# Tax incentives on income as a determinant of the Effective Tax Rate

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## ABSTRACT

The article analyzes the effectiveness of tax incentives in determining the Effective Tax Rate (ETR) of Brazilian companies, addressing a gap in the literature that does not adequately consider the effects of these incentives on profit. Based on a sample composed of 392 publicly traded companies listed on B3, the research analyzed data collected from 2013 to 2022, totaling 3,920 observations. Various ETR metrics were used, including Generally Accepted Accounting Principles (GAAP), Current, Deferred, Cash, Cash3, and Sectoral. The applied methodology analyzed the data through descriptive statistics and panel regression models of unbalanced data, aiming to understand the relationships between tax incentives and ETR, as well as the impact of variables such as size, leverage, capital intensity, inventory intensity, and profitability. The results revealed significant variations in ETR metrics, highlighting a complex relationship between tax incentives and tax behavior. Interestingly, in metrics such as ETR Cash and Cash3, the increase in tax incentives was associated with a higher tax burden. Other metrics, such as GAAP ETR and Current ETR, also revealed substantial differences, highlighting the influence of specific factors from the economic sector and the regulatory environment. The study recognizes limitations, such as the dependence on accounting data and the absence of detail on specific types of incentives. It is recommended that future research explore more detailed sectoral analyses and consider changes in Brazilian legislation. These conclusions provide significant contributions to the understanding of corporate tax strategies, offering relevant subsidies for public policy makers, companies, and investors interested in the transparency and competitiveness of the corporate environment.

**Keywords:** tax incentives, Effective Tax Rate, taxes on profit.

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# Incentivos fiscais sobre a renda como determinante da Effective Tax Rate

## RESUMO

*O artigo analisa a efetividade dos incentivos fiscais na determinação da Effective Tax Rate (ETR) de empresas brasileiras, abordando uma lacuna na literatura que não considera adequadamente os efeitos desses incentivos sobre o lucro. Com base em uma amostra composta por 392 empresas de capital aberto listadas na B3, a pesquisa analisou dados coletados no período de 2013 a 2022, totalizando 3.920 observações. Foram utilizadas diversas métricas de ETR, incluindo princípios contábeis geralmente aceitos (Generally Accepted Accounting Principles – GAAP), Corrente, Diferida, Cash, Cash3 e Setorial. A metodologia aplicada analisou os dados por meio de estatística descritiva e modelos de regressão em painel de dados desbalanceados, visando compreender as relações entre incentivos fiscais e ETR, bem como o impacto de variáveis como tamanho, alavancagem, intensidade de capital, intensidade de inventário e lucratividade. Os resultados revelaram variações significativas nas métricas de ETR, destacando uma relação complexa entre incentivos fiscais e comportamento tributário. Curiosamente, em métricas como ETR Cash e Cash3, o aumento nos incentivos fiscais foi associado a uma maior carga tributária. Outras métricas, como ETR GAAP e ETR Corrente, também revelaram diferenças substanciais, destacando a influência de fatores específicos do setor econômico e do ambiente regulatório. O estudo reconhece limitações, como a dependência de dados contábeis e a ausência de detalhamento sobre tipos específicos de incentivos. Recomenda-se que futuras pesquisas explorem análises setoriais mais detalhadas e considerem as mudanças na legislação brasileira. Essas conclusões oferecem contribuições significativas para a compreensão das estratégias fiscais empresariais, oferecendo subsídios relevantes para formuladores de políticas públicas, empresas e investidores interessadas na transparência e na competitividade do ambiente corporativo.*

*Palavras-chave: incentivos fiscais, Effective Tax Rate, tributos sobre o lucro.*

## 1 INTRODUCTION

The taxation on corporate profits is an area of great interest for both organizations and tax authorities. Companies seek ways to optimize their tax obligations, often using tax incentives to reduce the tax burden and maximize their profits. A central element in this context is the Effective Tax Rate (ETR), which represents the proportion of taxes on profits. The ETR is a key indicator of financial performance and the effectiveness of tax strategies, and its management can significantly impact financial transparency and business competitiveness.

This research initially aimed to identify the determinants of ETR in companies through a literature review, as well as to verify the possible relationship with tax incentives. However, despite the number of articles found, few directly address the relationship between tax incentives and the ETR. The systematic review revealed a wide range of factors that influence the ETR, providing a detailed insight into this phenomenon. Studies such as those by Chen et al. (2010), Graham et al. (2014), Miller e Kim (2016) e Guenther et al. (2017) highlight aspects ranging from financial and strategic to corporate governance in determining the ETR. However, there is a gap regarding tax incentives, a relevant factor in corporate decisions, which can also impact the taxation on the profits of Brazilian companies (Reinhard & Li, 2011; Rezende et al., 2018; Silva et al., 2019; Fonseca et al., 2020).

In light of this tax dynamic, a research problem arises: how do tax incentives on income taxes affect the various measures of ETR for companies? Specifically, investigating how the practices of using tax incentives impact the ETR can provide critical information for companies, regulatory bodies, and academics. Understanding how tax incentives on income can influence the ETR is essential, as this can affect companies' strategic decision-making and tax policy formulation.

This study is relevant due to the importance of ETR in assessing the tax performance of companies, the increasing complexity of tax regulations, and the variety of tax incentives available. Moreover, it is one of the first to analyze incentives based on their amount and not as a dummy variable. The ETR is of great interest to investors, financial analysts, and other stakeholders, as it directly impacts the value of companies and their ability to generate profits. Understanding how tax incentives influence the ETR is essential for transparency, corporate governance, and the formulation of more effective tax policies.

In a global scenario of debates on tax justice and transparency in business practices, understanding how tax incentives affect the ETR is crucial. This not only influences the strategic decisions of companies but can also impact the formulation of public policies, especially in countries like Brazil, where tax incentives are widely used to stimulate the economy. The relevance of the study is even greater when considering the role of ETR in international competitiveness and investor expectations, being a current and urgent issue.

The analysis of the ETR revealed that, on average, companies collect taxes below the nominal rate of 34%, showing substantial differences between sectors. The ETR GAAP (Generally Accepted Accounting Principles) metrics, Current ETR, and Deferred ETR show distinct patterns and high standard deviation, indicating the presence of outliers. Larger and more profitable companies tend to pay less taxes, while sectors like transportation face a higher tax burden. The analysis shows that, contrary to expectations, tax incentives can actually increase the tax paid in cash terms.

## 2 LITERATURE REVIEW

### 2.1 Studies on the ETR

The literature on the effective tax rate on profits (ETR) reveals significant conclusions. Chen et al. (2010) and Graham et al. (2014) highlight the strong influence of financial factors on the ETR. Zimmerman (1983) observes that larger companies tend to have more effective tax management, leveraging their size and resources. Derashid and Zhang (2003) state that indebtedness affects the ETR, with leveraged companies adopting distinct tax strategies.

However, variables such as size, indebtedness, and profitability show inconsistent results, as pointed out by Adhikari et al. (2006), Derashid and Zhang (2003) and Santos and França (2022), indicating the need for a more contextualized analysis. Furthermore, the influence of government policies and the institutional environment on ETR is highlighted by Richardson and Lanis (2007) and Kaufmann et al. (2011), highlighting the importance of the regulatory context.

Junior and Martinez (2020) analyzed the relationship between tax evasion and the efficiency of companies, using Data Envelopment Analysis (DEA) and the tax agility of companies listed on B3 between 2010 and 2015. The results showed that more efficient companies have a lower Differential ETR, with the energy and textile sectors showing significant results. Other variables, such as size, indebtedness, and return on assets, did not show relevance in general, but rather, according to the sector.

Bernal et al. (2021) investigated whether Spanish tourism companies face a higher tax burden in direct taxation (ETR GAAP) compared to indirect taxation (VAT) between 2014 and 2018. The tourism sector showed a greater tax burden on income, with this burden being uniform in relation to other sectors. Variables such as size, profitability, and capital intensity were significant.

Santos and França (2022) analyzed the relationship between corporate reputation and tax avoidance, using panel data regression with proxies Current ETR, Differential ETR, and Book Tax Difference (BTD). They found no significant relationship between corporate reputation and Current ETR or Differential ETR, but

variables such as leverage, size, profitability, intangible assets, and tax loss were relevant.

Cabeda et al. (2022) studied how the characteristics of firms and accounting choices affect the ETR during the definitive transitional regime. The characteristics of the firms showed low explanatory power over the current ETR, as well as the variables size, indebtedness, capital intensity, inventory intensity, and profitability. The choice of shareholder remuneration, through interest on equity, was the only one to negatively influence the current ETR.

Marques et al. (2022) analyzed the relationship between economic uncertainty and tax aggressiveness (BTD and ETR) of Brazilian companies. The results showed that stocks and returns on assets have a negative relationship with the ETR, indicating that the economic characteristics of companies influence the ETR more than the economic uncertainty environment. The average ETR varied from 23.90% in the pre-uncertainty period, 25.30% during, and 23.60% post-uncertainty. Companies with greater financial restrictions showed lower ETR, highlighting the importance of tax planning.

The influence of market power on tax aggressiveness was studied by Gomes et al. (2022), using the differential ETR of companies listed on B3 between 2010 and 2019. The results indicated that companies have ETR above the industry median, but found no evidence that market power influences ETR. Profitability (LUC) had a positive relationship with ETR, indicating that more profitable companies with greater leverage tend to be more aggressive.

Costa and Klann (2023) evaluated the moderating role of the joint liability of managers in the relationship between the accumulated value of infraction notices and the level of tax avoidance of companies. The research found that a higher value of infraction notices is associated with greater subsequent tax evasion, but the joint liability of the administrators mitigates this relationship. Eigenstuhler and Dal Magro (2023) analyzed the accounting-tax compliance and the individual characteristics of companies in tax evasion, finding significance only in accounting-tax compliance and the legal system, while variables such as leverage and size were not relevant.

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Lima and Lima (2023) analyzed the explanatory notes of two companies from B3 regarding the reconciliation of the ETR and found that their rates were lower than the nominal rate, due to permanent differences such as Interest on Own Capital. In another study, Marinho and Machado (2023) assessed the impact of tax installment plans on tax aggressiveness, using the Special Tax Regularization Program (PERT) as a reference. The results showed that the GAAP ETR and Cash ETR were statistically significant, refuting the hypothesis that installment payments increase tax aggressiveness, in addition to ROA and Corporate Governance as relevant variables.

