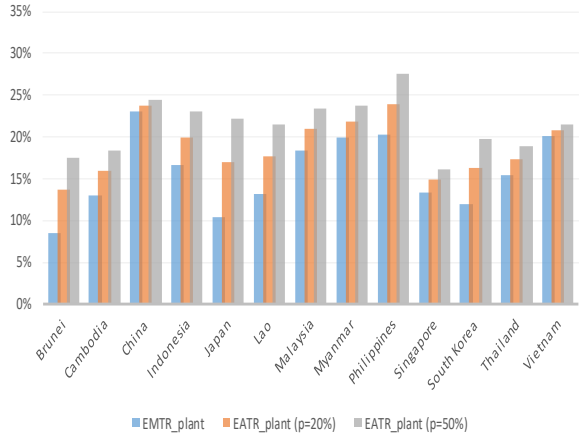
The provision of tax holidays generally reduces ETRs, as tax rates are zero during the holiday. Effective tax rates are lowest in Brunei and Singapore as both countries have low statutory tax rates and long tax holidays. Conversely, ETRs are highest in China as the country not only has a relatively high CIT rate, but also offers a short tax holiday. In the Philippines, ETRs are still high, but are no longer the highest in the region despite having the highest CIT rate.

Figure 4. Effective Tax Rates with tax holiday

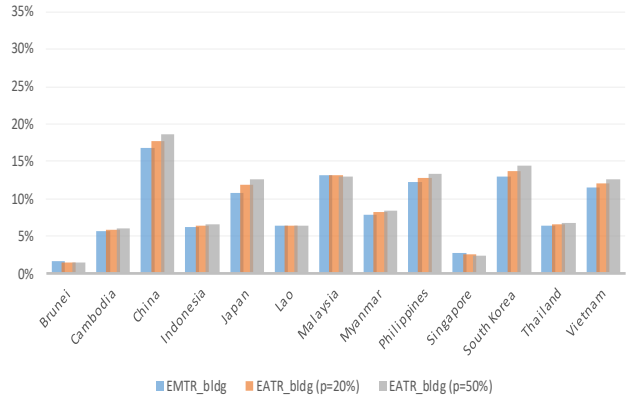
Building: Without tax holiday



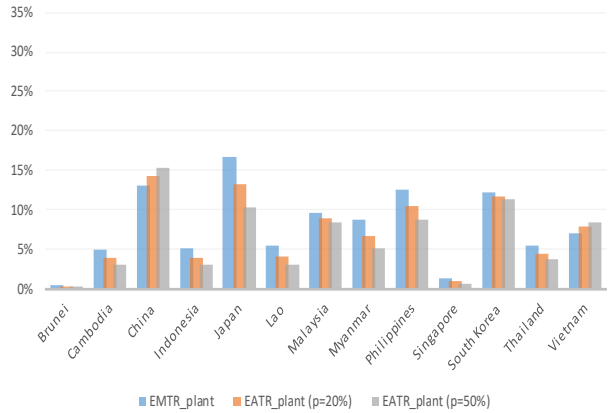
Plant: Without tax holiday



Building: With tax holiday



Plant: With tax holiday



Source: Author's estimates

Scenario 3: Depreciation Allowance

Accelerated depreciation is the process of spreading the cost of property that is subject to depreciation over the useful life of the asset. The rate usually depends on the useful life of the asset, determined either through the straight line (SL) or double declining balance method (DB). The straight line method charges cost evenly throughout the asset's useful life, while the double declining balance method charges a higher rate during the earlier years.

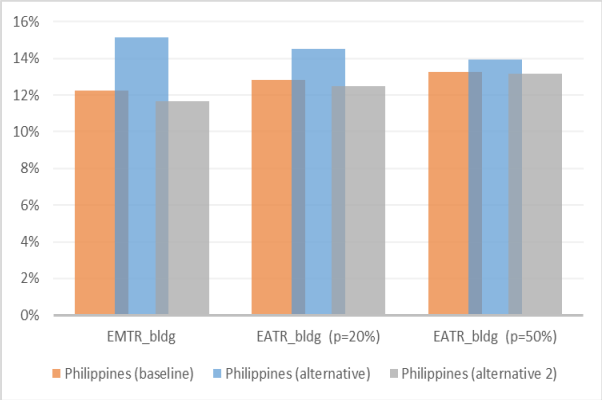
The host country would usually prescribe a method and allowable rate. However, countries like the Philippines, Thailand, and Singapore have no prescribed method. Further, the Philippines does not specify the allowable rate, providing firms more flexibility. This can be used by investors to reduce their ETRs. Investors can either defer depreciation allowances after the holiday to take advantage of both the depreciation allowance and the tax holiday, or accelerate depreciation to reduce taxable income during the earlier years.

