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CONTEMPORARY SCIENTIFIC RESEARCH**



JULY 01-07, 2026



BALTIC STATES & FINLAND

EDITOR

Assoc. Prof. Dr. Ayhan DAĞDEVİREN

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11TH INTERNATIONAL

ISPEC CONGRESS ON CONTEMPORARY SCIENTIFIC

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July 01-07, 2026 Baltic States and Finland

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**ISPEC 11TH INTERNATIONAL CONGRESS ON CONTEMPORARY SCIENTIFIC
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July 01-07, 2026

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Baltic States & Finland
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164

TOTAL ACCEPTED PAPERS

28

TOTAL REJECTED PAPERS

79

PAPERS FROM TURKIYE

85

INTERNATIONAL PARTICIPANTS

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All applications have undergone a double-blind peer review process · Oral Presentations

03.07.2026 / IN-PERSON SESSION-2

Riga Local Time: 09:00-11:30



Radisson Blu Hotel & Spa, Daugava Riga

HEAD OF SESSION: Dr. AYHAN DAGDEVIREN

Authors	Affiliation	Presentation Title
CIHAN YUKSEL	Mersin University	The real erosive effect of inflation on corporate income tax revenues: evidence from Türkiye
AYNUR PALA	Manisa Celal Bayar University	Examining the effects of distance education on values education
SELCUK KILIC	Erzincan Binali Yildirim University	Integrated in silico evaluation of the putative effect of e-6801 on β -secretase 1 (bace1), an Alzheimer's disease-associated enzyme, using DFT, ADME, and molecular docking approaches
SELCUK KILIC	Erzincan Binali Yildirim University	Computational Preliminary Insights into TLR7/8-Mediated Immunomodulation: A Schrödinger Glide-Based Molecular Docking Analysis of the Imidazo[4,5-c]quinoline Derivative IT-37 with Human Toll-like Receptor 8
YUSUF SERT	Yozgat Bozok University	DFT studies of 1,3-benzodioxole-5-sulfonamide
YUSUF SERT	Yozgat Bozok University	MEP and docking analysis of 1,3-benzodioxole-5-sulfonamide
AYHAN DAGDEVIREN IBRAHIM MERCIMEK	Cankiri Karatekin University	Latvian culinary culture
IBRAHIM MERCIMEK AYHAN DAGDEVIREN	Cankiri Karatekin University	Health tourism policies and practices in Lithuania
AHMET UNLU	Ministry Of Education	Traces of hunting culture in Satılmış Sen's poetry

THE REAL EROSION EFFECT OF INFLATION ON CORPORATE INCOME TAX REVENUES: EVIDENCE FROM TÜRKİYE

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ABSTRACT

The loss in the real value of tax revenues arising from the time lag between the generation of taxable economic activity and the actual collection of taxes has been widely discussed in the public finance literature within the framework of the Olivera–Tanzi effect. This study examines the real erosion of corporate tax revenues caused by inflation in Türkiye over the period 2012Q4–2025Q4 using quarterly data. The main objective is to measure the extent to which inflation reduces the real value of corporate tax revenues by accounting for differences in collection lags across the components of the corporate tax system and to discuss the implications of this process for the class distribution of the tax burden.

The analysis utilizes quarterly Consumer Price Index (CPI) data and general government budget statistics for Türkiye. Different collection lags are assigned to the subcomponents of corporate taxation: declarative corporate income tax is assumed to have an average collection lag of three quarters, while provisional corporate tax is assigned a lag of one quarter. Corporate tax withholding is excluded from the erosion calculations because it is collected at source and therefore involves no collection lag. Real erosion rates are calculated separately for each component and then aggregated into a composite erosion rate for total corporate tax revenues using their respective shares in total collections.

The findings indicate that corporate tax revenues experience substantial real value losses during periods of high inflation. In contrast, wage income taxes collected through withholding are not subject to comparable erosion because they are collected immediately at the source. This asymmetry suggests that inflation, through the timing structure of tax collection, effectively reduces the real tax burden on capital while increasing the relative contribution of labor income to public revenues. The study therefore argues that inflation should be understood not only as a macroeconomic phenomenon but also as a fiscal mechanism that influences the distribution of the tax burden across social classes.

Keywords: Inflation, Corporate Income Tax, Tax Collection Lags, Real Tax Erosion.

