Effective and nominal income tax rate for companies listed on the Lima Stock Exchange for the period 2013-2023

Oscar Alfredo Diaz-Becerra
Pontificia Universidad Católica del Perú, PUCP - Perú

Elard Jhonny Esquivel Aguilar
Pontificia Universidad Católica del Perú, PUCP - Perú

Víctor Manuel León Reyes
Pontificia Universidad Católica del Perú, PUCP - Perú

Differences in the accounting and taxable treatment of the income tax and differences between the nominal rate and the effective rate of the income tax paid by the non-financial entities have risen after adopting International Financial Reporting Standards (IFRS). The aim of this study is to identify the relationship between effective rate and the nominal rate of the income tax paid by companies listing in Lima Stock Exchange during 2013-2023. Analyzing the relationship between the effective rate and the nominal rate of the income tax is still crucial for governmental institutions and companies, especially in countries with no efficient, fair or stable tax systems. This is a quantitative approach with non-experimental, descriptive and longitudinal design. The sample includes entities listing in Lima Stock Exchange, which have implemented the IFRS from 2013 to 2023. Spearman's rank correlation test was applied to determine the existence of general and sector correlation in the analyzed variable. An independent behavior of the analyzed variables was observed. Therefore, no correlation is evidenced, and the proposed thesis is rejected. Differences in the accounting and taxable treatment of companies' income tax have arisen because of the adoption of the IFRS. Consequently, after applying Spearman's rank correlation test, it is concluded that there is no correlation between the effective rate and the nominal rate of the income tax.

Keywords: accounting profit, effective rate, income tax, nominal rate, taxable profit

https://doi.org/10.18800/contabilidad.202601.003
Contabilidad y Negocios 21 (41) 2026 / e-ISSN 2221-724X

Tasa efectiva y nominal del Impuesto a la Renta de las empresas que cotizan en la Bolsa de Valores de Lima para el período 2013-2023

La adopción de las Normas Internacionales de Información Financiera (NIIF) ha generado diferencias en el tratamiento contable y fiscal del Impuesto a la Renta, y, a su vez, diferencias entre la tasa nominal y la tasa efectiva del Impuesto a la Renta que pagan las entidades no financieras. El objetivo del presente estudio es identificar la relación entre la tasa efectiva y la tasa nominal del Impuesto a la Renta que pagan las empresas que cotizan en la Bolsa de Valores de Lima durante el período 2013-2023. Analizar la relación entre la tasa efectiva y la tasa nominal del Impuesto a la Renta sigue siendo crucial para las empresas y las instituciones gubernamentales, especialmente, en países que carecen de regímenes tributarios eficientes, equitativos o estables. El enfoque del estudio es cuantitativo, con un diseño no experimental, descriptivo y longitudinal. La muestra corresponde a las entidades que cotizan en la Bolsa de Valores de Lima que han implementado las NIIF en el periodo de 2013-2023. Se aplicó una prueba de correlación de Spearman para determinar si las variables analizadas estaban correlacionadas, tanto en general como por sector. Se observó que las variables analizadas mostraron un comportamiento independiente. Por lo tanto, no están correlacionadas y se rechaza la hipótesis propuesta. La adopción de las NIIF en Perú ha generado diferencias en el tratamiento contable y tributario del Impuesto a la Renta de las empresas. En este contexto, tras la aplicación de la prueba de correlación de Spearman, se concluye que no existe correlación entre la tasa efectiva y la tasa nominal del impuesto a la renta.

Palabras clave: utilidad contable, tasa efectiva, impuesto a la renta, tasa nominal, utilidad fiscal

Alíquota efetiva e nominal do imposto de renda para empresas listadas na bolsa de valores de Lima no período de 2013 a 2023

A adoção das NIIF gerou diferenças no tratamento contábil e tributário do imposto de renda e, consequentemente, diferenças entre a alíquota nominal e a alíquota efetiva do imposto de renda pago por entidades não financeiras. O objetivo é identificar a relação entre a alíquota efetiva e a alíquota nominal do imposto de renda que pagam as empresas listadas na Bolsa de Valores de Lima durante o período de 2013 a 2023. Analisar a relação entre a alíquota efetiva e a alíquota nominal do imposto de renda continue sendo crucial para empresas e instituições governamentais, especialmente em países que carecem de regimes tributários eficientes, equitativos ou estáveis. A abordagem é quantitativa, com delineamento não experimental, descritivo e longitudinal. A amostra corresponde a empresas listadas na Bolsa de Valores de Lima que implementaram as Normas Internacionais de Relato Financeiro no período de 2013 a 2023. Um teste de correlação de Spearman foi aplicado para determinar se as variáveis analisadas estavam correlacionadas, tanto no geral quanto por setor. Observou-se que as variáveis analisadas apresentaram comportamento independente. Portanto, não estão correlacionadas e é rejeitada a hipótese proposta. A adoção das NIIF no Peru gerou diferenças no tratamento contábil e tributário do imposto de renda das empresas. Nesse contexto, após a aplicação do teste de correlação de Spearman, se conclui que não há correlação entre a alíquota efetiva e a alíquota nominal do imposto de renda.

Palavras-chave: utilidade contábil, alíquota efetiva, imposto de renda, alíquota nominal, utilidade tributária

1. Introduction

The pursuit of global accounting harmonization resulted in the emergence of the International Financial Reporting Standards (IFRS), which have now been adopted by a large number of countries around the world. Although this set of accounting standards has contributed to improving the comparability, quality, and transparency of firms' financial information, it has also created differences between the accounting and tax treatment of corporate income tax (CIT).

In the mentioned context, the determination of income tax has generally caused differences between the accounting and tax bases for determining the taxable amount that allows calculating the tax, because accounting and taxation (related to this type of taxes) have different objectives. This situation has become more common in recent decades, mainly in countries that prepare their financial reports according to the IFRS, which are in force in most jurisdictions worldwide (Fernández-Rodríguez & Martínez-Arias, 2015). This problem gives rise to the term "temporary differences," which arises from the difference between the accounting and tax bases and therefore, generates a difference between the effective rate and the nominal rate of income tax, also known as income tax or corporate tax.