Figure 5 presents various depreciation allowance scenarios in the Philippines. The regional practice (i.e., using 5% straight line depreciation for buildings and 25% declining balance depreciation for plants) was used as the baseline. Two scenarios were tested: (1) depreciation allowances were deferred (i.e., 0.02 straight line depreciation for buildings and 0.10 declining balance depreciation for plants), and (2) depreciation is accelerated (i.e., 0.7% straight line depreciation for buildings).

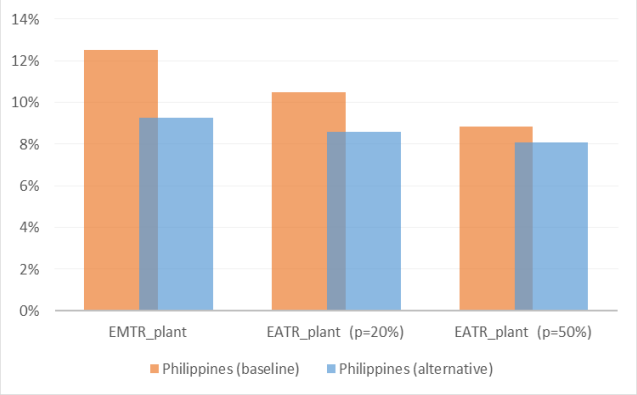
For buildings, deferred depreciation allowances will result in higher ETRs, which may be explained by the long useful life of the building. On the other hand, accelerated depreciation reduces ETRs even with a tax holiday. In the case of plants with shorter useful life, deferring depreciation until the tax holiday lapses would reduce ETRs significantly. The flexibility given to firms to choose the depreciation method and rate could be used by firms to their advantage, further reducing ETRs in the Philippines and making the country more comparable with its neighbors.

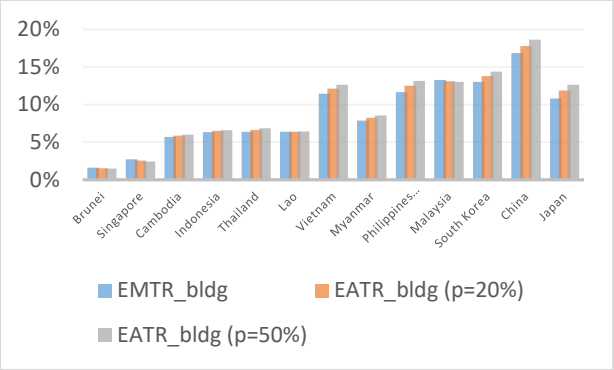
Figure 5. Effective tax rates under various depreciation scenarios

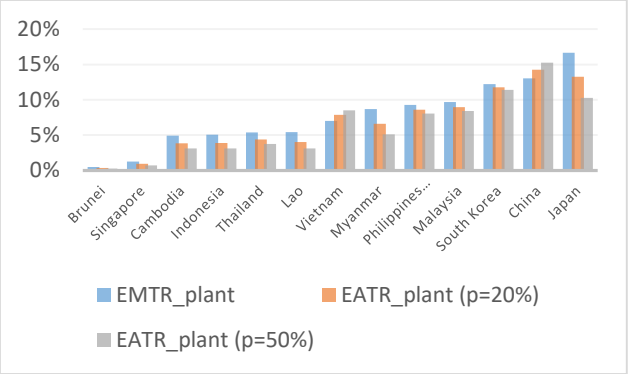
Buildings: 0.05, SL → 0.02, SL; 0.07 SL



Plants: 0.25 DB→ 0.10 DB







Source: Author's estimates

Incentive Reforms in the Philippines

In the Philippines, the granting of fiscal and non-fiscal incentives and subsidies is governed by around 186 laws. Further, different bodies are mandated to manage special economic zones and free port zones, and administer different investment regimes (Aldaba 2007, as cited in Manasan and Parel 2014).

Various reforms are being undertaken to improve the management and provision of tax incentives. The Tax Incentives Management and Transparency Act, or Senate Bill (SB) 2669 and House Bill (HB) 5831, was signed into law as Republic Act No. 10708 on December 8, 2015. The law promotes fiscal accountability and transparency in the granting and management of tax incentives availed by businesses.