1. INTRODUCTION

The effects of inflation on public finance have been extensively examined in the economic literature, particularly with regard to changes in the real value of tax revenues and their distortive impact on fiscal balances. The theoretical framework underlying this study focuses on the erosive effect of collection lags in tax revenues on the purchasing power of the state in an inflationary environment.

One of the pioneering contributions to this literature is that of Olivera (1967), who argued that inflation contains an element of “inertia” arising from the fiscal system itself. According to Olivera, public expenditures respond to increases in the general price level much more rapidly than tax revenues. As a result, tax revenues lag behind expenditures, giving rise to “passive budget deficits.” The principal source of these fiscal lags is that taxes are collected on the basis of income earned in a previous period rather than the current one.

The most comprehensive analyses of the theoretical foundations and measurement of tax collection lags were conducted by Vito Tanzi (1977, 1978). Tanzi (1977) defined a “taxable event” as the moment at which a legal tax liability arises and referred to the period between the emergence of this liability and its actual payment into the treasury as the collection lag. In the mathematical model he

developed ($R = 1/(1 + p)^n$), he demonstrated that the real value of collected taxes (R) declines rapidly as both the monthly inflation rate (p) and the length of the collection lag (n) increase.

Tanzi (1978) further emphasized that this phenomenon could substantially offset the gains governments obtain through the inflation tax (seigniorage) and, in some cases, even lead to a net reduction in total

public revenues. The erosive impact of inflation on the tax system becomes particularly pronounced in fiscal regimes characterized by high tax burdens and lengthy collection lags.

Although tax collection lags are generally viewed as a problem of erosion in the state's real tax revenues, they may also constitute a class-related issue depending on the structure of the tax system. For instance, while income taxes paid by wage earners (labor) through withholding are collected without any collection lag, the existence of a collection lag in the payment of corporate income tax by capital through declaration implies that, during inflationary periods, capital's contribution to the state budget declines in relative terms.

Although Meade (1980), in the specific context of corporate income tax, adopts a position different from that of the present study by arguing that the distortions created by inflation operate to the detriment of capital, he nevertheless acknowledges that highly indebted firms may obtain real profits tax-free as a result of the inflation-induced decline in the real value of their liabilities. In this respect, inflation also generates outcomes that are favorable to capital.

As Tanzi (1977) noted, the total lag of a tax system is calculated as a weighted average of the collection lags associated with individual tax components, where the weights reflect each component's share within the system. In Türkiye, the different statutory payment schedules applicable to the various subcomponents of corporate income tax—namely declarative corporate income tax, provisional corporate income tax, and withholding corporate income tax—make it necessary to take into account the specific collection lag associated with each component when calculating the total real erosion rate of corporate income tax.

Building upon this theoretical framework, the present study aims to reveal the hidden fiscal cost of inflation on public finance (in favor of capital) by analyzing the real tax erosion in corporate income tax collections in Türkiye during the period 2012Q4–2025Q4 on the basis of its subcomponents.

2. METHOD

The primary objective of this study is to formulate the total real erosion rate of corporate income tax and to reveal the erosive effect of inflation on corporate income tax revenues by applying this formulation to the case of Türkiye. Corporate income tax is declared and paid in the year following the fiscal year in which corporate profits are earned. From this perspective, the annual inflation rate could be considered the erosion rate of this tax. However, such a simplified approach does not accurately reflect reality. This is because corporations make provisional corporate income tax payments at specific intervals during the fiscal year in which the profits are generated and subsequently offset these payments against the tax liability declared and paid during the collection period of the following year. The former component is referred to as provisional corporate income tax, while the latter is termed declarative corporate income tax. In addition, certain payments are subject to taxation at source, whereby the tax is withheld and transferred to the government at the time of payment; this component is known as withholding corporate income tax. As can be seen, the collection periods of the components of corporate income tax differ considerably. Therefore, calculating a fixed erosion value for total corporate income tax revenues solely on the basis of the annual inflation rate would be an inappropriate approach. For this reason, the present study adopts a real erosion rate analysis based on quarterly periods, in which the distinctive characteristics of each subcomponent of corporate income tax are taken into account separately.