For this research, it is important to understand the difference between the objective of accounting (related to accounting revenue) and the objective of taxation (related to tax revenue), which is linked to various factors. Among these, in the opinion of Hanlon and Keitzman (2010), is the fact that having different objectives leads to different rules proposed. In this sense, according to some author´s, accounting theory has a normative framework whose origin focuses on financial accounting with a conceptual framework based on Generally Accepted Accounting Principles (GAAP), which capture the economics of transactions, to provide useful information for decision makers, such as capital investors and contracting parties. On the other hand, they indicate that tax rules are developed in the context of a more political process, in which legislators can enact tax rules for revenue collection, encourage or discourage certain activities and attempt to incentivize the economy.

It is important to keep in mind the accounting regulations for the preparation of financial information since financial statements constitute the basis for the determination of CIT. In this regard, Díaz et al. (2012) noted the importance of

> highlighting that the differences arising between the treatment of accounting rules and the treatment of tax rules have their main basis in the fact that the objectives of financial accounting differ from tax objectives.

> Therefore, at the time of preparing the financial information, the provisions of the accounting standards prevail, so long as they are in force internationally (p. 21).

The differences between accounting and tax treatment are not the same in all jurisdictions, and nor are the legal tax rates for CIT. Yet it is worth noting two different but related concepts that arise out of the differences between accounting and tax treatment of CIT. The first is known as the nominal income tax rate (NITR), or the legal tax rate, that is in force in each country. It may vary in certain periods and may be subject to a greater or lesser degree of regulatory complexity. The second is the effective income tax rate (EITR), which is obtained by dividing the CIT by the accounting profit before the CIT is determined.

It is important to note that application of the IFRS has been mandatory in Peru since 1998, pursuant to Article 223 of the General Corporations Law, which stipulates that companies must prepare their financial statements based on the country's Generally GAAP, as clarified by resolution of Peru's Accounting Regulatory Board. Thus, the GAAP encompasses the International Accounting Standards (IASs) approved by that institution, which at present are the IFRS (Molina et al., 2014). This provision was not previously enshrined into law— something that had been questioned by several specialists—but the matter was resolved through Article 4 of Supreme Decree 057-2022-EF (2022) which approved the amended text of Legislative Decree1438 of the National Accounting System, compelling private entities to prepare and present financial statements in accordance with the GAAP approved by the Accounting Regulatory Board.

1.1. Background

Analysis of the differences between firms' EITR and their NITR remains a pressing and frequent line of research among researchers and government institutions, given the impact these rates have on the net results expected by management. Given this context, the following paragraphs present prior research that set out to identify the existence of some kind of relationship between EITR and NITR.

First, Mendoza et al. (1994) proposed a method of calculating effective tax rates using national accounts and income and consumption statistics in large industrial countries. The study highlighted major international differences in tax policy and found very similar trends between the calculated effective tax rates and the available estimates of the aggregated marginal tax rates.

More recently, Uemura (2022) evaluated Japan's CIT reform of the 2010s by estimating the average effective tax rate and the marginal effective tax rate for firms in that country. The author noted that the Japanese statutory tax rate was reduced while the tax base was expanded, with a reform of the accepted depreciation methods. It was also noted that the aforementioned tax rates must be estimated before evaluating the impact of tax reform.

Focusing on certain European Union countries, Lopes and Gomes (2018) analyzed a sample of 1 530 companies that applied the IFRS and underwent changes to the nominal rate during the last three years of the study. Having sought to examine the relationship between the nominal and the effective rate and to determine whether any differences depended on the value of the former, the authors concluded that when the nominal tax rate increased so too did the effective rate, albeit at a slower pace. Likewise, the effective rate increased to a lesser extent than the nominal tax rate, in cases where firms have the ability to decrease tax total through efficient tax management.

Mao and Wu (2019) aimed to identify whether the mandatory adoption of the IFRS had a negative impact on income tax in a sample of firms in 137 countries, finding that, among participating firms, there was an increase in book-tax differences and a decrease in income tax revenues. Their study addressed a gap in literature regarding the impact of mandatory IFRS adoption on income tax.

At the local level, Rebaza (2012), aimed to measure the tax burden of firms operating in different sectors of the Peruvian economy, for which the average effective tax rate was identified as a variable. The study hypothesized that the effective rate differs both in each business sector and vis-a-vis the legal rate in force in the country. In this event, income tax was found to be positively associated with accounting income before tax, while the average effective tax rate of each business sector was lower than the statutory tax rate.

For his part, Janský (2023) conducted research on retrospective effective tax rates using the Orbis and Compustat databases, which provide financial information on leading firms in the United States and Europe. Drawing on the reviewed information on CIT rates, the author found differences based on factors such as availability and coverage in different countries, and how close the tax rates are to what firms actually pay.

In the quantitative research conducted by Shamil et al. (2024), which explored the effect of board member characteristics on the tax aggressiveness of firms listed on the Colombo Stock Exchange in Sri Lanka, the dynamic panel system technique was applied to a sample of 264 non-financial companies. Among the results, the authors detected

that the average values of the four measurements of the effective tax rate employed in the study were lower than the legal tax rate, indicating the probability of tax planning.

In turn, Goda (2024) proposed to analyze how the statutory rate of CIT is related to the effective rate of the tax, employing data from the national accounts of 77 developed, emerging, and low-income countries corresponding to the period 1995–2018. The methodology involved the use of dynamic panel data regressions to estimate the effect of the effective CIT rate on aggregate corporate investment. The main findings were that legal CIT rates, on average, are twice as high as the effective CIT rate. Moreover, the study found that the average effective rate remained relatively stable but exhibited different dynamics in the different countries analyzed.

Garcia-Bernardo et al. (2023) took a methodological approach to estimating the effective tax rate using four models with a single rationale. To this end, they used the non-consolidated data available in the Orbis database (produced commercially by Bureau van Dijk and one of the best sources of data at the company level) corresponding to 47 mostly European countries for the period 2011–2015. The authors concluded that effective tax rates differed substantially from statutory tax rates for some countries. For instance, despite having similar statutory rates of 28 % and 29 %, multinationals in Luxembourg paid only 1 % to 8 % of their gross income in taxes, while those in Norway paid between 46 % and 67 %.