Thus, researchers have sought to understand the factors that affect the ETR, as shown in Table 1. A study with 500 Latin American companies between 2009 and 2013 investigated variables such as size, capital intensity, leverage, and asset profitability. The results indicated that the size of Colombian companies and the leverage of Argentine companies are positively related to ETR, while capital and inventory intensity were not significant, and the results for other countries were inconclusive (Sant'Ana and Zonatto, 2016).

Fernández-Rodríguez et al. (2021) analyzed the determinants of the ETR in emerging countries of the BRICS (Brazil, Russia, India, China, and South Africa) and MINT (Mexico, Indonesia, Nigeria, and Turkey) between 2006 and 2015. Using the ETR Cash and modified ETR measures, the results showed that Russia, China, and Indonesia have higher ETR Cash, while Brazil, Nigeria, and Russia have the lowest. Business characteristics such as size, leverage, return on assets, capital intensity, and inventory were significant, with profitability showing a negative relationship, which is atypical. Institutional factors also influenced the tax burden.

In the study by Henriques and Santos (2023) on the determinants of the ETR in banks listed on the B3, only size and indebtedness were significant. The size had a positive relationship, while the indebtedness had a negative relationship. The average ETR of 26.72% was below the nominal rate of 45% for these companies.

## 2.2 Studies on Tax Incentives

Several studies have analyzed the impact of tax incentives on companies' financing and investment decisions. Reinhard and Li (2011) investigated the influence of taxes on corporate decisions during the German tax reforms, highlighting the importance of studying the specific tax context.

Chaves and Costa (2016) assessed the impact of the Good Law on the financial performance of publicly

traded companies, showing that these tax incentives can improve their finances, highlighting the importance of public policies in shaping the ETR. Marques et al. (2016) analyzed the contribution of the Good Law to tax planning, and Lopes and Beuren (2016) examined how companies highlight innovation in their management reports, emphasizing RD&I activities for stakeholders.

From another perspective, Oliveira et al. (2017) addressed the barriers that prevent Brazilian companies from using the tax incentives for technological innovation provided for in the Law of Good, identifying limitations and obstacles. Kaveski et al. (2020) analyzed the impact of fiscal policies to encourage innovation on the performance of Brazilian companies, demonstrating that these policies are determining factors for the ETR.

In an international context, Hebous and Ruf (2017) analyzed the effects of ACE (Allowance for Corporate Equity) systems on the financing and investment decisions of multinationals, revealing how these policies can shape the capital structure. In Brazil, Rezende et al. (2018) examined the impact of incentives on business returns, showing that they significantly influence investment and financing decisions.

Heider and Ljungqvist (2015) analyzed the sensitivity of fiscal leverage to changes in state tax laws in the U.S., highlighting the impact on companies' leverage decisions. Silva et al. (2019) investigated the communication of tax benefits by companies to stakeholders, highlighting the importance of transparency in disclosing this information.

In turn, Fonseca et al. (2020) showed that, even in a high-tax environment, tax incentives play an important role in companies' financing strategies. These surveys highlight the complexity of the interactions between tax regimes, financial strategies, and economic outcomes.

In a broader context, Feld et al. (2013) conducted a meta-analysis on the choice of capital structure and corporate taxation, highlighting the relevance of taxation in determining the capital structure of companies. Viana (2018) investigated the use of tax benefits in Portuguese companies, showing that these incentives positively influence financing choices.

Although the literature provides a broad view of the determinants of ETR, some gaps deserve attention. Many studies focus on financial factors, without adequately addressing the role of tax incentives. This study aims to fill this gap by exploring how different types of incentives directly affect the ETR.

Although research such as that of Chen et al. (2010) and Richardson and Lanis (2007) emphasize the importance of tax incentives, but few studies investigate how these incentives interact with variables such as corporate

**Table 1**
*Summary of the determinants found in international and national studies between 1986 and 2023*

| Determinant | Evidence from previous studies | Authors |
|---|---|---|
| Size | The larger the entity, the greater the political cost and the lower the ETR. | Zimmerman (1983), Watts & Zimmerman (1986), Noor et al. (2008), Fernández-Rodríguez and Martínez-Arias (2014); Sant'Ana and Zonatto (2016); Hazır (2019); Henriques and Santos (2023). |
| | The larger the entity, the greater the political power and the lower the ETR. | Kim e Limpaphayom (1998), Derashid e Zhang (2003), Adhikari et al. (2006), Lopes (2012), Santos et al. (2013), Guimarães et al. (2016), Mendes et al. (2020), Henriques and Santos (2023). |
| Indebtedness | Negative relationship with the ETR. | Stickney e Mcgee (1982), Plesko (2003), Rodríguez (2004), Pérez et al. (2005), Liu and Cao (2007), Richardson and Lanis (2007), Noor et al. (2010), Pohlmann e De Iudícibus (2010), Wu et al. (2012), Kraft (2014), Sant'Ana e Zonatto (2016). |
| | Positive relationship with the ETR | Harris e Feeny (2003), Janssen (2005), Chen et al. (2010), Santos et al. (2013), Delgado et al. (2014), Sant'Ana and Zonatto (2016), Henriques and Santos (2023); |
| | No relation to the ETR | Kim e Limpaphayom (1998), Wilkinson et al. (2001). |
| Capital intensity | Negative relationship | Stickney e Mcgee (1982), Gupta e Newberry (1997), Janssen (2005), Pérez et al. (2005), Richardson e Lanis (2007), Chen et al. (2010), Noor et al. (2010), Fernández-Rodríguez and Martínez-Arias (2014), Salaudeen and Eze (2018). |
| | Positive relationship | Wilkinson et al. (2001), Guimarães et al. (2016) and Ready (2019). |
| Profitability | Positive relationship | Stickney and McGee (1982), Zimmerman (1983), Gupta and Newberry (1997), Plesko (2003), Rodríguez (2004), Pérez et al. (2005), Richardson e Lanis (2007), Chen et al. (2010). |
| | Negative relationship | Derashid e Zhang (2003), Pérez et al. (2005), Fernández-Rodríguez and Martínez-Arias (2014), Sant'Ana and Zonatto (2015) |
| | No evidence | Díaz et al. (2011), Santos et al. (2013), Fernández-Rodríguez and Martínez-Arias (2014), Henriques and Santos (2023). |
| Inventory Intensity | | Fernández-Rodríguez and Martínez-Arias (2014). |

**Note:** *ETR = Effective Tax Rate.*
**Source:** *Adapted from Bernd and Silva (2020).*

governance, economic sector, and regulatory context. In addition, there is a lack of detailed analyses on specific fiscal policies, such as the Good Law in Brazil. This study aims to fill these gaps by examining different ETR metrics and their determinants in the Brazilian context, focusing on tax incentives.

These studies provide a comprehensive view of the interaction between tax incentives, capital structure, and financial decisions, offering valuable insights for business practices and public policies.

## 2.3 Conceptual Diagram of the Relationship between Tax Incentives and the Effective Tax Rate

The framework presented in Figure 1 describes the factors that influence the effective tax rate (ETR), showing how tax incentives, business characteristics, and tax metrics interact to determine the taxes paid by companies.

Tax incentives, such as those provided for in the Law of Good and in the Superintendency for the Development of the Northeast (SUDENE) and the Superintendency for the Development of the Amazon (SUDAM), reduce the tax burden, stimulating specific sectors or regions. The impact on the ETR varies according to factors such as size, indebtedness, inventories, capital intensity, and profitability, with the tax incentive being one of those factors. The nominal rate of 34% may be lower depending on how these factors are applied.

There are several ways to measure tax efficiency: ETR GAAP (international accounting standards), ETR Current (taxes paid in the year), ETR Deferred (deferred or prepaid taxes), ETR Cash (taxes paid in cash), and ETR Sectoral (comparison between sectors).
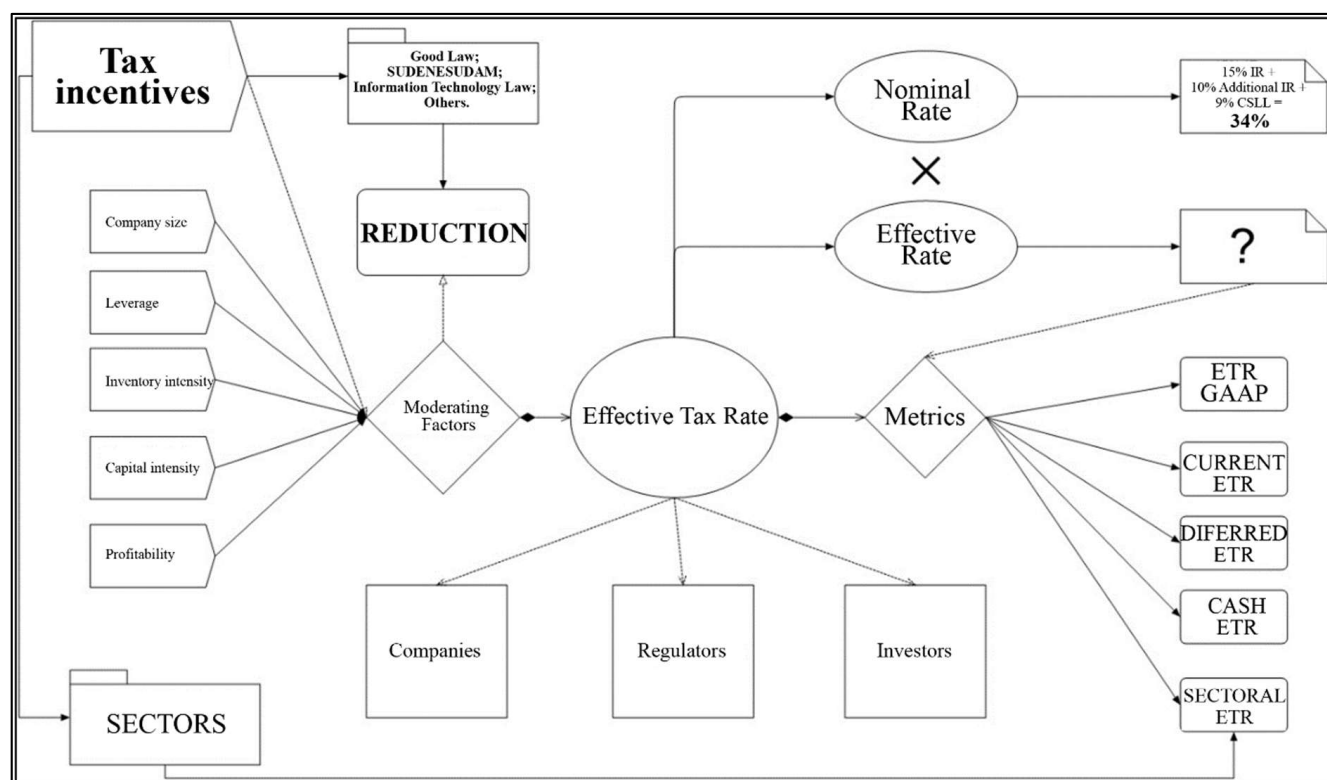
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**Figure 1** *Conceptual diagram on the relationship between Tax Incentives and the Effective Tax Rate*
**Source:** *Prepared by the authors.*

The ETR is important for companies, regulators, and investors, influencing tax planning, compliance, and financial assessment. The model also considers that different sectors have their own tax regimes, affecting the ETR in distinct ways.

