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The Impact of the Increase in Tobacco and Electronic Cigarette Excise on State Revenue

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ABSTRACT
State revenue is influenced by the contribution of tobacco excise. According to the APBN Kita publication by the Ministry of Finance (2026), Tobacco Excise (CHT) revenue in 2025 reached Rp216.9 trillion. This study was conducted with the aim of determining the effect of cigarette excise, electronic cigarette excise, the gross domestic product of the cigarette and tobacco industry, and the cigarette consumer price index on state revenue.This quantitative study uses 38 time series data points from 2016 to the second quarter of 2025. Data analysis was conducted using multiple linear regression with a natural logarithm transformation and then executed through the RStudio program. The empirical result demonstrates that the model escplains 44.34% (Adjusted R2) of the variance in state revenue research results indicate that the rates of tobacco excise, electronic cigarette excise, and cigarette CPI have a negative and significant effect on state revenue. Meanwhile, the GDP of the tobacco industry does not significantly affect state revenue. This study demonstrates that the government-imposed tariffs have led to a decrease in legal cigarette consumption, which ultimately reduces state revenue.

Keywords: Excise, Tobacco Industry GDP, Cigarette CPI, State Revenue.
JEL Code: H25, H27, L66, E31, C22

I. Introduction

Based on Article 2 of Law Number 39 of 2007 concerning Excise, it asserts that goods subject to excise are goods that have consumption characteristics that need to be controlled, their distribution needs to be supervised, their use can cause negative impacts on society or the environment, and their use requires the imposition of state levies for the sake of justice and balance. Based on the APBN Kita publication of the Ministry of Finance (2024), the realization of Tobacco Excise (CHT) revenue in 2023 only reached Rp213.5 trillion or 91.8% of the 2023 target. Meanwhile, based on the APBN Kita publication of the Ministry of Finance (2026), Tobacco Excise (CHT) revenue in 2025 reached Rp216.9 trillion. Not only conventional tobacco products, but revenue from electronic cigarette (REL) and HPTL products is also increasingly growing. Data in 2024 according to the Directorate General of Customs and Excise shows that excise revenue from the REL and HPTL industries reached Rp 2.65 trillion (Ferrika, 2025). Tariff policies for REL continue to be adjusted, including through Minister of Finance Regulation Number 192/PMK.010/2022 which revised PMK 193/PMK.010/2021.

Although playing a strategic role, the aggressively increased excise tariff policy every year raises a fiscal anomaly which becomes the first main problem in this research. So far, periodic increases in excise tariffs have always been based on the classic assumption that demand for tobacco products is inelastic (Suprihanti et al., 2019). However, in practice, the continuously increasing escalation of the excise burden triggers sectoral

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inflation reflected in the high Consumer Price Index (CPI) for cigarettes. The increase in selling prices which ultimately exceeds the tolerance limit of the public's purchasing power actually triggers a decrease in legal production volume. This happens because consumers are forced to change their behavioral patterns through downtrading to cheaper cigarette products, or even switch to consuming illegal cigarettes (Soedarsono & Setyawan, 2026).

On the other hand, the massive distribution of electronic cigarettes (REL) raises the second main problem regarding the challenges of the effectiveness of collecting new tariffs. Fluctuations in production volume in both the conventional and electronic cigarette industries due to this tariff pressure provide a chain effect that potentially depresses the contribution of the Gross Domestic Product (GDP) of the macro tobacco processing industry sector (Ashar, 2015). In-depth analysis is needed to overcome the impacts caused by the annual increase in excise tariffs to accurately see its effect on state revenue, not just the increase in the rupiah value obtained. Therefore, this study was specifically conducted to test and analyze the effect of increasing cigarette excise tariffs, electronic cigarette excise, tobacco industry GDP, and cigarette CPI on state revenue. Through this research, it is expected to be empirically proven whether the policy of raising excise tariffs is well-targeted and effective or could cause anomalies that depress state revenue.