However, a law governing the rationalization of fiscal incentives for investment has yet to be passed. Nine bills (4 in the Senate and 5 in the House of Representatives) are pending to date (Appendix 2), the latest of which are HB 231 and SB 229, filed in late 2016. Table 4 presents a

comparison of incentives provided to qualified export enterprises in terms of the maximum length of the ITH, reduced CIT rates, and the tax on gross income earned (GIE) under bills filed in the 17th Congress.

Table 4. Bills on fiscal incentives filed in the 17th Congress[2]

	Income tax holiday	Reduction in the CIT rate	GIE tax rate
HB 231 (Singson)	4 years, then 5% tax on GIE or 15% CIT for 11 years	15% for 15 years	5% for 15 years
SB 2299 (Drilon)	4 years and then 5% tax on GIE or 15% CIT for 11 years	15% for 15 years	5% tax for 15 years

Note: Shaded cells means firms can choose one of the options

Senate Bill 987 is the sole bill that proposes the abolition of the ITH. Meanwhile, HB 00130 and SB 35 essentially contain the same provisions and are the most generous proposals as qualified firms are provided with an ITH, and a choice between a lower CIT rate or a lower tax rate on GIE after the ITH expires. The rest of the proposals only allow firms to choose one of the options. Further, the reduction in the CIT rate and the tax on GIE is not time-bound under HB 00130 and SB 35.

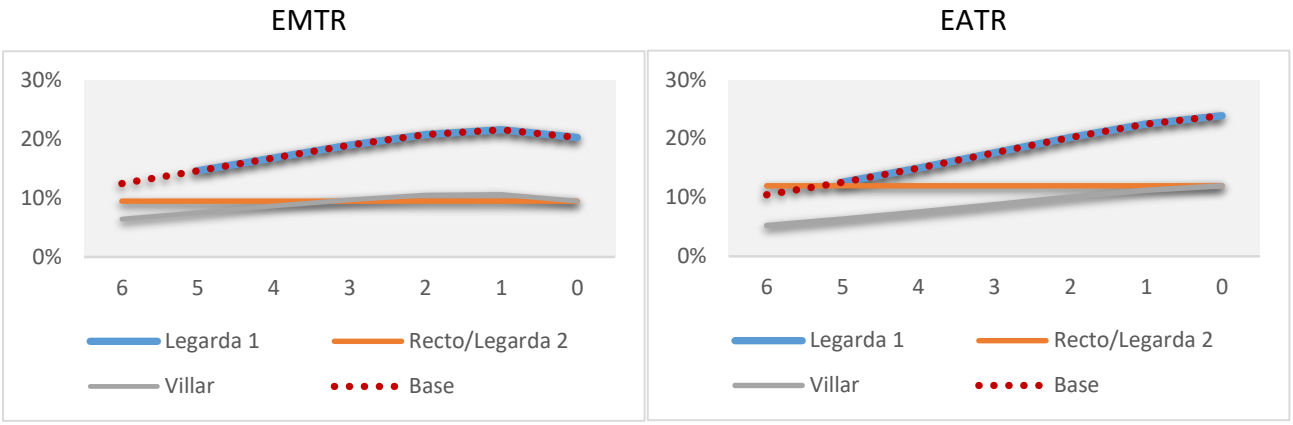
In contrast, HB 1788 and HB 302 offer incentives that are time-bound. In addition, although it offers a short tax holiday, it also provides for a lower tax rate on GIE over a certain period of time after the holiday has expired. Similarly, HB 231/ SB 299 also offer time-bound incentives, but the period is shorter than under HB 1788/ HB 302. Further, firms get to choose between a reduction in the CIT rate and the tax on GIE for a certain period of time after the holiday.

As the model used in this paper has its limitations, only certain aspects of the pending bills were assessed. Specifically, only the impact of ETRs during the ITH, as well as reductions in the CIT rate which are not time-bound have been assessed. Hence, only the bills filed by Legarda (SB 2048), Recto (SB 987), and Villar (SB 35) were evaluated.

Figure 6 shows that Legarda 1 merges with the baseline. Both are high because of high CIT rates after the holiday. The EMTR under the Villar bill is low until half of the holiday expires, while the EATR is low throughout the same period. The provision of an ITH results in higher ETRs than a reduction in the CIT rate.

