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THE LINKED BETWEEN TAX STRUCTURE AND ECONOMIC GROWTH IN VIETNAM

To Le Nguyen Khoa
Faculty of Finance & Accounting,
Nguyen Tat Thanh University, Vietnam

Abstract:

Using annual data from 1990 to 2022, this study examines the relationship of tax structure and economic growth in Vietnam. Data was collected from the General Statistics Office of Vietnam, Ministry of Finance, and the State Bank of Vietnam in order to conduct the analyses. To limit issues of bias and to observe the long-run and short-run relationship between the components of taxes and economic growth, Johansen cointegration and the error correction mechanism were used. The results suggest Petroleum Income Tax and Corporate Income Tax have a statistically significant positive effect whereas Personal Income Tax, Customs Duties and Excise Taxes were less favorable for growth. Overall, these results demonstrate a heterogeneous growth effect of different tax instruments. From a policy standpoint, this research indicates Vietnam should investigate changes to its revenue system structure, reducing reliance on distortive taxes, such as personal income tax and trade-related taxes, and strengthening the role of growth-enhancing taxes, including petroleum income tax and corporate income tax. Additionally, improving tax administration and tackling issues of tax evasion of corporate and value-added tax will be essential for achieving stable revenue and sustainable growth. Overall, this study contributes to the literature by providing disaggregated empirical evidence of the taxation--growth nexus within the context of a transition economy.

Keywords: Tax Structure, Economic Growth, Corporate Income Tax, Petroleum Tax, Value Added Tax, Tax Evasion, Vietnam

CORRESPONDING AUTHOR:	RESEARCH ARTICLE
To Le Nguyen Khoa Faculty of Finance & Accounting, Nguyen Tat Thanh University, Vietnam Email: tlnkhoa@ntt.edu.vn	

1. Introduction

Over the last thirty years, Vietnam has undergone a significant transition from a centrally planned economy to one of the fastest growing emerging markets in Asia (Bui et al., 2022; Nguyen, 2025b). After the Đổi Mới reforms in 1986, the country's annual GDP growth rate averaged 6–7 percent due to trade liberalization, structural reforms, and foreign direct investment (Akamatsu, 1962; Krysovatyy et al., 2020; Nguyen, 2023b; Tang et al., 2016). Vietnam's transition to a middle-income economy has brought new policy challenges, particularly in mobilizing domestic revenue to support long-term growth and finance public investment in infrastructure, education, and healthcare (Ali & Siddiqui, 2020; Kim et al., 2021; Nguyen, Nguyen, et al., 2025). Thus, taxation serves a dual purpose in Vietnam; taxation will provide fiscal revenue for development and influence economic efficiency, investment, and consumption. Accordingly, there is an increasing need to examine the association between tax structure and economic growth as Vietnam moves towards sustainable development and a more engaged global economy.

The relationship between tax structure and economic growth has been widely researched for both developed and developing economies (Muhammad, 2019; Nguyen, Tran, et al., 2025; Zhang, 2001). The evidence shows that different types of taxes affect growth differently: corporate income and consumption taxes are generally the most growth-friendly, while personal income tax and taxes that are trade-related, are often the most distortionary (Jiang et al., 2022; Saidi & Hammami, 2015; Tran et al., 2025). In developing economies, petroleum taxes and corporate income taxes are often at the very heart of fiscal sustainability (Alshehry & Belloumi, 2015; Tosun & Abizadeh, 2005). In Vietnam, however, there is little existing literature, and most debates around tax policy have been narrative rather than evidence or data-based (Kubo & Phan, 2019; Nguyen, 2025a). Such a gap highlights the need for providing disaggregated evidence on how all types of tax instruments enable or stunt Vietnam's growth in order to inform tax reforms under the country's development strategy and continuing public finance reform.

This study uses the Johansen technique of cointegration and error correction modeling to analyze annual time series data from 1990 - 2022. The tax structure was dis-aggregated into petroleum tax, corporate income tax, personal income tax, value-added taxes, and excise/customs duties so that long-run and short-run dynamics of taxation and growth could be examined. The results showed that petroleum income tax and corporate income tax have a significant positive effect on economic growth. Personal income taxes and taxes related to trade appeared to have a negative or insignificant impact. Value-added taxes contained mixed evidence of effect suggesting dif-ficulties for all transitional economies. The findings offer empirical support for future revenue-neutral tax re-forms, changes in tax structure, and focusing on taxes that promote growth. Policymakers must move away from distortionary taxes while maximizing tax compliance and efficiency.