In the research conducted by Villabona and Quimbay (2017), the objective is to determine the effective CIT rate for companies in Colombia, using a differentiated procedure for twelve economic sectors in the country. For this purpose, the information available in the income tax returns submitted by companies to the National Tax and Customs Directorate (DIAN) for the period 2000-2015 was used. Considering that the information available in the income tax returns submitted to DIAN is not homogeneous, the authors considered it pertinent to build an application that allowed the information to be uniform and comparative.

As part of the methodological procedure, the effective rates for each sector defined in the project were determined, obtaining as a result that the net income tax that companies have actually paid is not as high as previously considered. Furthermore, it is concluded that the rates determined show significant differences between the different economic sectors, because of the existence of tax benefits that have a different impact on each economic sector. These differences show the lack of horizontal equity in the Colombian tax system, given that the economic sectors that are not as relevant to job creation, such as the financial and mining sectors, were those that received the highest amounts of tax benefits.

This background illustrates the importance that researchers ascribe to the problematic across different regions and countries, considering the particular tax policies and variables of each.

1.2. Objective

The present study seeks to answer the following research question: What are the relationships between the effective and the nominal rates of income tax of firms listed on the Lima Stock Exchange during the period from 2013 to 2023. Besides this general objective, the specific objective is to identify the relationship between the effective rate and the nominal rate of income tax among the companies listed on the Lima Stock Exchange for each economic sector during the period 2013–2023.

The hypothesis proposed, based on the aforementioned objective, is that there is a significant positive relationship between the effective rate and the nominal rate of income tax, overall and by sector, of the firms listed on the Lima Stock Exchange over the period 2013–2023.

1.3. Practical implications

Tax regulation constitutes a critical dimension of corporate decision-making and public policy design, particularly in emerging economies characterized by structural challenges in terms of efficiency, equity, and stability of their tax systems. In this context, an in-depth examination of the relationship between the EITR and the NITR acquires significant practical relevance for both corporate stakeholders and regulatory authorities. Understanding whether statutory changes in CIT translate into proportional variations in firms' effective tax burdens is essential for evaluating the real impact of tax policy reforms.

Numerous researchers have explored the impacts of the EITR and its possible relationship with the NITR, taking into account a series of variables such as the characteristics of related legislation, the influence of the IFRS on CIT determination, tax benefits, tax planning and evasion, and other areas (Beardsley et al., 2021; Castañeda & Villabona-Robayo, 2020; Melo-Becerra et al., 2017; Schwab et al., 2022; Thiart, 2022). These studies have laid the foundations for extending the scope of study and addressing the gap identified, insofar as no consensus has been reached on the relationship between the two rates. In terms of accounting practice, this study contributes to identifying, within the context of Peruvian firms, how the relationship between the EITR and the statutory income tax rate (SITR) enhances the understanding of financial statements, thereby enabling firms to better explain to investors and other stakeholders the variations arising from this relationship.

From a managerial perspective, the findings of this study provide evidence that the effective tax burden borne by firms listed on the Bolsa de Valores de Lima does not exhibit a statistically significant correlation with the statutory rate over the period 2013–2023. This suggests that corporate tax outcomes are influenced by factors beyond the legal rate, such as temporary and permanent differences, sector-specific incentives, tax planning strategies, and the accounting treatment of income tax under *IAS: 12 Income Taxes*. Consequently, managers should not rely solely on statutory rate changes when projecting tax expenses or evaluating investment decisions, but rather incorporate a comprehensive analysis of book-tax differences and deferred tax effects, thereby enabling greater efficiency in tax management, alongside improved quality in financial decision-making and key performance indicators (KPIs), as well as contributing to top management's evaluation processes aimed at enhancing organizational profitability and cash flow.

For investors and financial analysts, the absence of correlation between the EITR and the NITR underscores the importance of scrutinizing the composition of income tax expense reported in financial statements. The effective tax rate may reflect the impact of deferred tax assets and liabilities, loss carryforwards, tax credits, and sectoral benefits, which can materially affect net income and earnings quality. Therefore, the EITR should be interpreted as a complex indicator shaped by accounting standards and tax legislation rather than as a direct proxy for the statutory rate.

From a public policy standpoint, the results have implications for the assessment of tax reforms in Peru. Although the statutory CIT rate was modified during the period analyzed, the lack of a significant relationship with the effective rate suggests that changes in the nominal rate alone may not guarantee proportional changes in actual tax collection at the corporate level. Policymakers should therefore consider the broader tax base definition, existing exemptions, and sector-specific regimes when designing reforms aimed at enhancing revenue, promoting equity, or stimulating investment. The study highlights the importance of adopting a comprehensive approach to tax policy design that goes beyond the statutory rate and considers structural elements such as broadening the tax base, revising tax incentives, and reassessing special regimes, as well as—more complexly—reviewing the mechanisms and rules that give rise to income tax deferral due to differences between tax and accounting practices and standards. These factors may exert a more decisive impact on the EITR than the statutory rate itself.

Finally, this research contributes practical evidence to the limited empirical literature on corporate taxation in Peru. By focusing on publicly listed firms over an extended time horizon, the study provides a reference framework for future analyses seeking to

explain the determinants of effective taxation by sector, firm characteristics, or regulatory changes. In doing so, it supports more informed decision-making by corporate managers, investors, and government authorities concerned with the alignment, or divergence, between statutory and effective CIT rates.

2. Literature review

This section consists of three parts. The first presents a review of prior research on the proposed problem. The second provides an examination of the theoretical foundations of income tax and its accounting treatment, while the third addresses the current legal framework governing income tax in Peru.

