Corporate Effective Tax Rates in Latin America and the Caribbean

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Abstract[*]

Using a methodology developed by the Organisation for Economic Co-operation and Development (OECD), this paper estimates forward-looking effective tax rates on corporate income for 21 Latin American and Caribbean (LAC) countries. When compared with countries in other regions, the results show that effective average and marginal tax rates on corporate income in LAC countries tend to be high, with several countries ranked among those with the highest effective tax rates in the large sample. This is mainly due to relatively high corporate income tax (CIT) statutory rates and tax provisions that are less generous than those observed in other jurisdictions (e.g., allowances for corporate equity, half-year conventions, inventory valuation methods). Results also show that there is wide heterogeneity of effective tax rates across LAC countries and across asset categories, pointing toward non-neutralities in the CIT system, which do not always seem to be intended or justified by the existence of market failures. In addition, ETRs were also increased by the macroeconomic context over the period 2017–2021, as LAC countries had higher real interest and inflation rates. These results indicate that there is ample space for reforming CIT systems in LAC to improve their neutrality.

JEL Codes: H25, H26
Keywords: corporate income taxes, effective tax rates, tax incentives

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1. Introduction

This paper assesses the relative cost-competitiveness of corporate income taxation (CIT) in Latin American and Caribbean (LAC) countries by estimating effective tax rates (ETR) on corporate income. This work is relevant because many policymakers and practitioners are concerned that LAC countries place relatively high tax burdens on corporate income, losing competitiveness and investments to the rest of the world, even though taxation is not the only factor driving investment. This concern stems mostly from three reasons. First, private investments in LAC countries have remained relatively low in previous years compared to OECD and other emerging economies (OECD et al., forthcoming). Second, CIT statutory tax rates (STR) in LAC countries are comparatively high. In 2021, the average STR in LAC was 22.2 percent, while it was 19 percent in other 100 jurisdictions covered in the OECD Corporate Tax Statistics (CTS) database (OECD, 2022). Third, CIT collections are high in several LAC countries. In 2019, revenues from the CIT reached an equivalent of 3.6 percent of GDP and accounted for 15.8 percent of total tax revenues. In comparison, OECD economies, these numbers are below to LAC average (3.0 percent of GDP and accounted for 9.6 percent of total tax revenues, respectively).

Basing an assessment of the relative cost-competitiveness of corporate income taxation on revenue collections or STRs is problematic, as these indicators do not accurately reflect the actual impact of the tax system on businesses investments. Tax collection depends not only on tax provisions, but also on the share of corporate profits in national income. Many factors besides taxes affect this share, such as competition in product markets and total costs of production, including labour, logistics, and transport costs. Other factors, such as tax evasion and avoidance, also affect tax collection. These and other factors make CIT collection a poor indicator of effective taxes faced by businesses. With respect to STRs, the problem of comparing them to assess cost-competitiveness is that STRs provide only a partial picture of the impact of taxation on investment because they do not consider tax provisions that affect the definition of corporate tax bases. These provisions include allowances for fiscal depreciation, deductions for interest payments, and equity financing. Because these provisions can significantly affect tax liabilities, considering their generosity is key for the correct measurement of effective taxation across tax systems. ETRs are statistics that consider the effects of such provisions on tax liabilities. Thus, they have the potential of providing a more accurate picture than STRs of the effects of corporate tax systems on firms' investment incentives. Tax incentives or preferential tax treatments to certain assets, firms, sectors or regions are not explicitly studied in this paper.

This paper builds on a detailed new dataset to calculate ETRs collected from 21 countries in the LAC region. It is the most comprehensive study to date on this topic for LAC countries. The types of ETRs calculated are usually referred to as forward-looking ETRs. Forward-looking ETRs are synthetic tax policy indicators that summarise the effects of corporate taxation on firms' incentives to invest. They are calculated using information on specific tax policy rules and assumptions on macroeconomic environments and different characteristics of investments. They assume future profit streams and the corporate income tax that will be incurred on those profits. The main advantage of forward-looking ETRs is that they are based on a methodology that makes differences in corporate tax bases comparable across jurisdictions. They also do not require the use of information on firms' actual profits and tax payments, as "backward-looking" ETRs[1] do.

Estimating forward-looking ETRs requires a methodology that logically and consistently includes tax provisions that determine tax liabilities. The methodology used in this paper is the

[1] Backward-looking ETRs are calculated using historical firm-level data on actual corporate income taxes paid. They are obtained by dividing actual tax payments by profits earned over a given time. They reflect the combined effects of many different factors, such as the STR, the definition of the tax base, the types of projects that firms undertook, as well as the effects of tax-planning strategies. Backward-looking ETRs may therefore not accurately reflect how corporate taxation affects a firm's current incentives to invest, as they reflect past tax codes and behaviours that may be different from current or future ones.

same as the one used by the Organisation for Economic Co-operation and Development (OECD) to produce the ETRs presented in the CTS database, which is in turn based on Hanappi (2018).[2] One of the advantages of using this methodology is that it allows the results for LAC countries to be compared with those of countries in other regions, as the CTS currently includes ETR estimates for 77 jurisdictions. The OECD methodology follows a bottom-up approach which first calculates a set of ETRs for investments in different combinations of project types and sources of financing. These are then aggregated into a composite ETR. The logic behind considering different sources of financing and project types is that distinct tax provisions might apply to them. For instance, different provisions usually apply to projects financed by debt vs. equity. Similarly, different depreciation allowances are used for investments in different asset types. These different provisions affect the amount of CIT liabilities, leading to differences in ETRs across types of projects and sources of financing. While the OECD methodology does not cover all potentially relevant provisions, it includes the most important ones, such as fiscal depreciation, interest deduction rules, allowances for corporate equity, and inventory valuation methods.

The use of forward-looking ETR to analyse incentives to investment has a long tradition among economists. On the methodological side, King and Fullerton (1983) were the first to introduce a method for calculating forward-looking effective marginal tax rates (EMTR).[3] EMTRs measure the extent to which taxation increases the user cost of capital on a marginal investment project. It is the preferred indicator for analyses of how taxes affect the *incentive to expand existing investments* given a fixed location. The OECD (1991) extended the methodology to calculate EMTR on domestic and international investment for the manufacturing industry. Later, Devereux and Griffith (1998; 2003) introduced the concept of effective average tax rates (EATR) while studying the effects of taxes on infra-marginal investments. EATRs measure the average tax contribution a firm makes on a non-marginal investment project (e.g., a project with positive economic profits). EATRs are the preferred indicator for analyses of *discrete investment decisions* between two or more alternative projects (along the extensive margin). Given the relevance of forward-looking ETRs for tax policy decisions, several institutions have produced ETRs estimates that are comparable across countries. For instance, the U.S. Congressional Budget Office (CBO) produced estimates to compare ETRs in the United States with those in other G20 countries (CBO, 2017). Similarly, the European Union commissioned a study by the Centre for European Economic Research to compare ETRs of its member countries (ZEW, 2019). Other organisations, most notably the Oxford University Centre for Business Taxation (CBT, 2017) and the OECD (OECD, 2022), have produced comparable data for some countries. Since most of these studies have scant coverage of LAC countries,[4] relatively little is known about the competitiveness of corporate taxation systems in the LAC region. This paper contributes to closing this knowledge gap by estimating EATRs and EMTRs for 21 LAC countries.

Although results vary across countries, ETRs estimations reveal some important patterns. One of the main findings is that most LAC countries have relatively high EATRs and EMTRs.[5] Among the countries covered in CTS in 2021, three (Argentina, Brazil, and Chile) topped the ranking of highest EATRs, and Argentina topped the list of highest EMTRs. This result is mostly due to relatively high STRs, but it is also affected by the relatively ungenerous fiscal depreciation provisions, compared to economic depreciation, to reduce CIT liabilities. In fact, EATRs in LAC are on average 0.2 percentage points (p.p.) lower than STRs, while in OECD countries they are 1.7 p.p. lower. Only a few countries, including Nicaragua and Paraguay,

[2] The methodology of Hanappi (2018) is based on the theoretical model initially developed by Devereux and Griffith (2003; 1998) and extended by Klemm (2008) and Creedy & Gemmell (2017).

[3] Early theoretical contributions to the literature on investment decisions include the works of Jorgenson (1963) and Hall and Jorgenson (1967), who developed the standard model of investment behaviour leading to the concept of the cost of capital. Auerbach (1979; 1983) introduced additional refinements.

[4] The OECD study covers nine LAC countries. The CBT study only covers four LAC countries, while the CBO study covers three.

[5] Results in this paper do not consider temporary tax measures introduced to tackle the COVID-19 pandemic.

have generous tax treatments. In Nicaragua, the main provisions decreasing ETRs are generous capital allowances provided for investments in computer hardware, office equipment, and non-residential structures, while the main driver of low ETRs in Paraguay is the relatively low STR (10 percent).

Another important finding is that fiscal depreciation seems to be relatively ungenerous in the region, with several countries allowing depreciation below the estimated economic depreciation. This is most noticeable in the tax treatment of acquired software, which is non-depreciable in Chile and has a lower tax depreciation rate in Argentina, Bolivia, and Mexico. A few countries have important differences in ETRs across asset types, which tends to distort investment decisions.

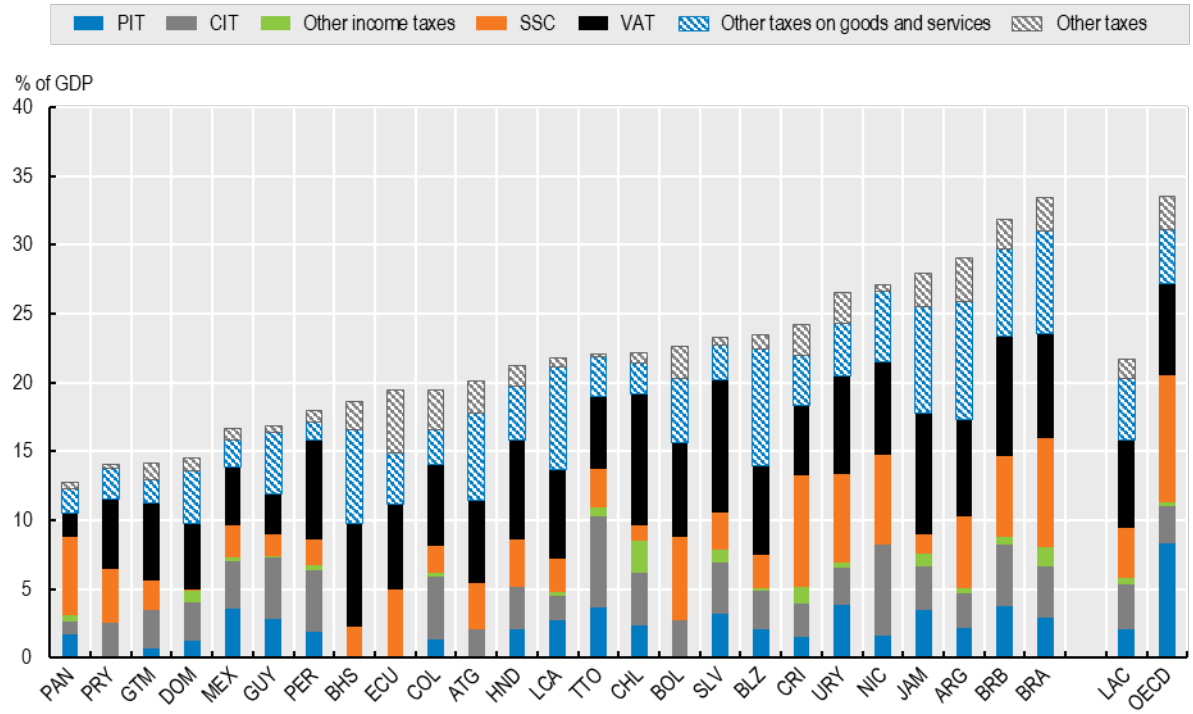
The paper also finds that macroeconomic environments in LAC countries interacted with the CIT system in ways that might have potentially adverse effects on firms' investment. First, real interest rates have been higher in the region compared to the OECD and other countries covered in the CTS data, which increases the cost of capital. ETRs also increase, especially on investments in assets with relatively less generous tax treatment. In some countries, this is because future income is discounted more heavily, and tax depreciation tends to be less generous than real economic depreciation. Second, inflation rates in LAC countries varied more over the period 2017-2021 compared to other countries, leading to more frequent changes in ETRs, as capital allowances are typically based on historic acquisition costs. This decreases tax certainty, which tends to be an important determinant of firms' investment. In addition, higher inflation also tends to increase the cost of capital, as well as the ETRs. This is especially true if capital allowances are not indexed, which is the case in 16 out of 21 LAC countries covered in this paper. Given this macroeconomic context, non-neutral tax treatment of certain assets, compared to real economic depreciation, will have stronger distortive effects, compared to low-inflation environments (Beer et al., 2023). This increases the importance of promoting CIT neutrality.

The remainder of this paper is organised as follows. Section 2 describes CIT in LAC tax systems, highlighting the relative importance of tax collections and statutory rates compared to other regions. Section 3 presents the methodology used to calculate the forward-looking ETRs and the strategy followed to implement it. Section 4 focuses on the main findings of the paper, both at the country level as well as for the different asset types. Section 5 concludes and offers some policy recommendations.

2. The Importance of Corporate Income Taxes in LAC

Despite having increased considerably in the last decades, tax collection in LAC remains relatively low, except in a few countries. The average tax-to-GDP ratio in the region was 21.7 percent in 2021, well below the 34.1 percent in OECD countries. This low average hides a strong heterogeneity in tax collection across the region. While Guatemala and the Dominican Republic collect less than 15 percent of GDP in tax revenues, Brazil and Barbados collect more than 30 percent (Figure 1). The main tax collected in LAC is the value-added tax (VAT), representing 6.4 percent of GDP and 29.9 percent of total tax revenues. The second source of collection are social security contributions (SSC) (3.7 percent of GDP on average), and the third most important source of collection is the CIT (3.3 percent of GDP on average). CIT collection, at 15.4 percent of total taxes in LAC, is high compared to the OECD average (9.0 percent of total taxes) (OECD et al., 2023).

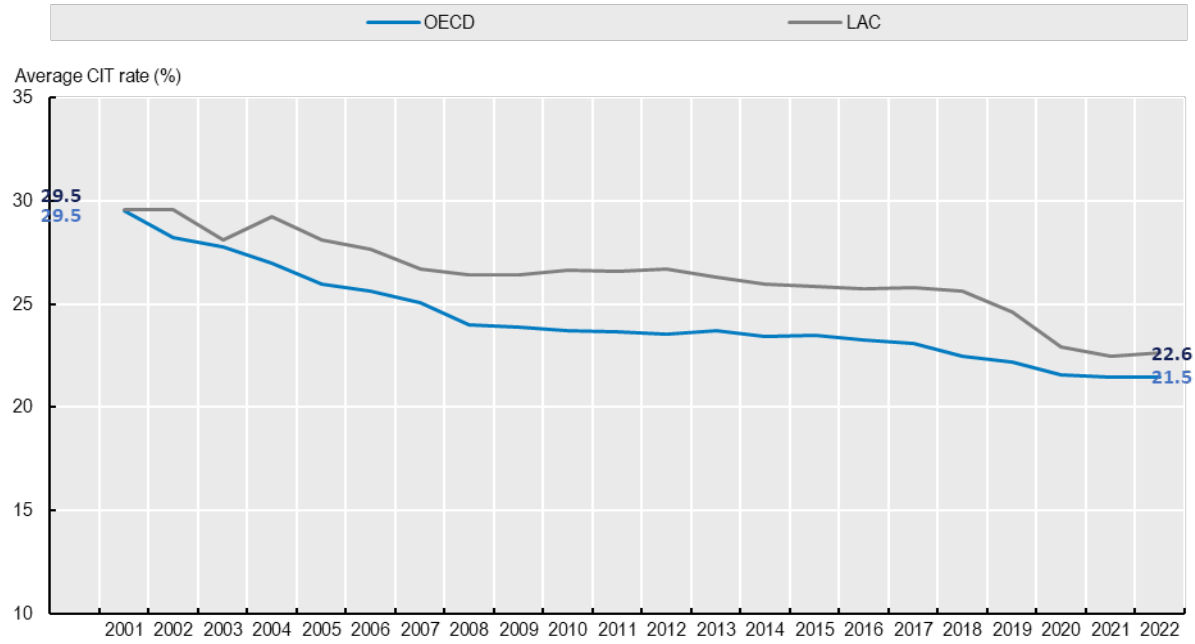
Figure 1. Tax Collection in Latin American and the Caribbean, 2021



Note: Data for the OECD are from 2020. PIT and CIT stands for personal income tax and corporate income tax, respectively. VAT stands for value added tax.
Source: Authors' elaboration based on OECD et al. (2023).