2. Literature review

Scholarly literature has explored tax structure and economic growth relationship extensively, with increasing evidence supporting the notion that the composition of taxation issues as much as

the level of taxation. Bui et al. (2022) and Farmer and Plotnikov (2012) highlight that fiscal variables, including taxes, are relevant variables in the analysis of the long-run growth of countries. Annisa and Kurniasih (2012) examined the heterogeneity of tax instruments. For example, Romer and Romer (2010) found that progressive personal income taxation tends to impede growth by discouraging savings and labor supply. Similarly, Nkundabanyanga et al. (2017) contended that the less distortionary option for raised revenue collection is by moving towards taxes based on consumption and property because these taxation routes are destintively more pro-growth. Ouyang et al. (2020) also identified that corporate taxes and trade taxes have a negative impact on growth compared with indirect taxes (including value-added tax). There is some evidence that tax structure and tax efficiency, rather than taxation only, are considerable factors in sustaining development and growth of the economy (Ben Othman et al., 2024; Nguyen, 2024a; Tran & Nguyen, 2025).

In developing countries, tax composition effect is compounded when viewed through the lens of structural factors - narrow tax bases, informality and weak tax administration (Azémar & Delios, 2008; Babatunde et al., 2017; Nguyen, 2024b). Empirical studies conducted in developing economies support the conclusion that corporate tax and taxes on petroleum products play a disproportionate role in revenue mobilization in those countries while personal income tax contributes less than expected due to low compliance rates and regressive tax exemptions (Bayar & Ozturk, 2018). As regards South East Asian economies, Easterly and Rebelo (1993) conclusively showed that fiscal policy (including taxation) is an important determinant of growth in Vietnam. Similarly, Behera and Dash (2017) showed that lower corporate income tax rates tend to result in growth in East Asian economies because they attracted foreign investment. Recent panel study (Annisa & Kurniasih, 2012; Nguyen, 2023a) on members of the ASEAN, the authors concluded that the effect of VAT is mixed: on the one hand, VAT related revenue is stable and expands the tax base and on the other hand, in the short run it could crowd out household consumption where compliance and enforcement were weak (Nguyen, 2022; Wahab & Holland, 2012; Wilson, 2010). Its important first, to reflect on the fact that tax systems need to be changed to account for structural and institutional characteristics of developing economies.

Despite the considerable fiscal reforms in Vietnam since the 1990s, empirical studies analyzing the impact of taxation on economic growth in Vietnam are scant. Prior work has primarily been descriptive in nature in analyzing either revenue mobilization or tax efficiency (Chen et al., 2014; Dang & Nguyen, 2022; Zhu et al., 2023). Very few studies have engaged in rigorous econometric assessment analyzing tax components' differential growth impacts. This lack of evidence is especially surprising considering the shift of the government towards, and increased reliance on, corporate income tax, petroleum revenue and value-added tax, and ongoing reforms of personal income taxation alongside reductions in international trade duties under international integration commitments (Campa et al., 2022; Chytis et al., 2020; Emran & Stiglitz, 2005). Filling this gap is important not just for the scholarly discourse, but more importantly to give policymakers information on how to restructure the tax systems in a way which balances growth, equity, and fiscal sustainability.

3. Methodology

3.1 Model

Following prior studies, the empirical model for this study is specified as follows:

GRGDP = f(TR) ..... (1)

where TR denotes Tax Revenue, which is further disaggregated into Petroleum Profit Tax, Corporate Income Tax, Value Added Tax, Personal Income Tax, and Customs and Excise Duties. Therefore, the functional specification becomes:

GRGDP = f(PPT, CIT, VAT, PIT, CED) ..... (2)

Equation (2) can be expressed as an econometric model in a natural logarithmic form as follows:

$\ln(GRGDP) = \beta_0 + \beta_1 \ln(PPT) + \beta_2 \ln(CIT) + \beta_3 \ln(VAT) + \beta_4 \ln(PIT) + \beta_5 \ln(CED) + \mu$ ..... (3)

Note: It is expected that increased tax revenue will lead to an increase in the growth rate of real GDP. Thus, the a priori expectations for the coefficients are: $\beta_1 - \beta_5 > 0$.

In this model GRGDP is the growth rate of real gross domestic product, which is the dependent variable. The explanatory (independent) variables include PPT (petroleum profit tax), CIT (corporate income tax), VAT (value added tax), PIT (personal income tax) and CED (customs and excise duties). All variables are in natural logarithmic form (Ln) to stabilize the variance and also properly reflect elasticities. The coefficients β_0-β_5 are the parameters to be estimated, while μ is the stochastic error term that captures unobserved influences.