# 3 METHODOLOGY

## 3.1 Sample and Data Collection

The target population of this research consists of publicly traded companies listed on B3, with data extracted from the Economatica® database, resulting in an initial sample of 392 companies. The data was collected between 2013 and 2022, totaling 3,920 observations. This period provides a broad view of the impacts of economic events, regulatory changes, and market fluctuations on tax incentives and the ETR, with an emphasis on the transition of international accounting standards and the transitional tax regime.

The data collection was done based on secondary information from the Economatica® database and the analysis of financial statements and explanatory notes on tax incentives (Table 2). The explanatory notes for the reconciliation between accounting profit and taxable profit were analyzed, according to item 81 of CPC 32 – Income Taxes (Comitê de Pronunciamentos Contábeis, 2009), to identify the factors that influence taxable profit, focusing on tax incentives. Notes on subsidies and government assistance were also examined, according to CPC 07 (R1) (Comitê de Pronunciamentos Contábeis, 2010), to identify tax incentives that affect profit, such as the Good Law, the Informatics Law, and the incentives from SUDENE and SUDAM.

In Brazil, various tax incentives directly affect the profits of companies, focusing on specific sectors. Some of the main incentives include:

a) **Good Law (Law No. 11,196/2005):** Offers tax incentives for technology companies and software exports, including a 60% deduction of income tax on Research, Development, and Innovation (RD&I), reduction of tax on industrialized products (IPI, in Brazilian Portuguese), full depreciation, and accelerated amortization.

b) **Rouanet Law (Law No. 8,313/1991):** Allows companies and individuals to allocate part of their income tax to finance cultural projects approved by the Ministry of Culture.

c) **Audiovisual Law (Law No. 8,685/1993):** Offers a reduction in income tax for investments in independent Brazilian audiovisual productions.

d) **Informatics Law (Law No. 8,248/1991):** Grants benefits such as financial credit and IPI exemption for the technology sector.

e) **Sports Incentive Law (Law No. 11,438/2006):** Allows companies to deduct from income tax amounts allocated to donations and sports sponsorships approved by the Ministry of Citizenship.

During the data collection, companies in the financial sector were excluded annually, as defined by B3, including financial intermediaries, pension and insurance companies, real estate exploration, various financial services, and diversified holdings, due to their structural and regulatory peculiarities. In addition, companies with insufficient data for the proxies were discarded, such as those with earnings before taxes (EBT) but without tax values, or when it was not possible to calculate the ETR CASH3 due to the absence of information in certain years. These exclusions were made to ensure greater consistency in the results, as the lack of data would compromise the execution of the proposed models. The sample selection was essential for some models due to the lack of data to estimate the dependent variable and the presence of negative ETRs, justified by the characteristics of the variables. Thus, it was decided to use unbalanced panel data analysis, given the absence of complete data for all companies in all analyzed periods.

## 3.2 Models

The lack of a consensual metric to evaluate the ETR has led researchers to adopt different approaches to estimate the effects of tax aggressiveness (Lopes, 2009). In this study, unbalanced panel data were used to analyze six models, each corresponding to a measure of ETR, with the aim of examining the influence of tax incentives on profit.

$$ETR_{i,t} = \beta_0 + \beta_1 INCFiscal_{i,t} + \sum_{I}^{n} y_n Other\ determinants_{i,t} + \varepsilon_{i,t} \qquad \boxed{1}$$

where:

$ETR_{i,t}$ refers to the various effective rates such as: ETR GAAP, Current ETR, Deferred ETR, Cash ETR, Cash3 ETR, and Sectoral ETR;

$INCFiscal_{i,t}$ = refers to the amount of tax incentives;

Other determinants refer to factors such as Size, Leverage, Inventory Intensity, Capital Intensity, and Profitability.

To validate the estimates, the following tests were applied: normality of the residuals (Shapiro-Francia), homoscedasticity (Modified Wald), multicollinearity (Variance Inflation Factor – VIF), and absence of correlation of the residuals (Wooldridge test). Heteroscedasticity was corrected with robust errors, and autocorrelation was adjusted using the Prais-Winsten method (Fávero, 2017; Wooldridge, 2023).

## 3.3 Research Variables

Table 3 presents the variables used in the models, their composition, and the expected signs. The winsorization technique was applied between the 1% and 99% percentiles for all variables, except for the variable TAM, which did not show outliers.

# 4 RESULTS

## 4.1 Descriptive Statistics

Initially, a descriptive analysis of the variables was conducted to identify the main measures, organizing the table into panels for each sample (Table 4).

In the sample used in the Current ETR and Deferred ETR models, the standard deviation of the variables decreased after winsorization, reducing the impact of outliers. The averages of Current ETR and Deferred ETR indicate that taxes were provisioned below the nominal rate of 34%, with deferral of taxes by tax legislation. However, the proxies for Current ETR and Deferred ETR showed high standard deviation, suggesting variations between accounting and taxable income.

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**Table 2**
*Composition of the study sample*

|  | Number of Companies | Number of Observations |
|---|---|---|
| SELECTED COMPANIES | **392** | **3920** |
| *(-) Financial sector company* | (57) | (570) |
| *(-) Lack of data* | (188) | (2490) |
| *Negative EBT* | (10) | (107) |
| GENERAL SAMPLE | **137** | **753** |
| *Relative frequency of the total selected companies* | 34.95% | 19.21% |
| COMPOSITION TO RUN THE ETR GAAP MODEL |  |  |
| *ETR less than or equal to zero* | *(3)* | *(80)* |
| FINAL SAMPLE ETR GAAP | **134** | **673** |
| *Relative frequency of the total selected companies* | 34.18% | 17.17% |
| COMPOSITION TO RUN THE ETR CASH MODEL |  |  |
| *(-) Not enough data* | *(34)* | *(249)* |
| *ETR less than or equal to zero* | *(6)* | *(75)* |
| FINAL SAMPLE ETR CASH | **97** | **429** |
| *Relative frequency of the total selected companies* | **24.74%** | **10.94%** |
| COMPOSITION TO RUN THE ETR CASH3 MODEL |  |  |
| *(-) Not enough data* | *(69)* | *(333)* |
| *ETR less than or equal to zero* | *(4)* | *(177)* |
| FINAL SAMPLE ETR CASH3 | **64** | **243** |
| *Relative frequency of the total selected companies* | **16.33%** | **7.50%** |

**Source:** *Prepared by the authors.*

**Table 3**
*Synthesis with the variables used in the models*

| Acronym | Description | Composition | Expected Signal |
|---|---|---|---|
| Dependent variables |  |  |  |
| ETR GAAP | Effective tax rate on income calculated according to accounting standards | (IR GAAP + CSLL GAAP) / EBT | n/a |
| Current ETR | Effective tax rate on income calculated according to tax regulations | (Current IR + Current CSLL) / EBT | n/a |
| Deferred ETR | Effective tax rate on deferred income | Deferred IR + Deferred CSLL / EBT | n/a |
| ETR Cash | Effective tax rate on income paid | (Paid IR + Paid CSLL) / EBT | n/a |
| ETR Cash3 | Average of three years of the effective tax rate on income paid. | $((\text{Paid IR} + \text{Paid CSLL})_t + (\text{Paid IR} + \text{Paid CSLL})_{t-1} + \text{Paid CSLL})_{t-2}) / (\text{EBT}_t + \text{EBT}_{t-1} + \text{EBT}_{t-2})$ | n/a |
| Sectoral ETR | Average of the Current ETR of companies in the sector | $\Sigma$ Current ETR of companies / n |  |
| Determinant of the study (independent variables) |  |  |  |
| TaxInc | Amount of Tax Incentives on profit | Tax Incentives/Total Assets | (-) |
| Other determinants (independent variables) |  |  |  |
| TAM | Company size | Total Active Log | (+) |
| ALA | Leverage | (PC + PNC) / AT | (-) |
| INTINV | Inventory Intensity | Stock / Total assets | (-) |
| INTCAP | Capital Intensity | Fixed Assets/ Total Assets | (-) |
| LUC | Profitability | Profit before income tax and social contribution / Total assets | (+) |

**Source:** *Prepared by the authors.*

The tax incentives showed an average of 0.54%, the average leverage was 56.42%, and the asset profitability was 9%. The intensity of investments and the intensity of capital had averages of 7.24% and 24.44%, respectively.

In Panel B, the average GAAP ETR was lower than the nominal rate and the Current ETR, which justifies the negative sign of the Deferred ETR. The average of the taxes calculated by the tax regulation was higher than that calculated by the accounting regulation, resulting in deferred tax assets related to income tax. The standard deviation remained high, with a variation of 0.268 points. The averages of tax incentives and other variables underwent slight changes. In Panel C, ETR Cash showed a reduction compared to previous samples, with an increase in tax incentives, maintaining consistency in the variables.

In Panel D, the ETR Cash3 showed the lowest average, with a more pronounced growth of tax incentives compared to the ETR Cash. This indicates that greater tax incentives are associated with lower corporate tax rates, which will be confirmed in the regression analysis. A sectoral analysis of each ETR was conducted, divided according to Table 5, based on studies by Santos et al. (2013) and França and Monte (2019), as this division is relevant in Brazilian taxation, especially regarding tax incentives.