CIT collections have been steadily increasing in the last decades, from an average of 2.1 percent of GDP in 2000 to 3.3 percent of GDP in 2021. These important increases have led CIT collections in LAC to surpass the OECD average, which in 2020 stood at 2.8 percent of GDP. These trends are somewhat surprising, since the increases in collection have been achieved alongside decreases in statutory tax rates. Between 2000 and 2022, the average STR in LAC dropped from 29.5 percent to 22.6 percent. Despite this decrease, STR in the region is on average higher than in OECD countries (21.5 percent) and globally (18.3 percent) (OECD et al., 2023) (Figure 2).

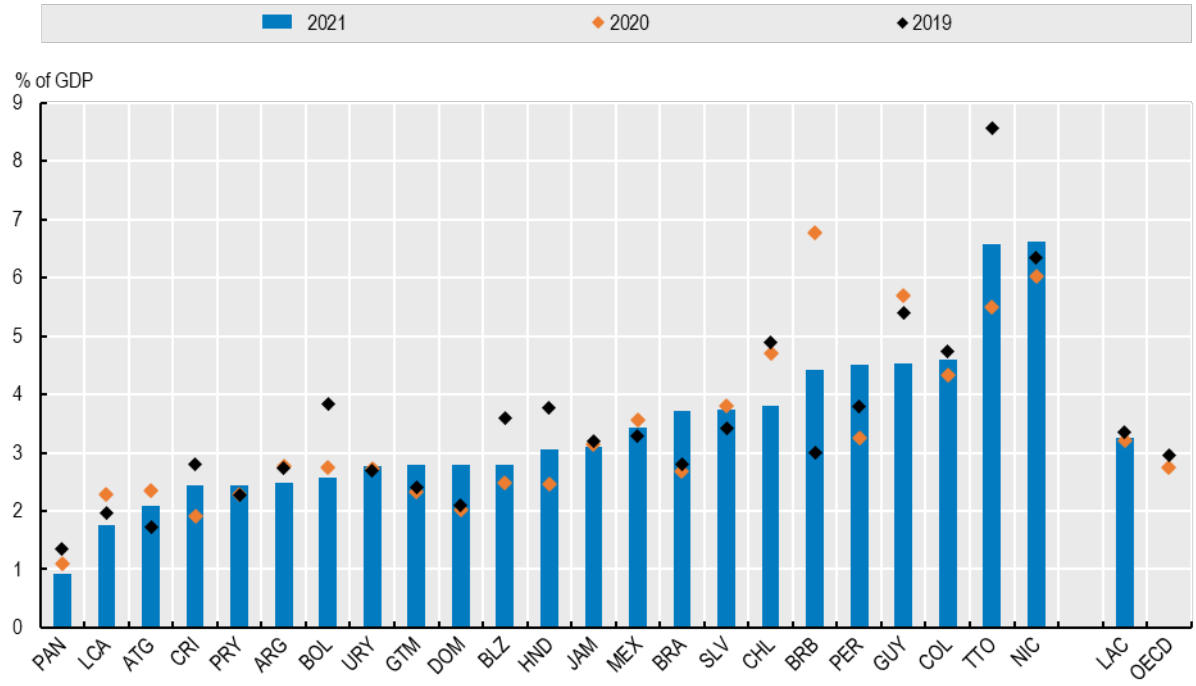
Figure 2. Corporate Income Tax Average Statutory Tax Rates



Note: CIT stands for corporate income tax.
Source: Authors' elaboration based on OECD (2022) and Tax Foundation (2022).

There is high heterogeneity in CIT collection across LAC countries. In 2021, CIT collection for countries that have this tax ranged from more than 6 percent of GDP in Nicaragua to 0.9 percent in Panama (Figure 3). There are several explanations for the wide variation in CIT collections that are related to tax policy and tax administration, including differences in statutory rates, tax expenditures, and avoidance and evasion. Other factors that affect CIT revenues include the economic structure, the degree of informality, the dependence on natural resources, and the degree of competition.

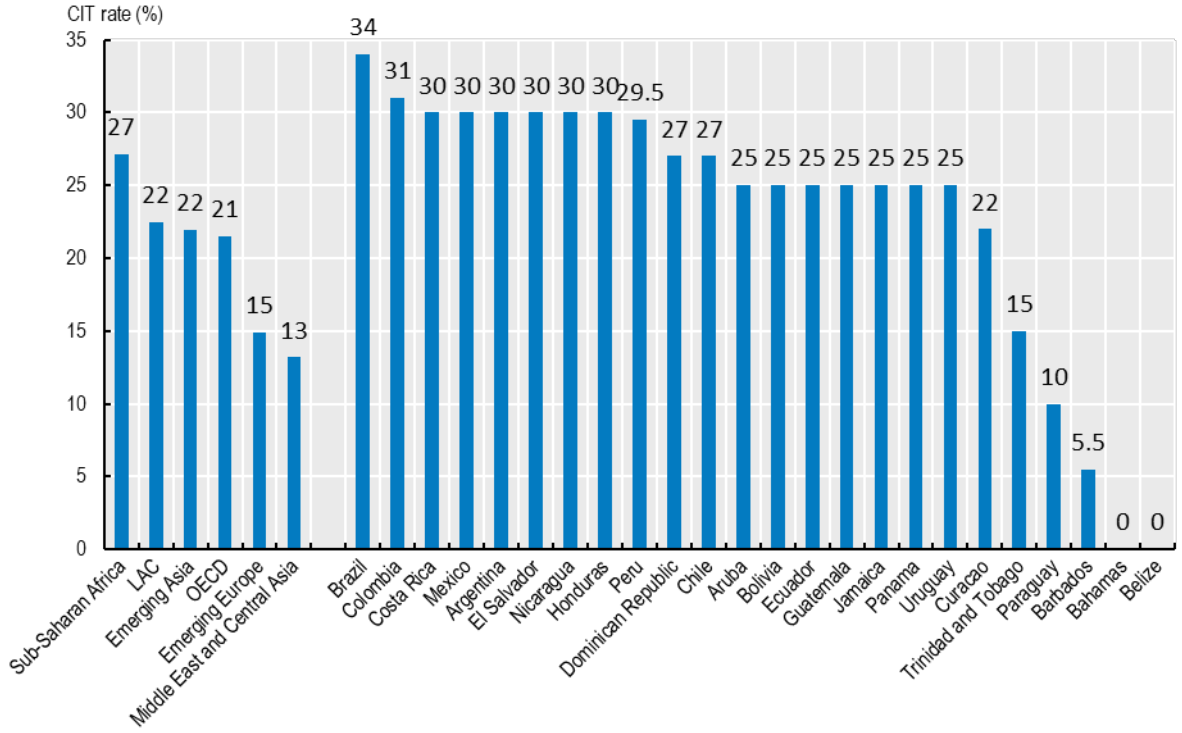
Figure 3. Corporate Income Tax Collection



Note: At the time of the publication, no data was yet available for the OECD 2021 average.
Source: Authors' elaboration based on OECD et al. (2023).

Regarding statutory rates, some LAC countries are among those with the highest CIT STR in the world (Figure 4). Specifically, Brazil and Colombia have the second and fourth highest statutory corporate tax rates, respectively, among the 118 countries included in the OECD CTS. Argentina, Costa Rica, and Mexico also rank among the top 10 countries with the highest corporate tax rates. At the other end, some LAC countries and territories do not have a CIT (e.g., Bahamas and several territories in the Caribbean[6]), while others have CIT with low STR (e.g., Belize,[7] Barbados, and Paraguay). Among the countries with low STR, some have relatively high CIT collections due to the incentives to report personal income as business income (IDB, 2013).

Figure 4. Corporate Income Tax Statutory Rate, 2021



Source: Authors' elaboration based on Tax Foundation (2022).

Several LAC countries grant numerous tax incentives or preferential tax treatment to certain sectors or companies. These include temporary exemptions and investment tax credits (see Box 1 and Box 2). Often, they grant preferential treatment to counteract the high STR and incentivise investment. However, tax incentives can reduce revenue-raising capacity if they are granted to investment that would have taken place even in the absence of preferential treatment. These types of incentives tend to proliferate in LAC countries and can generate important tax expenditures (Celani, Dressler, and Hanappi, 2022; OECD, 2022). A few countries in the region produce estimates on tax expenditures related to the CIT. In 2018 the average CIT tax expenditures for 17 LAC countries was on average 0.6 percent of GDP, equivalent to almost 20 percent of the effective amount collected (CIAT, 2018).[8]

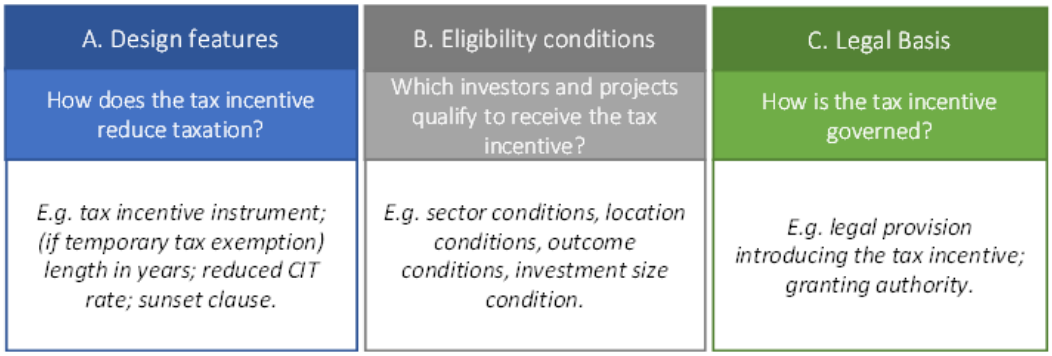
[6] The territories in the Caribbean that do not have a CIT are Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Saint Barthelemy, and Turks and Caicos Islands.
[7] Belize has a CIT that only applies to the oil sector.
[8] These tax expenditures reduce the EATR and EMTR of firms that benefit from these preferential treatments. However, the methodology used in this paper considered a typical firm in a non-benefited sector. Thus, preferential treatments do not appear in the calculation. Box 2 presents examples of how preferential treatments affects ETRs in specific sectors in three countries.

Box 1. Building a Database of Investment Tax Incentives

Tax incentives are targeted tax provisions that provide favourable deviations from the standard tax treatment in a country. They are frequently used throughout the world, including in LAC countries. They have the potential to promote investment, with positive effects on output, employment, productivity, and other objectives related to the Sustainable Development Goals. If poorly designed, they may be of limited effectiveness and could result in windfall gains for projects that would have taken place in the absence of the incentive. Tax incentives can also reduce revenue-raising capacity, create economic distortions, increase administrative and compliance costs, and potentially increase tax competition. Striking the right balance between an efficient and attractive tax regime for domestic and foreign investment and securing the necessary revenues for public spending and development is a particular concern in developing countries. The wide use of tax incentives globally, along with concerns about their net impact, is an important policy concern for governments and the international policy community.

Recent OECD studies aimed at helping policymakers use tax incentives more effectively and reform inefficient ones are improving understanding about tax incentive policies and increasing the policy relevance of tax incentive analysis. The OECD Investment Tax Incentives Database (ITID) systematically compiles quantitative and qualitative information on the design and targeting of CIT incentives across countries, using a consistent data collection methodology. For each tax incentive, it includes information along three dimensions (Figure B.2): instrument-specific design features, eligibility conditions, and legal basis. As of July 2021, the database covers 36 developing countries in Eurasia, the Middle East, North Africa, Southeast Asia, and Sub-Saharan African. Future extensions of the database could cover LAC countries.

Figure B.1. Key Dimensions of the OECD Investment Tax Incentives Database



Celani, Dressler, and Wermelinger (2022) present the methodology and key classifications underlying the ITID and provide initial descriptive statistics based on information from the 36 countries. The design of tax incentives is multidimensional, complex, and often specific to a certain sector, region, or investor within a country. Adjusting design features of incentives to specific contexts can improve policymaking on tax incentives, by, for example, improving effectiveness or limiting foregone revenue. However, this also reduces transparency and can create unintended effects. ETR analysis can help make complex features of tax incentives comparable (Box 2) and is an additional step toward developing policy guidance based on detailed information from the ITID.

Source: Celani, Dressler, and Wermelinger (2022).

Relatively little is known about tax evasion, since few governments produce public reports estimating CIT evasion. The United Nations Economic Commission for Latin America and the Caribbean (ECLAC) compiled the latest official studies available for 12 LAC countries and found that CIT evasion tends to be high. The average estimated rate of CIT evasion in LAC surpasses 50 percent, ranging from 19.9 percent in Mexico to 80 percent in Guatemala. They also found that the resources lost represented on average 3.3 percent of GDP in the year covered by the studies (ECLAC, 2020).[9,10]

3. Effective Tax Rate Methodology and Implementation

3.1. Methodology

This section presents the methodology used to calculate forward-looking ETRs. Building on the approach outlined in Hanappi (2018), it is used to produce the ETRs included in the OECD Corporate Tax Statistics Database (OECD, 2022).

Forward-looking ETRs are synthetic indicators obtained by calculating the amount of taxes that prospective investment projects will have to pay under current tax laws. ETRs are considered synthetic indicators because they use no information on firms' tax corporate income tax payments. Rather, they are obtained by combining assumptions on the macroeconomic environment, the financial returns of hypothetical investment projects, and existing tax laws (e.g., corporate tax rates, corporate tax bases, and other relevant corporate tax provisions).

This paper describes the calculation of two ETRs, namely, effective average tax rates (EATR) and effective marginal tax rates (EMTR). They are important because they capture different mechanisms through which effective taxes on corporative income affect firms' investment decisions. EATRs measure the average tax contribution a firm makes on a non-marginal investment project (i.e., a project with positive economic profits). EATRs are the preferred indicator for analyses of *discrete investment decisions* between two or more alternative projects (along the extensive margin). EMTRs measure the extent to which taxation increases the user cost of capital on a marginal investment project. It is the preferred indicator for analyses of how taxes affect the *incentive to expand existing investments* given a fixed location (along the intensive margin).

The methodology used to calculate these two types of ETRs follows a bottom-up approach. It begins by calculating a set of ETRs for different combinations of project types and sources of financing, and then aggregates them into a composite ETR. The logic behind considering different sources of financing and investment project types is that they may be subject to different tax provisions. For example, different provisions might apply to projects financed via debt or equity. Similarly, different depreciation allowances might apply to investment in different asset types. These different provisions affect the amount of CIT liabilities, leading to differences in ETRs across types of projects and sources of financing.

Regarding financing strategies, the methodology considers two types of external financing: debt and equity. Distinguishing between debt and equity financing is important mainly because debt financing usually allows interest to be deducted, while equity financing does not. Similarly, some tax provisions may apply only to equity financing. For instance, equity financing may permit allowances for corporate equity (ACE) to reduce the potential debt bias stemming from interest deductibility.

[9] These figures are indicative, as the studies considered correspond to different years, some of them over ten years old, and the methodologies used in the different studies differ considerably.
[10] Tax evasion reduces the EATR and EMTR of evading firms if they go undetected. The methodology used in this paper considered fully compliant firms.