The real collection model for any tax or tax subcomponent is presented in Equation (1).

$$\text{Real Tax Revenues}_{t,q}^i = \text{Nominal Tax Revenues}_{t,q}^i \times \frac{CPI_{t-d_i}}{CPI_{t,q}} \quad (1)$$

In this framework, i denotes the tax type; t the year in which the tax is paid; q the q th quarter of year t ; d_i the average collection lag of tax i measured in quarters (in other words, $t-d_i$ represents the average quarter in which the income associated with the tax liability was earned); and CPI the Consumer Price Index. Accordingly, the real revenue of tax i is obtained by multiplying its nominal revenue by the ratio of the CPI in the quarter in which the income was earned to the CPI in the quarter in which the tax was collected.

The rate of real tax erosion caused by inflation during the period between the emergence of a tax liability and its collection is initially expressed in Equation (2).

$$\lambda_{t,q}^i = 1 - \frac{\text{Real Tax Revenues}_{t,q}^i}{\text{Nominal Tax Revenues}_{t,q}^i} \quad (2)$$

Here, λ denotes the real erosion rate. Substituting Equation (1) into Equation (2) yields the explicit expression for the real erosion rate of any tax or tax subcomponent, as presented in Equation (3).

$$\lambda_{t,q}^i = 1 - \frac{CPI_{t-d_i}}{CPI_{t,q}} \quad (3)$$

Since the collection lag (d) differs across tax types and even across subcomponents of the same tax,

the real erosion rate (λ) also varies accordingly. This differentiation is particularly relevant for corporate income tax. Because each component of corporate income tax is characterized by a distinct collection lag, the real erosion rates calculated for individual subcomponents can be weighted by their respective revenue shares to obtain a composite measure for the tax as a whole. The total real erosion

rate of corporate income tax ($\lambda_{t,q}^{CIT}$) for any country is presented in Equation (4).

$$\lambda_{t,q}^{CIT} = \sum_{i=1}^n \left(\frac{CIT_{t,q}^i}{CIT_{t,q}} \times \lambda_{t,q}^i \right) = \sum_{i=1}^n \left[\left(\frac{CIT_{t,q}^i}{CIT_{t,q}} \right) \times \left(1 - \frac{CPI_{t-d_i}}{CPI_{t,q}} \right) \right] \quad (4)$$

$i: 1, 2, 3, \dots, n$

In this equation, i denotes the subcomponents of corporate income tax; n the number of corporate income tax subcomponents; CIT^i the revenue generated by the i th corporate income tax subcomponent; and CIT total corporate income tax revenue.

Given the specific structure of corporate income tax revenues within the Turkish tax system, three principal components can be identified: declarative corporate income tax, provisional corporate income tax, and withholding corporate income tax. Indeed, these items are classified as subcategories of corporate income tax in the economic classification of government revenues. Adapting Equation (4) to the Turkish corporate income tax structure yields Equation (5).

$$\lambda_{t,q}^{CIT} = \frac{DCIT_{t,q}}{CIT_{t,q}} \times \left(1 - \frac{CPI_{t-d_{DCIT}}}{CPI_{t,q}} \right) + \frac{PCIT_{t,q}}{CIT_{t,q}} \times \left(1 - \frac{CPI_{t-d_{PCIT}}}{CPI_{t,q}} \right) + \frac{WCIT_{t,q}}{CIT_{t,q}} \times \left(1 - \frac{CPI_{t-d_{WCIT}}}{CPI_{t,q}} \right) \quad (5)$$

In this equation, $DCIT$ denotes declarative corporate income tax revenue; d_{DCIT} the average collection lag of declarative corporate income tax; $PCIT$ provisional corporate income tax revenue; d_{PCIT} the average collection lag of provisional corporate income tax; $WCIT$ withholding corporate income tax revenue; d_{WCIT} the average collection lag of withholding corporate income tax; and CIT total corporate income tax revenue.

Equation (5) makes it possible to calculate the total real erosion rate of corporate income tax by incorporating the distinct real erosion rate associated with each component.

Naturally, average collection lags vary according to the characteristics of each country's tax system.