The Transportation sector had the highest tax burden in the GAAP ETR and Current ETR, while the Commerce sector had the lowest rates. All sectors, except Water, Energy, and Communication, showed negative values in deferred taxes, with the "Other" sector displaying the largest negative value. At ETR Cash, the Transportation sector maintained the highest rate, and the "Others" sector had the lowest. The rates of ETR Cash3 were generally lower than those of ETR Cash, except in the Commerce sector.

Another sector analysis was conducted, dividing the Sector ETR into subsectors according to the classification of B3 (Table 6), adapted from the methodology of Dyreng et al. (2008), based on the 30 sectors of Fama and French. Subsectors with fewer than 10 observations or 2 companies were grouped into the "Others" category.

The results indicate significant variations in the Sectoral ETR. The Transport sector had the highest ETR, followed by the Chemical sector and the Technology Programs and Services sector. In contrast, sectors such as Education and Processed Foods showed the lowest ETRs, suggesting a greater fiscal impact. The Electric Energy sector, with the largest number of companies, showed a moderate ETR of 21.66%, reflecting fiscal stability.

A correlation analysis was conducted, presented in the graphs of Figure 2, between tax incentives and the different proxies of the Effective Tax Rate (ETR). All the graphs show a negative trend line, as expected, since the increase in tax incentives reduces the effective tax burden on companies. This inverse relationship indicates that as companies receive more tax incentives, their ETR tends to decrease, highlighting a negative correlation between incentives and the effective tax burden across different metrics.

## 4.2 Models Estimation

For data analysis, an unbalanced data panel was used, suitable for studies with companies over time, as it takes into account the heterogeneity of the data, greater variability and efficiency, in addition to reducing collinearity and providing more degrees of freedom. This panel allows for the study of complex behaviors and the analysis of dynamic changes (Gujarati & Porter, 2011).

The Chow (C), Hausman (H), and Breusch and Pagan (BP) tests were conducted to identify the most suitable estimator. To estimate the Sectoral ETR, the between fixed effects estimator was used, which considers variation between individuals, since the Sectoral ETR varies between sectors, but not over the years (Fávero, 2013).

In Table 7, the results of the regressions show that the random effects model was the most suitable in column (1), with most variables showing significance below 10%. The ETR GAAP showed a negative relationship with tax incentives, which reduced the ETR by 3.74. The variables TAM, INTINV, and LUC showed negative coefficients, while ALA was positive. These variables explained 12.60% of the effective tax rate on income.

In column (2), the fixed effects model was the best for the Current ETR, but FiscalIncome was not significant. For the Deferred ETR (column 3), the tests indicated a preference for fixed effects, but INCFiscal was not significant, with a negative relationship of -5.7293. LUC was the only significant variable, with a coefficient of 2.6630, explaining only 9.07% of the Deferred ETR.

In the regression of ETR Cash (column 4), the fixed effects model was also the most suitable. The tax incentive proxy had a positive and significant relationship, although contrary to what was expected, with a coefficient of 7.8381. LUC was significant at 0%, with a coefficient of -1.7447, indicating that higher profitability reduces the tax rate. The inventory intensity was significant at 5%, with a direct relationship to ETR Cash.

Finally, in the analysis of ETR Cash3 (column 5), the tests showed that the fixed effects model was the most suitable. The tax incentives were significant at 10%, but with a positive relationship, indicating that more

**Table 4**
*Descriptive measures for the samples*

| Panel A - Current and Deferred ETR Sample | | | | | |
|---|---|---|---|---|---|
| Variables | Notes | Average | Standard Deviation | Minimum | Maximum |
| Current ETR | 753 | 0.2906 | 0.4859 | -0.0943 | 3.8422 |
| Deferred ETR | 753 | -0.0802 | 0.4660 | -3.4976 | 0.5103 |
| Tax Incentives | 753 | 0.0054 | 0.0082 | 0.0000 | 0.0424 |
| Size | 753 | 15.6347 | 1.6639 | 10.5404 | 20.7106 |
| Leverage | 753 | 0.5642 | 0.1767 | 0.1025 | 0.9605 |
| Inventory Intensity | 752 | 0.0727 | 0.0981 | 0.0000 | 0.4051 |
| Capital Intensity | 752 | 0.2443 | 0.2112 | 0.0000 | 0.8028 |
| Profitability | 753 | 0.0901 | 0.0670 | 0.0017 | 0.3402 |
| Panel B – ETR GAAP Sample | | | | | |
| Variables | Notes | Average | Standard Deviation | Minimum | Maximum |
| ETR GAAP | 673 | 0.2712 | 0.2675 | 0.0105 | 2.2540 |
| Tax Incentives | 673 | 0.0050 | 0.0078 | 0.0000 | 0.0415 |
| Size | 673 | 15.6363 | 1.6531 | 10.6763 | 20.6997 |
| Leverage | 673 | 0.5674 | 0.5645 | 0.1753 | 0.1025 |
| Inventory Intensity | 672 | 0.0703 | 0.0702 | 0.0970 | 0.0000 |
| Capital Intensity | 672 | 0.2420 | 0.2416 | 0.2150 | 0.0000 |
| Profitability | 673 | 0.0953 | 0.0948 | 0.0669 | 0.0027 |
| Panel C – ETR Cash Sample | | | | | |
| Variables | Notes | Average | Standard Deviation | Minimum | Maximum |
| ETR Cash | 429 | 0.2462 | 0.2566 | 0.0136 | 1.7525 |
| Tax Incentives | 429 | 0.0060 | 0.0089 | 0.0000 | 0.0446 |
| Size | 429 | 15.8338 | 1.6305 | 10.8055 | 20.7106 |
| Leverage | 429 | 0.5614 | 0.1826 | 0.1002 | 0.9361 |
| Inventory Intensity | 429 | 0.0711 | 0.1036 | 0.0000 | 0.4196 |
| Capital Intensity | 429 | 0.2169 | 0.1935 | 0.0000 | 0.7091 |
| Profitability | 429 | 0.0960 | 0.0661 | 0.0033 | 0.3200 |
| Panel D – ETR Cash3 Sample | | | | | |
| Variables | Notes | Average | Standard Deviation | Minimum | Maximum |
| ETR Cash3 | 243 | 0.2034 | 0.1530 | 0.0248 | 0.8973 |
| Tax Incentives | 243 | 0.0065 | 0.0092 | 0.0000 | 0.0446 |
| Size | 429 | 15.8338 | 1.6305 | 10.8055 | 20.7106 |
| Leverage | 243 | 0.5646 | 0.1822 | 0.1002 | 0.9361 |
| Inventory Intensity | 243 | 0.0685 | 0.1036 | 0.0000 | 0.4199 |
| Capital Intensity | 243 | 0.2091 | 0.1869 | 0.0000 | 0.7188 |
| Profitability | 243 | 0.0980 | 0.0649 | 0.0022 | 0.3125 |

**Source:** *Prepared by the authors.*

**Table 5**

*Average ETR measures by sector between 2013 and 2022*

| Sectors | ETR GAAP | Current ETR | Deferred ETR | ETR Cash | ETR Cash3 |
|---|---|---|---|---|---|
| Industry | 22.59% | 26.01% | -11.71% | 19.65% | 15.60% |
| Commerce | 19.58% | 21.05% | -11.84% | 20.31% | 19.55% |
| Water, Energy and Communication | 28.30% | 25.60% | 0.01% | 23.96% | 17.91% |
| Oil and Gas | 28.59% | 35.75% | -8.87% | 32.34% | 26.29% |
| Transport | 41.87% | 51.12% | -12.90% | 45.99% | 43.81% |
| Others | 23.68% | 29.71% | -17.62% | 13.31% | 9.66% |

**Source:** *Prepared by the authors.*

**Table 6**

*Sector ETR Measure groups by B3 sub-sector during the period from 2013 to 2022*

| Sectors | Number of Signatures | Notes | Sectoral ETR |
|---|---|---|---|
| Water and Sanitation | 3 | 16 | 32.60% |
| Processed Foods | 3 | 26 | 12.45% |
| Trade and Distribution | 4 | 10 | 30.40% |
| Computers and Equipment | 3 | 10 | 15.96% |
| Education | 7 | 40 | 12.18% |
| Electric Energy | 29 | 208 | 21.66% |
| Wood and Paper | 4 | 10 | 28.06% |
| Machines and Equipment | 7 | 23 | 20.68% |
| Medications | 6 | 41 | 21.93% |
| Oil and Gas | 6 | 45 | 29.43% |
| Technological Programs and Services | 6 | 32 | 32.80% |
| Chemicals | 6 | 17 | 33.91% |
| Steel and Metallurgical | 7 | 36 | 19.45% |
| Fabrics and Clothing | 14 | 76 | 20.53% |
| Transport | 16 | 99 | 37.85% |
| Others | 16 | 64 | 28.33% |

**Source:** *Prepared by the authors.*

incentives result in higher tax payments, contrary to the initial suggestion. The variables LUC and TAM were also significant, with negative coefficients of -0.2645 and -0.0269, respectively, indicating that greater profitability and size result in lower tax payments.

In the sector analysis, the same models with dummy variables were used to control for the effects of the sectors, estimated using the LSDV (Least Square Dummy Variable) approach. The sectors were grouped into six categories, according to Santos, Cavalcante, and Rodrigues (2013) and França and Monte (2019), as shown in Table 8. The GAAP ETR model was adjusted with the random effects estimator, according to the BP and H tests (p-value of 0.1385). The tax incentives were significant at 10%, with a negative

relationship (-3.3043), suggesting that increases in these incentives reduce the GAAP ETR. The size of companies also had a negative effect at 10% (-0.0204), indicating that larger companies pay less taxes, while profitability was significant at 5% (-0.6468), showing that more profitable companies pay less taxes. The transportation sector had significance at 10%, with a positive relationship (0.1242), suggesting higher tax payments.