The methodology considers the following eight asset types, grouped into four categories:

- **Non-residential structures**: (i) manufacturing plants, large engineering structures, offices, or commercial buildings
- **Tangible assets**: (i) road transport vehicles, (ii) air, rail, or water transport vehicles, (iii) computer hardware, (iv) equipment and (v) industrial machinery
- **Acquired intangible assets category**: (i) acquired software
- **Inventories category**: (i) inventories

The combination of eight assets and two financing options requires the calculation of 32 asset- and source-of-financing-specific ETRs (16 EATRs and 16 EMTRs). Two steps are followed to calculate the composite EATR and EMTR from the asset and source-of-financing-specific ETRs. First, two source-of-financing-specific composite EATRs and EMTRs are calculated as the unweighted averages over the ETRs of the four asset categories.[11] Second, these two composite figures are combined through a weighted average, giving different weights to the different sources of financing.[12]

The formulas used to obtain the asset- and source-of-financing-specific EATRs and EMTRs are presented and discussed in Appendix I. Conceptually, the EATR measures the average tax contribution a firm makes on a non-marginal investment project, and it is calculated comparing the net present value (NPV) of economic profits and income:

$$EATR = \frac{NPV\ Economic\ profits^{pre-tax} - NPV\ Economic\ profits^{post-tax}}{NPV\ Income^{pre-tax}}$$

Economic profits are defined as the difference between total revenues and total economic costs. They can be non-zero (in the case of the EATR) depending on the assumption about the pre-tax rate of return. Economic costs include both explicit costs involved in the production of goods and services and opportunity costs, as captured by the real interest rate.

The EMTR is a measure of the extent to which taxation increases the user cost of capital on a marginal investment project. It is calculated as:

$$EMTR = \frac{cost\ of\ capital - real\ interest\ rate}{cost\ of\ capital}$$

The user cost of capital is defined as the pre-tax rate of return on capital required to generate zero post-tax economic profits. As with ETRs, the user cost of capital is calculated taking into consideration tax variables such as the statutory CIT rate, asset-specific fiscal depreciation rules, inventory valuation methods, allowances for corporate equity, and general tax incentives, as well as macroeconomic variables. In contrast, the real interest rate is the return on capital earned in the alternative investment, for example, if the project had not been undertaken and the funds had remained in a bank account.

Main Tax Provisions Considered in the Methodology

Given the complexity of tax codes, the methodology only considers major tax provisions that affect the amount of CIT paid by most firms in the economy. Specific tax incentives that affect the tax base of certain sub-categories of taxpayers are not considered. The following paragraphs describe the main tax provisions considered by the methodology.

[11] The ETR for the tangible asset category is calculated as the unweighted average of the five disaggregated asset types. All other asset categories only include one asset type, in which case the ETR of the category is the same as that of its asset type.

[12] The Results section of the paper presents ETRs at the asset type level, obtained as the weighted average of the two source-of-financing-specific ETRs for the asset type considered.

Fiscal Depreciation

Tax codes typically permit deductions from taxable profits related to the decrease in asset value due to depreciation. The generosity of fiscal depreciation allowances depends on the amount and timing of these allowances. If the timing of capital allowance amounts is more generous relative to economic depreciation, fiscal depreciation is considered accelerated, reducing ETRs. When capital allowances are less generous, fiscal depreciation is considered decelerated.

To estimate the NPV of capital allowances due to fiscal depreciation, the methodology includes three methods that are commonly used by countries for most asset types. These are the straight line (SL) method, the declining balance (DB) method, and the declining balance with a switch to straight line (DBSL) method. The formulas used to measure the present values of these types of allowances are presented in Appendix I .[13]

Interest Rate Deductibility

Most countries allow deduction of interest payments from the corporate tax base. This important deduction is included in the model. However, the methodology does not yet consider interest limitation rules, which in some countries constrain the amount of interest expenses that can be deducted from the tax base.

Allowance for Corporate Equity

Some countries have an ACE, in part to reduce the bias against equity financing due to the deductibility of interest expenses. Under an ACE tax system, firms can deduct from taxable income an amount equal to "notional" interest on share capital and retained earnings. The government sets the notional interest rate. If the notional interest rate equals the nominal interest rate (and there are no limitations on the deductibility of interest expenses), the EMTRs are the same for new investments financed with equity (and retained earnings) and new investments financed with debt. If the notional interest rate exceeds the nominal interest rate, the notional interest deduction more than offsets the tax savings attributable to the deductibility of interest expenses and the EMTRs for new investments financed with equity (and retained earnings) are less than the EMTRs for new investments financed with debt..

Inventory Valuation

To obtain the EATR and EMTR on inventory investments, the methodology considers different methods used to value inventories. The most common methods of valuating inventories are the first-in, first-out (FIFO) and the last-in, first-out (LIFO) methods. Under the FIFO method, companies deduct the cost of inventory at the price of the first items acquired, while under LIFO the price used is that of the most recently acquired items. Taking into consideration the inventory method used is important for calculating ETR, as it can affect the amount of tax liability in contexts of increasing prices (Tobin, 1985). When prices are increasing over time, LIFO is usually more expensive than FIFO. Thus, FIFO allows companies to deduct a smaller value of their inventory costs than LIFO, resulting in excess taxation, as the cost deduction is smaller than the replacement value of the goods in inventory.

Effect of Macroeconomic Variables

The quantitative effects of the different tax provisions on EATRs and EMTRs depend on the values assumed for inflation and interest rates, which affect investments' financial flows. For instance, corporate income taxes are levied on nominal returns. If inflation increases nominal returns, with little or no impact on real returns, effective tax rates will be higher compared to a context of lower inflation. Similarly, higher inflation and higher nominal rates also reduce the NPV of tax depreciation allowances, thus increasing effective taxation. In the other direction,

[13] These standard methods are adapted to capture different provisions such as investment expensing (or other types of accelerated or enhanced depreciation), a half-year convention to better align fiscal depreciation with economic depreciation and indexation of depreciation allowances to account for inflation, among others.

increases in inflation and the nominal interest rate increase the amount of interest payments that can be deducted from the tax base, leading to lower effective taxation. These results show that macroeconomic assumptions interact with tax provisions in different ways, affecting ETRs differently.

3.2. Implementation of the Methodology

Implementation of the methodology requires information on numerous tax provisions, as well as assumptions on different parameters related to investment returns, economic depreciation of assets, a combination of financing sources, and macroeconomic variables. To obtain all of the required information on tax provisions, a survey was conducted among most of the countries in the sample.[14] The survey collected a consistent set of corporate tax parameters, covering the statutory corporate tax rate, country-specific tax depreciation rules, half-year conventions, interest rate deductibility, and the existence and characteristics of the ACE. The parameters included in the analysis considered permanent features of tax laws, not taking into consideration temporary measures related to addressing the effect of the COVID-19 pandemic.[15]

Regarding assumptions, the pre-tax rate of real return on investment was set to 20 percent throughout all calculations. This number is the same as in OECD (2022), as well as in many other publications, allowing comparability with a broader set of results. The economic depreciation rates of different assets are based on estimates from the literature (BEA, 2003; Fraumeni, 1977; Li, 2018; Patry, 2007), and the figures used are presented in Table 1.

Table 1. Economic Depreciation by Asset Category

Asset	Economic Depreciation
Non-residential structures	0.0329
Air, rail, or water transport vehicles (tangible asset)	0.0661
Computer hardware (tangible asset)	0.3699
Equipment (tangible asset)	0.1546
Industrial machinery (tangible asset)	0.1259
Road transport vehicles (tangible asset)	0.2014
Acquired software	0.4033

To obtain the asset specific ETRs, the weights must add up the ETRs obtained for equity and debt financing. The calculations are performed using a 35 percent weight for debt and 65 percent for equity. These are the same weights used by the OECD and are consistent with values obtained by Egger, Loetz, Pfaffermayr, and Winner (2009).

Regarding the macroeconomic variables, the ones that need to be calibrated are the nominal interest rate, the real interest rate, and the inflation rate. Two different macroeconomic scenarios are presented here. In the first scenario, interest and inflation rates are held constant to isolate the impact of specific tax provisions on ETRs. The real interest rate used is 3 percent and the inflation rate 1 percent, with the fisher equation implying a nominal interest rate of 4.03 percent. These values are used to make the results comparable to those in the OECD Corporate Tax Statistics Database (OECD, 2022). In the second scenario, jurisdiction-specific macroeconomic parameters are used to capture the impact of the local environments on ETRs. For this scenario, specific market interest rates are calculated from the IMF's World Economic Outlook Databases (IMF, 2022). These are proxied by the cost of debt, measured as total interest paid by LAC governments divided by government debt levels. The information on the returns on governments bonds was obtained directly from the survey as well as through publicly available data sources such as the IMF International Financial Statistics Database and the OECD Monthly Monetary and Financial Statistics Database. Finally, real interest rates

[14] Figures for Jamaica and Curaçao are taken from OECD (2022). Figures for Bahamas and Belize were set to zero, without performing a survey, as their STR is zero.
[15] Measures were included in the calculation if they lasted for at least one year.

are deducted from the nominal interest rate and the inflation rate using the Fisher equation.[16] The values obtained for these three variables for the LAC countries considered are presented in Appendix II.[17]

Finally, some countries had an ACE in place in the periods under analysis. In Scenario 1, interest and inflation are held constant across countries; in this case, it is assumed that notional interest deductions are equal to the nominal interest rate consistent with the modelling assumptions, namely, 4.03 percent. In the country-specific scenario, notional interest deductions correspond to the actual rates that were legislated in the respective years.

4. Results

This section discusses the main results obtained from the questionnaire and from implementing the methodology to estimate the EATRs and EMRTs. It presents descriptive statistics of the main CIT provisions being implemented by LAC countries. More details on the main measures implemented by each country in the sample are included in Appendix III. Next, it discusses the aggregate ETR result, followed by asset specific ETR results. Appendix IV presents tables with all the results obtained. Unless otherwise stated, the discussion is based on Scenario 1, where macroeconomic variables are the same across countries.

4.1. Characteristics of Tax Provisions Affecting Corporate Income Tax Bases

CIT systems typically provide capital allowances that reflect the real economic decay of assets over time in the calculation of taxable profits. Tax provisions surrounding fiscal depreciation and the way they relate to economic depreciation are a key element of how CIT bases are defined (OECD, 2022). As outlined in Section 3, fiscal depreciation is accelerated if the legislated depreciation schedule of an asset type is faster than its corresponding economic depreciation schedule (Table 1). Such accelerated depreciation schemes narrow CIT bases and reduce the ETRs. Fiscal depreciation is decelerated when legislated depreciation schedules are slower than the corresponding economic depreciation, which results in larger ETRs. Differences between fiscal and economic depreciation are asset-specific and driven by the depreciation rate as well as the recovery method (SL, DB, or DBSL).

Most LAC countries in the sample define CIT bases similarly to the average observed in countries included in the OECD Corporate Tax Statistics. However, the presence of decelerated (i.e., less generous) depreciation schemes for software acquired in several countries in LAC drives the average acceleration in the region (0.2 p.p.) substantially lower the average observed in the CTS sample (1.9 p.p.). Acquired software is non-depreciable in Chile and depreciates at very low rates in Argentina (2 percent) and Bolivia (5 percent) relative to the assumed economic depreciation rate of 40 percent. Furthermore, Argentina and Bolivia depreciate acquired software with a straight-line recovery method, whereas economic depreciation follows a declining balance recovery method. By contrast, Nicaragua provides an example of relatively generous fiscal depreciation. Computer hardware and acquired software are depreciated at a 50 percent rate—higher than the respective economic depreciation rates of 37 percent and 40 percent, while the fiscal depreciation of non-residential structures is more than twice as large (7.5 percent) as the corresponding economic rate (3.3 percent).

[16] The Fisher equation states that the nominal interest rate is equal to the sum of the real interest rate and inflation.
[17] When presenting this second scenario in the results section, the values for non-LAC countries are obtained from OECD (2021).

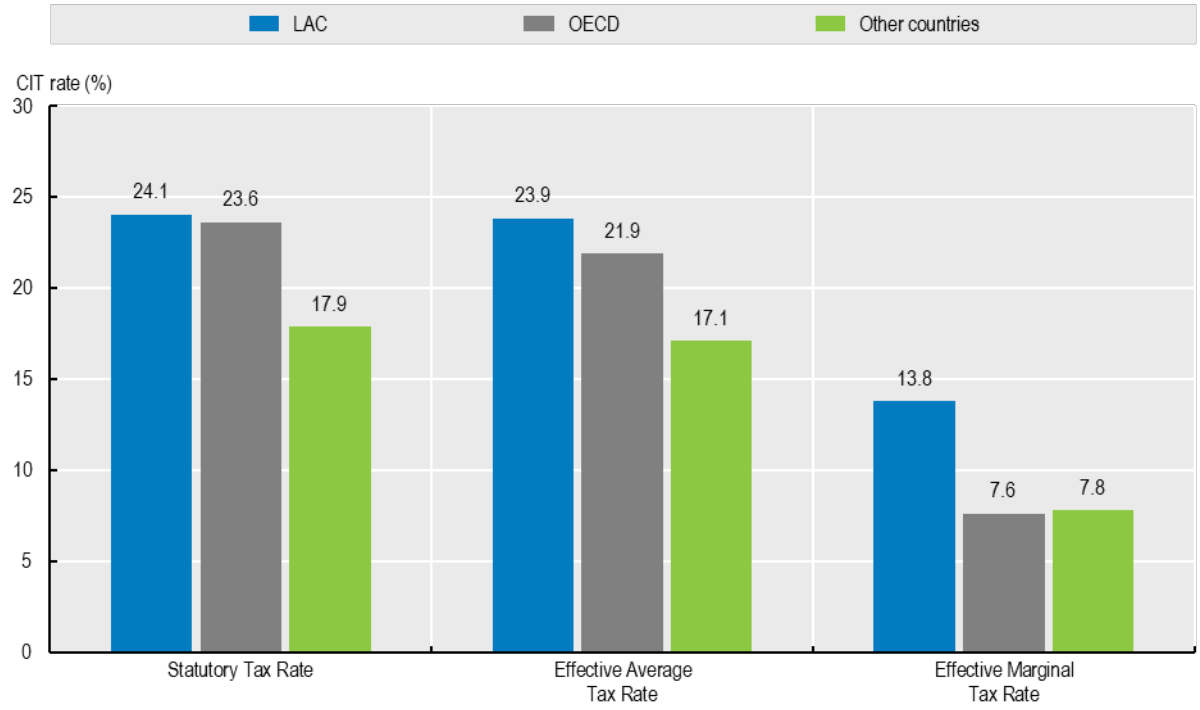
4.2. Aggregate Effective Tax Rate Results

When compared with other countries around the world, the LAC countries have relatively high EATRs and EMTRs. In 2021, the average EATR in the LAC countries considered in this study was 23.9 percent, compared with an average of 21.9 percent for the OECD countries and 17.1 percent in the remaining countries considered in the CTS.[18] In the case of EMTRs, the average was 13.8 percent in LAC, almost double the average of 7.6 percent in the OECD and 7.8 percent in the remaining countries (Figure 5).

These relatively high EATR and EMTR averages have two main drivers. First, very few LAC countries have low ETRs. The only country besides The Bahamas and Belize that has both an aggregate EATR and EMTR below the sample average is Paraguay, thanks to Paraguay's low STR. Nicaragua is another exception in the region. It has a low EMTR, although its aggregate EATR is above the average. The low EMTR in Nicaragua is mainly driven by generous capital allowances provided for investments in computer hardware, office equipment, and non-residential structures.