In the Turkish case, the parameters are assumed to be $d_{DCIT} = 3$, $d_{PCIT} = 1$, and $d_{WCIT} = 0$. This specification reflects the institutional design of corporate taxation in Türkiye. Declarative corporate income tax is paid in April of the fiscal year following the year in which the taxable profits are earned. Assuming that profits are generated, on average, around the midpoint of the fiscal year, the corresponding collection lag can reasonably be approximated as three quarters. Provisional corporate income tax, by contrast, represents an advance payment mechanism through which corporate income tax liabilities are collected throughout the year. Rather than waiting until the end of the fiscal year, corporations calculate their profits and pay provisional taxes on a quarterly basis. These payments are subsequently credited against the final corporate income tax liability declared in the following year. In

other words, the provisional corporate income tax associated with each three-month (quarterly) earnings period is typically paid around the midpoint of the subsequent quarter. Consequently, the average collection lag of provisional corporate income tax can be approximated as one quarter. Finally, withholding corporate income tax is collected at source when certain payments are made during the fiscal year in which the income is generated. Since collection occurs contemporaneously with the taxable transaction, no collection lag arises. Accordingly, the average collection lag of withholding corporate income tax is assumed to be zero.

Once these Türkiye-specific average collection lag parameters have been established, Equation (5) becomes fully operational for empirical application to the Turkish case.

3. RESULTS

This study examines the real erosive effect of inflation on corporate income tax revenues in Türkiye over the period 2012Q4–2025Q4 using quarterly data. In order to calculate the total real erosion rate of corporate income tax in Türkiye, quarterly data on corporate income tax revenues and their subcomponents were obtained from Turkish Ministry of Treasury and Finance (2026). Monthly CPI data obtained from Turkish Statistical Institute (2026) were converted by the authors into quarterly series based on CPI (2011=100). The resulting dataset was then applied to Equation (5) to generate the findings. The results of the calculations are presented in Table 1.

Table 1. Corporate Income Tax Total Erosion Rate Findings (%)

Period	Corporate Income Tax Total Erosion Rate (%)	Period	Corporate Income Tax Total Erosion Rate (%)
2012Q1	-	2019Q1	1,401
2012Q2	-	2019Q2	3,854
2012Q3	-	2019Q3	2,633
2012Q4	3,140	2019Q4	3,270
2013Q1	2,472	2020Q1	2,357
2013Q2	2,466	2020Q2	2,983
2013Q3	1,119	2020Q3	2,523
2013Q4	2,397	2020Q4	4,622
2014Q1	2,956	2021Q1	4,130
2014Q2	2,837	2021Q2	4,323
2014Q3	0,770	2021Q3	4,881
2014Q4	2,005	2021Q4	10,962
2015Q1	1,748	2022Q1	22,252
2015Q2	3,024	2022Q2	15,231
2015Q3	0,415	2022Q3	8,672
2015Q4	2,676	2022Q4	7,934
2016Q1	2,078	2023Q1	16,552
2016Q2	1,561	2023Q2	13,969
2016Q3	1,425	2023Q3	16,375
2016Q4	2,867	2023Q4	12,118
2017Q1	4,542	2024Q1	18,992
2017Q2	2,959	2024Q2	20,336
2017Q3	0,954	2024Q3	8,963
2017Q4	3,825	2024Q4	7,568
2018Q1	2,890	2025Q1	11,239
2018Q2	4,958	2025Q2	13,659

2018Q3	6,758	2025Q3	6,135
2018Q4	6,457	2025Q4	5,985

The findings indicate that corporate income tax collections experience substantial losses in real value under conditions of high inflation. As shown in Table 1, the real erosion rate of corporate income tax in Türkiye was generally at its lowest levels during the period 2013–2017, whereas it reached its highest levels between 2022 and 2025.

Since increases in the CPI constitute the principal determinant of the real erosion rate, the quarterly inflation rate and the real erosion rate of corporate income tax largely follow similar trajectories. However, beginning in 2022, the gap between the quarterly inflation rate and the real erosion rate of corporate income tax widened considerably. Figure 1 illustrates the evolution of the CPI and helps explain this pattern more clearly. During periods in which the CPI remained relatively stable or exhibited only modest growth, the difference between the inflation rate and the real erosion rate of corporate income tax was minimal. By contrast, during periods of rapid CPI acceleration (particularly from 2022 onward), the divergence between the inflation rate and the real erosion rate of corporate income tax became increasingly pronounced.