In the Current ETR model (column 2), tax incentives were not significant, but profitability was highly significant at 1%, with a negative coefficient (-0.5492), indicating that more profitable companies pay more current taxes. The water, energy, and communication sectors, as well as oil and gas, were also significant, with positive coefficients
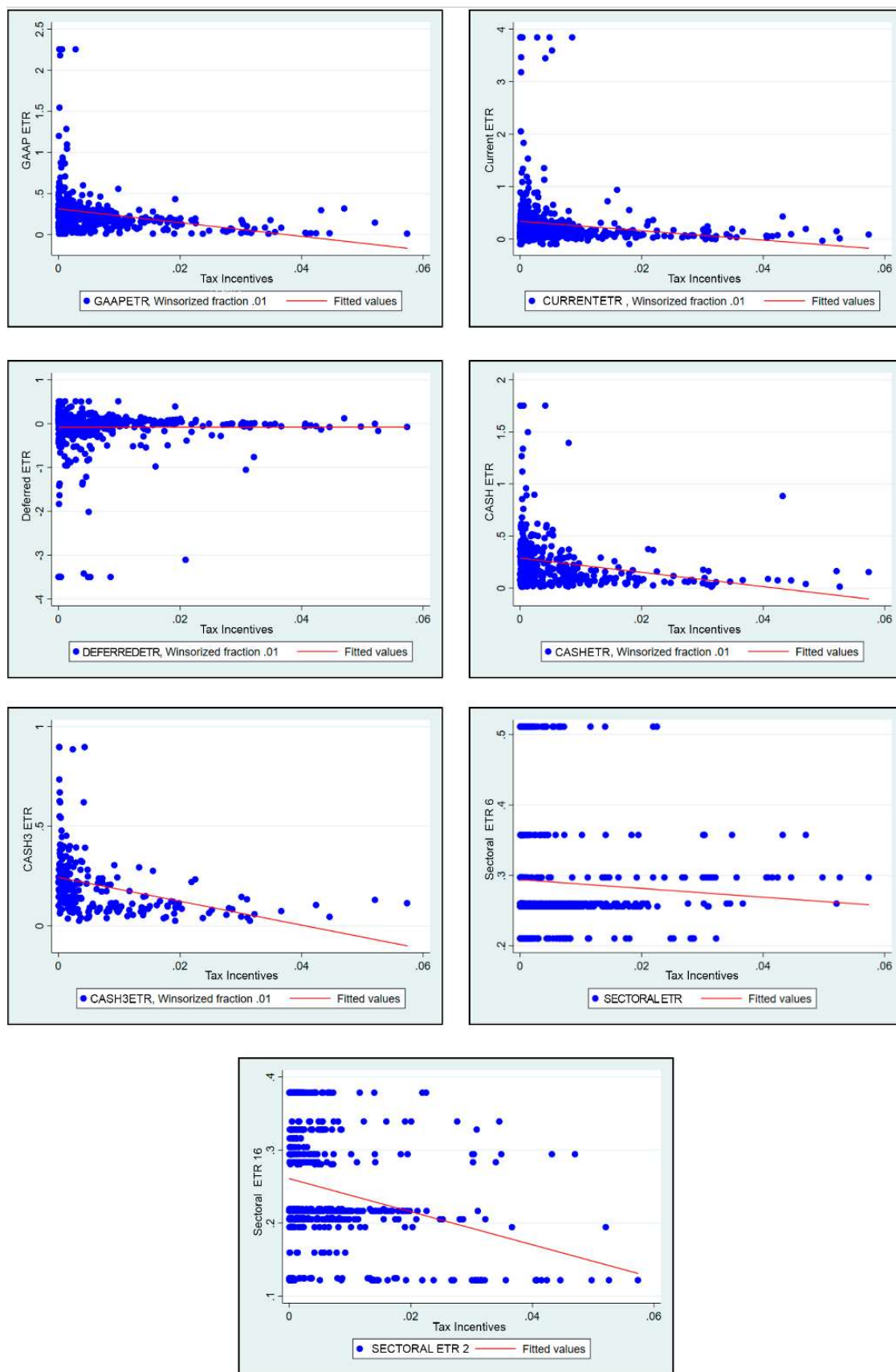
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**Figure 2** *Graphs of the correlations between the various ETR proxies and the Tax Incentives*
**Source:** *Prepared by the authors.*

**Table 7**
*Panel analysis of unbalanced data for samples without sectors*

| Variables | ETR GAAP (1) | Current ETR (2) | Deferred ETR (3) | ETR Cash (4) | ETR Cash3 (5) |
|---|---|---|---|---|---|
| | **Models Without Sectorization** | | | | |
| Tax Incentive | -3.7436 (1.7823)** | 3.4045 (7.5580) | -5.7293 (8.1648) | 7.8381 (3.2212)** | 1.5332 (0.9152)* |
| Size | -0.0213 (0.0113)* | -0.0024 (0.0476) | -0.0029 (0.0539) | -0.0185 (0.0321) | -0.0269 (0.0160)* |
| Leverage | 0.1990 (0.1610) | 0.5526 (0.3545) | -0.2903 (0.2946) | 0.1981 (0.2117) | -0.0241 (0.0613) |
| Inventory Intensity | -0.3463 (0.1071)*** | -0.1132 (0.743607) | 1.0431 (0.7716) | 0.9014 (0.3632)** | 0.1609 (0.1706) |
| Capital Intensity | -0.0494 (0.0680) | -0.9152 (0.4784)* | 0.7876 (0.5279) | 0.0144 (0.2104) | 0.1612 (0.1067) |
| Profitability | -0.6097 (0.2852)** | -2.7665 (0.7715)*** | 2.6630 (0.6747)*** | -1.7447 (0.3738)*** | -0.2645 (0.1237)** |
| Constant | 0.6166 (0.1546)*** | 0.4795 (0.7716) | -0.4401 (0.9221) | 0.4815 (0.4727) | 0.6221 (0.2418)** |
| Number of Observations | 672 | 752 | 752 | 429 | 243 |
| R2 | – | 0.1090 | 0.0907 | 0.1179 | 0.0801 |
| R2 overwall | 0.1172 | 0.0289 | 0.0096 | 0.0021 | 0.0274 |
| R2 between | 0.2303 | 0.0089 | 0.0001 | 0.0060 | 0.0106 |
| Statistics F | – | 2.9393*** | 3.6137*** | 3.9573*** | 1.3760 |
| Chow Test | 2.54 (0.0000) | 1.91 (0.0000) | 1.36 (0.0079) | 3.23 (0.0000) | 22.42 (0.0000) |
| Hausman test | 11.13 (0.0844) | 31.97 (0.0000) | 26.98 (0.0001) | 34.99 (0.0000) | 24.08 (0.0005) |
| Breush and Pagan Test | 54.02 (0.0000) | 16.79 (0.0000) | 0.02 (0.4438) | 85.31 (0.0000) | 212.46 (0.0000) |
| Regression model | Random effects | Fixed Effects | Fixed Effects | Fixed Effects | Fixed Effects |

**Note:** *Significance level = *, ** and ***; respectively 10%, 5% and 1%. Results divided into columns to present the GAAP ETR models (1), Current ETR (2), Deferred ETR (3), Cash ETR (4), and Cash3 ETR (5), respectively.*
**Source:** *Prepared by the authors.*

of 0.1953 and 0.2336, suggesting higher tax payments in these sectors.

In the Deferred ETR model (column 3), tax incentives were not significant, but profitability was significant at 1%, with a positive coefficient of 2.6630, indicating that profitable companies differ more in taxes. The water, energy, and communication sector had significance at 10%, with a positive coefficient of 0.4503, suggesting greater deferral of taxes.

The ETR Cash model with Fixed Effects (LSDV) showed significance in the Breusch-Pagan tests (p-value 0.0000). The variable was significant at 1%, with a positive relationship of 4.5268, contrary to expectations, indicating that tax incentives increase the ETR Cash, suggesting

that companies pay more taxes in cash terms. The inventory variable was also significant at 5%, with a positive coefficient of 0.6136, indicating that companies with larger inventories pay more taxes. The water, energy, and communication sector was significant at 1%, with a positive coefficient of 0.5098, indicating a higher tax burden.

In the ETR Cash3 model with Random Effects (tested by the Breusch-Pagan and Hausman tests, p-value 0.8900), the coefficient was not significant. However, profitability was significant at 10% (-0.1843), confirming that more profitable companies pay less taxes. The transportation sector was significant at 1%, with a coefficient of 0.2943, indicating that companies in this sector pay more taxes.

**Table 8**
*Panel analysis of unbalanced data for samples with sectors*

| | Models with Sectorization | | | | |
|---|---|---|---|---|---|
| Variables | ETR GAAP (1) | Current ETR (2) | Deferred ETR (3) | ETR Cash (4) | ETR Cash3 (5) |
| Tax Incentive | -3.3043 (1.7753)* | 0.2559 (1.3108) | -5.7292 (4.2070) | 4.5268 (1.5356)*** | 0.2520 (0.7841) |
| Size | -0.0204 (0.0114)* | -0.0153 (0.0145) | 0.0029 (0.0476) | -0.0180 (0.0191) | -0.0146 (0.0096) |
| Leverage | 0.1832 (0.1583) | 0.1189 (0.0777) | -0.2903 (0.2487) | 0.1384 (0.1060) | -0.0363 (0.0611) |
| Inventory Intensity | -0.2918 (0.2217) | 0.4117 (0.2396)* | 1.0431 (0.7909) | 0.6136 (0.2830)** | 0.0871 (0.1460) |
| Capital Intensity | -0.0791 (0.0846) | 0.1158 (0.0997) | 0.7876 (0.3152)** | 0.1792 (0.1206) | 0.0590 (0.0876) |
| Profitability | -0.6468 (0.2985)** | -0.5492 (0.1305)*** | 2.6630 (0.4103)*** | -1.0416 (0.1704)*** | -0.1843 (0.1222)*** |
| Industry Sector | 0.0589 (0.0697) | 0.2126 (0.1584) | 0.1074 (0.5155) | 0.1572 (0.1003) | 0.0490 (0.0545) |
| Commerce Sector | -0.0010 (0.0569) | -0.0291 (0.1003) | 0.0615 (0.3226) | -0.0671 (0.1064) | 0.0705 (0.0694) |
| Water, Energy and Communication Sector | 0.0450 (0.0535) | 0.1953 (0.0787)** | 0.4503 (0.2467)* | 0.5098 (0.1388)*** | 0.1369 (0.0604)** |
| Oil and Gas Sector | 0.0810 (0.0535) | 0.2336 (0.0873)*** | 0.2666 (0.2712) | 0.0744 (0.1414) | 0.1073 (0.0778) |
| Transport Sector | 0.1242 (0.0650)* | 0.0201 (0.0819) | 0.2963 (0.2525) | 0.1156 (0.0883) | 0.2943 (0.0994)*** |
| Constant | 0.5647 (0.1611)*** | 0.2821 (0.2360) | -0.6585 (0.7728) | 0.2073 (0.2958) | 0.3545 (0.1587)** |
| Number of Observations | 672 | 730 | 752 | 419 | 243 |
| R2 | | 0.4971 | 0.2725 | 0.5824 | – |
| R2 overwall | 0.1327 | – | – | – | 0.2461 |
| R2 between | 0.2334 | – | – | – | 0.1945 |
| Statistics F | 39.2900*** | 4.1219*** | 1.6100*** | 4.32*** | 23.36** |
| Chow Test | – | – | – | – | – |
| Hausman test | 9.69 (0.1385) | 256.46 (0.0000) | 26.03 (0.0064) | – | 5.74 (0.8900) |
| Breush and Pagan Test | 30.21 (0.0000) | 7.42 (0.0032) | 0.54 (0.2321) | 33.27 (0.0000) | 93.91 (0.0000) |
| Regression model | Random Effects | FE-LSDV | FE-LSDV | FE-LSDV | Random Effects |