2.1. Previous research

Accounting regulation and the standards governing CIT have evolved globally over recent decades. As a consequence, the growing adoption of the IFRS model evidences the emergence of temporary differences and deferred income tax (DIT), arising from discrepancies between the accounting and tax treatment of certain transactions. In this regard, Knezević et al. (2025) note that, in 2017, the European Commission determined that the statutory tax rate may provide an incomplete picture of the generosity of a tax system, as it does not take into account the definition of the tax base. Furthermore, the application of *IAS 12: Income Taxes* results in the recognition of deferred tax assets and liabilities in the statement of financial position, as well as current tax expenses in the statement of profit or loss.

In this context, the study conducted by Mohammadali Haji et al. (2025) emphasizes that investors and analysts regard deferred taxes as a complex accounting phenomenon. Accordingly, it is important for those responsible for corporate management to reflect on the tax implications arising from advances in accounting recognition, such as revenue recognition under *IFRS 15: Revenue from Contracts with Customers*. In this sense, a fundamental aspect of *IAS 12: Income Taxes* concerns how to account for the current and future tax consequences of the subsequent recovery or settlement of the carrying amount of assets or liabilities recognized in an entity's statement of financial position. It is also noted that deferred taxes affect corporate earnings management, thereby reinforcing the relevance of conducting research aimed at providing evidence on the relationship between the accounting and tax treatment of items presented in the financial statements, as reflected in the EITR.

Similarly, Rahiminejad (2025) asserts that discrepancies between accounting income and taxable income constitute a central focus in accounting and tax research.

These differences arise from the distinct regulatory frameworks governing the preparation of financial information and CIT regulations, which, for example, generate divergences in revenue recognition, expense treatment, and valuation methodologies. This situation gives rise to so-called temporary tax differences, which reverse over time after generating deferred tax assets and liabilities that affect both financial statements and corporate tax obligations.

Discrepancies between accounting and tax treatment, which give rise to differences between the effective and SITR, are also addressed by Allen (2025). He notes that because income reported in financial statements is prepared under a set of standards different from those used for income tax reporting purposes, accounting income and taxable income rarely coincide; consequently, the resulting differences may be either permanent or temporary. Permanent differences never reverse and consist of non-taxable income and non-deductible expenses, in accordance with the legislation of each jurisdiction. Temporary differences, by contrast, represent timing variations in items permitted for both accounting and tax calculation purposes, as is often the case with accelerated depreciation allowed under income tax legislation in certain countries, whose treatment will eventually converge with the accounting treatment.

Indeed, the emergence of differences between the accounting and tax treatment of certain items in the financial statements gives rise to temporary differences and to the recognition of DIT assets or liabilities, which constitute a determining factor in the relationship between the EITR and the corresponding statutory rate.

2.2. Theoretical foundations

Studies about income theory and income tax have been subject to the positions and interpretations of their authors regarding the relationships with economic theory and wealth generation, and, in some cases, to the effects of legislation in a given jurisdiction. They have also been subject to the changes undergone by tax systems over time, sometimes in response to new ways of doing business.

To take a position on the concept of income, the present study utilizes the definition of García Mullin that income is “the periodic product of capital, the total material income received by an individual, and the total enrichment received by that individual” (1978, quoted in Medrano, 2018, p.18). It is important to note, first, that the reference to the income received by the individual does not discern its origin or its periodicity; and second, that enrichment includes consumption within a period, including the variations that arise in the equity.

CIT, according to Lopes and Gomes (2018), is crucial as a basis for a state's financial activity and, for its calculation, a nominal rate is applied to the tax base, which is determined according to the tax rules in force in each country and which may be subject to certain corrections to the value determined in accordance with the respective accounting rules.

In turn, the statutory CIT rate, for Janský (2023), is the official rate that a firm pays on its taxable income. This author also pointed out that establishing these rates is generally straightforward, but that sometimes there are differentiated schemes: for instance, central government fixing resulting in central and sub-central rates for domiciled companies and, in other cases, progressive rates for certain income segments.

Then there is the EITR, which Lopes and Gomes (2018) defined as the ratio of total tax revenues to the tax base from which they are drawn. This rate differs from the NITR primarily in the sense that tax rules differ from accounting rules, which in turn means that taxable profit is distinct from accounting profit. The EITR is also a measure used to calculate a firm's tax volume, evaluate the effectiveness of tax planning, and detect possible signs of tax evasion.

It must be recalled that countries' implementation of the IFRS has created differences between the accounting and tax treatment of CIT and has also led to the emergence of so-called DIT, the treatment of which is covered in *IAS 12: Income Tax*. This standard stipulates that income tax includes "all domestic or foreign taxes that are based on taxable profits" (Ministerio de Economía y Finanzas del Perú [MEF] 2023, p.1). The standard also defines income or expense from income tax as the amount included when calculating the profit or loss generated in a period, with regard to current tax[1] and deferred tax.

In turn, the standard defines a deferred tax asset as that corresponding to "amounts of income taxes recoverable in future periods in respect of deductible temporary differences; deductible temporary differences; the carryforward of unused tax losses; and the carryforward of unused tax credits" (MEF, 2023, p.2).

The same standard refers to the concept of deferred tax liability, which corresponds to "the amounts of income taxes payable in future periods in respect of taxable temporary differences" (MEF, 2023, p.2). Based on these definitions, it follows that the existence of a deferred tax asset or liability is related to the generation of temporary

[1] Current tax corresponds to the amount payable or recoverable by the income tax corresponding to the tax gain or loss for a period.

differences, both deductible and taxable, and that these arise from differences over time between the accounting basis of an asset or liability, recognized in the statement of financial position, in relation to its tax base. In sum, the treatments described give rise to an effective average rate, which is determined by the division of income tax expense or income and the accounting profit for the period.

2.3. Legal basis

Peruvian legislation, in accordance with Article 33 of the Regulations to the Income Tax Law and subsequent amendments (Ministerio de Economía y Finanzas, 2023), recognizes that the registration of operations under the GAAP, which correspond in this country to the IFRS, can apply the CIT standards to determine temporary and permanent differences in the determination of the tax base.

These same regulations stipulate that any temporary and permanent differences require adjustment of the accounting result in the CIT declaration, which is known as amendment, addition, or deduction depending on the numerical effect of its determination. This, in the case of firms classified as large taxpayers by the tax administration, must be identified in the same annual CIT statement to be filed.