[2] Appendix 3 provides a summary of all bills currently filed pertaining to incentives.

Figure 6. Effective Tax Rates under various Bills



Source: Author's estimates
Note: Legarda 1- 5-year ITH; Legarda 2- 15% CIT; Recto- 15% CIT; Villar- 6-year ITH and 15% CIT

Given the limitations of the paper, it is imperative for further research to develop a model that would reflect all incentives provided by the bills, including time-bound reductions in the CIT rate and tax rate on GIE.

To assess the various proposals in greater depth, it is also important to compute for government revenue earned or foregone under the same. The decision of which incentives should be offered to firms is dependent on what the reform aims to achieve, whether to boost investment in the country or raise government revenues.

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Appendix 1. Derivation of EATR and EMTR[3]

Devereux and Griffith (2003) developed a measure of the effective average tax (EATR), which is defined as the ratio of the present discounted value of taxes over the present discounted value of the profit of a project in the absence of taxation. This measure includes the previously developed effective marginal tax rate (EMTR) as a special case, when the post-tax economic rent is exactly equal to zero.

The original derivation in the paper by Devereux and Griffith is calculated for a one period perturbation in the capital stock; i.e., they look at an investment of one unit of capital that is held for one year and then sold at its remaining value of $(1-\delta)(1+\pi)$, where δ is true economic depreciation and π is inflation.

While this is simple and in many cases appropriate, it is not useful for the study of tax holidays, which typically last longer than one period. We have therefore adapted the framework to look at a permanent increase in the capital stock by one unit, which is slowly disinvested over time through depreciation. Returns to capital are tax free during the tax holiday and taxed thereafter. To facilitate comparisons, we use exactly the same notation as Devereux and Griffith.

The Devereux-Griffith EATR is defined as $\text{EATR} = \frac{R^* - R}{p/(1+r)}$, where R^* is the present discounted value of the economic rent earned in the absence of taxation, R is the same in the presence of taxation, p is the pre-tax net profit and r is the real interest rate. Because we adapt this to an infinite investment horizon, the denominator needs to be changed to take account of profits in all future periods. We assume that the net rate on capital remains constant at p, but that the capital stock declines yearly by the true economic depreciation rate:

$$\text{EATR} = \frac{R^* - R}{p/(r+\delta)} \tag{1}$$

The present discounted value of the economic rent must be equivalent to the change in the value (V) of the firm:

$$R = dV_t = \sum_{s=0}^{\infty} \frac{\gamma dD_{t+s} - dN_{t+s}}{(1+\rho)^s}, \tag{2}$$

where D are dividends, $\gamma = (1-m^d)/(1-z)$ is a factor measuring the difference in treatment of new equity and distributions with m^d the personal tax on dividends and z the tax on capital gains, N stands for new equity issues and $\rho = (1-m^i)i$ is the investor's discount rate, with m^i

[9] For further details, see Klemm (2008).

[3] Extracted from Botman et al. (2008)

the personal tax rate on interest and i the nominal interest rate. Dividends are determined by the usual flow of funds equation:

$$D_t = (p+\delta)(1+\pi)K_{t-1}(1-\tau) - I_t + B_t - (1+i(1-\tau))B_{t-1} + \tau\phi(I_t + K^T_{t-1}) + N_t, \quad (3)$$

where K it the capital stock, τ is the corporate tax rate, I is the investment undertaken, B is new debt issued, ϕ is the official depreciation allowance, and K^T is the tax-written-down value of capital.

Up to this point the derivation or R is identical to Devereux and Griffith. Now, instead of looking at a one period perturbation (i.e., $dI_t = 1$, $dI_{t+1} = -(1-\delta)(1+\pi)$), we look at a permanent investment (i.e., $dI_t = 1, dI_{t+s} = 0 \forall s \geq 1$). Using this assumption and substituting (3) into (2) the tax-free present discounted value of profits can be easily derived by setting all taxes to zero:

$$R^* = -1 + \frac{(1+\pi)(p+\delta)}{1+i}\left(1 + \frac{(1+\pi)(1-\delta)}{1+i} + \left(\frac{(1+\pi)(1-\delta)}{1+i}\right)^2 + \ldots\right) = \frac{p-r}{r+\delta}, \quad (4)$$