**Note:** *Significance level = *, ** and ***; respectively 10%, 5% and 1%. Results divided into columns to present the GAAP ETR models (1), Current ETR (2), Deferred ETR (3), Cash ETR (4), and Cash3 ETR (5), respectively.*
**Source:** *Prepared by the authors.*

To complement the results of the regressions, the models of the Sectoral ETR were estimated, categorized into 6 and 16 sectors. Both models, adjusted by the Between Fixed Effects method due to the absence of temporal variation in the Sectoral ETR, are presented in Table 9.

In the model with 6 sectors, the p-value indicates that there is no significant relationship between the Sectoral ETR and tax incentives. In the model with 16 sectors, the coefficient of -3.4135, significant at 1%, reveals that, in more detail, tax incentives significantly reduce the Sectoral ETR, suggesting that companies benefiting from incentives are more aggressive in the ETR. The coefficient of -0.0102, significant at 5%, indicates that larger companies tend to pay more taxes (model of 6 sectors), although this effect is small. In the 16-sector model, the coefficient of -0.0062 is not significant, suggesting that the impact of company size on the Sectoral ETR decreases with sectoral disaggregation.

The inventory intensity shows coefficients of -0.3456 in the 6-sector model and -0.2249 in the 16-sector model, being significant at 1% in both cases, indicating an inverse relationship. The capital intensity is significant at 1% in the 6-sector model, with a positive coefficient of 0.1064, suggesting that companies with higher capital tend to have more aggressive ETR. In the model with 16 sectors, the coefficient is not significant, indicating that this effect diminishes with greater sectoral disaggregation.

The $R^2$ of the 6-sector model (0.2230) is higher than that of the 16-sector model (0.1755), indicating that the model with fewer sectors better explains the variation of the Sectoral ETR. Despite this, both models have low $R^2$ values, suggesting that other unaccounted factors influence the ETR. The F statistic is significant at 1% in both cases, validating the models.

## 4.3 Discussion

The analysis of the results in topic 4.1 shows significant variations in the ETR, with averages ranging from -8.02% to 29.06%, always below the nominal rate of 34%. This contrasts with Sant'Ana and Zonatto (2016), who reported an average ETR above the nominal rate between 2009 and 2013, predicting growth in the following years, which is

**Table 9**

*Panel analysis of unbalanced data for the Sectoral ETR model with 6 sectors and with 16 sectors*

| Variables | Sectoral ETR | |
|---|---|---|
| | 6 sectors (1) | 16 sectors (2) |
| Tax Incentive | -0.6718 (0.9833) | -3.4135 (0.9461)*** |
| Size | -0.0102 (0.0041)** | -0.0062 (0.0039) |
| Leverage | 0.0617 (0.0416) | 0.0345 (0.0400) |
| Inventory Intensity | -0.3456 (0.0662)*** | -0.2249 (0.0637)*** |
| Capital Intensity | 0.1064 (0.0323)*** | 0.0306 (0.0311) |
| Profitability | 0.0642 (0.1148) | 0.1630 (0.1104) |
| Constant | 0.4069 (0.0680)*** | 0.3413 (0.3413)*** |
| Number of Observartions | 752 | 752 |
| R2 | 0.2230 | 0.1755 |
| R2 overwall | 0.2217 | 0.1362 |
| Statistics F | 6.2172*** | 4.6125*** |
| Regression model | Between | Between |

**Note:** *Significance level = *, ** and ***; respectively 10%, 5% and 1%. Results divided into columns to present the Sectoral ETR models with the 6 sectors (1) divided into Industry; Commerce; Water, Energy and Telecommunications; Gas and Oil; Transport and Others and Sectoral ETR with 16 sectors (2) divided into Water and Sanitation; Processed Foods; Commerce and Distribution; Computers and Equipment; Education; Electric Energy; Wood and Paper; Machinery and Equipment; Medicines; Oil and Gas; Technological Programs and Services; Chemicals; Steel and Metallurgy; Textiles and Clothing; Transport and Others.*
**Source:** *Prepared by the authors.*

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not confirmed here. Thus, Brazilian companies, despite the high tax rate compared to other countries, benefit from tax incentives that impact their ETR (Fernández-Rodríguez et al., 2021).

It is noteworthy that the transportation sector is the only one with an ETR above the nominal rate, according to Paste Junior and Martinez (2020). This occurs due to extreme values of ETR, possibly related to Law 12,788/2012, which allows accelerated depreciation in the cargo transportation sector.

The variables of tax incentives, size, leverage, capital intensity, inventory, and profitability show similar averages among the samples, indicating common business characteristics, even with differences in the number of companies. Variables such as INTCAP, INTINV, and ALA are consistent with the study by Fernández-Rodríguez et al. (2021). The variable TAM has an average close to 16, aligning with the findings of Gomes et al. (2022), but diverging from studies with averages around 6 (Paste Junior & Martinez, 2020; Fernández-Rodríguez et al., 2021; Santos & França, 2022).

In topic 4.2, the research investigates the relationship between tax incentives and different ETR metrics, showing that TaxInc only explains GAAP ETR and Cash ETR. This suggests that incentives are treated as operating income, with the deduction of related expenses, according to CPC 07 (R1) and CPC 32. Lima and Lima (2023) point out that the reduction of the nominal rate results from permanent differences outside tax legislation, which influences the GAAP ETR.

The analysis reveals that the Current ETR, based on tax principles, and the Deferred ETR, affected by temporary differences, are not impacted by tax incentives. On the other hand, the relevance of ETR Cash suggests that incentives affect tax payments in the short term, corroborating Rezende et al. (2018), which highlight the immediate effects of incentives in financing and investment policies.

The counterintuitive result that more tax incentives can increase the tax burden in ETR Cash points to a complex interaction between incentives and tax behavior. This may result from the type and calculation of the incentive, such as that of SUDENE (2024a; 2024b), which reduces the IRPJ in the Northeast. If the company generates more profits outside the benefited region, the aggregate impact is diluted, increasing the tax burden in regions not covered by the incentive.

Temporal differences due to deferred taxes can also cause mismatches between the time of the benefit and the payment. Companies that defer taxes through provisions

or additions to deferred income may observe an increase in the Cash ETR as these amounts are paid.

Tax disputes can be another factor. Taxes settled after litigation substantially increase the ETR Cash, reflecting these retroactive payments. This phenomenon distorts the relationship between incentives and tax burden in specific periods.

Companies like Petrobras, with unique tax characteristics, distort aggregate results. These corporations often operate under complex tax regimes, generating unexpected increases in ETR Cash, even with incentives.

The implications of these findings highlight the need to rethink fiscal policies. Although designed to reduce the tax burden and stimulate growth, incentives can increase the ETR Cash due to flaws in the current model. Excessive bureaucracy and high administrative costs hinder full access to benefits, requiring review for better adaptation to companies.

Incentives must consider sector-specific particularities. Sectors such as energy and transportation, which are highly regulated, may have effects contrary to what is expected. Evaluating effectiveness sectorally is more efficient than applying generalist approaches that disregard operational particularities.

Asymmetric distribution of benefits is also relevant. Some policies can be regressive, favoring smaller companies, while large corporations bear a greater tax burden. This creates distortions in the system, highlighting the need for adjustments for a more equitable application.

The results of the other variables, such as profitability, show overall significance, but with a negative relationship in most cases. This can be explained by Fernández-Rodríguez et al. (2021), which observe that companies in emerging countries have higher profitability and lower effective tax rates.

The significance of TAM only in ETR GAAP and ETR Cash3 suggests that larger companies have lower accounting rates and pay less taxes in the long term, due to better tax planning. These results are in line with the literature and reinforce the complexity of the interactions between tax incentives and ETRs, highlighting the importance of considering diverse metrics.

Results by sector highlight the impact of tax incentives and sectorization on the tax burden. Models with 16 sectors show more significant effects, especially in regulated sectors such as electricity and communications (Santos et al., 2013). In these sectors, larger companies are able to further reduce the tax burden, reinforcing the effectiveness of tax incentives in decreasing the ETR.

Sectors such as Water, Energy, and Communications have a greater impact on Current, Deferred, and Cash ETR. Junior and Martinez (2020) highlight high variability in the energy sector, due to regulation and debt structure. A greater sectoral disaggregation captures nuances better, where regulation and incentives play a crucial role.

The positive impact of tax incentives on ETR Cash and the inverse relationship between size and ETR confirm the findings of Lopes et al. (2021), suggesting that larger companies, especially in sectors like energy, use more conservative tax policies. Companies should prioritize efficient management of tax incentives to improve tax burden, profitability, and investment attractiveness. Paradoxically, they may face a higher tax burden in ETR Cash, requiring a more detailed analysis of the impact on cash flow.

Clarity in the communication of tax incentives strengthens investors' trust, increasing competitiveness. Transparent tax practices are essential for attracting investments, especially in contexts of increasing importance of ESG practices. Regulators must review the effectiveness of incentives to adjust policies and ensure benefits proportional to economic development.