It should be noted that the main adjustments to the accounting basis that are required to achieve a tax base, and which entail temporary and/or permanent differences, are regulated in Articles 37 and 44 of the Income Tax Law (Ministerio de Economía y Finanzas, 2004). These include, for example, causality; reliability; expenses without proof of payment; conditional, limited, and prohibited expenses; and so on.

Over the study period, the NITR in Peru was subject to variations. The rate stood at 30 % in 2014 before being lowered, through Law 30296 (2014), to 28 % in 2015 and 2016. Another modification of the legal rate, introduced in 2016 and effective from 2017 through Legislative Decree 1261 (2016), increased it to 29.5 %, where it remained at the time of writing.

It is important to note that Peruvian CIT legislation establishes a single rate and does not provide for differentiated rates by economic sectors. However, during the period of study, regulations have been enacted to grant a series of tax benefits or incentives with the aim of contributing to the development of certain economic sectors or attracting private investment.

For instance, Law 27360 (2000) conferred benefits to the agricultural sector, establishing a NITR of 15 %. Subsequently, Law 31110 (2020) introduced staggered rates for

this same sector, which were 15 % for 2021 and 2022; 20 % for 2023 and 2024; 25 % for 2025 until 2027; and 20.5 % from 2028.

3. Methodology

The approach applied in this research was quantitative and sought to measure the relationship between the variables identified in the project: namely, the effective and nominal rates of income tax in the financial statements of the firms listed on the Lima Stock Exchange, over the period 2013–2023. To this end, a non-experimental, descriptive, and longitudinal design was applied to the data obtained from the financial statements of the firms in the sample. This was done through application of the documentary analysis technique based on information drawn from the Bloomberg database.

This research was correlational, with the aim of determining the relationship between the EITR and the NITR variables. To this end, a Spearman correlation test was applied to determine whether the variables analyzed are related in any way.

To determine the population, it was necessary to identify the 260 companies listed on the Lima Stock Exchange that presented their financial statements at the end of the 2023 period. Then, those firms that are not required to apply the IFRS (AFP, banks and financial institutions, investment funds, insurance companies, and so on) were excluded. Also excluded were firms in the process of liquidation and/or restructuring at the end of the same period, as well as those that had not presented an income tax calculation in their income statement. Table 1 presents the resultant population classified according to strata or sector.

Table 1. *Study population classified by sector*

Sector	No. firms	Share (%)
Agriculture	11	7.86 %
Various	55	39.29 %
Industry	24	17.14 %
Mining	29	20.71 %
Utilities	21	15.00 %
Total study population	140	100.00 %

Note. Prepared by authors using data taken from "Emisores e instrumentos locales", by Bolsa de Valores de Lima, n. d. (https://www.bvl.com.pe/emisores/listado-emisores).

To determine the sample, the total population classified by strata, as described in table 1, was utilized. Therefore, it was not necessary to select a sampling technique. In sum, the population and the sample for this research were the same.

4. Analysis and Discussion of Results

Table 2 presents an overview of the effective rates calculated using information obtained from the financial statements of the firms in the sample as well as the nominal rates for 2013–2023. This data was used to determine the relationship between the EITR and the NITR variables.

Table 2. *Effective and nominal rates in the period 2013–2023*

Variables	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ER	22.62 %	20.00 %	22.81 %	21.02 %	25.64 %	25.34 %	28.68 %	47.86 %	23.30 %	4.58 %	9.43 %
NR	30.00 %	30.00 %	28.00 %	28.00 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %

Note. ER = effective rate; NR = nominal rate. Prepared by authors based on data obtained from the firms' financial statements.

The effective rates are obtained from the relationship between income tax and profit before tax, a procedure carried out on the entire sample, as well as by sectors.

The statistical analysis was carried out using the SPSS program, applying Spearman's correlation test to the sample of firms analyzed. Table 3 outlines the data processed for the EITR and the NITR.

Table 3. *Case processing overview*

	Cases					
	Valid		Lost		Total	
	N	Percentage	N	Percentage	N	Percentage
ER	11	100.0 %	0	0.0 %	11	100.0 %
NR	11	100.0 %	0	0.0 %	11	100.0 %

Note. ER = effective rate; NR = nominal rate. Prepared by authors based on data obtained from the firms' financial statements.

As shown in table 3, there are 11 data points for each of the indicators determined in the research. Therefore, the Shapiro-Wilk normality test was chosen. It is worth noting that this test is applied in analyses in which up to 50 data points are available; in cases

where a higher figure is available, the Kolmogorov–Smirnov test is used. Therefore, for this normality test the following hypotheses are proposed:

- Ho: The data have a normal distribution
- Ha: The data DO NOT have a normal distribution

To determine whether the data have a normal distribution, it was necessary to perform the normality test and thereby decide whether to apply a parametric or nonparametric test for the correlation analysis. The confidence level for the normality test was 95 %. The results of the Shapiro-Wilk normality test are presented below in table 4.

Table 4. *Normality tests*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistical	Gl	Sig.	Statistical	Gl	Sig.
ER	0.217	11	0.153	0.884	11	0.117
NR	0.423	11	0.000	0.686	11	0.000

Note. ER = effective rate; NR = nominal rate. Prepared by authors based on data obtained from the firms' financial statements.
a. Lilliefors significance correction

The data related to the NITR did not present normal distribution, so Spearman's correlation test was applied to determine the degree of relationship. Table 5 presents the results obtained, demonstrating, based on the level of significance, that the data referring to the effective and nominal rates for firms overall are not correlated.

Table 5. *Spearman's Rho: effective and nominal rate*

Correlation coefficient	-0.095
Sig. (bilateral)	0.780
N	11

Note: Prepared by authors based on data obtained from the firms' financial statements.

Figure 1 shows the evolution of the effective and nominal rates over the time window analyzed, from 2013 to 2023. There it can be seen that the variables display an independent behavior—that is, they are not correlated, which means that the proposed hypothesis is rejected.