The approach used in this statistical research is quantitative with a multiple linear regression method based on time series data every three months (quarterly). This study will use multiple linear regression to examine the simultaneous and partial effects of the combination of excise tariffs and macroeconomic indicators (GDP and CPI) on state revenue. This method is considered suitable because it can separate and specifically show the impact of each variable on state revenue. All secondary data in this study, which includes cigarette excise tariffs, REL excise tariffs, cigarette CPI, and tobacco industry GDP, were obtained from official sources published by the Directorate General of Customs and Excise, the Ministry of Finance, and the Central Statistics Agency.

II. Literature Review and Hypothesis Development

2.1. Tobacco Excise

Tobacco excise is a state instrument imposed on certain goods with specific criteria, goods that have the potential to cause negative impacts on society need to be subjected to excise to control their consumption and distribution. On the one hand, excise also functions as a source of state revenue. Based on research by Pangestu & Wijaya in 2021, it states that excise revenue also has a significant impact and makes a positive contribution to revenue. Excise is also used to maintain fiscal stability and control public consumption levels (Wardani & Khoirunorrofik, 2022). However, the dependence of state revenue on this instrument can create vulnerabilities when the market response shows an anomaly, such as what happened when excise realization dropped 8.3% from its target in 2023 and did not experience a significant increase in 2024 and 2025 (Ministry of Finance, 2025).

2.2. The Development of Excise in Indonesia

The policy of collecting excise in Indonesia continues to experience dynamic adjustments represented through periodic tariff escalations. In addition to tariff adjustments for conventional cigarettes through PMK Number 192 of 2021, regulatory adaptations were also expanded to include electronic cigarettes (REL) in response to the shift in public consumption patterns towards alternative nicotine products (Santoso & Widyaningsih, 2023). However, this aggressively applied tariff policy needs further review because in the past three years, Indonesia has actually faced state revenue stagnation from the excise sector. Based on Ministry of Finance publications (2024; 2026), excise revenue realization in 2023 failed to meet the target (only reaching 91.8%), and its growth up to 2025 tends to be slow or stagnant even though tariffs continue to be raised. This stagnation phenomenon indicates that the excise tariff has likely reached a saturation point (over-

burdened) which triggers purchasing power exhaustion. Consequently, instead of adding to state coffers, the tariff increase actually pushes consumers to downtrade to cheaper cigarette brands or switch massively to illegal cigarettes without excise stamps (Soedarsono & Setyawan, 2026). Therefore, an in-depth evaluation is urgently needed to see whether current excise policies are still effective or instead become a boomerang for state fiscal affairs.

2.3. Multiple Linear Regression

To resolve this revenue stagnation anomaly, multiple linear regression analysis is used as the main econometric method. This method is highly reliable for testing the strength and direction of the linear relationship between two or more independent variables (such as the increase in CHT tariffs, REL tariffs, and CPI inflation) against the dependent variable (state revenue) simultaneously or partially. To accommodate time-series data dynamics and avoid the risk of spurious regression, the test is combined with the first difference method and Natural Logarithm (Ln) transformation as recommended by Wooldridge (2020). This approach ensures that data variance becomes constant and free from heteroscedasticity, so that the true impact of the excise increase on state revenue stagnation can be accurately interpreted.

2.4. Hypothesis Development

a. The Relationship between Cigarette Excise and State Revenue

The collection of cigarette excise has a direct relationship with state revenue, as tobacco products are one of the commodities with the largest fiscal contribution in Indonesia. Cigarettes or conventional cigarettes remain the main revenue base because public consumption of this product is still high despite annual tariff increases. Taxes and excise function not only as a source of state revenue but also as a tool to regulate economic activity (Mankiw, 2019). The primary goal of tobacco excise policy is not only to increase state revenue, but also as an effort to control cigarette consumption. Research results show that cigarette excise revenue significantly contributes to an increase in state revenue (Triono, 2017). Thus, it can be assumed that an increase in revenue from cigarette excise will positively impact state revenue.