In the presence of taxation the derivation is more complicated. We start by assuming that the investment is financed by retained earnings (i.e., $B = N = 0$), which yields in a first step:

$$R = \gamma\left(\sum_{s=1}^{\infty}\frac{(p+\delta)(1-\tau)(1+\pi)^s(1-\delta)^{s-1}}{(1+\rho)^s} - \sum_{s=0}^{\infty}\frac{dI_{t+s}}{(1+\rho)^s} + \tau\phi\sum_{s=0}^{\infty}\frac{dI_{t+s} + dK^T_{t-1+s}}{(1+\rho)^s}\right) \quad (5)$$

We now turn to the three sums within equation (5). The second sum is the simplest and is independent of any tax holiday:

$$\sum\frac{dI_{t+s}}{(1+\rho)^s} = 1 \quad (6)$$

In calculating the first sum, we need to take account of any tax holiday of Y years, during which the tax rate is zero.

$$\sum_{t=1}^{T}\frac{(p+\delta)(1+\pi)^{t}(1-\delta)^{t-1}}{(1+\rho)^{t}}+\sum_{t=T+1}^{\infty}\frac{(p+\delta)(1-\tau)(1+\pi)^{t}(1-\delta)^{t-1}}{(1+\rho)^{t}}$$

$$=\sum_{t=1}^{\infty}\frac{(p+\delta)(1+\pi)^{t}(1-\delta)^{t-1}}{(1+\rho)^{t}}-\tau\sum_{t=T+1}^{\infty}\frac{(p+\delta)(1+\pi)^{t}(1-\delta)^{t-1}}{(1+\rho)^{t}}$$

$$=\frac{(p+\delta)(1+\pi)}{1+\rho}\left(1+\frac{(1-\delta)(1+\pi)}{1+\rho}+\left(\frac{(1-\delta)(1+\pi)}{1+\rho}\right)^{2}+\ldots\right) \qquad (7)$$

$$-\tau\frac{(p+\delta)(1+\pi)^{T+1}(1-\delta)^{T}}{(1+\rho)^{T+1}}\left(1+\frac{(1-\delta)(1+\pi)}{1+\rho}+\left(\frac{(1-\delta)(1+\pi)}{1+\rho}\right)^{2}+\ldots\right)$$

$$=\frac{(p+\delta)(1+\pi)}{\rho-\pi+\delta(1+\pi)}\left(1-\tau\left(\frac{(1-\delta)(1+\pi)}{1+\rho}\right)^{T}\right)$$

The third sum, represents the present discounted value of depreciation allowances, which we label A. The calculation of this will depend on the depreciation rules.[10] Putting this all together, and allowing for an additional effect F to account for the as yet ignored financial effects we obtain:

$$R=\gamma\left(\frac{(p+\delta)(1+\pi)}{\rho-\pi+\delta(1+\pi)}\left(1-\tau\left(\frac{(1-\delta)(1+\pi)}{1+\rho}\right)^{T}\right)-1+A\right)+F \qquad (8)$$

The financial effects are similarly derived from equations (2) and (3). In the absence of a tax holiday, we assume that new equity of the value of $(1-\tau\phi)$ is issued to finance the investment, as there is already a depreciation allowance in the year of investment. The increase in new equity is assumed permanent, while debt is assumed to be repaid equivalent to the amount of nominal depreciation so that the debt-asset ratio is kept stable in the following years. If there is a tax holiday, then in both cases the amount issued needs to match the full expenditure (i.e., 1), as the depreciation allowance will not provide any tax saving. Thus the financing for new equity is:

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[10] Assuming no carry-forward of unused allowances, we have $A=\tau\phi\frac{1+\rho}{\rho+\phi}\left(\frac{1-\phi}{1+\rho}\right)^{T}$ for declining-balance and $A=\frac{\tau\phi(1+\rho)}{\rho}\left(\left(\frac{1}{1+\rho}\right)^{T}-\left(\frac{1}{1+\rho}\right)^{1/\rho}\right)\forall T\le\frac{1}{\rho}$ for straight-line depreciation. If methods are switched or rates change, the formulae are more complicated. Up to three rate and method changes are taken into account in the program calculating the tax rates.

$$F^{NE} = \sum \frac{\gamma D_{t+s} - dN_{t+s}}{(1+\rho)^s} = (\gamma - 1)(1 - \tau\phi), \text{ no tax holiday; } = \gamma - 1, \text{ otherwise.} \tag{9}$$