Second, some LAC countries have extremely high ETRs. Argentina, Brazil, and Chile have the highest EATRs in the dataset. Colombia, Mexico, and Peru are among the top ten countries with the highest EATR (Figure 6). Regarding EMTR, Argentina tops the list and Bolivia, Chile, Jamaica, and Peru appear in the top 10, due to relatively less generous capital allowances across several assets.[19]

Figure 5. Statutory Rates and Effective Tax Rates, 2021

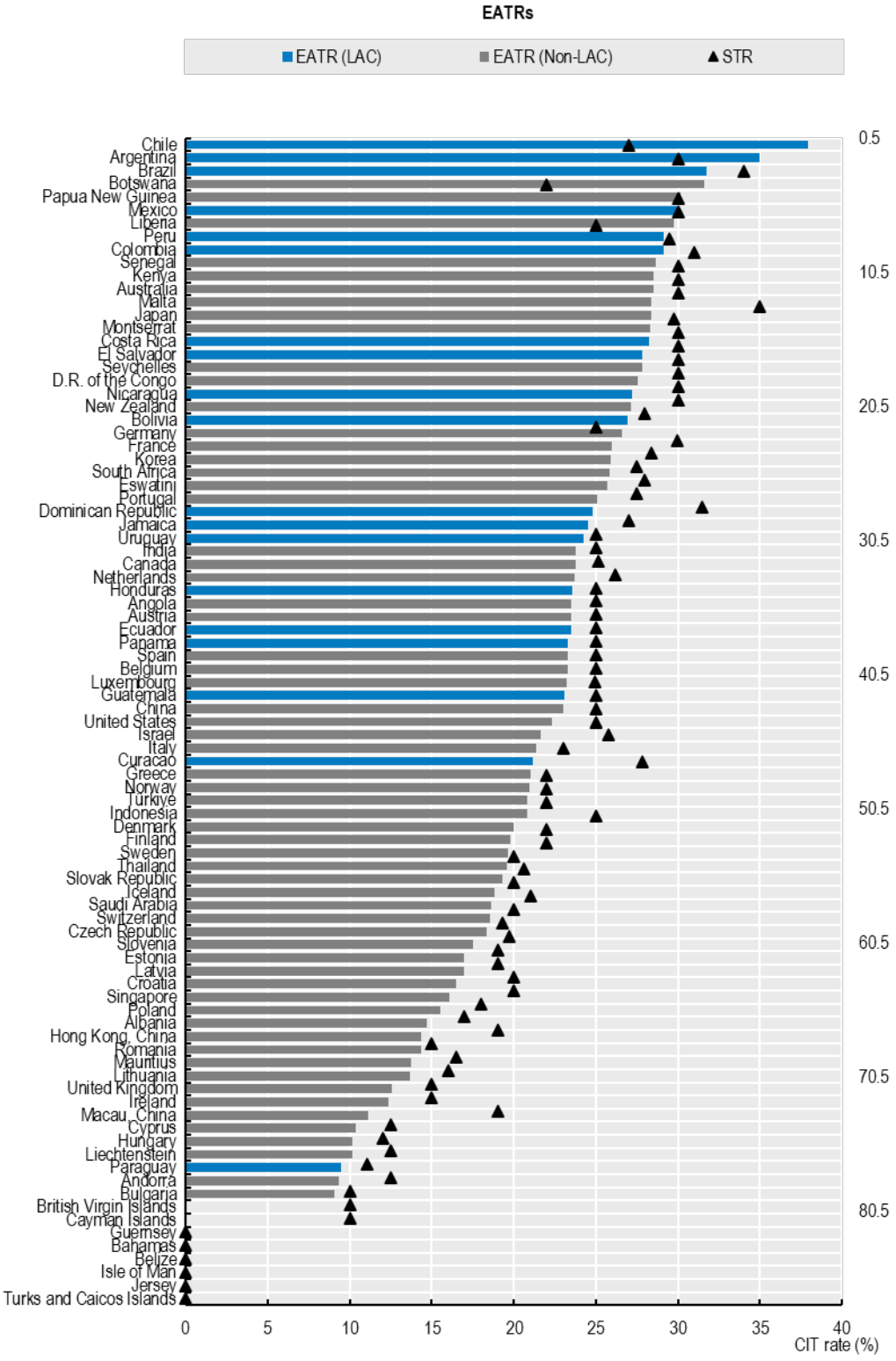


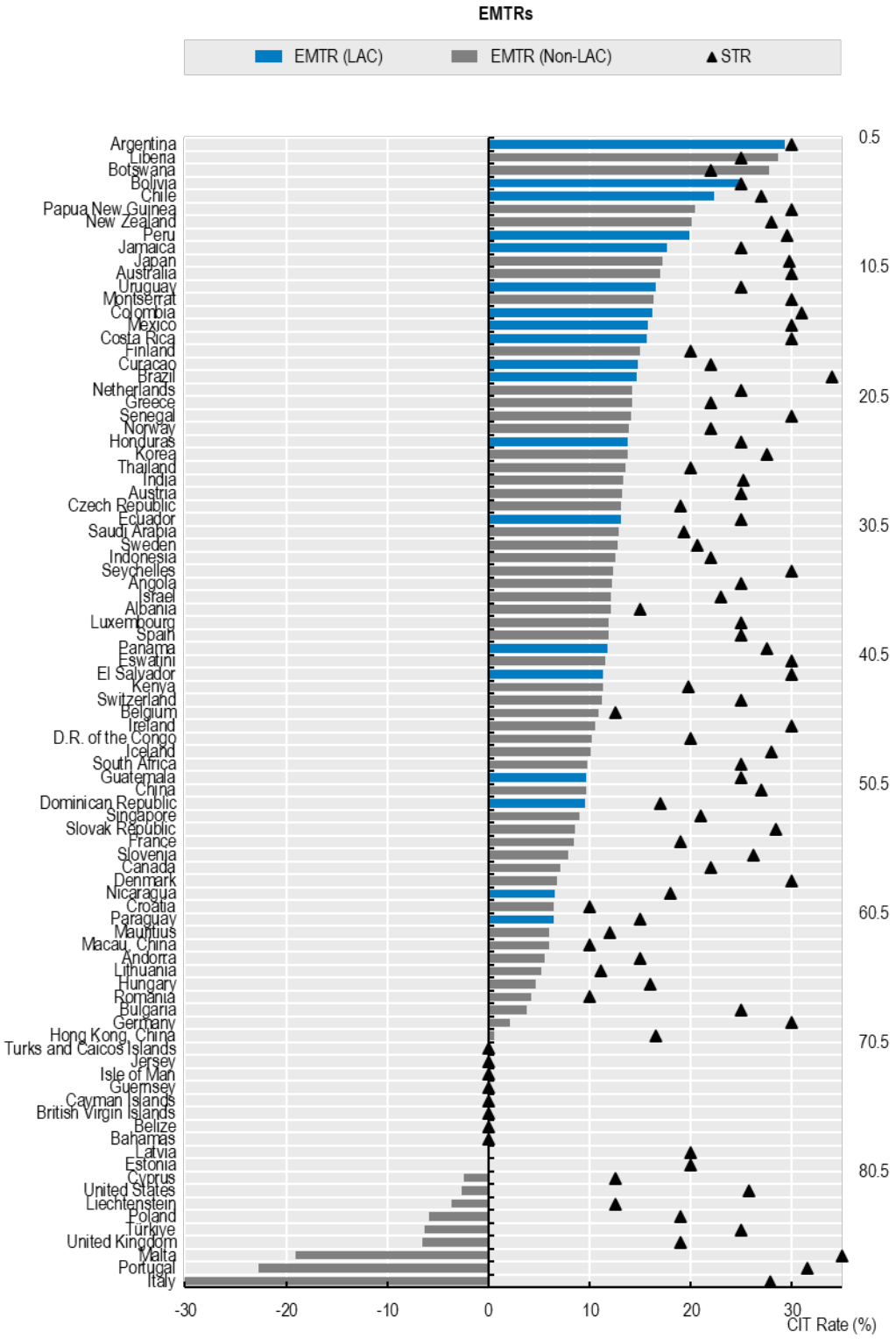
Source: Authors' elaboration based on their own calculations and OECD (2022).

[18] The OECD includes 34 countries. The "other countries" includes data from emerging Europe (9), Middle East and Central Asia, emerging Asia, and Sub-Saharan Africa (16).

[19] Chile, Colombia, and Mexico are ranked lower due to a relatively generous treatment of tangible assets and buildings, which is more salient for the calculation of the composite EMTR. By contrast, Bolivia and Uruguay rank higher in terms of the composite EMTR due to a less generous tax treatment of certain assets.

Figure 6. Effective Tax Rates – 2021



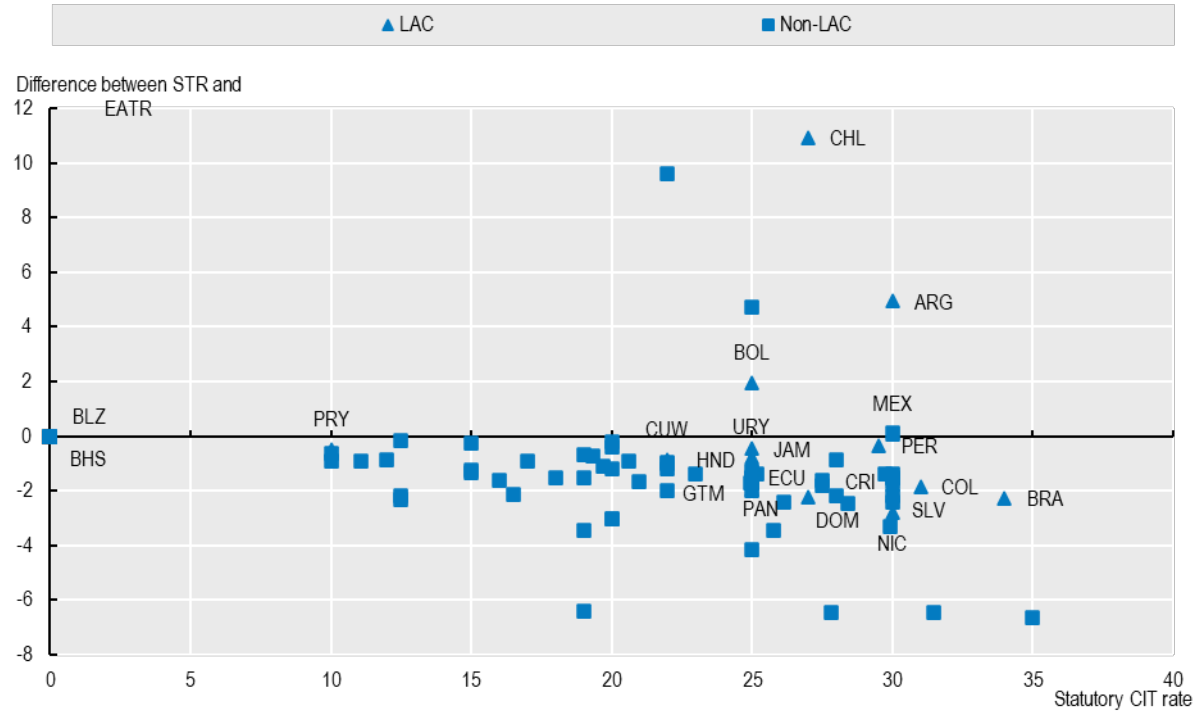


Note: CIT stands for corporate income tax. STR, EATR and EMTR stands for statutory tax rate, effective average tax rate, and effective marginal tax rate, respectively.
Source: Authors' elaboration based on their own calculations and OECD (2022).

There are several underlying reasons for the high ETRs in most LAC countries. First, LAC countries have comparatively high STRs, which leads directly to higher ETRs. Second, several tax base provisions play a smaller role in reducing tax liabilities than in OECD countries. In some cases, tax provisions even increase ETRs. This effect of tax provisions on ETRs can be

observed by analysing the difference between STR and EATR. This difference is on average only 0.2 p.p. in LAC, while in OECD countries it reaches 1.7 p.p., and 0.8 p.p. in the remaining countries in the sample. The LAC figure, however, is skewed by important outliers that present large decelerating tax treatment of capital expenditures (Figure 7). These countries are Argentina, Bolivia, and Chile, where the tax treatment of acquired software drives high EATRs Most other countries in the LAC region provide capital accelerations that are relatively in line with those observed in the rest of the world. Nicaragua has the highest accelerations, due mainly to the generous tax treatment of computer hardware, office equipment, and non-residential structures.

Figure 7. Statutory Tax Rates and Capital Allowances (%)



Note: CIT stands for corporate income tax.
Source: Authors' elaboration based on their own calculations and OECD (2022).

Another important factor that reduces ETRs in LAC countries less than in other countries is a somewhat larger bias in favour of debt financing. The average bias favouring debt in terms of EATRs is 4.8 p.p. in LAC, while in OECD countries it is 4.0 p.p. This is in part because there are no LAC countries with a classical ACE system. While Brazil has implemented some provisions resembling an ACE since 1996 (interest on capital), this system operates by making dividends deductible upon distribution,[20] which is not equivalent to a classical ACE, which operates through a notional interest deduction applied to the CIT base (Boulton, Braga-Alves, and Shastri, 2012; Klemm, 2006). The absence of ACE provisions, combined with higher STRs, generates larger biases, on average, in favour of debt financing.

Finally, calculations using country-specific macroeconomic parameters, that is, interest and inflation rates, produce several policy-relevant insights. First, country-specific market interest rates are calculated. They are proxied by the cost of debt, measured as the total interest paid by LAC governments divided by gross government debt levels. As a result, the real interest rate increases in LAC compared to the assumption in the first scenario, where it was set at 4 percent. This calculation better captures the generally higher real interest rates

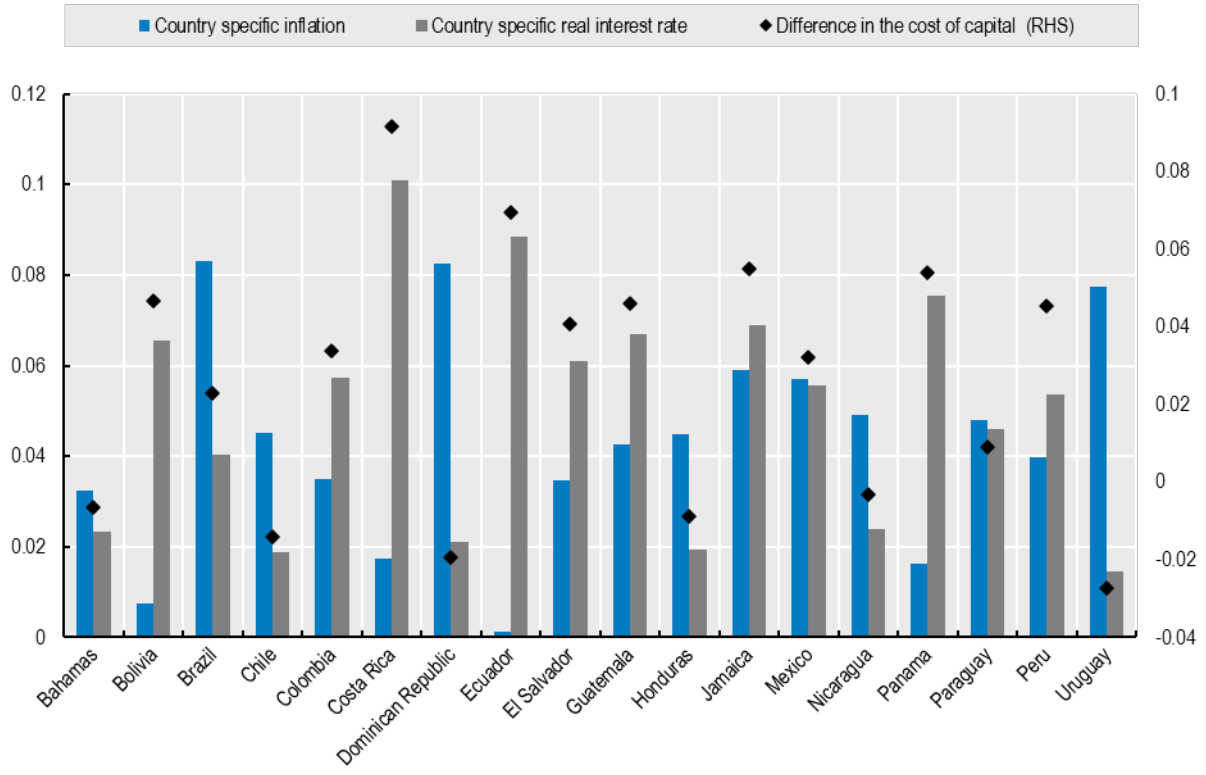
[20] The Brazilian ACE-like system is not modelled since ETRs are calculated at the level of the corporation rather than by capturing taxes on distributed profit.

in LAC countries compared to OECD economies. Higher real interest rates increase the cost of capital, and with it the EMTR and the EATR (Figure 8).