H1: Cigarette excise has a positive effect on state revenue.

b. The Relationship between Electronic Cigarette Excise and State Revenue

The collection of excise on electronic cigarettes is a form of fiscal adaptation to changes in public consumption patterns from conventional cigarettes to alternative nicotine products. Revenue from electronic cigarette excise continues to increase along with the growth in the number of vape users in Indonesia (Santoso and Widyaningsih, 2023). Although the scale of revenue is not yet significant, this policy shows a fiscal policy direction oriented towards diversifying sources of state revenue. Appropriate excise policies on tobacco products and their derivatives have a dual impact, namely controlling consumption while maintaining fiscal stability through contributions to state revenue (Wardani and Khoirunurrofik, 2022). This indicates that electronic cigarette excise has the potential to support an increase in state revenue.

H2: Electronic cigarette excise has a positive effect on state revenue.

c. The Relationship between Tobacco Industry GDP and State Revenue

A significant increase in excise tariffs can affect manufacturing production volume and can impact overall GDP. This can cause a decrease in income in the tobacco farmers' economic sector. On the one hand, the government tries to maximize the revenue function, but on the other hand, there is the possibility of prolonged weakening of the industrial structure which can affect state revenue. The tobacco industry's growth trend shows an average growth of 4.95%, growing from Rp 95.6 trillion in 2014 to Rp 147.8 trillion in 2023 (Central Statistics Agency, 2024). The tobacco industry contributes to the aspect of state revenue and has a high level of resilience to economic shocks so that it can be relied upon as a base for state revenue.

H3: An increase in the tobacco industry GDP has a positive effect on state revenue.

d. The Relationship between Cigarette CPI and State Revenue

The effect caused by the increase in excise tariffs directly impacts the retail selling price, which triggers a spike in the sectoral CPI. Even though the nature of cigarettes is categorized as inelastic demand, a price increase (CPI) does not necessarily reduce consumption volume significantly. However, when the CPI soars high and is not followed by an increase in the public's purchasing power, it will cause downtrading which will impact the realization of state revenue targets. Thus, the total nominal value of excise levies deposited into state coffers actually becomes larger (Indonesia Family Life Survey (IFLS), 2014).

H4: An increase in cigarette CPI has a negative effect on state revenue.

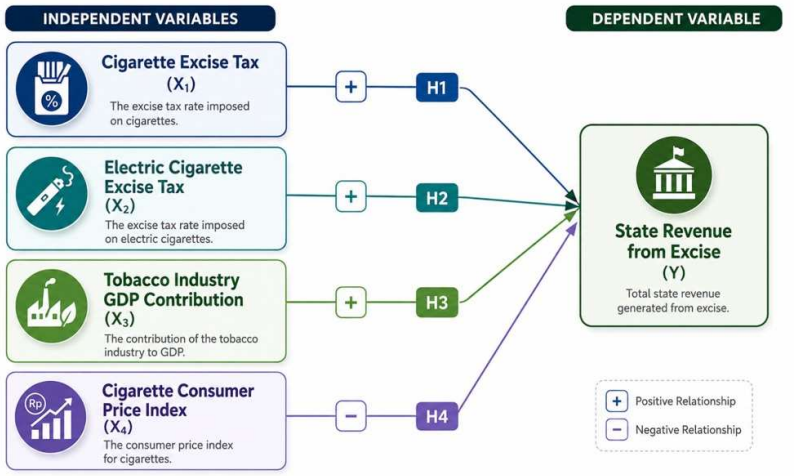

Figure 1. Research Design

III. Research Method

3.1. Research Object

The research object in this thesis is the fiscal policy of tobacco excise (cigarette excise and electronic cigarette excise), sectoral macroeconomic indicators (growth of tobacco industry GDP and cigarette CPI inflation), and their impact on Indonesia's state revenue during the period from 2016 to the second quarter of 2025. The research flow in this study will be systematically illustrated and explained in Figure 2. The research flow in this study will be systematically illustrated and explained in Figure 2.