Figure 1. *Evolution of the effective rate vs the nominal rate over the period 2013–2023*

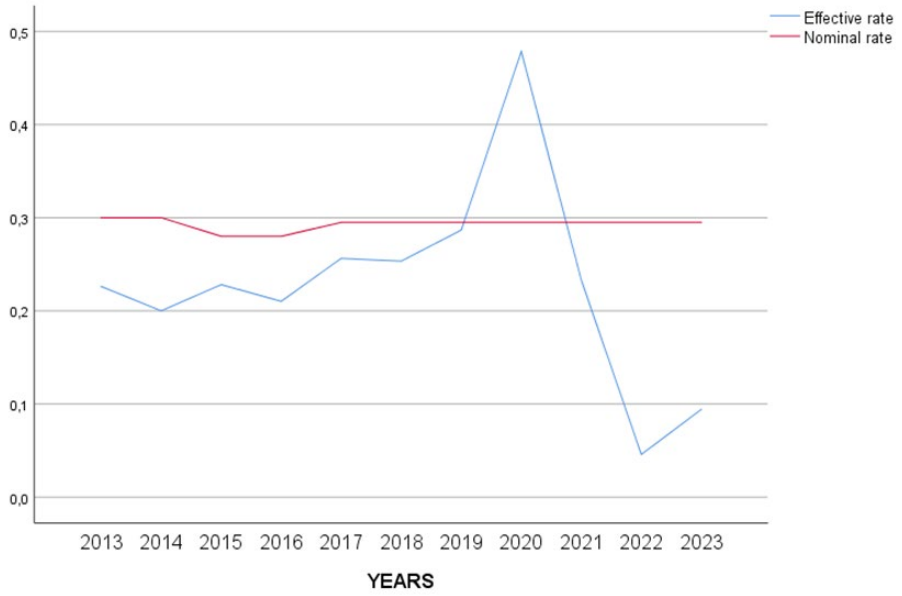

Table 6 presents the data related to the effective rates calculated based on the financial statements of the firms from each sector and the nominal rates in place for the period 2013–2023.

Table 6. *Effective and nominal rates by economic sector over the period 2013–2023*

Variables	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agriculture											
ER	149.23 %	6.31 %	22.75 %	31.74 %	35.47 %	33.84 %	24.46 %	22.80 %	23.41 %	28.15 %	33.86 %
NR	15.00 %	15.00 %	15.00 %	15.00 %	15.00 %	15.00 %	15.00 %	15.00 %	29.50 %	29.50 %	29.50 %
Various											
ER	22.41 %	19.84 %	22.47 %	20.78 %	25.30 %	25.11 %	28.50 %	49.50 %	22.99 %	1.53 %	6.79 %
NR	30.00 %	30.00 %	28.00 %	28.00 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %
Industry											
ER	32.44 %	29.51 %	24.18 %	35.73 %	30.80 %	29.29 %	29.43 %	30.37 %	29.78 %	29.86 %	42.35 %
NR	30.00 %	30.00 %	28.00 %	28.00 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %
Mining											
ER	37.63 %	38.96 %	191.20 %	44.21 %	57.72 %	43.33 %	38.39 %	48.00 %	38.15 %	35.26 %	36.78 %
NR	30.00 %	30.00 %	28.00 %	28.00 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %

Variables	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Utilities											
ER	33.99 %	25.56 %	51.81 %	32.37 %	32.69 %	30.63 %	32.63 %	31.68 %	21.10 %	41.42 %	53.24 %
NR	30.00 %	30.00 %	28.00 %	28.00 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %	29.50 %

Note. ER = effective rate; NR = nominal rate. Prepared by authors based on data obtained from the firms' financial statements.

Following the same procedure applied for the general hypothesis, the statistical analysis was carried using SPSS and involved applying Spearman's correlation test to the sample of firms analyzed by economic sector. Table 7 outlines the data processed for the effective and nominal rates of income tax according to economic sector.

Table 7. *Case processing overview*

	Cases					
	Valid		Lost		Total	
	N	Percentage	N	Percentage	N	Percentage
ER – Agriculture	11	100.0 %	0	0.0 %	11	100.0 %
ER - Various	11	100.0 %	0	0.0 %	11	100.0 %
ER- Industry	11	100.0 %	0	0.0 %	11	100.0 %
ER - Mining	11	100.0 %	0	0.0 %	11	100.0 %
ER – Utilities	11	100.0 %	0	0.0 %	11	100.0 %
NR – Agriculture	11	100.0 %	0	0.0 %	11	100.0 %
NR – Various	11	100.0 %	0	0.0 %	11	100.0 %
NR – Industry	11	100.0 %	0	0.0 %	11	100.0 %
NR – Mining	11	100.0 %	0	0.0 %	11	100.0 %
NR – Utilities	11	100.0 %	0	0.0 %	11	100.0 %

Note. ER = effective rate; NR = nominal rate. Prepared by authors based on data obtained from the firms' financial statements.

Table 8 shows the results of the Shapiro-Wilk normality test applied to firms in different sectors.

Table 8. *Normality tests by economic sector*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistical	Gl	Sig.	Statistical	Gl	Sig.
ER – Agriculture	0.430	11	0.000	0.547	11	0.000
ER – Various	0.238	11	0.081	0.876	11	0.092
ER – Industry	0.267	11	0.028	0.832	11	0.025
ER – Mining	0.389	11	0.000	0.462	11	0.000
ER – Utilities	0.275	11	0.019	0.881	11	0.107
NR – Agriculture	0.448	11	0.000	0.572	11	0.000
NR – Various	0.423	11	0.000	0.686	11	0.000
NR – Industry	0.423	11	0.000	0.686	11	0.000
NR – Mining	0.423	11	0.000	0.686	11	0.000
NR – Utilities	0.423	11	0.000	0.686	11	0.000

Note. ER = effective rate; NR = nominal rate. Prepared by authors based on data obtained from the firms' financial statements by economic sector.

Table 9 presents the results obtained in the EITR and NITR test, based on the criteria and procedures applied. It demonstrates, by level of significance, that the data referring to the effective and nominal rates by economic sector are not correlated.