Second, inflation tends to vary more in LAC countries than in OECD countries, as can be seen in the country-specific figures in Appendix V. This implies that the cost of capital also tends to be more volatile over time, thereby reducing tax certainty with respect to firms' investment decisions. Compounding the relatively high real interest rates in the region, this additional uncertainty can have further detrimental effects on investment.

Third, higher inflation tends to increase the cost of capital associated with equity-financed projects because CIT is levied on nominal returns, and capital allowances are, in most cases, not adjusted for inflation.[21] Although (nominal) interest deductions increase with higher inflation, thus reducing the cost of capital associated with debt-financed projects, this effect is smaller in the composite cost of capital due to the 65/35 weighting across equity and debt. However, this effect can be partially offset by a provision that allows firms to adjust their capital allowances for inflation, which exist in Argentina, Chile, Colombia, Costa Rica, the Dominican Republic, Mexico, and Uruguay. As suggested by the country-specific figures in Appendix V, year-on-year changes in inflation, holding real interest constant, had smaller impacts on the cost of capital in those countries.

Figure 8. Difference of the Cost of Capital under Different Macroeconomic Assumptions (%)



Note: The y-axis on the left is applicable to inflation and real interest rates, whereas the y-axis on the right applies to the value of the difference between the costs of capital in the two scenarios. The difference in the cost of capital refers to the country-specific scenario vs. the scenario with fixed macroeconomic parameters. It excludes Argentina since high inflation undermines interpretation of the cost of capital.
Source: Authors' elaboration based on their own calculation and OECD (2022).

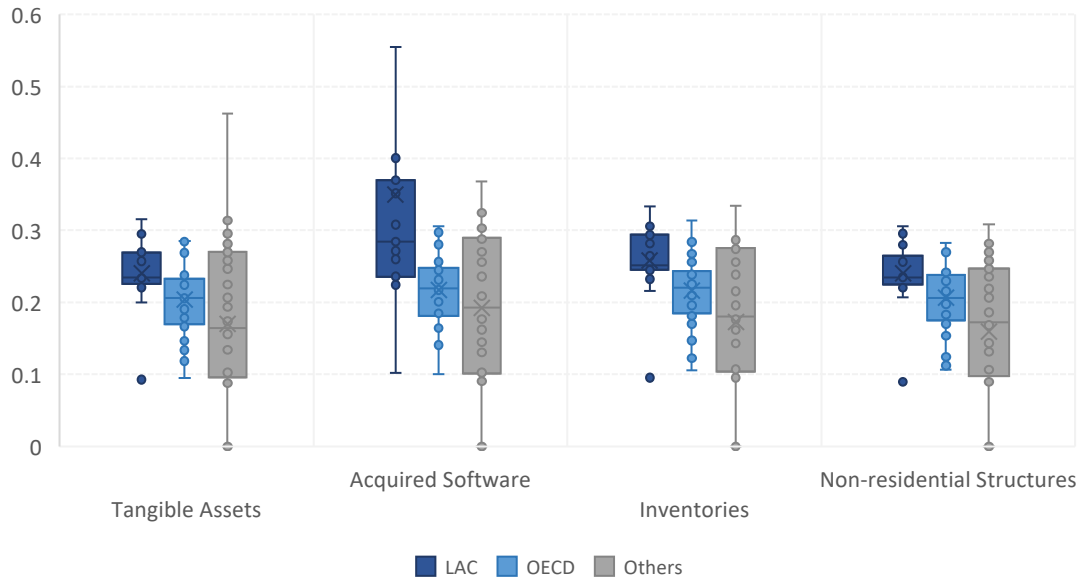
[21] Note that this effect is difficult to isolate in Figure 9 because variations in real interest rates and tax parameters also affect the cost of capital.

4.3. Disaggregated Effective Taxation Rate Results

Figure 9 presents the EATRs for the four asset categories for 2021. The boxplots show that average EATRs in LAC are higher in all asset categories, compared to the averages in the OECD and the remaining countries in the larger CTS sample. EATRs in LAC are the smallest for tangible assets and non-residential structures, presenting similar values as those in the other country groups. Higher EATRs are observed for inventories and acquired software.

Another finding is that, when compared to OECD countries, EATRs are less dispersed for investments in tangible assets, non-residential structures and inventories. This suggests relatively similar tax treatments across LAC countries, that is, with fewer cases of accelerated fiscal depreciation. However, acquired software shows a very large dispersion.

Figure 9. Asset-categories Effective Average Tax Rate (%, 2021)

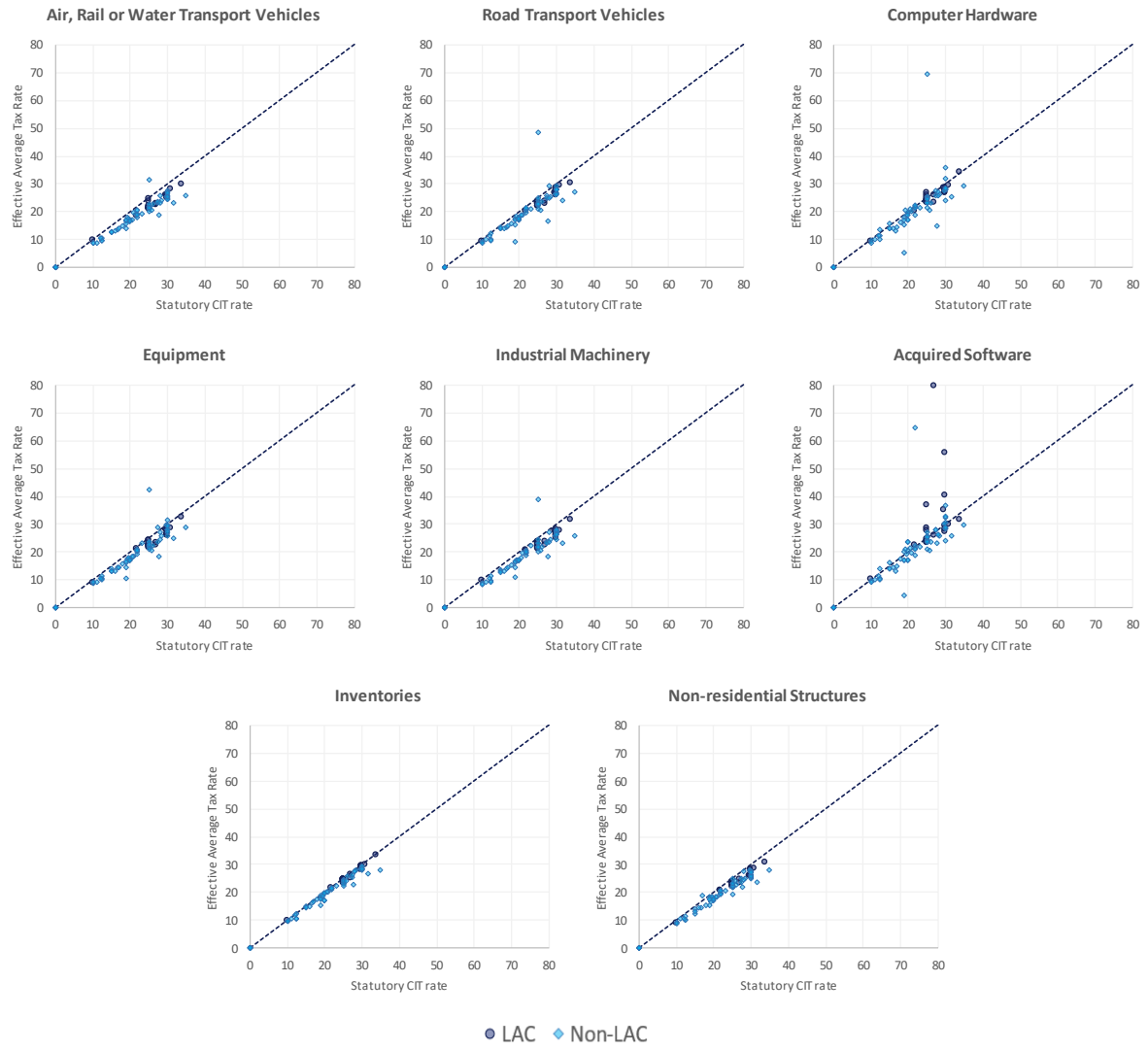


Note: Y-axis was cut at 0.6 to better present graphs. This results in some observations being hidden in the case of acquired software for LAC.
Source: Authors' elaboration based on their own calculations and OECD (2022).

The main driver of the higher EATRs observed for all asset categories is once again the higher statutory CIT rates, as the differences between STRs and EATRs are relatively similar in LAC and OECD countries for most asset types, except for acquired software (Figure 10). With respect to acquired software, a few LAC countries present large misalignments and decelerations. In Chile, this is because acquired software is a non-depreciable investment. In Argentina and Bolivia, these investments are eligible for capital allowances, although only at a much lower rate (2 and 5 percent, respectively) compared to estimates of economic depreciation (around 40 percent).[22]

[22] Argentina and Bolivia use the straight-line method to depreciate investments in acquired software, whereas economic depreciation is assumed to follow a declining balance schedule.

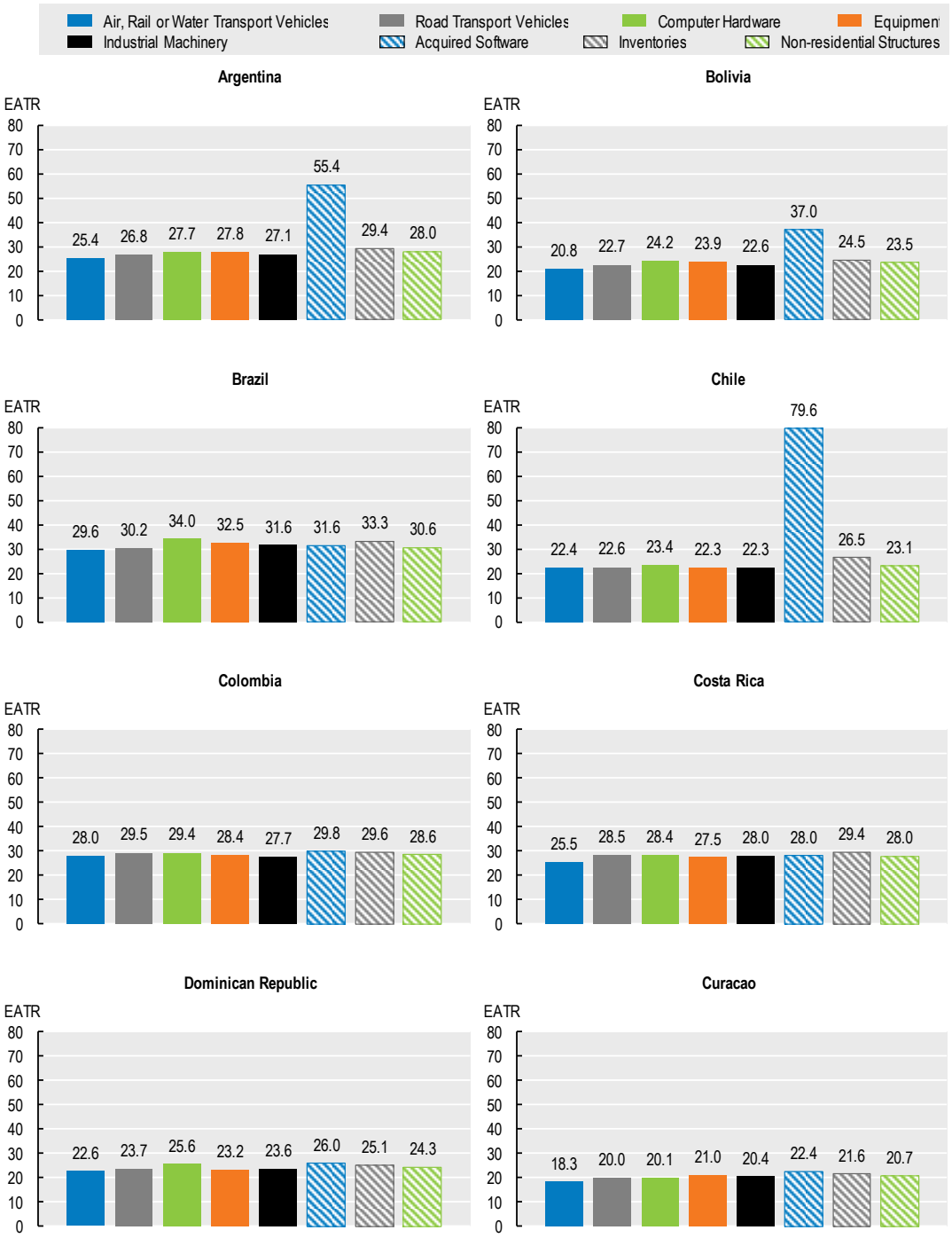
Figure 10. Statutory Rates and Effective Average Tax Rates by Asset Categories (%, 2021)

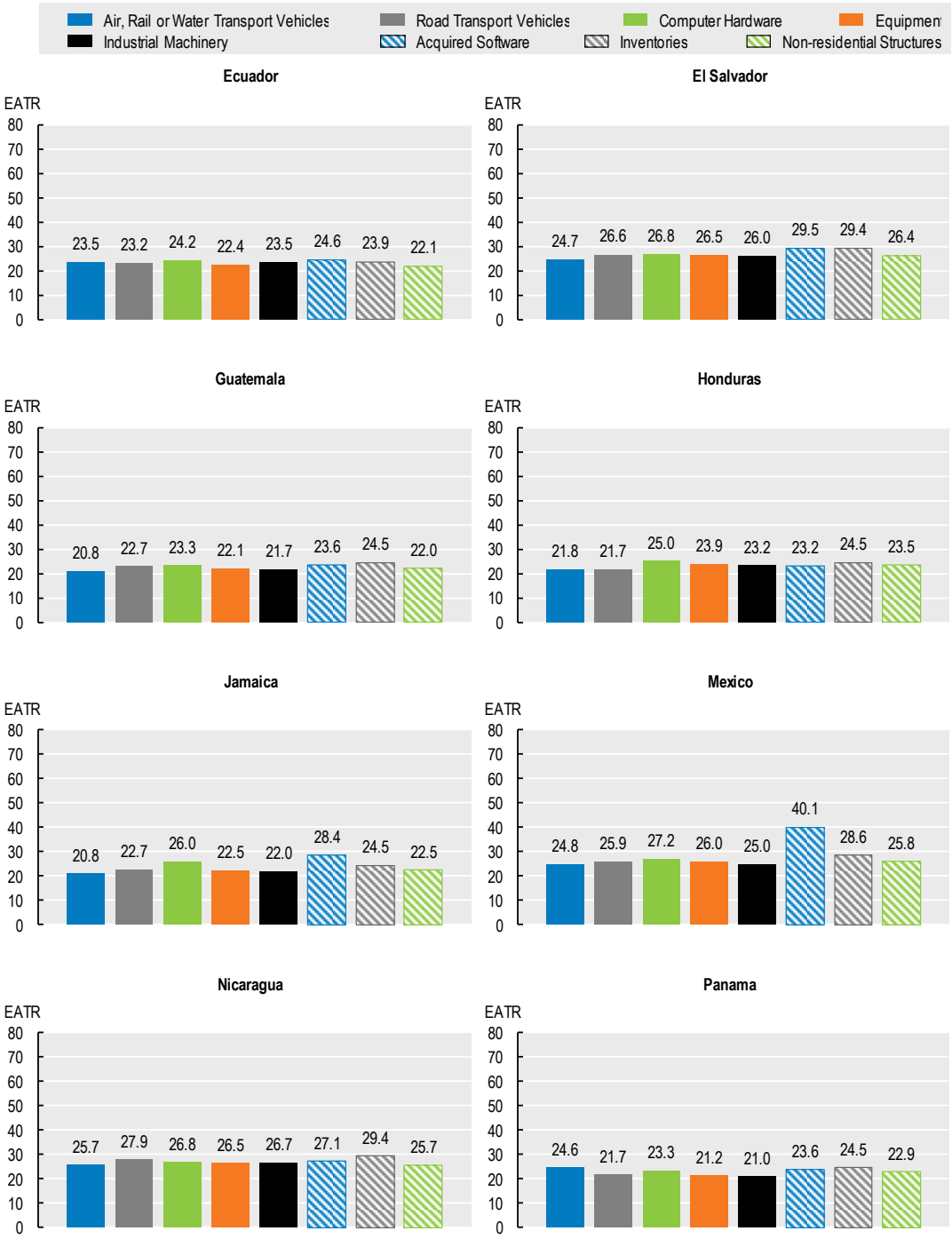


Source: Authors' elaboration based on their own calculations and OECD (2022).