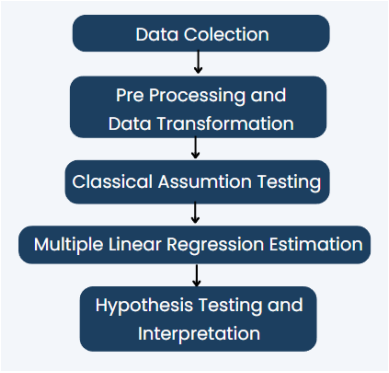

Figure 2. Research Flow

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3.2. Population and Sampling

The secondary data collection procedure in this study was carried out systematically through tracking documents and official publications from the Central Statistics Agency for the period 2016 to quarter II of 2025. Furthermore, to obtain data on cigarette excise, electronic cigarette excise, and state revenue, they were obtained from DJBC for the period 2016 to quarter II of 2025. X1 and X2 are presented in years so they are considered to have no changes between quarters in the same year. X3 is taken based on BPS publications which have been presented in quarter format. On the other hand, X4 is presented in a monthly temporal format so the value taken is the average CPI increase from each quarter. A population is defined as the entire subjects or units that become the focus of attention in a study defined by Sekaran and Bougie (2016). In the context of this descriptive quantitative research, the research subjects are time-series data which serve as the container for the studied variables. Therefore, the population in this study is all data containing the realization of cigarette excise revenue, electronic cigarette excise, tobacco industry GDP, cigarette CPI increase, and total State Revenue in Indonesia, amounting to 38 data points. The population period observed is from 2016 to 2025.

3.3. Operational Variable and instrument

This study uses a quantitative research methodology utilizing secondary data, where this secondary data is obtained through official publications of the Ministry of Finance, DJBC, and BPS during the period of 2016 up to the second quarter of 2025. Publication data issued by the Ministry of Finance, DJBC, and BPS is presented in a monthly format and then processed using RStudio into a quarterly format. The amount of data used in this study totals 38 data points. The main analytical method used to test the hypotheses in this study is multiple linear regression analysis. The use of this multiple model was chosen because it can measure the strength and direction of the relationship between more than one independent variable on one dependent variable both simultaneously and partially. The regression model equation in this study is formulated as follows:

$$\Delta \ln \mathrm{PN}_t = \alpha + \beta \Delta CHT_t + \beta \Delta CREL_t + \beta \Delta lnPDB_t + \beta \Delta IHK_t + \epsilon_t$$

Description:

$\Delta \ln \mathrm{PN}_t$	= State revenue growth in the t-th quarter (in Natural logarithm)
α	= Constant
β	= Regression Coefficient
ΔCHT_t	= Difference in Excise Tariff (Cigarettes) (X_1)
$\Delta CREL_t$	= Difference in REL Excise Tariff (X_2)
$\Delta lnPDB_t$	= Tobacco Industry GDP Growth (X_3)
ΔIHK_t	= Difference in tobacco CPI (X_4)
ϵ_t	= Error

This study uses a natural logarithm (Ln) transformation. This transformation is used to overcome the problem of abnormal data distribution and reduce potential heteroscedasticity in the regression model (Ghozali, 2018). In addition, the use of Ln aims to make the relationship between variables more linear and facilitate the interpretation of regression coefficients in the form of elasticity, so that the analysis results become more relevant in the economic context (Gujarati & Porter, 2012). The independent variables and dependent variable used in this study are cigarette excise, electronic cigarette excise, tobacco industry GDP, and cigarette CPI increase as independent variables, and state revenue as the dependent variable. This study uses a combination of natural logarithm transformation and the first difference operator (Δ). This first difference approach is based on eliminating the time trend element so that the data variance becomes constant and free from spurious regression (Wooldridge, 2020). On the other hand, ln transformation aims to minimize the overly large data scale range between independent variables. This procedure is applied to reduce

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the potential for heteroscedasticity and assist the distribution of residuals to approach a normal distribution.