## 5 FINAL CONSIDERATIONS

This research analyzed the effectiveness of tax incentives as determinants of the tax burden of Brazilian companies, using different metrics of the ETR. Based on descriptive analyses and panel regression models of unbalanced data, it was possible to assess the impact of these incentives on the ETR.

The results showed that, although tax incentives play an important role in the tax burden, their effect can be ambiguous. In the box metrics, such as ETR Cash and ETR Cash3, it was observed that the increase in tax incentives is associated with a higher tax burden, indicating a complex interaction between incentives and the tax behavior of companies, which deserves further investigation.

The sector analysis revealed significant variations in the impact of tax incentives across sectors. Highly regulated sectors showed greater sensitivity to these incentives, while the transportation sector faced more difficulties in reducing the tax burden. The segmentation into 16 sectors highlighted the importance of considering sectorization to understand fiscal effectiveness.

In addition, variables such as company size, leverage, investment intensity, capital intensity, and profitability were relevant to explain the tax burden, suggesting the need to consider a broader range of variables in tax analysis.

Despite its contributions, the study has limitations. One of the main ones is the exclusive use of accounting data, which may not fully reflect the tax planning practices of companies. Furthermore, the impact of specific tax incentives by sector was not analyzed, although some, such as those in technology and manufacturing, may be more significant. Future research could disaggregate the types of incentives to investigate their effectiveness by sector and business characteristics, such as incentives for technological or regional innovation.

Another limitation is the analyzed period (2013-2022), which does not capture recent changes in tax legislation. This period included crises such as the recession of 2015-2016 and the pandemic, limiting comparisons with other periods. Future research should assess the effect of changes in tax legislation over time, considering control macroeconomic variables.

Finally, it is recommended to conduct comparative studies between Brazil and other emerging countries, such as the BRICS and MINT blocs, to analyze the effectiveness of tax incentives. Comparisons can reveal best practices, identify reasons why some countries reduce the tax burden more efficiently, and how fiscal governance, political stability, and legal frameworks influence the effectiveness of these incentives.

## REFERENCES

Adhikari, A., Derashid, C., & Zhang, H. (2006). Public policy, political connections, and effective tax rates: Longitudinal evidence from Malaysia. *Journal of Accounting and Public Policy, 25*, 574–595. https://doi.org/10.1016/j.jaccpubpol.2006.07.001.

Bernal, Á. P. G., Montero, P. A., & Recio, L. Á. H. (2021). Do tourist companies support a greater direct tax burden? The case of Spain. *Current Issues in Tourism, 25*(4), 579-591. https://doi.org/10.1080/13683500.2021.1892605.

Bernd, D. C., & Silva, M. C (2020). Fatores determinantes da taxa efetiva de impostos sobre o lucro das empresas listadas na b3-brasil, bolsa e balcão. *Congresso ANPCONT* 2020.

Brasil. (1991). Lei nº 8.248, de 23 de outubro de 1991. Dispõe sobre a capacitação e competitividade do setor de informática

e automação, e dá outras providências. *Diário Oficial da União*, seção 1. https://www.planalto.gov.br/ccivil_03/leis/l8248.htm

Brasil. (1991). Lei nº 8.313, de 23 de dezembro de 1991. Restabelece princípios da Lei nº 7.505, de 2 de julho de 1986, institui o Programa Nacional de Apoio à Cultura (Pronac) e dá outras providências. *Diário Oficial da União*, seção 1. https://www.planalto.gov.br/ccivil_03/leis/L8313compilado.htm

Brasil. (1993). Lei nº 8.685, de 20 de julho de 1993. Cria mecanismos de fomento à atividade audiovisual e dá outras providências. *Diário Oficial da União*, seção 1. https://www.planalto.gov.br/ccivil_03/leis/l8685.htm

Brasil. (2005). Lei nº 11.196, de 21 de novembro de 2005. Institui o Regime Especial de Tributação para a Plataforma de Exportação de Serviços de Tecnologia da Informação - REPES, o Regime Especial de Aquisição de Bens de Capital para Empresas Exportadoras - RECAP e o Programa de Inclusão Digital; [...]. *Diário Oficial da União*, seção 1. https://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2005/Lei/L11196.htm.

Brasil. (2006). Lei nº 11.438, de 29 de dezembro de 2006. Dispõe sobre incentivos e benefícios para fomentar as atividades de caráter desportivo e dá outras providências. *Diário Oficial da União*, seção 1. https://www.planalto.gov.br/ccivil_03/_ato2004-2006/2006/lei/l11438.htm

Brasil. (2013). Lei nº 12.788, de 14 de janeiro de 2013. Permite a depreciação acelerada dos veículos automóveis para transportes de mercadorias e dos vagões, locomotivas, locotratores e tênderes que menciona, previstos na Tabela de Incidência do Imposto sobre Produtos Industrializados - TIPI; e altera as Leis [...]. *Diário Oficial da União*, seção 1. https://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2013/Lei/L12788.htm

Cabeda, D., Martins, M. A. S., Mastella, M., & da Silveira Farias, E. (2022). Escolhas contábeis e características determinantes na neutralidade tributária das companhias brasileiras de capital aberto após a adoção das Normas Contábeis Internacionais (IFRS). *Cuadernos de Contabilidad, 23*, 1-17. https://doi.org/10.11144/Javeriana.cc23.eccd.

Chaves, S. K., & Costa, C. M. (2016). O impacto da Lei do Bem sobre o desempenho financeiro de empresas de capital aberto. *Anais* do Congresso da Associação Nacional de Programas de Pós-Graduação em Ciências Contábeis, Ribeirão Preto, SP, Brasil, 10. http://www.repositorio.jesuita.org.br/handle/UNISINOS/5214.

Chen, S., Chen, X., Cheng, T., & Shevlin, T. J. (2010). Are family firms more tax aggressive than non-family firms? *Journal of Financial Economics (JFE), 95*, 41–61. https://doi.org/10.1016/j.jfineco.2009.02.003.

Comitê de Pronunciamentos Contábeis. (2009). *CPC-32*. Tributos sobre o Lucro. https://www.cpc.org.br/CPC/Documentos-Emitidos/Pronunciamentos/Pronunciamento?Id=63.

Comitê de Pronunciamentos Contábeis. (2010). *CPC-07* (R1). Subvenção e Assitenência Governamental. https://www.cpc.org.br/CPC/Documentos-Emitidos/Pronunciamentos/Pronunciamento?Id=38.

Costa, F. D. C. L., & Klann, R. C. (2023). Effects of the tax liability of managers on the relationship between tax infraction notices and tax avoidance. *Revista Contabilidade & Finanças, 34*(93), e1792 https://doi.org/10.1590/1808-057x20231792.en.

Derashid, C., & Zhang, H. (2003). Effective tax rates and the "industrial policy" hypothesis: Evidence from Malaysia. *Journal of International Accounting, Auditing & Taxation, 12*, 45–62. https://doi.org/10.1016/S1061-9518(03)00003-X.

Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-run corporate tax avoidance. *The Accounting Review, 83*(1), 61-82.

Eigenstuhler, D. P., & Dal Magro, C. B. (2023). Tax Avoidance y cumplimiento contable-tributario según las características de las empresas. *Cuadernos de Contabilidad, 24*(24), 3. https://doi.org/10.11144/Javeriana.cc24.tacc.

Fávero, L. P. L. (2013). Dados em painel em contabilidade e finanças: teoria e aplicação. *BBR-Brazilian Business Review, 10*(1), 131-156.

Fávero, L. P; Belfiore, P. (2017). Manual de Análise de Dados - Estatística e Modelagem Multivariada com Excel®, SPSS® e Stata®. *Grupo GEN*. https://integrada.minhabiblioteca.com.br/books/9788595155602

Feld, L. P., Heckemeyer, J. H., & Overesch, M. (2013). Capital structure choice and company taxation: A meta-study. *Journal of Banking and Finance, 37*(8), 2850-2866. https://doi.org/10.1016/j.jbankfin.2013.03.017.

Fernández-Rodríguez, E., García-Fernández, R., & Martínez-Arias, A. (2021). Business and institutional determinants of Effective Tax Rate in emerging economies. *Economic Modelling, 94*, 692-702. https://doi.org/10.1016/j.econmod.2020.02.011.

Fonseca, P. V., Jucá, M. N., & Nakamura, W. T. (2020). Debt tax benefits in a high tax emerging market: Evidence from Brazil. *International Journal of Economics and Business Administration, 8*(2), 35-52. https://www.um.edu.mt/library/oar/handle/123456789/54799.

França, R. D., & Monte, P. A. (2019). Efeitos da reputação corporativa na tax avoidance de empresas brasileiras de capital aberto. *Revista Universo Contábil, 15*(4), 109-126. doi:10.4270/ruc.2019430

Gomes, J. V. M., Moreira, N. C., Nossa, S. N., & Teixeira, A. (2022). Poder de mercado e agressividade tributária. *Revista Contemporânea de Contabilidade, 19*(51), 03-18. https://doi.org/10.5007/2175-8069.2022.e80271.

Graham, J. R., Hanlon, M., Shevlin, T., & Shroff, N. (2014). Incentives for tax planning and avoidance: Evidence from the field. *The Accounting Review, 89*(3), 991–1023. https://doi.org/10.2308/accr-50678.

Guenther, D. A., Matsunaga, S. R., & Williams, B. M. (2017). Is tax avoidance related to firm risk? *The Accounting Review, 92*(1), 115–136. https://doi.org/10.2308/accr-51408.

Guimarães, G. O. M., Macedo, M. Á. da S., & Cruz, C. F. (2016). Análise da alíquota efetiva de tributos sobre o lucro no Brasil: Um estudo com foco na ETRt e na ETRc. *Enfoque: Reflexão Contábil, 35*(1), 1-16. https://congressousp.fipecafi.org/anais/artigos152015/179.pdf.

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**Rev. Contab. Financ.** – USP, São Paulo, v. 36, n. Spe1, e2150, 2025

Gujarati, D. N.; Porter, D. C. (2011). *Econometria básica*. Porto Alegre: Grupo A. E-book. ISBN 9788580550511. Disponível em: https://integrada.minhabiblioteca.com.br/#/books/9788580550511/. Acesso em: 12 set. 2024.8-3.

Hazir, Ç. A. (2019). Determinants of effective tax rates in Turkey. *Journal of Research in Business, 4*(1), 35-45. https://dergipark.org.tr/en/pub/jrb/issue/46683/539916.