Another important feature to highlight is that some countries present important variations in ETRs across asset types (Figure 11). Disregarding intangible assets, the largest variations are observed in Brazil, Jamaica, and Uruguay, with EATR standard deviations across assets surpassing 1.6. This is mainly due to differences in fiscal depreciation allowances across assets, which in some cases are not well aligned with economic depreciation.

Figure 11. Disaggregated Composite Effective Average Tax Rate for 2021 (%)




Air, Rail or Water Transport Vehicles
Road Transport Vehicles
Computer Hardware
Equipment
Industrial Machinery
Acquired Software
Inventories
Non-residential Structures
Ecuador
EATR
80
70
60
50
40
30
20
10
0
23.5
23.2
24.2
22.4
23.5
24.6
23.9
22.1
El Salvador
EATR
24.7
26.6
26.8
26.5
26.0
29.5
29.4
26.4
Guatemala
EATR
20.8
22.7
23.3
22.1
21.7
23.6
24.5
22.0
Honduras
EATR
21.8
21.7
25.0
23.9
23.2
23.2
24.5
23.5
Jamaica
EATR
20.8
22.7
26.0
22.5
22.0
28.4
24.5
22.5
Mexico
EATR
24.8
25.9
27.2
26.0
25.0
40.1
28.6
25.8
Nicaragua
EATR
25.7
27.9
26.8
26.5
26.7
27.1
29.4
25.7
Panama
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24.6
21.7
23.3
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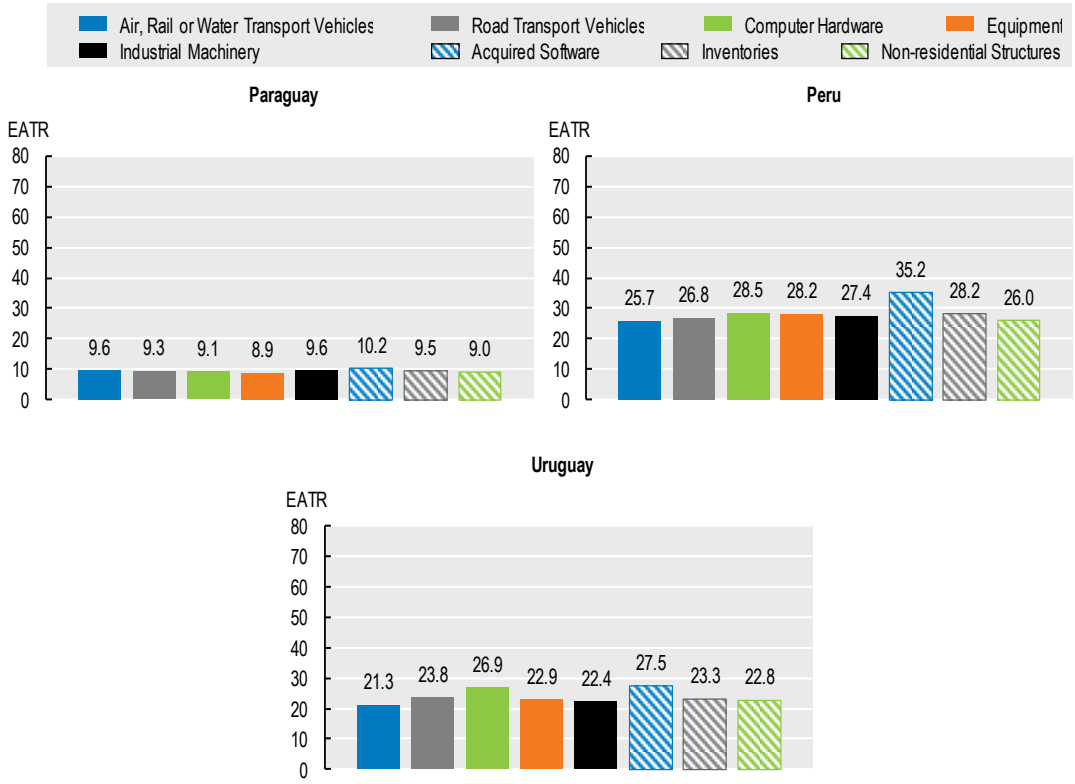
21.0
23.6
24.5
22.9



Source: Authors' elaboration based on their own calculations and OECD (2022).

5. Conclusions

This paper presents estimates of forward-looking ETRs on corporate income for 21 LAC countries. The results indicate that effective average and marginal tax rates on corporate income in LAC countries tend to be high. This is mainly due to relatively high statutory corporate income tax rates in most LAC countries and to capital allowances that treat certain assets less generously compared to estimates of economic depreciation.

Taken together, the analysis of disaggregated asset-level ETRs shows that in some LAC countries, there are important (intended or unintended) non-neutralities in the tax treatment of certain capital assets, leading to substantial variation in the disaggregated ETRs. While non-neutral tax treatment can be justified in cases where there are externalities (e.g., knowledge spillovers or environmental impacts), they should be avoided otherwise to ensure that tax systems do not distort investment decisions in the absence of a policy rationale supported by empirical evidence. For instance, less generous capital allowances for acquired software in the region are likely to be an unintended non-neutrality, which should be avoided, since it incentivises businesses to invest less in an asset that is unlikely to be associated with negative externalities.

Another noteworthy finding concerns the debt bias, which is driven by interest deductibility inherent in standard CIT systems. This bias does not seem to be high on the policy agenda in LAC countries, as among the countries covered in this paper, only Brazil has introduced provisions to address this issue. While this may be because other policy issues are perceived to be more pressing (e.g., investment support), it is nevertheless an important policy area where reforms could have positive impacts on tax neutrality and, consequently, economic outcomes. Notably, an ACE can help, under certain conditions, to make the CIT system more neutral by removing the debt bias and ensuring that only economic rents, and not normal

returns, are taxed under the CIT. However, ACE systems may also carry some risks regarding tax planning by multinational enterprises, which should be carefully considered by policymakers before introduction. Such concerns make it important for countries to enhance anti-avoidance provisions (Hebous and Ruf, 2017), as well as administrative capacity.

Taken together, the country-specific macroeconomic environment seems to have increased ETRs in the LAC region. Over the period 2017 to 2021, interest rates and inflation in LAC countries interacted in significant ways with countries' CIT systems. Overall, real interest rates have been higher compared to OECD countries, and inflation rates have been more volatile. This implies a higher cost of capital and less tax certainty from the perspective of firms that are planning to invest in the region. In addition, higher inflation rates generally increase firms' ETRs, especially if capital allowances are not adjusted accordingly, as is currently the case in 16 of the 21 LAC countries covered in this study (Beer, Griffiths, and Klemm, 2023).[23] In addition, higher inflation rates also increase the distortive effect of any prevalent non-neutralities, intended or non-intended, such as unfavourable treatment of certain assets or the bias towards debt finance (Stuard, Delestre, and Nair, 2022). Given these macroeconomic conditions, it becomes even more important for policymakers to consider the neutrality of their CIT system to avoid adverse economic impacts.

Several LAC countries grant numerous tax incentives or preferential tax treatment to certain assets, firms, sectors, or regions (Andersen, Kett, and von Uexkull, 2017; Celani, Dresser, and Hanappi, 2022; Redonda, von Haldenwang, and Aliu, 2021). While this paper does not explicitly discuss these provisions, empirical evaluations tend to show that their effectiveness in attracting investment is limited (James, 2013; Klemm and Van Parys, 2010). Tax incentives often lead to significant foregone revenue; they should be carefully designed, administered, and evaluated to improve their effectiveness and limit the fiscal risk (Klemm, 2010). Alongside other approaches, such as tax expenditure and cost-benefit analysis (IMF/OECD/WBG, 2015), forward-looking ETRs are an important analytical tool for evaluating tax incentives within and across countries (Abbas & Klemm, 2013; Celani, Dresser, and Wermelinger, 2022) and provide a clear agenda for future research (Box 2).

Against this backdrop, the evolving discussion on international taxation presents an opportunity for LAC countries to reform their policies on corporate income taxation with the aim of avoiding detrimental impacts on cost-competitiveness. The goal for policymakers should be a CIT system as simple and stable as possible, including a limited number of clearly targeted and evaluated tax incentives. The analysis of the forward-looking ETRs presented in this paper should inform policymakers in their quest for opportunities to improve their CIT systems.

[23] Argentina, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, and Uruguay provide inflation adjustments to alleviate unintended increases in effective taxation due to periods of higher inflation.

Box 2. Assessing Tax Incentives for Investment in Latin America and the Caribbean using Effective Tax Rates

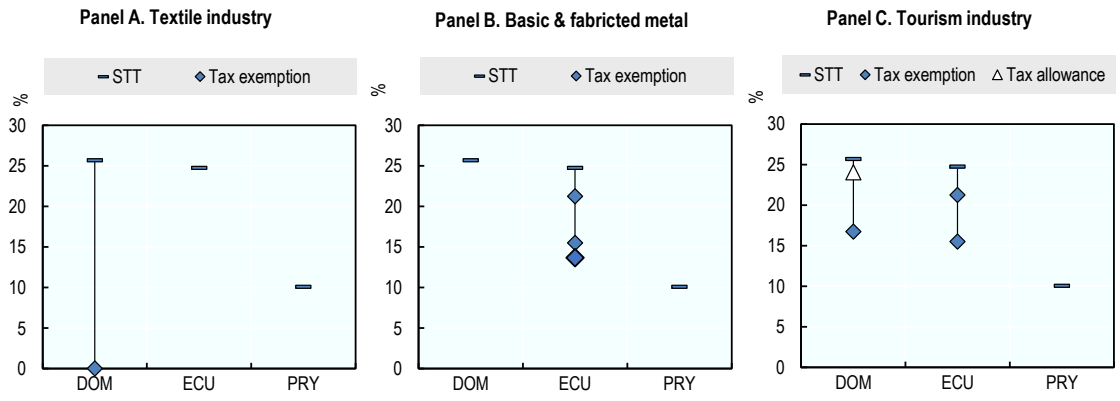
As in most countries around the world, LAC governments frequently use tax incentives to reduce the tax cost of investments in specific activities, sectors, and locations. Preferential tax treatment is not easily comparable, as tax incentive designs and targeting strategies are complex and multidimensional (Box 1). Tax incentive analysis should account for such complexities and evaluate them jointly with standard tax system features, as these provide a starting point to analyse which incentives provide relief and how they vary from one country to the next. ETR-based analysis can capture the combined effects of the standard tax system and tax incentive designs. It makes it possible to compare the effective tax costs associated with a given investment across locations, sectors, and activities. The OECD is conducting studies that extend the ETR methodology applied in this paper to estimate ETRs under tax incentives to evaluate their effect on providing tax relief and develop recommendations for policy reform (Celani, Dessler and Hanappi, 2022).

This box illustrates how the ETR framework can be useful in analysing investment tax incentives. It presents ETRs for a standardised investment project in three industries (textile, metals, and tourism) in the Dominican Republic, Ecuador, and Paraguay. Figure B.2 presents ETRs under standard tax treatment, that is, excluding tax incentives (horizontal black marker) and accounting for industry-specific tax incentives if available. The blue diamonds represent tax exemptions and the white triangles represent tax allowances. Multiple markers in a specific country and industry indicate that various incentives apply, depending on additional eligibility conditions. For example, investment in tourism in Ecuador (Panel C) benefits from a 10-year tax exemption when located in an Economic Special Development Zones and a 5-year exemption otherwise.

Investment tax incentives lower the tax costs of investment to varying degrees across the three industries and countries. While the Dominican Republic and Ecuador start from a 25 percent standard ETR, they offer tax incentives that substantially lower effective taxation in some of the industries. For example, ETRs can be as low as 0 percent in textiles in the Dominican Republic and are up to 45 percent lower than standard taxation in the Ecuadorian metal industry (13.7 percent compared to 24.8 percent). Although Paraguay does not use CIT incentives,[24] it applies a relatively low standard CIT rate, with the lowest ETR in the metal and tourism industries of the three countries.

Figure B.2. Investment Tax Incentives Lower Effective Tax Rates Across Industries

EATR under standard tax treatment and investment tax incentives in the corresponding industry



Note: EATR = effective average tax rate. Figure considers investment tax incentives and standard tax treatment on 1 January 2020. EATRs are calculated for a standardised investment in a single non-residential building asset. Standard tax treatment considers country-specific standard corporate income tax rates, asset-specific capital allowance rates and cost recovery method. Temporarily or permanently tax-exempt income does not give rise to standard capital allowances.
Source: Celani, Dressler, and Hanappi (2022).

References

Abbas, S., and A. Klemm. 2013. A Partial Race to the Bottom: Corporate Tax Developments in Emerging and Developing Economies. *International Tax and Public Finance* 20(4): 596-617. doi:https://econpapers.repec.org/article/kapitaxpf/v_3a20_3ay_3a2013_3ai_3a4_3ap_3a596-617.htm

Andersen, M., B. Kett, and E. von Uexkull. 2017. Corporate Tax Incentives and FDI in Developing Countries. Washington, D.C.: World Bank. doi:https://doi.org/10.1596/978-1-4648-1175-3_ch3

Auerbach, A. 1979. Wealth Maximization and the Cost of Capital. *Quarterly Journal of Economics* 93: 433–446.

--------. 1983. Taxation, Corporate Financial Policy and the Cost of Capital. *Journal of Economic Literature* 21: 905–962.

BEA (U.S. Bureau of Economic Analysis). 2003. Fixed Assets and Consumer Durable Goods in the United States, 1925–1997. Washington, D.C.: BEA.

Beer, S., M. Griffiths, and A. Klemm. 2023. Tax Distortions from Inflation: What Are They? How to Deal with Them? IMF Working Papers, WP/23/18. doi:https://www.imf.org/en/Publications/WP/Issues/2023/01/27/Tax-Distortions-from-Inflation-What-are-They-How-to-Deal-with-Them-528666

Boulton, T., M. Braga-Alves, and K. Shastri. 2012. Payout Policy in Brazil: Dividends versus Interest on Equity. *Journal of Corporate Finance* 18(4): 968–979.

CBO (Congressional Budget Office). 2017. International Comparison of Corporate Income Tax Rates. Washington, D.C: CBO, Congress of the United States.

CBT (Centre for Business Taxation). 2017. CBT Database. Oxford University Centre for Business Taxation. doi:https://oxfordtax.sbs.ox.ac.uk/files/cbt-tax-database-2017xls

Celani, A., L. Dressler, and T. Hanappi. (2022). Assessing tax relief from targeted investment tax incentives through corporate effective tax rates. Methodology and initial findings for seven countries". OECD Publishing. doi:https://doi.org/10.1787/3eaddf88-en

--------. 2022 (forthcoming). Assessing tax relief from targeted investment tax incentives through corporate effective tax rates. OECD Taxation Working Paper. Paris, France: OECD Publishing.

Celani, A., L. Dressler, and M. Wermelinger. 2022. Building an Investment Tax Incentives Database: Methodology and Initial Findings for 36 Developing Countries. OECD Working Papers on International Investment Series 2022/01. Paris, France: OECD Publishing. doi:https://doi.org/10.1787/18151957

CIAT (Inter-American Centre of Tax Administrations). 2018. Overview of Tax Expenditures in Latin America: Main Statistics of the CIAT Database. Working Papers ISSN 2219-780X. doi:https://www.ciat.org/Biblioteca/DocumentosdeTrabajo/2018/WP_05_2018_pelaez.pdf

[24] Paraguay does provide tax incentives on profit distribution that are not included in the present analysis. The tourism industry can benefit from a 5 or 10-year tax exemption on withholding taxes on dividends for investment projects above US$5 million. Paraguay also provides a unified tax for exporters that replaces CIT and other tax payments. Businesses operating under the Special Enterprise Zone (SEZ) and maquila regimes can opt between the single tax payment of 0.5 percent of export turnover in SEZs or 1 percent on domestic value-added under the maquila.