This study was first filtered using a series of classical assumption tests. This test was conducted to determine and ensure whether the obtained data is feasible, objective, and free from estimation bias, which includes the normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test. The Normality Test in this study uses the Shapiro-Wilk test to determine whether the data from the regression model is normally distributed, the model is declared to pass if the p-value significance value is >0.05. The multicollinearity test uses the variance inflation factor (VIF) test which aims to detect whether there is intercorrelation among the independent variables in the regression model; the model is declared free from multicollinearity symptoms if the VIF value is <10. The Heteroscedasticity Test uses the Breusch-Pagan test which aims to test whether the residual variance of the regression model is constant from one observation to another; the model meets the assumption if the p-value significance is >0.05. Furthermore, the autocorrelation test uses the Durbin Watson Test which aims to test whether there is a correlation between the residual error in period t and the residual in the previous period; the model is declared free from autocorrelation if the p-value significance is >0.05.

After the regression model is declared to have passed the classical assumptions, hypothesis testing continues through a partial significance test (t-test), simultaneous significance test (F-test), and determination coefficient analysis (R^2), all of which are systematically processed through the RStudio program using the lmtest and car packages; both packages are used to execute multiple linear regression in this model. The selection of RStudio in this study is based on the fact that this software is robust, reliable, and open source in conducting multiple linear regression processing; the author also attaches the code used in appendix 1. As a reference in carrying out the analysis, the research data design was structured into quarterly periods from 2016 to quarter 2 of 2025 to compile data from several variables, namely state revenue (Y), tobacco excise (X1), electronic cigarette excise (X2), tobacco industry GDP (X3), and cigarette CPI increase (X4).

IV. Results and Discussion

State revenue was selected as the dependent variable in this study, while cigarette excise tariffs, electronic cigarette excise tariffs, tobacco industry GDP, and cigarette CPI increase were made as independent variables. Data processing was carried out using Microsoft Excel 2023 to assist in data collection, and subsequent data processing testing was carried out using RStudio software. Statistical testing is the first step in data analysis; this test looks for the minimum, maximum, average, and standard deviation values of each variable.

4.1. Descriptivie Statistical Analysis

The first step taken was to conduct a descriptive statistical analysis test using RStudio to find the minimum, maximum, average, and standard deviation values of each variable.

Tabel 1. Descriptive Statistical Results

	N	Minimum	Maksimum	Mean	Std_Dev
X1	38	Rp267	Rp628	Rp456	Rp129,4437
X2	38	Rp110	Rp2.760	Rp1551,947	Rp1070,41
X3	38	Rp27.587.300.000.000	Rp41.509.300.000.000	Rp34.329.947.368.421	Rp3.756.009.327.676
X4	38	127,7967	185,4566	154,9839	17,17429
Y	38	Rp31.418.440.974.200	Rp62.367.225.822.280	Rp47.004.268.162.945	Rp8.272.300.025.717

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From the analysis results, the cigarette excise tariff variable measured in rupiah per stick has a minimum value of Rp267 and a maximum of Rp628 with an average value of Rp456, so the obtained standard deviation is Rp129.4437. This indicates that data variation is classified as moderate, so tariff changes tend to be stable following government policies. The electronic cigarette excise tariff variable measured in rupiah per milliliter has a minimum value of Rp110 and a maximum of Rp2,760 with an average value of Rp1,551.947 so the standard deviation obtained is Rp1,070.41. This shows that variable data is classified as high, indicating a fairly large data fluctuation. On the tobacco industry GDP variable, the minimum value recorded was Rp27,587,300,000,000 and the maximum was Rp41,509,300,000,000 with an average of Rp34,329,947,368,421. The standard deviation value of Rp3,756,009,327,676 shows that the tobacco industry sector has relatively stable variations. The cigarette CPI variable shows the inflation rate of cigarette value calculated based on the CPI value in 2012. It has a minimum value of 127.7967 and a maximum of 185.4566 with an average of 154.98. The standard deviation value of 17.17 indicates that cigarette price movements are relatively stable with an upward trend, which can be influenced by excise policies and inflation rates. Meanwhile, the state revenue variable has a minimum value of Rp31,418,440,974,200 and a maximum of Rp62,367,225,822,280 with an average of Rp47,004,268,162,945. The standard deviation value of Rp8,272,300,025,717 shows that state revenue experiences quite high variations. This reflects dynamics in state revenue influenced by changes in excise tariffs, production volume, and general economic conditions. Overall, the descriptive statistical results indicate that all variables in this study have sufficient data variation to be analyzed further.