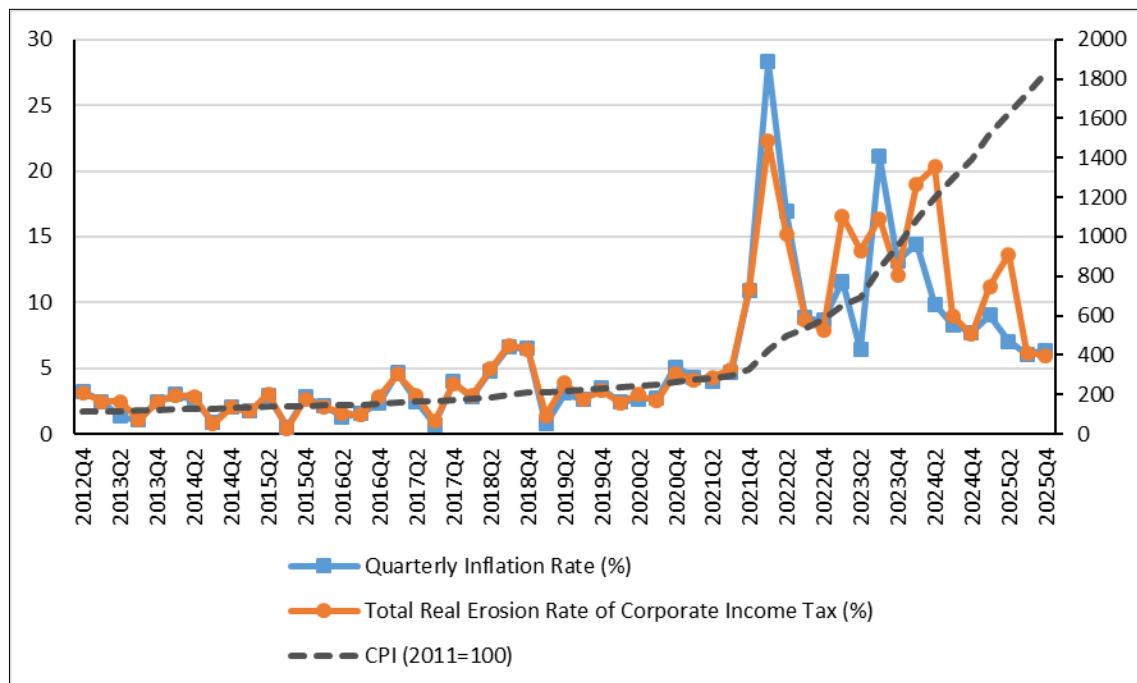


Figure 1. The Trend of CPI, Inflation Rate, and Real Erosion Rate

The relationship between the inflation rate and the real erosion rate of corporate income tax is presented in Figure 2. The two variables exhibit a very strong and positive linear relationship.