Table 9. *Spearman's Rho: Effective and nominal rate by economic sector*

Sector	Result	
Agriculture	Correlation coefficient	0.065
	Sig. (bilateral)	0.850
	N	11
Various	Correlation coefficient	-0.095
	Sig. (bilateral)	0.780
	N	11
Industry	Correlation coefficient	0.095
	Sig. (bilateral)	0.780
	N	11

Sector	Result	
Mining	Correlation coefficient	-0.477
	Sig. (bilateral)	0.138
	N	11
Utilities	Correlation coefficient	-0.238
	Sig. (bilateral)	0.480
	N	11

Note. Prepared by authors based on data obtained from the firms' financial statements by economic sector

In sum, as the application of Spearman's Rho showed no relationship between the two rates of income tax, it was possible to reject the hypothesis that that there is a significant positive relationship between the EITR and the NITR among the firms listed on the Lima Stock Exchange over the period 2013–2023, both overall and by sector.

The results obtained in this study are not in keeping with previous research carried out in other jurisdictions, such as that of Lopes and Gomes (2018), which concluded that an increase in the nominal tax rate causes an increase in the effective rate, albeit with slower growth. Likewise, it differs from the results of the study by Mendoza et al. (1994), in which a comparison between the calculated effective tax rates and the aggregate marginal tax rates revealed very similar trends.

Other contradictory findings were acquired through the research of Janský (2023), which analyzed the retrospective effective tax rates of leading companies in the United States and Europe. In that case, it was concluded that income tax rates differ due to factors such as country coverage and the question of how close tax rates are to what is actually paid.

On the other hand, findings in keeping with those obtained here are scarce. In the study conducted by Mao and Wu (2019), the results showed that adoption of the IFRS increased the gap between accounting earnings and taxable income, although no relationship was identified. Moreover, there is some correspondence with the results obtained by Rebaza (2012), in which a difference was likewise detected between the effective and nominal rates but without identifying a correlation. Finally, in the research by Goda (2024), the main findings revealed that the average SITR are twice as high as the effective rate and that the average effective rate has remained stable, but with different dynamics across the countries analyzed.

Conclusions

This research sought to identify the relationship between the NITR and the EITR for the firms listed on the Lima Stock Exchange over the period 2013–2023, both overall and by economic sector, through application of Spearman's correlation test. The results show that the two rates exhibit independent behavior, which means that they are not correlated and that the proposed hypothesis can be rejected. These results coincide in part with those obtained in other studies focusing on similar contexts of IFRS application in that differences were identified between the tax rates analyzed, but no evidence was found of relationships nor of behavior by economic sector.

This research contributes to the literature on the relationship between NITR and EITR by focusing on a country, Peru, in which this topic has attracted little research. Likewise, the research opens possibilities for new studies aimed at better understanding the relationship between the NITR and the EITR by economic sector and explaining the causes behind the differences between the two tax rates.

Author contributions:

Diaz-Becerra, O. A.: Conceptualization, Validation, Formal analysis, Research, Data curation, Writing - original draft, Writing, review, and editing, Visualization, Supervision, Project management. **Esquivel, E. J.:** Formal analysis, Research, Data curation, Writing - original draft, Writing, review, and editing, Visualization. **León, V. M.:** Methodology, Software, Research, Data curation, Writing, review, and editing.

Oscar Alfredo Diaz-Becerra (Diaz-Becerra, O. A.)

Elard Jhonny Esquivel Aguilar (Esquivel, E. J.)

Víctor Manuel León Reyes (León, V. M.)

Conflict of interest statement

Authors declare that, throughout the research process, there has not been any sort of personal, professional, or economic interest that may have influenced the researchers' judgement and/or actions during the elaboration and publication of this article.

References

Allen, E. (2025). The information content of the deferred tax valuation allowance: Evidence from venture-capital-backed IPO firms. *Journal of Risk and Financial Management, 18*(7), 1-25. https://doi.org/10.3390/jrfm18070384

Beardsley, E., Mayberry, M., & Mcguire, S. (2021). Street versus GAAP: Which effective tax rate is more informative? *Contemporary Accounting Research, 38*(2), 1310-1340. https://doi.org/10.1111/1911-3846.12651

Bolsa de Valores de Lima. (n. d.). Emisores e instrumentos locales. https://www.bvl.com.pe/emisores/listado-emisores

Castañeda, V. M. & Villabona-Robayo, J. (2020). El impuesto sobre la renta empresarial en Colombia: su tasa efectiva y su relación con la inversión. *Apuntes del Cenes*, (39), 183–205. https://doi.org/10.19053/01203053.v39.n70.2020.10493

Decreto Legislativo 1261. (2016). *Decreto Legislativo que modifica la Ley del Impuesto a la Renta*. Poder Ejecutivo. https://elperuano.pe/normaselperuano/2016/12/10/1462448-2.html

Decreto Supremo 179-04-EF. (2004). *Impuesto a la Renta*. Ministerio de Economía y Finanzas. https://www.sunat.gob.pe/legislacion/renta/tuo.html

Decreto Supremo 057-2022-EF (2022). *Aprueban Texto Único Ordenado del Decreto Legislativo N° 1438 Decreto Legislativo del Sistema Nacional de Contabilidad*. Ministerio de Economía y Finanzas. https://www.gob.pe/institucion/mef/normas-legales/2885984-057-2022-ef

Decreto Supremo 122-94-EF. (2023). *Reglamento de la Ley del Impuesto a la Renta*. Ministerio de Economía y Finanzas https://www.sunat.gob.pe/legislacion/renta/regla/cap9.pdf

Díaz, O., Durán, L., & Valencia, A. (2012). Análisis de las diferencias entre el tratamiento contable y el fiscal para los elementos de propiedades, planta y equipo: El caso peruano. *Contabilidad y Negocios*, *7*(14), 5-22. https://doi.org/10.18800/contabilidad.201202.001