4.2. Classical Assumption Testing

Table 2. Normality, Heteroscedasticity, and Autocorrelation Test Results

Type of Test	VIF Value ; Limit Value	Conclusion
Normality (Shapiro-Wilk)	0.1906 > 0.05	Passed
Heteroscedasticity (Breusch-Pagan)	0.6737 > 0.05	Passed
Autocorrelation (Durbin-Watson)	0.7352 > 0.05	Passed

Table 3. Multicollinearity Test Results

Variable	VIF Value ; Limit Value	Conclusion
dX1	1.262 < 10	Passed
dX2	1.056 < 10	Passed
dln_X3	1.196 < 10	Passed
dX4	1.131 < 10	Passed

a. Normality Test

To test whether the residual of the regression model is normally distributed Ghozali (2018). The test can be performed using the Shapiro-Wilk Test. This test uses Shapiro-Wilk because the data used in this study is less than 50 data points, where a P-Value > 0.05 indicates the population distribution is normal. Based on table 4.2, the Shapiro-Wilk test results show a p_value of 0.1906. Because the value limit in the test is 0.05 based on this test method, the residual of the regression model in this study can be concluded to be normally distributed. The regression model used in this study is safe from outlier data interference, so the estimation results of the effect of excise tariffs, GDP, and CPI on state revenue can be accounted for.

b. Multicollinearity Test

To detect the presence of a high correlation among independent variables in the regression model. A good model should be free of serious multicollinearity. The test will use the Tolerance and Variance Inflation Factor (VIF) values, where a VIF value < 10 indicates the absence of serious multicollinearity Ghozali (2018). Multicollinearity can cause standard errors or regression coefficients to become large, so there is a high probability of making incorrect decisions. Based on table 4.3, VIF values range between 1 with the highest

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value for X1 having a VIF value of 1.262. Based on the established threshold, it can be concluded that there are no multicollinearity symptoms used in the regression model in this study.

c. Heteroscedasticity-Glejser Test

If the residual variance is not equal across observations in a regression model, then the heteroscedasticity test is meant to reveal it Ghozali (2018). This test is to determine whether the residual variance is constant (homoscedasticity). A good model is one that has a constant variance for every disturbance or residual. Based on table 4.2, the Breusch-Pagan test yields a probability value of 0.6737. This result shows the model has exceeded the significance threshold (0.05). It can be concluded that the model used is free from heteroscedasticity. The level of accuracy of the regression model is stable over time because the model is homoscedastic, both during high economic growth and when growth slows down.

d. Autocorrelation Test

Important for data arranged by time, this test aims to check for correlations between residuals in different periods and find out if research variables have strong relationships, either positive or negative. The Durbin-Watson (DW) test will be used to detect it. The test results show a value of 0.7352 > 0.05, so the data is free from symptoms.

4.3. Regression Model Selection

After obtaining the results from the classical assumption test, a regression test (hypothesis) is carried out, where in this study uses a multiple linear regression model.