For debt they are in the absence of tax holidays:

$$\begin{aligned} F^D &= \gamma(1-\tau\phi) + \gamma \frac{(1-\delta)(1+\pi)(1-\tau\phi) - (1+i(1-\tau))(1-\tau\phi)}{1+\rho} \\ &+ \gamma \frac{((1-\delta)(1+\pi))^2 (1-\tau\phi) - (1+i(1-\tau))(1-\tau\phi)(1-\delta)(1+\pi)}{(1+\rho)^2} + \ldots \\ &= \frac{\gamma(1-\tau\phi)(\rho - i(1-\tau))}{\rho + \delta(1+\pi) - \pi}; \end{aligned} \tag{10}$$

and in the presence of tax holidays:

$$\begin{aligned} F^D &= \gamma + \gamma \frac{(1-\delta)(1+\pi) - (1+i)}{1+\rho} + \gamma \frac{((1-\delta)(1+\pi))^2 - (1+i)(1-\delta)(1+\pi)}{(1+\rho)^2} + \ldots \\ &+ \gamma \frac{((1-\delta)(1+\pi))^{T+1} - (1+i(1-\tau))((1-\delta)(1+\pi))^T}{(1+\rho)^{T+1}} + \ldots \\ &= \gamma \frac{\rho - i + \tau i \left(\frac{(1-\delta)(1+\pi)}{1+\rho} \right)^T}{\rho - \pi + \delta(1+\pi)} \end{aligned} \tag{11}$$

To calculate the EMTR, we need to set the post-tax economic rent R (equation (8)) equal to zero and solve for the required level of pre-tax net profit p. This yields:

$$\tilde{p} = \frac{(1 - A - F/\gamma)(\rho - \pi + \delta(1+\pi))}{(1+\pi)\left(1 - \tau\left((1-\delta)(1+\pi)/(1+\rho)\right)^T\right)} - \delta \tag{12}$$

The EMTR can then be calculated by obtaining R^* for $\tilde{p}$ and substituting into (1) or equivalently as:

$$\text{EMTR} = \frac{\tilde{p} - r}{\tilde{p}}. \tag{13}$$

Appendix 2. Fiscal Incentive Bills

HB 02765	An Act Rationalizing the Grant and Administration of Fiscal Incentives for the Promotion of Investments and Growth, and for Other Purposes	Gabriel Luigi Quisumbing	Pending since September 10, 2013
HB 01788	The Investments and Incentives Code of the Philippines	Rufus Rodriguez	Pending since July 31, 2013
HB 00302	The Investments and Incentives Code of the Philippines	Susan Yap	Pending since July 23, 2013
HB 00130	An Act Instituting the Code for the Administration of Fiscal Incentives for the Promotion of Investments and for Other Purposes	Mark Villar	Pending since July 23, 2013
HB 231	An Act Rationalizing the Grant and Administration of Fiscal Incentives and for other purposes	Eric Singson	Pending since July 26, 2016
SB 35	Investments and Incentives Code of the Philippines	Cynthia Villar	Pending since July 23, 2013
SB 987	An Act Harmonizing the Grant and Administration of Fiscal and Non-Fiscal Incentives, and for Other Purposes	Ralph Recto	Pending since August 14, 2013
SB 2048	An Act Rationalizing the Grant and Administration of Fiscal Incentives for the Promotion of Investments and Growth, and for Other Purposes,	Loren Legarda	Pending since January 1, 2014
SB 229	Fiscal Incentives Rationalization Act	Franklin Drilon	Pending since August 2, 2016

Appendix 3. Summary of incentives offered under the various bills

	Income tax holiday	Reduction in the CIT rate	GIE tax rate
HB 231 (Singson)	4 years and then 5% tax on GIE or 15% CIT for 11 years	15% for 15 years;	5% for 15 years
HB 02765 (Quisumbing)	5 years	15%	5%
HB 01788 (Rodriguez)	6 years and 5% tax on GIE for 19 years	50% reduction from CIT for a period of 25 years	5% tax for 25 years
HB 00302 (Yap)	6 years and 5% tax on GIE for 19 years	50% reduction from CIT for a period of 25 years	5% tax for 25 years
HB 00130 (Villar)	6 years	15%	5%
SB 229 (Drillon)	4 years and then 5% tax on GIE or 15% CIT for 11 years	15% for 15 years;	5% tax for 15 years
SB 2048 (Legarda)	5 years	15%	5%
SB 987 (Recto)	-	15%	5%
SB 35 (Villar)	6 years	15%	5%