Fernández-Rodríguez, E., & Martínez-Arias, A. (2015). Discretional in temporary differences between accounting and taxation. *Spanish Journal of Finance and Accounting*, 44(2), 180–207, https://doi.org/10.1080/02102412.2015.1006427

Garcia-Bernardo, J., Jansky, P. & Tørsløv, T. (2023). Effective tax rates of multinational corporations: Country-level estimates. *PLoS ONE*, *18*(11), 1-19. https://doi.org/10.1371/journal.pone.0293552

Goda, T. (2024). Effective corporate income taxation and its effect on capital accumulation: cross-country evidence. *Cambridge Journal of Economics*, *48*(4), 709–740. https://doi.org/10.1093/cje/beae013

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, *50*(2–3), 127–178. https://doi.org/10.1016/j.jacceco.2010.09.002

Janský, P. (2023). Corporate effective tax rates for research and policy. *Public Finance Review*, *51*(2), 171-205. https://doi.org/10.1177/10911421221137203

Knezević, G., Ristanović, V., & Pavlović, V. (2025). Predictive ability of accounting standard IAS 12 in agriculture. *Central European Business Review*, *14*(2), 75-92. https://doi.org/10.18267/j.cebr.385

Ley 27360. (2000). *Ley que aprueba las normas de promoción del Sector Agrario*. Congreso de la República del Perú. https://www2.congreso.gob.pe/sicr/cendocbib/con4_uibd.nsf/5C947E120537341B05257B7A004B13E5/$FILE/27360.pdf

Ley 30296. (2014). *Ley que promueve la reactivación de la economía*. Congreso de la República del Perú. https://cdn.www.gob.pe/uploads/document/file/255628/229403_file20181218-16260-v4a923.pdf?v=1545182496

Ley 31110. (2020). *Ley del Régimen Laboral Agrario y de Incentivos para el Sector Agrario y Riego, Agroexportador y Agroindustrial*. Congreso de la República. https://cdn.www.gob.pe/uploads/document/file/1535274/Ley%2031110.pdf?v=1610035145

Lopes, P. & Gomes, P. (2018). The relationship between the effective tax rate and the nominal rate. *Contaduría y Administración*, *63*(2), 1-21. http://dx.doi.org/10.22201/fca.24488410e.2018.1609

Mao, C. W. & Wu, W. C. (2019). Does the government-mandated adoption of international Financial Reporting Standards reduce income tax revenue? *International Tax and Public Finance*, *26*, 145–166. https://doi.org/10.1007/s10797-018-9495-2

Medrano, H. (2018). *Derecho Tributario. Impuesto a la Renta: Aspectos significativos*. Pontificia Universidad Católica del Perú.

Melo-Becerra, L., Ávila, J. & Ramos-Forero, J. (2017). The effect of corporate taxes on investment: Evidence from the Colombian firms. *Borradores de Economía*, 1001, 1-51. https://doi.org/10.32468/be.1001

Mendoza, E., Razin, A. & Tesar, L. (1994). Effective tax rates in macroeconomics cross-country estimates of tax rates on factor incomes and consumption. *Journal of Monetary Economics*, *34*(1994), 297-323. https://doi.org/10.1016/0304-3932(94)90021-3

Ministerio de Economía y Finanzas del Perú. (2023). *Norma Internacional de Contabilidad 12 (NIC 12): Impuesto a las Ganancias.* https://www.mef.gob.pe/contenidos/conta_publ/con_nor_co/niif/NIC_12_BV2023_GVT.pdf

Mohammadali Haji, A., Hassan, M., Van Heerden, M., & Van Wyk, M. (2025). An interdisciplinary study: Deferred tax implications of lay-by agreements for financial planning and decision making. *Journal of Risk and Financial Management*, *18*(5), 1-17. https://doi.org/10.3390/jrfm18050273

Molina, R., Diaz, O., Capuñay, J., & Casinelli, H. (2014). El proceso de convergencia con las Normas Internacionales de Información Financiera en España, Perú y Argentina. *Contabilidad y Negocios*, *9*(18), 6-26. https://doi.org/10.18800/contabilidad.201402.001

Rahiminejad, S. (2025). Determinants and Drivers of Large Negative Book-Tax Differences: Evidence from S&P 500. *Journal of Risk and Financial Management*, *18*(6), 1-40. https://doi.org/10.3390/jrfm18060291

Rebaza, I. (2012). *La tasa efectiva de imposición a la renta empresarial*. Instituto Nacional de Estadística e Informática; Banco Interamericano de Desarrollo https://cdn.www.gob.pe/uploads/document/file/2262769/La%20Tasa%20Efectiva%20de%20Imposicio%CC%81n%20a%20la%20Renta%20Empresarial.pdf.pdf

Schwab, C., Stomberg, B., & Xia, J. (2022). What determines effective tax rates? The relative influence of tax and other factors. *Contemporary Accounting Research*, *39*(1), 459–497. https://doi.org/10.1111/1911-3846.12720

Shamil, M., Gooneratne, D., Gunathilaka, D., & Shaikh, J. (2024). The effect of board characteristics on tax aggressiveness: The case of listed entities in Sri Lanka. *Journal of Accounting in Emerging Economies*, *14*(4), 747-770. https://doi.org/10.1108/JAEE-08-2022-0224

Thiart, C. (2022) Investigating the impact of country-by-country reporting on effective tax rates: Exploratory evidence from listed South African multinational groups. *South African Journal of Accounting Research*, *36*(1), 45-56. https://doi.org/10.1080/10291954.2020.1860483

Uemura, T. (2022). Evaluating Japan's corporate income tax reform using firm-specific effective tax rates. *Japan & The World Economy*, *61*(2022) 1-9. https://doi.org/10.1016/j.japwor.2022.101115

Villabona, J., & Quimbay, C. (2017). Effective income tax rates for sectors of the Colombian economy between 2000 and 2015. *Innovar*, *27*(66), 91-108. https://doi.org.10.15446/innovar.v27n66.66805

Fecha de recepción: 16/12/2025
Fecha de revisión: 19/12/2025
Fecha de aceptación: 24/03/2026
Contacto: jhonny.esquivel@pucp.edu.pe