Hebous, S., & Ruf, M. (2017). Evaluating the effects of ACE systems on multinational debt financing and investment. *Journal of Public Economics, 156*, 131-149. https://doi.org/10.1016/j.jpubeco.2017.02.011.

Heider, F., & Ljungqvist, A. (2015). As certain as debt and taxes: Estimating the tax sensitivity of leverage from state tax changes. *Journal of Financial Economics, 118*(3), 684-712. https://doi.org/10.1016/j.jfineco.2015.01.004.

Henriques, C. A. S., & Santos, M. A. C. (2023). Determinantes da tributação efetiva sobre o lucro de bancos da B³. *Enfoque: Reflexão Contábil, 42*(3), 128-145. http://dx.doi.org/10.4025/enfoque.v42i3.59325.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: Methodology and analytical issues. *Hague Journal on the Rule of Law, 3*(2), 220–246. https://ssrn.com/abstract=1682130.

Kaveski, I. D. S., Lopes, I. F., & Beuren, I. M. (2020). Effects of the use of fiscal policy of incentive to innovation in the performance of Brazilian companies. *Gestão & Produção, 27*(1), 1-21. https://doi.org/10.1590/0104-530X3832-20.

Lima, E. M., & Lima, J. M. (2023). Eventos que impactam a Effective Tax Rate (ETR). *International Journal of Scientific Management and Tourism, 9*(7), 4496-4515. 10.55905/ijsmtv9n7-027.

Lopes, A. B. (2009). Agressividade fiscal corporativa no Brasil: uma análise de dados em painel. *Revista Contabilidade & Finanças, 20*(49), 1-12. https://doi.org/10.1590/S1519-70772009000100001

Lopes, I. F., & Beuren, I. M. (2016). Evidenciação da Inovação no Relatório da Administração: uma análise na perspectiva da Lei do Bem (Lei nº. 11.196/2005). *Perspectivas em Gestão & Conhecimento, 6*(1), 109-127. https://congressousp.fipecafi.org/anais/artigos142014/297.pdf.

Lopes, I. F., Meurer, A. M., Kaveski, I. D. S., & Barros, C. M. E. (2021). Reflexo do uso da lei do bem na taxa efetiva dos tributos sobre o lucro em empresas listadas no Brasil, Bolsa, Balcão B3. *UFAM Business Review-UFAMBR, 3*(2), 58-76.

Lopes, T. (2012). *Custos políticos tributários: o impacto do tamanho na alíquota tributária efetiva* (Doctoral dissertation, Universidade de São Paulo). https://doi.org/10.11606/T.12.2012.tde-06022013-190650.

Marinho, L. L. S., & Machado, L. S. (2023). Parcelamento Tributário como Determinante da Agressividade Tributária em Empresas Brasileiras Abertas. *Revista Contabilidade e Finanças, 34* (93), e1754. https://doi.org/10.1590/1808-057x20231754.pt

Marques, B. A., Leal, D., & Rody, P. H. A. (2016). Contribuição da Lei do Bem para o Planejamento Tributário de uma Unidade Empresarial e a Percepção dos Contadores do Estado do Espírito Santo Sobre Incentivos Fiscais e Planejamento Tributário. *Revista Ambiente Contábil, 8*(2), 40-58. http://www.atena.org.br/revista/ojs-2.2.3-06/index.php/Ambiente/article/view/2712.

Marques, V. A., Zucolotto, A. de F., Guzzo Acerbe, L., & Zanoteli, E. J. (2022). Incerteza Econômica e Nível de Agressividade Tributária das Empresas Listadas na B3. *Revista De Educação E Pesquisa Em Contabilidade (REPeC), 16*(1). https://doi.org/10.17524/repec.v16i1.2992.

Mendes, T. J., Abreu, I. R., & Couto, F. F. (2020). Alíquota efetiva de tributos sobre o lucro no Brasil das companhias da B3: um estudo da relação dos indicadores de retorno financeiro. *ForScience, 8*(2), e00776. https://doi.org/10.29069/forscience.2020v8n2.e776.

Miller, T., & Kim, A. B. (2016). *Index of economic freedom. Promoting economic opportunity and prosperity*. Institute for Economic Freedom and Opportunity, Washington, USA. http://www.heritage.org/research/features/index/downloads/Index2006.pdf.

Noor, R. M., Fadzillah, N. S. M., & Mastuki, N. A. (2010, December). Tax planning and corporate effective tax rates. In *2010 International Conference on Science and Social Research (CSSR 2010)* (pp. 1238-1242). IEEE. https://ieeexplore.ieee.org/abstract/document/5773726.

Noor, R. M., Fadzillah, N. S. M., & Mastuki, N. A. (2010, December). Tax planning and corporate effective tax rates. In *2010 International Conference on Science and Social Research (CSSR 2010)* (pp. 1238-1242). IEEE. https://ieeexplore.ieee.org/abstract/document/5773726.

Noor, R. M., Mastuki, N. A., & Bardai, B. (2008). Corporate effective tax rates: a study on malaysian public listed companies. *Malaysian Accounting Review, 7*(1). https://openurl.ebsco.com/EPDB%3Agcd%3A11%3A3745355/detailv2?sid=ebsco%3Aplink%3Ascholar&id=ebsco%3Agcd%3A34904975&crl=c.

Oliveira, O. V., Zaba, E. F., & Forte, S. H. A. C. (2017). Razão da não utilização de incentivos fiscais à inovação tecnológica da lei do bem por empresas brasileiras. *Revista Contemporânea de Contabilidade, 14*(31), 67-88. https://doi.org/10.5007/2175-8069.2017v14n31p67.

Paste Junior & Martinez (2020). The relation between operational efficiency and tax aggressiveness in brazil. *Revista Universo Contábil, 15*(4), 31-48. doi:10.4270/ruc.2019426.

Pérez, J. I. C., Serer, G. L., & Llopis, R. M. (2005). Variables económico-financieras que inciden sobre la presión fiscal soportada por las empresas de «reducida dimensión»: Efectos de la Reforma Fiscal de 15 en las empresas de la Comunidad Valenciana. *Spanish Journal of Finance and Accounting, 34*(127), 875-897. https://doi.org/10.1080/02102412.2005.10779565.

Pohlmann, M. C., & De Iudícibus, S. (2010). Relação entre a tributação do lucro e a estrutura de capital das grandes empresas no Brasil. *Revista Contabilidade & Finanças, 21*, 1-25. https://doi.org/10.1590/S1519-70772010000200002.

Reinhard, L. F. M., & Li, S. (2011). The influence of taxes on corporate financing and investment decisions against the background of the German tax reforms. *European Journal of Finance, 17*(8), 717-737. https://doi.org/10.1080/1351847X.2011.554291.

**Rev. Contab. Finanç.** – USP, São Paulo, v. 36, n. Spe1, e2150, 2025

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Rezende, A., Dalmácio, F., & Rathke, A. (2018). Avaliação do impacto dos incentivos fiscais sobre os retornos e as políticas de investimento e financiamento das empresas. *Revista Universo Contábil, 14*(4), 28-49. https://doi.org/10.4270/ruc.2018426.

Richardson, G., & Lanis, R. (2007). Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia. *Journal of Accounting and Public Policy, 26*(6), 689-704. https://doi.org/10.1016/j.jaccpubpol.2007.10.003.

Salaudeen, Y. M., & Eze, U. C. (2018). Firm specific determinants of corporate effective tax rate of listed firms in Nigeria. *Journal of Accounting and Taxation, 10*(2), 19-28. https://doi.org/10.5897/JAT2017.0288.

Sant'Ana, C. F., & Zonatto, V. C. D. S. (2016). Determinantes da taxa de imposto efetiva de empresas da américa latina. *Sociedade, Contabilidade e Gestão, 10*(3).

Santos, B. I. D. A., & França, R. D. (2022). Análise das relações entre reputação corporativa e tax avoidance de empresas brasileiras. *Contabilidad y Negocios, 17*(34). https://doi.org/10.18800/contabilidad.202202.005.

Santos, M. A. C., Cavalcante, P., & Rodrigues, R. N. (2013). Tamanho da firma e outros determinantes da tributação efetiva sobre o lucro no Brasil. *Advances in Scientific and Applied Accounting, 6*(2), 179-210. https://asaa.emnuvens.com.br/asaa/article/view/119.

Silva, R. C., Santos, D. C., Rieger, M., & Gonzales, A. (2019). A divulgação dos benefícios fiscais e a informação sobre possíveis economias tributárias. *Revista Eniac Pesquisa, 8*(1), 59-84. https://doi.org/10.22567/rep.v8i1.541.

Superintendência do Desenvolvimento do Nordeste (SUDENE). (2024a). *Nordeste é responsável por 31% dos empregos gerados no país*. Superintendência do Desenvolvimento do Nordeste. Disponível em: https://www.gov.br/sudene/pt-br/assuntos/noticias/nordeste-e-responsavel-por-31-dos-empregos-gerados-no-pais

Superintendência do Desenvolvimento do Nordeste (SUDENE). (2024b). *Crescimento do PIB do Nordeste acima da média nacional com destaque para o setor industrial e de serviços*. Superintendência do Desenvolvimento do Nordeste. Disponível em: https://www.gov.br/sudene/pt-br/assuntos/noticias/crescimento-do-pib-do-nordeste-acima-da-media-nacional-com-destaque-para-o-setor-industrial-e-de-servicos

Viana, F. P. (2018). *Utilização do benefício fiscal da remuneração convencional do capital social pelas empresas portuguesas*. Tese de Doutorado, Universidade de Lisboa. https://doi.org/10.1590/1808-057x20221587.pt.

Watts, R. L., & Zimmerman, J. L. (1986). *Positive accounting theory*. https://ssrn.com/abstract=928677

Wooldridge, J. M. (2023). Introdução à econometria: uma abordagem moderna (4th ed.). *Cengage Learning Brasil*. https://integrada.minhabiblioteca.com.br/books/9786555584530

Zimmerman, J. L. (1983). Taxes and firm size. *Journal of accounting and economics, 5*, 119-149. https://doi.org/10.1016/0165-4101(83)9000.

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**Rev. Contab. Financ.** – USP, São Paulo, v. 36, n. Spe1, e2150, 2025