Creedy, J. and N. Gemmell. 2017. Taxation and the User Cost of Capital. *Journal of Economic Surveys* 31: 201–225.

Devereux, M. and R. Griffith. 1998. The Taxation of Discrete Investment Choices. IFS Working Papers No. W98/16. London, United Kingdom: Institute for Fiscal Studies.

--------. 2003. Evaluating Tax Policy for Location Decisions. *International Tax and Public Finance* 10: 107–126.

ECLAC (Economic Commission for Latin America and the Caribbean). 2020. Fiscal Panorama of Latin America and the Caribbean, 2020: Fiscal Policy Amid the Crisis Arising from the Coronavirus Disease (COVID-19) Pandemic. Santiago, Chile: United Nations/ECLAC. doi:https://repositorio.cepal.org/bitstream/handle/11362/45731/1/S2000153_en.pdf

Egger, P., S. Loretz, M. Pfaffermayr, and H. Winner. 2009. Firm-specific Forward-Looking Effective Tax Rates. *International Tax and Public Finance* 16: 850–870. https://doi.org/10.1007/s10797-009-9124-1.

Fraumeni, B. 1997. The Measurement of Depreciation in the U.S. National Income and Product Accounts. Survey of Current Business. Washington, D.C. U.S. Department of Commerce.

Hall, R. and D. Jorgenson. 1967. Tax Policy and Investment Behavior. *American Economic Review* 57(3): 391–414.

Hanappi, T. 2018. Corporate Effective Tax Rates: Model Description and Results from 36 OECD and Non-OECD Countries. OECD Taxation Working Papers No. 38. Paris, France: OECD Publishing. doi:http://dx.doi.org/10.1787/a07f9958-en

Hebous, S. and M. Ruf. 2017. Evaluating the Effects of ACE Systems on Multinational Debt Financing and Investment. *Journal of Public Economics* 156 (December): 131–149.

IDB (Inter-American Development Bank). 2013. Recaudar no basta: Los impuestos como instrumento de desarrollo. Washington, D.C.: IDB. doi:https://publications.iadb.org/en/recaudar-no-basta-los-impuestos-como-instrumento-de-desarrollo

IMF (International Monetary Fund). 2022. World Economic Outlook Database, April 2022. Washington, D.C.: IMF. doi:https://www.imf.org/en/Publications/WEO/weo-database/2022/April

IMF/OECD/WB. 2015. Options for Low Income Countries' Effective and Efficient Use of Tax Incentives for Investment. https://www.imf.org/external/np/g20/pdf/101515.pdf abgerufen

James, S. 2013. Effectiveness of Tax and Non-Tax Incentives and Investments: Evidence and Policy Implications. Washington, D.C.: World Bank. doi:https://ssrn.com/abstract=2401905 or http://dx.doi.org/10.2139/ssrn.2401905

Jorgenson, D. 1963. Capital Theory and Investment Behavior. *American Economic Review* 53(2): 247–259.

King, M., and D. Fullerton. 1983. The Taxation of Income from Capital: A Comparative Study of the U.S., U.K., Sweden, and West Germany--The Theoretical Framework. NBER Working Paper 1058. Cambridge, MA: National Bureau of Economic Research.

Klemm, A. 2006. Allowances for Corporate Equity in Practice. IMF Working Paper, WP/06/259. Washington, D.C.: International Monetary Fund.

--------. 2008. Effective Average Tax Rates for Permanent Investment. IMF Working Paper No. 08/56. Washington, D.C.: International Monetary Fund. doi:https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Effective-Average-Tax-Rates-for-Permanent-Investment-21757

--------. 2010. Causes, Benefits, and Risks of Business. *International Tax and Public Finance,* 17(3): 315–336, https://econpapers.repec.org/article/kapitaxpf/v_3a17_3ay_3a2010_3ai_3a3_3ap_3a315-336.htm.

Klemm, A., and S. Van Parys. 2010. Empirical Evidence on the Effects of Tax Incentives. Working Papers of Faculty of Economics and Business Administration, Ghent University. doi: https://econpapers.repec.org/paper/rugrugwps/10_2f673.htm

KPMG. 2020. Global Tax Rates. doi:https://s3.amazonaws.com/kpmg-global/tax-rates-tool/index_Corporate.html

Li, W. 2018. Depreciation of Business R&D Capital. U.S. Bureau of Economic Analysis/National Science Foundation, R&D Satellite Account Paper. Washington, D.C.: BEA/NSF.

OECD. 1991. Taxing Profits in a Global Economy: Domestic and International Issues. Paris, France: OECD Publishing.

--------. 2021. Corporate Tax Statistics: Third Edition. Paris, France: OECD Publishing.

--------. 2022. Corporate Tax Statistics: Fourth Edition. Paris, France: OECD Publishing. oi:https://www.oecd.org/tax/beps/corporate-tax-statistics-database.htm

--------. 2022. Multi-dimensional Review of the Dominican Republic: Towards Greater Well-being for All, OECD Development. Paris, France: OECD Publishing.

OECD et al. (2023). Revenue Statistics in Latin America and the Caribbean 2023. Paris, France: OECD Publishing. doi:https://doi.org/10.1787/a7640683-en.

--------. (forthcoming). Latin American Economic Outlook 2023: Investments for Production Transformation and Better Development. Paris, France: OECD Publishing.

Patry, A. 2007. Economic Depreciation and Retirement of Canadian Assets: A Comprehensive Empirical Study. Statistics Canada, Catalogue No. 15-549-XIE.

Redonda, A., C. von Haldenwang, and F. Aliu. 2021. The Global Tax Expenditure Database (GTED) Companion Paper. GTED. https://gted.net/2021/05/the-global-tax-expenditures-database-companion-paper/ abgerufen

Stuart, A., I. Delestre, and V. Nair. 2022. Corporation Tax and Investment. Corporation Tax and Investment IFS Report R225.

Tax Foundation. 2022. Corporate Tax Rates Around the World. Washington, D.C.: Tax Foundation.

Tobin, J. 1985. Inventories, Investment, Inflation and Taxes. Cowles Foundation Discussion Papers 849, Cowles Foundation for Research in Economics, Yale University.

ZEW. 2019. Project for the EU Commission: Effective Tax Levels using the Devereux/Griffith Methodology. Zentrum fuer Europaeische Wirtschaftsforschung, Project for the EU Commission, TAXUD/2013/CC/120, Final Report. Leibniz, Germany: ZEW.

Appendix I. Calculation of EATRs and EMTRs

This appendix presents the main equations used to calculate the EATR and the EMTR for the different asset types and financing sources considered. The logic behind the formulas used in this section can be found in Hanappi (2018).

Effective average tax rate

The EATR is calculated as

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

where $R^*$and R represents the net present value (NPV) of pre- and post-tax economic profits, respectively. p is the pre-tax real rate of return of an asset and r is the real interest rate. The values of p and r are assumed, so no formulas are required for their determination. The pre-tax economic profit is calculated according to the following formula:

$$R^* = \frac{p-r}{1+r} \tag{2}$$

Meanwhile, the post-tax economic profit is calculated as:

$$R = R^{RE} + F^{DE} + F^{ACE} \tag{3}$$

where R^{RE} is the NPV of economic profits financed by equity (i.e., new equity or retained earnings), F^{DE} is the NPV of deductions related to debt financing per unit of investment, and F^{ACE} is the NPV of deductions related to corporate equity financing. R^{RE} is given by:

$$R^{RE} = -(1-A) + \frac{1}{1+i}[(p+\delta)(1+\pi)(1-\tau) + (1-\delta)(1+\pi)(1-A)] \tag{4}$$

with δ being the economic depreciation rate, π being the inflation rate, τ being the statutory CIT rate, and A the net present value (NPV) of capital allowances due to fiscal depreciation, per unit of investment. The formula to calculate A is not unique, as tax provisions for capital allowances tend to vary from one country to another. For instance, the fiscal depreciation methods used vary among countries. The standard equations to calculate A under the declining balance (DB), the straight line (SL), and the declining balance method with a switch to straight line (DBSL) are:[25]

$$A^{DB} = \frac{\tau\varphi}{1+i}\left[1 + \left(\frac{1-\varphi}{1+i}\right) + \left(\frac{1-\varphi}{1+i}\right)^2 + \left(\frac{1-\varphi}{1+i}\right)^3 + \cdots\right] = \frac{\tau\varphi}{\varphi+i} \tag{5'}$$

$$A^{SL} = \tau\varphi\left[\left(\frac{1}{1+i}\right) + \left(\frac{1}{1+i}\right)^2 + \cdots + \left(\frac{1}{1+i}\right)^T\right] = \frac{\tau\varphi}{i}\left(1 - (1+i)^{-\frac{1}{\varphi}}\right) \tag{5''}$$

[25] Other important provisions that affect the calculation of A are indexation for inflation, whether a half-year convention is in place or not, and the existence of accelerated or enhanced depreciation. The first two aspects do not produce large changes in the formulae (5') – (5'''). For instance, when depreciation allowances are indexed by inflation, the net present value must be calculated using the real interest rate as the discount factor, instead of the nominal interest rate. In the case of the half-year convention, for the SL and DB the provisions can easily be captured by adjusting the first-year allowance. In the case of the DBSL method, the required adjustment to the baseline formula is more complicated. See Hanappi (2018) for a discussion of the adaptations required to take these provisions into consideration.

$$A^{DBSL} = \tau\left[\frac{\beta}{1+i}\left(1+\frac{(1-\beta)}{(1+i)}+\frac{(1-\beta)^2}{(1+i)^2}+\cdots+\frac{(1-\beta)^{T^*-1}}{(1+i)^{T^*-1}}\right)+\frac{(1-\beta)^{T^*}}{(T-T^*)}\left(\frac{1}{(1+i)^{T^*+1}}+\cdots+\frac{1}{(1+i)^{T}}\right)\right] \quad (5''')$$

with i being the nominal interest rate, φ the capital allowance rate, β the capital allowance factor for the DBSL method, T the project lifetime for tax purposes, and T^* the optimal switching period in the DBSL method.

Regarding the NPV of deductions related to the source of financing, the methodology considers those for debt financing (F^{DE}) and the allowance for corporate equity (F^{ACE}). The formula for F^{DE} is given by:

$$F^{DE} = \begin{Bmatrix} \frac{(1-\tau\varphi_{exp})}{1+i}(i-i(1-\tau)) & Debt \\ 0 & Retained\ Earnings \end{Bmatrix} \quad (6)$$

where φ_{exp} presents the share of initial investment expensed. Equation (6) assumes that interest expenses are fully deductible. Meanwhile, the formula for F^{ACE} is given by:

$$F^{ACE} = \begin{Bmatrix} 0 & Debt \\ \hat{\imath}(\tau-\hat{\tau})\left(\frac{1}{N^{ACE}*i}\right)\left(1-\left(\frac{1}{1+i}\right)^{N^{ACE}}\right) & Retained\ Earnings \end{Bmatrix} \quad (7)$$

where $\hat{\imath}$ is the notional interest deduction, $\hat{\tau}$ is the tax rate applicable to notional interest, and N^{ACE} is the number of years over which the provision is spread.

Equations (6) and (7) are the same if the financing source is equity or retained earnings.

The equations above need to be modified in the case of certain asset types. For example, for inventories, Equation (4) is modified to take into consideration the inventory valuation method. It calculated as:

$$R_v^{RE} = -(1-A)+\frac{1}{1+i}[(p+\delta)(1+\pi)(1-\tau)-v\pi\tau+(1-\delta)(1+\pi)(1-A)] \quad (4'')$$

where v is an indicator for inventory valuation method, which can take on one of three values: zero, one-half, and one. The value zero is used in the case of the last-in, first-out (LIFO) valuation method, the value one represents the first-in, first-out method (FIFO), and the value of one-half is used when a combination of both previous methods is used.

Effective marginal tax rate

The EMTR is calculated as

$$EMTR = \frac{\tilde{p}-r}{\tilde{p}} \quad (8)$$

where $\tilde{p}$ represents the user's cost of capital, and it is calculated as follows, using $F = F^{DE} + F^{RE}_{ACE}$.

$$\tilde{p} = \frac{(1-A)(i+\delta(1+\pi)-\pi)}{(1+\pi)(1-\tau)} - \frac{F(1+i)}{(1-\tau)(1+\pi)} - \delta \quad (9)$$

Regarding inventories, adaptations are required to consider the different inventory valuation method. The modified version of Equation (9) is

$$\widetilde{p_v} = \frac{(1-A)(i+\delta(1+\pi)-\pi)+v\tau\pi}{(1+\pi)(1-\tau)} + - \frac{F(1+i)}{(1+\pi)(1-\tau)} - \delta \quad (9'')$$

Appendix II. Summary of Provisions Affecting Effective Tax Rates

Country	year	Asset group	Statutory CIT rate	Cost recovery method	Capital allowance rate	Bonus depreciation (% of initial investment)	Inventory valuation method	Half-year convention
ARG	2021	Air, Rail or Water Transport Vehicles	.3	Straight Line	.1222	0		Yes
ARG	2021	Computer Hardware	.3	Straight Line	.33	0		Yes
ARG	2021	Equipment	.3	Straight Line	.1	0		Yes
ARG	2021	Acquired Software	.3	Straight Line	.02	0		Yes
ARG	2021	Inventories	.3	Other Method	0	0	FIFO	No
ARG	2021	Industrial Machinery	.3	Straight Line	.1	0		Yes
ARG	2021	Non-residential Structures	.3	Straight Line	.02	0		No
ARG	2021	Road Transport Vehicles	.3	Straight Line	.2	0		Yes
BHS	2021	Air, Rail or Water Transport Vehicles	0	Non-depreciable	0	0		No
BHS	2021	Computer Hardware	0	Non-depreciable	0	0		No
BHS	2021	Equipment	0	Non-depreciable	0	0		No
BHS	2021	Acquired Software	0	Non-depreciable	0	0		No
BHS	2021	Inventories	0	Other Method	0	0	Weighted Average	No
BHS	2021	Industrial Machinery	0	Non-depreciable	0	0		No
BHS	2021	Non-residential Structures	0	Non-depreciable	0	0		No
BHS	2021	Road Transport Vehicles	0	Non-depreciable	0	0		No
BOL	2021	Air, Rail or Water Transport Vehicles	.25	Straight Line	.2	0		No
BOL	2021	Computer Hardware	.25	Straight Line	.25	0		No
BOL	2021	Equipment	.25	Straight Line	.1	0		No
BOL	2021	Acquired Software	.25	Straight Line	.05	0		No
BOL	2021	Inventories	.25	Other Method	0	0	FIFO	No
BOL	2021	Industrial Machinery	.25	Straight Line	.125	0		No
BOL	2021	Non-residential Structures	.25	Straight Line	.025	0		No
BOL	2021	Road Transport Vehicles	.25	Straight Line	.2	0		No
BRA	2021	Air, Rail or Water Transport Vehicles	.34	Straight Line	.1	0		No
BRA	2021	Computer Hardware	.34	Straight Line	.2	0		No
BRA	2021	Equipment	.34	Straight Line	.1	0		No
BRA	2021	Acquired Software	.34	Straight Line	.4	0		No
BRA	2021	Inventories	.34	Other Method	0	0	FIFO	No
BRA	2021	Industrial Machinery	.34	Straight Line	.1	0		No
BRA	2021	Non-residential Structures	.34	Straight Line	.04	0		No
BRA	2021	Road Transport Vehicles	.34	Straight Line	.25	0		No
CHL	2021	Air, Rail or Water Transport Vehicles	.27	Straight Line	.15909091	0		No
CHL	2021	Computer Hardware	.27	Straight Line	.5	0		No
CHL	2021	Equipment	.27	Straight Line	.4137931	0		No
CHL	2021	Acquired Software	.27	Non-depreciable	0	0		No
CHL	2021	Inventories	.27	Other Method	0	0	FIFO	No
CHL	2021	Industrial Machinery	.27	Straight Line	.32142857	0		No
CHL	2021	Non-residential Structures	.27	Straight Line	.05295	0		No
CHL	2021	Road Transport Vehicles	.27	Straight Line	.42857143	0		No
COL	2021	Air, Rail or Water Transport Vehicles	.31	Straight Line	.05	0		No
COL	2021	Computer Hardware	.31	Straight Line	.2	0		No