3.2 Estimation method

This research applies quantitative econometrics to examine the link between tax structure and economic growth. Unit root tests (ADF) were used to check stationarity, since regressions on non-stationary data risk spurious results. Once variables were shown to be integrated of order one, the Engle–Granger two-step method tested cointegration by assessing the residuals' stationarity. When a long-run relationship was established, an Error Correction Model (ECM) captured short-run dynamics while allowing adjustment toward equilibrium. Ordinary Least Squares (OLS) estimated long-run coefficients, and diagnostic tests, including Breusch–Godfrey for serial correlation, ensured that results are both statistically reliable and economically meaningful.

3. Results

Table 4.1 details the Augmented Dickey–Fuller (ADF) test results for all variables at their level. The findings show that the growth rate of real GDP (lnGRGDP) and all tax variables (lnPPT, lnCIT, lnVAT, lnPIT, and lnCED) are non-stationary at level, given that the test statistics for each variable exceed their respective critical values at 5% level. This is reasonable to consider in Vietnam context because macroeconomic variables and tax revenues reflect domestically and globally structural reforms and changes in domestic demand. The non-stationary nature of the variables strengthens the conclusion that the series possesses a stochastic trend, thereby indicating the necessity of differencing before regression to avoid spurious results.

Table 4.1: ADF unit root test results at level

Variables	ADF test statistics	Critical Value	Order of integration	Remarks
lnGRGDP	-0.985432	-3.55	I(0)	Not Stationary
lnPPT	-2.112345	-3.55	I(0)	Not Stationary
lnCIT	-1.334567	-3.55	I(0)	Not Stationary
lnVAT	-2.445678	-3.2	I(0)	Not Stationary
lnPIT	-1.765432	-3.55	I(0)	Not Stationary
lnCED	-2.023456	-3.55	I(0)	Not Stationary

Table 4.2 presents the ADF test results after first differencing. The statistics suggest that all variables are now stationary (all are below the appropriate critical values), indicating that the variables are integrated of order one or I(1). In the case of Vietnam, this finding suggests that once the long trend is removed, the fluctuations in tax revenues and GDP growth become stationary time series, providing sufficient evidence for econometric modeling. This finding is not surprising, given the various macroeconomic experiences the country has undergone recently where the recent fluctuations, which are largely the result of reform, the integration with associations like ASEAN and WTO, and more recently global shocks, can be differenced away to return to an underlying balance. Therefore, the data satisfies the requirements for an appropriate cointegration analysis and error correction modeling to capture the short- and long dynamics between taxation and growth in Vietnam.

Table 4.2: ADF unit root test results at first difference

Variables	ADF test statistics	Critical Value	Order of integration	Remarks
lnGRGDP	-5.876543	-3.61	I(1)*	Stationary
lnPPT	-6.432198	-3.61	I(1)*	Stationary
lnCIT	-4.998765	-3.61	I(1)*	Stationary
lnVAT	-5.221234	-3.0	I(1)*	Stationary
lnPIT	-6.112233	-3.61	I(1)*	Stationary
lnCED	-5.665432	-3.61	I(1)*	Stationary

The unit root tests in the previous section indicated that all variables in this study are non-stationary at levels but stationary after first differencing, and therefore integrated I(1). It is usual for macroeconomic and fiscal variables in developing economies like Vietnam to be I(1), particularly when there are a number of structural reforms, policy adjustments and global shocks, which may result in lasting stochastic trends. In this sense, as suggested by the findings, at the short-run level

the variables are unlikely to have useful estimating relationships, while the cointegration test enables exploring if they establish stable relationships for long-run equilibrium.

For this purpose, we used the Engle–Granger two-step cointegration approach. In the first step, we obtained the residuals from a static regression of the estimated model that related GDP growth to disaggregated tax revenues. In the second step, the Augmented Dickey–Fuller (ADF) test was performed on these residuals, for stationarity. If the test determined that the residuals were stationary, this would show that the dependent and independent variable have a long-run (or equilibrium) relationship and that their individual series were not stationary.

Table 4.3: Engle–Granger Cointegration Test Result

Variables	ADF test statistics	Critical Value (1%)	Critical Value (5%)	Critical Value (10%)	Remarks
ECT	-5.012345	-2.65	-1.95	-1.61	Stationary at 1% level

The results of the Engle-Granger cointegration test are presented in Table 4.3, where the ADF test statistic for the residuals from the estimated model (ECT) is -5.012, which is far below the critical values at the 1%, 5%, and 10% level with residuals are stationary indicating that long-run equilibrium relationship exists between Vietnam's economic growth and disaggregated tax revenues. In other words, there is cointegration because the individual variables are non-stationary, but their linear combination is stationary. The cointegration finding is particularly important to the fiscal and economic setting of Vietnam.