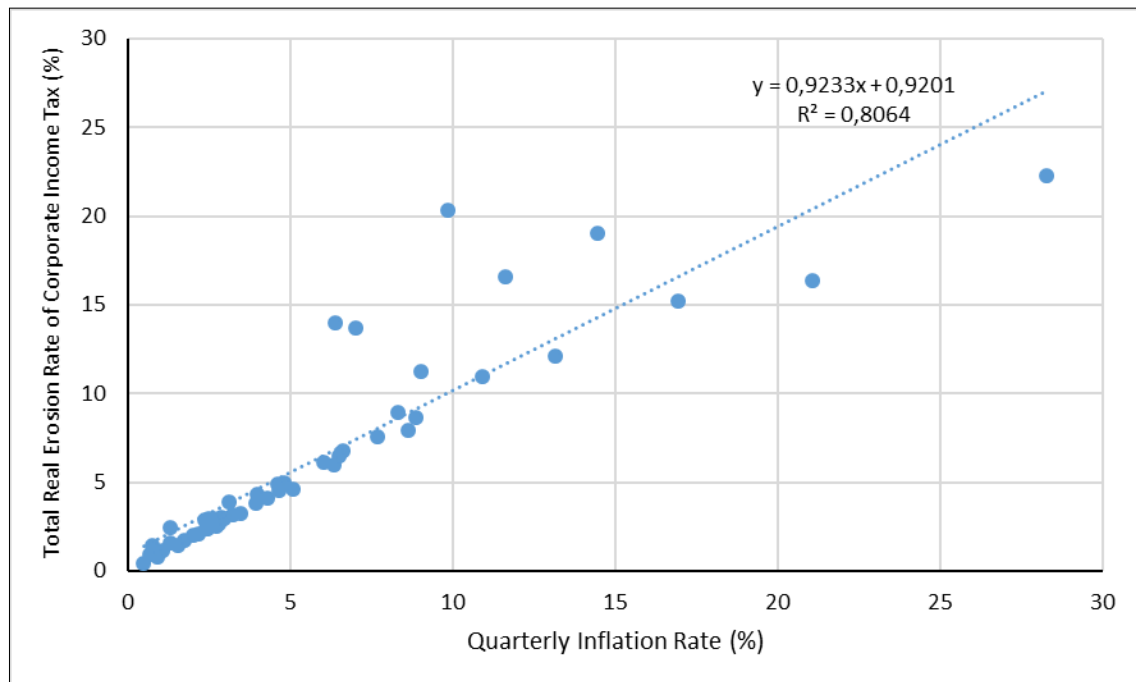


Figure 2. The Relationship Between Inflation Rate and Real Erosion Rate of Corporate Income Tax

Overall, the findings demonstrate that the real erosion rate of corporate income tax remained positive throughout the entire 2012Q4–2025Q4 period. While it closely tracked the inflation rate during periods of relative CPI stability, it increasingly diverged from the inflation rate during periods characterized by accelerating inflation.

4. DISCUSSION

Existing studies on the Olivera–Tanzi effect in Türkiye predominantly examine the aggregate relationship between inflation and tax revenues. However, little attention has been paid to the differential impact of inflation across tax components with distinct collection lags. This study addresses this gap by constructing a quarterly composite erosion measure for corporate income tax revenues based on the collection structure of its subcomponents.

The findings indicate that the real erosion rate of corporate income tax revenues increases substantially during periods of higher inflation. As inflation accelerates, the gap between the time when taxable profits are generated and the time when the corresponding tax liabilities are collected leads to a greater loss in the real value of public revenues. This result is consistent with the theoretical expectations of the Olivera–Tanzi effect, according to which collection lags reduce the purchasing power of tax revenues in inflationary environments. The quarterly erosion measure constructed in this study demonstrates that the inflation-induced loss is not constant over time but varies in accordance with changes in the inflation rate and the composition of corporate income tax collections.

A comparison with wage income taxation reveals an important distributional dimension of this process. Income taxes on wages are collected through withholding at source and therefore involve no effective collection lag. In terms of the framework employed in this study, the collection period

coincides with the tax-generating period ($t = d_i$), implying a real erosion rate ($\lambda_{t,q}^i$) of zero. Consequently, inflation does not diminish the real value of tax revenues collected from wage earners. By contrast, a significant portion of corporate income tax revenues is collected with a delay through declaration-based mechanisms. As a result, inflation reduces the real contribution of capital to public revenues while leaving the tax contribution of labor largely unaffected.

This asymmetry suggests that, under inflationary conditions, the timing structure of tax collection may alter the effective distribution of the tax burden between labor and capital, even when statutory tax rates remain unchanged.

From a policy perspective, several measures may mitigate the erosion of corporate income tax revenues. First, shortening collection lags through more frequent advance payments or enhanced withholding mechanisms could reduce the exposure of corporate tax revenues to inflation. Second, inflation-adjusted tax accounting and assessment procedures may help preserve the real value of tax liabilities. Third, and perhaps most importantly, penalties and interest charges on delayed tax payments should be indexed to inflation so that postponing tax payments does not become a source of implicit financial gain for taxpayers. As emphasized by Vito Tanzi (1977), when penalties fail to maintain their real value, delayed tax payments may effectively function as a low-cost or even subsidized source of credit. Ensuring that penalties preserve their real value would therefore reduce incentives for strategic delays in tax payments and contribute to protecting the real revenue capacity of the state during inflationary periods.

Overall, the results suggest that inflation should not be viewed solely as a macroeconomic phenomenon affecting prices and purchasing power. It also operates as a fiscal mechanism that influences the effective incidence of taxation through the timing of tax collection. In this respect, the institutional design of tax administration becomes an important determinant of how inflation affects the distribution of fiscal burdens across different social groups.

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