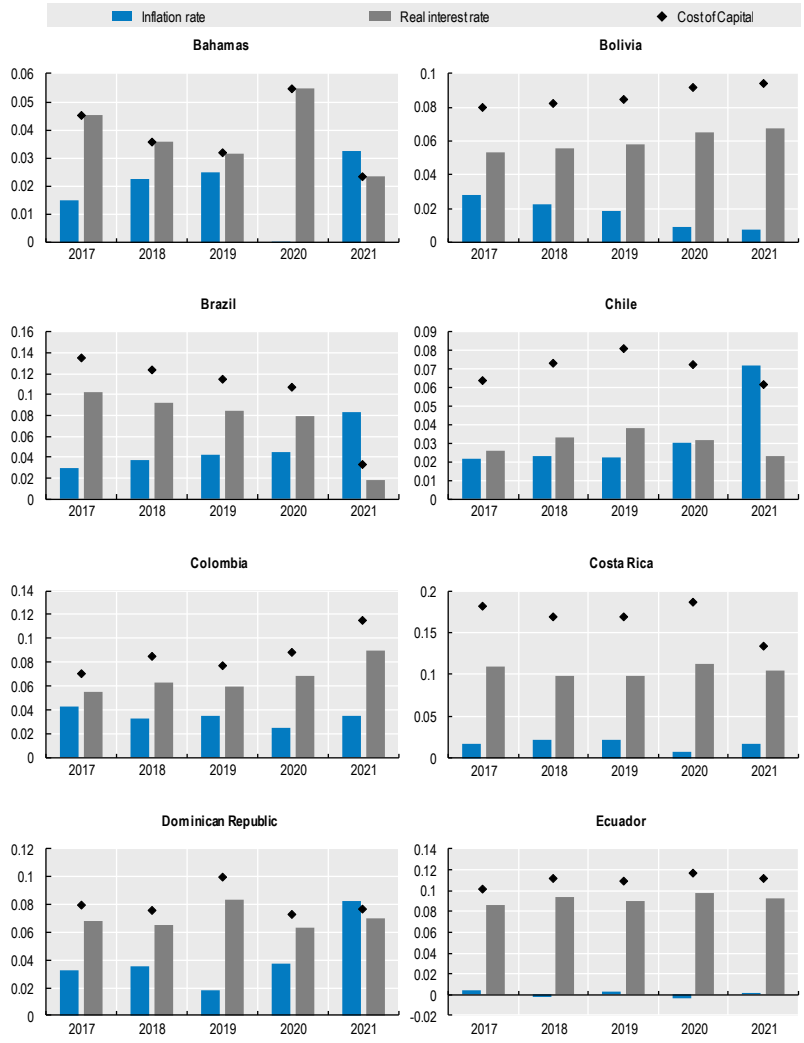
COL	2021	Equipment	.31	Straight Line	.1	0		No
COL	2021	Acquired Software	.31	Straight Line	.2	0		No
COL	2021	Inventories	.31	Other Method	0	0	Weighted Average	No
COL	2021	Industrial Machinery	.31	Straight Line	.1	0		No
COL	2021	Non-residential Structures	.31	Straight Line	.0222	0		No
COL	2021	Road Transport Vehicles	.31	Straight Line	.1	0		No
CRI	2021	Air, Rail or Water Transport Vehicles	.3	Straight Line	.1	0		No
CRI	2021	Computer Hardware	.3	Straight Line	.2	0		No
CRI	2021	Equipment	.3	Straight Line	.1	0		No
CRI	2021	Acquired Software	.3	Straight Line	.25	0		No
CRI	2021	Inventories	.3	Other Method	0	0	FIFO	No
CRI	2021	Industrial Machinery	.3	Straight Line	.07	0		No
CRI	2021	Non-residential Structures	.3	Straight Line	.02	0		No
CRI	2021	Road Transport Vehicles	.3	Straight Line	.1	0		No
CUW	2021	Air, Rail or Water Transport Vehicles	.22	Straight Line	.2	0		No
CUW	2021	Computer Hardware	.22	Straight Line	.415	0		No
CUW	2021	Equipment	.22	Straight Line	.1	0		No
CUW	2021	Acquired Software	.22	Straight Line	.2	0		No
CUW	2021	Inventories	.22	Other Method	0	0	FIFO	No
CUW	2021	Industrial Machinery	.22	Straight Line	.1	0		No
CUW	2021	Non-residential Structures	.22	Straight Line	.025	0		No
CUW	2021	Road Transport Vehicles	.22	Straight Line	.2	0		No
DOM	2021	Air, Rail or Water Transport Vehicles	.27	Straight Line	.15	0		Yes
DOM	2021	Computer Hardware	.27	Straight Line	.25	0		Yes
DOM	2021	Equipment	.27	Straight Line	.25	0		Yes
DOM	2021	Acquired Software	.27	Straight Line	.25	0		Yes
DOM	2021	Inventories	.27	Other Method	0	0	LIFO	No
DOM	2021	Industrial Machinery	.27	Straight Line	.15	0		Yes
DOM	2021	Non-residential Structures	.27	Declining Balance	.05	0		Yes
DOM	2021	Road Transport Vehicles	.27	Straight Line	.25	0		Yes
ECU	2021	Air, Rail or Water Transport Vehicles	.25	Straight Line	.05	0		Yes
ECU	2021	Computer Hardware	.25	Straight Line	.33	0		Yes
ECU	2021	Equipment	.25	Straight Line	.2	0		Yes
ECU	2021	Acquired Software	.25	Straight Line	.33	0		Yes
ECU	2021	Inventories	.25	Other Method	0	0	Weighted Average	No
ECU	2021	Industrial Machinery	.25	Straight Line	.1	0		Yes
ECU	2021	Non-residential Structures	.25	Straight Line	.05	0		Yes
ECU	2021	Road Transport Vehicles	.25	Straight Line	.2	0		Yes
GTM	2021	Air, Rail or Water Transport Vehicles	.25	Straight Line	.2	0		No
GTM	2021	Computer Hardware	.25	Straight Line	.3333	0		No
GTM	2021	Equipment	.25	Straight Line	.2	0		No
GTM	2021	Acquired Software	.25	Straight Line	.3333	0		No
GTM	2021	Inventories	.25	Other Method	0	0	FIFO	No
GTM	2021	Industrial Machinery	.25	Straight Line	.2	0		No
GTM	2021	Non-residential Structures	.25	Straight Line	.05	0		No
GTM	2021	Road Transport Vehicles	.25	Straight Line	.2	0		No
HND	2021	Air, Rail or Water Transport Vehicles	.25	Straight Line	.1	0		No
HND	2021	Computer Hardware	.25	Straight Line	.2	0		No
HND	2021	Equipment	.25	Straight Line	.1	0		No

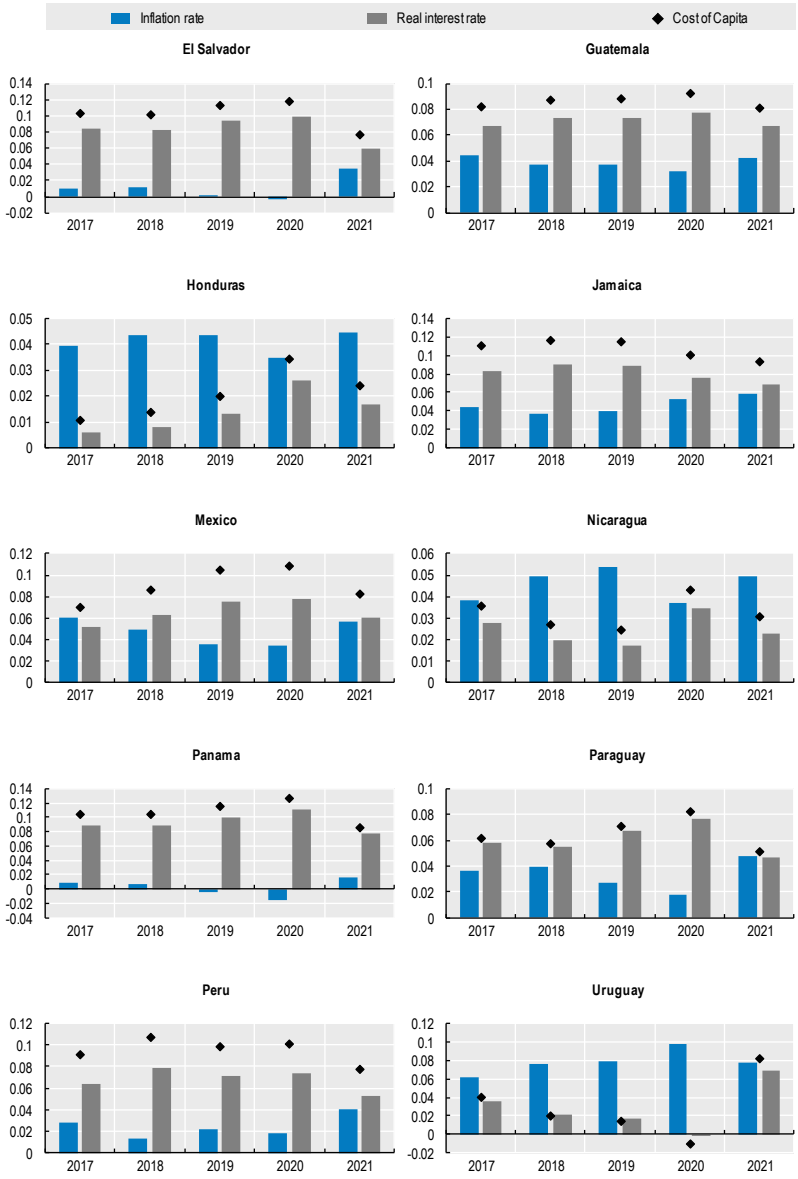
HND	2021	Acquired Software	.25	Straight Line	.4	0		No
HND	2021	Inventories	.25	Other Method	0	0	FIFO	No
HND	2021	Industrial Machinery	.25	Straight Line	.1	0		No
HND	2021	Non-residential Structures	.25	Straight Line	.025	0		No
HND	2021	Road Transport Vehicles	.25	Straight Line	.33	0		No
JAM	2021	Air, Rail or Water Transport Vehicles	.25	Straight Line	.2	0		No
JAM	2021	Computer Hardware	.25	Straight Line	.125	0		No
JAM	2021	Equipment	.25	Straight Line	.125	0		No
JAM	2021	Acquired Software	.25	Straight Line	.12	0		No
JAM	2021	Inventories	.25	Other Method	0	0	FIFO	No
JAM	2021	Industrial Machinery	.25	Straight Line	.125	0		No
JAM	2021	Non-residential Structures	.25	Straight Line	.04	0		No
JAM	2021	Road Transport Vehicles	.25	Straight Line	.2	0		No
MEX	2021	Air, Rail or Water Transport Vehicles	.3	Straight Line	.175	0		No
MEX	2021	Computer Hardware	.3	Straight Line	.3	0		No
MEX	2021	Equipment	.3	Straight Line	.175	0		No
MEX	2021	Acquired Software	.3	Straight Line	.05	0		No
MEX	2021	Inventories	.3	Other Method	0	0	Weighted Average	No
MEX	2021	Industrial Machinery	.3	Straight Line	.275	0		No
MEX	2021	Non-residential Structures	.3	Straight Line	.05	0		No
MEX	2021	Road Transport Vehicles	.3	Straight Line	.25	0		No
NIC	2021	Air, Rail or Water Transport Vehicles	.3	Straight Line	.125	0		No
NIC	2021	Computer Hardware	.3	Straight Line	.5	0		No
NIC	2021	Equipment	.3	Straight Line	.2	0		No
NIC	2021	Acquired Software	.3	Straight Line	.5	0		No
NIC	2021	Inventories	.3	Other Method	0	0	FIFO	No
NIC	2021	Industrial Machinery	.3	Straight Line	.1473	0		No
NIC	2021	Non-residential Structures	.3	Straight Line	.075	0		No
NIC	2021	Road Transport Vehicles	.3	Straight Line	.1625	0		No
PAN	2021	Air, Rail or Water Transport Vehicles	.25	Straight Line	.0333	0		No
PAN	2021	Computer Hardware	.25	Straight Line	.3333	0		No
PAN	2021	Equipment	.25	Straight Line	.3333	0		No
PAN	2021	Acquired Software	.25	Straight Line	.3333	0		No
PAN	2021	Inventories	.25	Other Method	0	0	FIFO	No
PAN	2021	Industrial Machinery	.25	Straight Line	.3333	0		No
PAN	2021	Non-residential Structures	.25	Straight Line	.0333	0		No
PAN	2021	Road Transport Vehicles	.25	Straight Line	.3333	0		No
PER	2021	Air, Rail or Water Transport Vehicles	.295	Straight Line	.1	0		No
PER	2021	Computer Hardware	.295	Straight Line	.25	0		No
PER	2021	Equipment	.295	Straight Line	.1	0		No
PER	2021	Acquired Software	.295	Straight Line	.1	0		No
PER	2021	Inventories	.295	Other Method	0	0	Weighted Average	No
PER	2021	Industrial Machinery	.295	Straight Line	.1	0		No
PER	2021	Non-residential Structures	.295	Straight Line	.05	0		No
PER	2021	Road Transport Vehicles	.295	Straight Line	.2	0		No
PRY	2017	Air, Rail or Water Transport Vehicles	.1	Straight Line	.05	0		No
PRY	2021	Air, Rail or Water Transport Vehicles	.1	Straight Line	.04	0		No
PRY	2021	Computer Hardware	.1	Straight Line	.45	0		No
PRY	2021	Equipment	.1	Straight Line	.18	0		No

PRY	2021	Acquired Software	.1	Straight Line	.2	0		No
PRY	2021	Inventories	.1	Other Method	0	0	Weighted Average	No
PRY	2021	Industrial Machinery	.1	Straight Line	.08	0		No
PRY	2021	Non-residential Structures	.1	Straight Line	.04	0		No
PRY	2021	Road Transport Vehicles	.1	Straight Line	.16	0		No
SLV	2021	Air, Rail or Water Transport Vehicles	.3	Straight Line	.25	0		No
SLV	2021	Computer Hardware	.3	Straight Line	.5	0		No
SLV	2021	Equipment	.3	Straight Line	.2	0		No
SLV	2021	Acquired Software	.3	Straight Line	.25	0		No
SLV	2021	Inventories	.3	Other Method	0	0	FIFO	No
SLV	2021	Industrial Machinery	.3	Straight Line	.2	0		No
SLV	2021	Non-residential Structures	.3	Straight Line	.05	0		No
SLV	2021	Road Transport Vehicles	.3	Straight Line	.25	0		No
URY	2021	Air, Rail or Water Transport Vehicles	.25	Straight Line	.1	0		No
URY	2021	Computer Hardware	.25	Straight Line	.1	0		No
URY	2021	Equipment	.25	Straight Line	.1	0		No
URY	2021	Acquired Software	.25	Straight Line	.1	0		No
URY	2021	Inventories	.25	Other Method	0	0	LIFO	No
URY	2021	Industrial Machinery	.25	Straight Line	.1	0		No
URY	2021	Non-residential Structures	.25	Straight Line	.025	0		No
URY	2021	Road Transport Vehicles	.25	Straight Line	.1	0		No

Source: Authors' elaboration based on country surveys.

Appendix III. Country-specific Cost of Capital and Macroeconomic Parameters





Note: Market interest rates are calculated. They are proxied by the cost of debt, measured as total interest paid by LAC governments divided by gross government debt levels.
Source: IMF (2022).