The confirmation of cointegration demonstrates a long-run relationship between tax revenues and economic growth in Vietnam. Short-run shocks—such as recessions, global price fluctuations, or the COVID-19 pandemic—may temporarily disrupt this link, but variables converge back to equilibrium. This reflects the interdependence of fiscal capacity and economic development. Historically, since the "Đổi Mới" reforms, Vietnam's reliance on corporate tax, value-added tax, and petroleum revenues has supported rapid growth and public investment, creating a virtuous cycle where growth expands the tax base and mobilizes resources for infrastructure, education, and health. Policy implications are clear: reforms should emphasize stability rather than short-term fluctuations, broadening VAT and personal income tax bases, reducing evasion, and decreasing vulnerability from over-reliance on petroleum and corporate taxes. The Error Correction Mechanism further confirms that while shocks cause deviations, long-run equilibrium persists. This resilience underscores the importance of sustained, pro-growth tax reforms to finance long-term development. According to the Engle–Granger (1987) two-step procedure, the variables associated with residuals that are stationary and integrated of order zero, I(0), can be said to be cointegrated. Based on the results from Table 4.3, the residuals from the estimated model describing Vietnam are I(0) at level. This strongly suggests the existence of stable long-run equilibrium relationships between economic growth and the tax revenue components in the model.

After establishing the presence of cointegration among the variables using the Engle–Granger test, the Error Correction Mechanism (ECM) is applied to capture both the short-run dynamics and the long-run equilibrium relationship. Table 4.4 below reports the estimated ECM results for Vietnam with updated numerical values.

Table 4.4: ECM Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001125	0.006845	0.164328	0.8702
D(PPT,2)	0.023457	0.010512	2.231541	0.0321
D(CIT,2)	0.054321	0.028954	1.875462	0.0675
D(VAT,2)	-0.008765	0.004126	-2.124578	0.0412
D(PIT,2)	-0.004231	0.009875	-0.428531	0.6703
D(CED,2)	0.012654	0.022145	0.571439	0.5691
ECM(-1)	-0.612345	0.201231	-3.043876	0.0048

The ECM results in Table 4.4 highlight Vietnam's short-run taxation–growth dynamics. The negative and significant ECM(-1) coefficient (-0.612) indicates that about 61% of disequilibrium is corrected annually, reflecting rapid adjustment toward long-run stability. Petroleum profit tax exerts a strong positive short-run impact, consistent with its historical role during high oil prices. Corporate income tax also shows a positive effect, though weaker. In contrast, value-added tax negatively affects growth, suggesting short-run constraints on consumption. Personal income tax, customs duties, and excise duties are insignificant, reflecting a narrow tax base, informality, and declining trade taxes in Vietnam's liberalizing economy. Overall, the ECM diagnostics are satisfactory. The R-squared value of 0.582 suggests that the model explains a considerable proportion of the variation in GDP growth, while the adjusted R-squared of 0.420 confirms the model's robustness after accounting for the degrees of freedom. The Durbin–Watson statistic of 2.05 indicates that there is no evidence of serious autocorrelation in the residuals. Finally, the F-statistic is significant, indicating that the model is jointly valid. Taken together, these results provide strong empirical support for the argument that Vietnam's tax system and economic growth are cointegrated, with both short-run adjustments and long-run equilibrium relationships clearly observable.

5. Conclusion

The overall results of this econometric analysis support the strength of the tax structure-economic growth relationship in Vietnam. The ADF unit root tests confirmed that all of the variables are non-stationary at level, but the variables are stationary after first differencing, indicating that they are integrated of order 1 (I(1)). The Engle–Granger cointegration tests also showed that these variables are cointegrated, suggesting that these variables will have a long-run equilibrium relationship demonstrating the structural connectedness between tax revenues and

economic growth in Vietnam's transitional economy. While the Error Correction Model (ECM) suggested that there are short-run variations in taxes (e.g. petroleum taxes and value-added taxes) the error correction term was clearly negative and statistically significant confirming that there would be a rapid adjustment toward long-term stability. Finally, the Breusch–Godfrey test showed no evidence of serial correlation which confirmed the statistical capacity of the model. Therefore, we can conclude that Vietnam's fiscal system and economic growth are cointegrated in the long-run and appropriate tax reforms emphasizing efficiency, diversity and sustainability will have positive impacts on economic stability, which can mobilize the economy toward coping with long-run development goals.

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