Table 4. Multiple Linear Regression Test Results

Term	Estimate	Std.error	Statistic	P_value
(intercept)	0.0908	2.82177e-02	3.2203	0.002935
dX1	-0.002	9.6475e-04	-2.1045	0.04327
dX2	-0.00018	4.4418e-05	-4.1421	0.0002345
dLn_X3	0.07908	2.1993e-01	0.3596	0.721539
dX4	-0.03423	1.1441e-02	-2.9919	0.005303

Based on the test results in the table above, the multiple linear regression equation is obtained as follows:

$$Y = 0{,}0908 - 0{,}002X1 - 0{,}00018X2 + 0{,}07908\ln X3 - 0{,}03423X4 + e$$

The results of the equation obtained can be explained as follows. First, looking at the constant value obtained (0.0908) with a significance level of 0.0029, because the p-value is well below the 5% threshold, it can be concluded that the constant in this model is statistically significant. This means that if all independent variables are assumed to be constant or unchanged, then state revenue will naturally grow positively by 0.0908 units. The CHT tariff coefficient value is 2×10^{-3} and has a negative value. This means that for every 1-time increase in the CHT tariff, the level of State Revenue decreases by 2×10^{-3}. The CREL tariff coefficient value is 18×10^{-5} and has a negative value. This means that for every 1-time increase in the CREL tariff, the level of State Revenue decreases by 18×10^{-5}. The tobacco industry GDP coefficient value is $7{,}90 \times 10^{-2}$ and has a positive value. This means that for every 1-time increase in the tobacco industry GDP, the level of State Revenue increases by $7{,}90 \times 10^{-2}$. The cigarette CPI coefficient value is $3{,}42 \times 10^{-2}$ and has a negative value. This means that for every 1-time increase in the cigarette CPI, the level of State Revenue decreases by $3{,}42 \times 10^{-2}$.

4.4. Hypothesis Testing

Table 5. Results of F and R^2 Test X1, X2, X3, and X4 Against Y

R-Squared	Adjusted R-Squared	F-Statistik	P-Value (F Test)
0.5053	0.4434	8.1707	0.0001

```
tidy(model)
```

term <chr>	estimate <dbl>	std.error <dbl>	statistic <dbl>	p.value <dbl>
(Intercept)	0.0908706295	2.821777e-02	3.2203332	0.0029357193
dX1	-0.0020303999	9.647547e-04	-2.1045764	0.0432719957
dX2	-0.0001839833	4.441839e-05	-4.1420532	0.0002345885
dLn_X3	0.0790808738	2.199386e-01	0.3595588	0.7215390974
dX4	-0.0342329728	1.144186e-02	-2.9919069	0.0053030853

5 rows

Figure 3. T-Test Results X1, X2, X3, and X4 Against Y

a. Simultaneous Significance Test (F-test)

The F statistical test is used to determine whether the independent variables included in the model jointly influence the dependent variable. Based on Table 4.5, the F statistical value obtained to test the model's feasibility is 8.1707 with a probability value (p-value) of 0.0001. The conclusion shown in the F test in this study is that changes in excise tariffs (CHT and REL), GDP, and CPI strongly influence fluctuations in state revenue changes.

b. Test Coefficient of Determination (R^2)

The coefficient of determination test (adjusted R2 test) is used to measure how far the model is able to explain the relationship between independent variables and dependent variable variations. Based on Table 4.5, the test results obtained a value of 0.4434. This value indicates that this model equation is able to explain the changes that occur in state revenue by 44.34%. The variables that cannot be explained in the linear regression model equation in this study amount to 55.66%.

c. Partial Test (T-test)

The T-test aims to determine how far the influence of independent variables individually is on the dependent variable. Based on Figure 4.1, the p-value for the tobacco excise variable is 0.0432 with a regression coefficient of -0.0020. This value is smaller than the 5% significance threshold ($\alpha = 0.05$), so the findings of this t-test decide that the first hypothesis is rejected. This shows that tobacco excise has a significant negative influence on state revenue. This indicates that the public's purchasing power has decreased toward legal cigarette consumption because of increasingly higher excise tariffs, impacting cigarette prices making them difficult for the public to afford. From the study, we get the result that the tobacco excise tariff has now reached its maximum point. This correlates with the research conducted by Suprihatini (2019) which states that although cigarette consumption is inelastic, high excise tariffs break the inelasticity trait which results in a decline in state revenue. For the electronic cigarette excise variable, it was found that the p-value was 0.0002 with a regression coefficient of -0.00018, so the finding of this t-test decides that the second hypothesis is rejected. This indicates that the electronic cigarette excise tariff empirically has a significant influence but with a negative coefficient direction on state revenue. Rationally, this negative influence indicates that the current electronic cigarette excise tariff policy has experienced an over-burdened condition. Overly expensive retail prices for electronic cigarette liquid due to excise trigger a rejection from the market mechanism, considering consumers are dominated by youth with limited income. Consequently, legal sales volume drastically declines

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and total state cash receipts actually shrink. This is supported by the fact that vapes are highly elastic goods and are vulnerable to substitution effects towards the black market (Pesko et al., 2020).

For the tobacco industry GDP variable, it was found that the p-value was 0.7215 with a coefficient value of 0.0790, so the third hypothesis is rejected, which means this variable has no significant effect on state revenue. This insignificance concludes that there is a disconnect between the industrial scale and the revenue mechanism. Unlike business sectors in general, state revenue from the tobacco sector is almost entirely dictated by specific tariff schemes (nominal per stick). It is the absolute dependence on this tariff instrument that nullifies the role of tobacco industry GDP in dictating the size of state revenue (Ashar, 2015). The tobacco CPI variable obtained 0.0053 with a regression coefficient of -0.0342. This concludes that the tobacco CPI has a negative and significant effect, so the fourth hypothesis is accepted with a negative direction. Logically, this finding confirms the occurrence of the purchasing power exhaustion phenomenon. Consumers have hit a price saturation point and are forced to change consumption patterns. High price pressures force the public to downtrade toward cheaper cigarette brands or switch to illegal cigarettes without excise stamps (Soedarsono & Setyawan, 2026) which ultimately erodes state fiscal revenue potential.

V. Conclusion

Based on the test results described above, the tobacco excise tariff has a negative and significant effect on state revenue. The results show that there is an inversely proportional relationship between the tobacco excise tariff and state revenue, namely if the tobacco excise tariff is increased, then state revenue experiences a decrease. The electronic cigarette excise tariff has a negative and significant effect on state revenue. The results show that there is an inversely proportional relationship between the electronic cigarette excise tariff and state revenue, namely if the electronic cigarette excise tariff is raised, then state revenue experiences a decrease. Tobacco industry GDP has a positive and insignificant effect on state revenue. This result shows that if there is an increase or decrease in the tobacco industry GDP, state revenue tends to remain constant and unchanged. Tobacco CPI has a negative and significant effect on state revenue. This result indicates that there is an inversely proportional relationship between tobacco CPI and state revenue, namely if there is an increase in tobacco CPI, state revenue experiences a decrease. The public's purchasing power is no longer able to keep up with the excise tariffs set by the government. From this research we obtain the result that the tobacco excise tariff has now reached its maximum point. Furthermore, with the result of a negative influence, it means the public is exhausted in their purchasing power because the inflation rate of retail cigarette prices (CPI) has soared high exceeding the public's income. Changes in consumption from the public cause a decrease in the volume of goods subjected to excise, thereby directly impacting state revenue.

This study proves the anomaly of the negative effect of excise tariffs on state revenue using quarterly data for the period 2016 to quarter II of 2025. There are several methodological limitations and scopes that can be developed for future research:

a. Implementation of nonlinear econometric models: this study uses a multiple linear regression approach. The next approach could apply mathematical calculations and the use of more advanced applications and could use AI approaches.
b. Integration of data in the field can be further done by adding variables such as the circulation rate of illegal cigarettes or by adding the rate of decline in per-stick cigarette consumption.
c. Future studies can use data with a smaller scope but with more detailed data. One of the limitations in this study is the data, where the data used in this study is on a national scale.

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