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The effect of economic growth level, trade openness, FDI on tax revenues in four low-income countries in Southeast Asia

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Abstract: The study aims to analyze the impact of economic growth level, trade openness, and FDI capital on tax revenue in four low-income Southeast Asian countries including Vietnam, Laos, Cambodia, and Myanmar. Secondary data was collected from the World Bank between 2000 and 2022. The data panel was analyzed using the Pooled OLS retrieval model. The research results indicate a significant impact of GDP per capita, trade openness, and FDI on tax revenue in these four nations. Consequently, this result aligns with previous studies. The article suggests recommendations to increase tax revenue for these countries.

Keywords: *FDI, Impact, Per capita income, Southeast Asia, Tax revenue, Trade openness.*

1. Introduction

The four Southeast Asian countries - Vietnam, Laos, Cambodia, and Myanmar - are geographically close and share numerous similarities. In these four Southeast Asian nations, tax revenue accounts for a significant portion of the total state budget revenue, and they are classified as low-income countries. Taxation is a vital economic tool used by governments to regulate the macroeconomy and generate revenue for the budget. This revenue is crucial for achieving economic growth, reducing poverty, and promoting social justice (Arvin et al., 2021; Gurdal et al., 2021). Tax revenue reaches a substantial portion of the total state budget revenue and serves as an actual tool for the government to manage the overall economy. This revenue is largely used to fund the crucial expenses of the state budget, ensuring income distribution and social equity. Due to the implementation of the open-door integration policy, nations are attracting an increase in foreign investment, tax revenue from FDI enterprises, and tax revenue from the import and export of goods. Thus, to guarantee a balanced tax revenue in these countries, it is essential to regulate the factors of universal trade and foreign direct investment that affect the tax revenue of these countries. Besides, there have been numerous empirical studies around the world concentrating on the factors that affect tax revenue. These studies have exploited diverse approaches, typically using panel data to analyze the factors affecting tax revenue in a group of countries. (Gupta 2007); (Bird and Vazquer, 2008); (Castro and Camarillo, 2014) are some of the researchers who have contributed to this field. (Ha et al., 2022); (Eng and Lim, 2024) specifically studied the impact of factors on tax revenue in Southeast Asian countries. Additionally, (Huong & Hung, 2022) have recognized a relationship between tax revenue and economic growth in Southeast Asian countries. However, several studies focus on specific countries or regions, which has limitations because each country has different natural and socio-economic conditions. This resources that the analysis results are likely to be consistent among nations.

Additionally, growing tax revenue will result in numerous objections as it directly impacts numerous characteristics of the economy. Therefore, these countries are always careful when adjusting tax policies to raise revenue (Thuy Tien Ho et al., 2023). On that basis, this study aims to classify some

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factors affecting tax revenue in the four nations in the Southeast Asian region mentioned above. This will help these countries balance tax revenue reasonably for commercial progress.

2. Literature Review

2.1. Tax Revenue

Bräutigam (2002): "Tax revenue is the income collected by governments through taxation, which is their primary source of revenue. Revenue can be produced from sources including individuals, public entities, trade, natural resource royalties, and foreign aid. An inefficient tax system is more prevalent in countries with high poverty rates, a large agricultural industry, and heavy reliance on foreign aid"

OECD (2016): "The total tax revenue as a percentage of GDP displays how much of a country's output the government collects in taxes. This technique can be applied to measure how much control the government has over the economy's resources."

Ha, et al (2022), "The most vital concept in this study is TAXREV (tax revenue), which assists as the dependent variable in the model. TAXREV (%) is evaluated as the ratio of total tax revenue to GDP".

The tax allocation function involves determining the production pattern, items that need to be produced, producers, the relationship between private and public sectors, and the social balance. (Ojong et al., 2016).

Aneyew (2016): "The role of tax revenue is crucial for driving economic development. Its effectiveness depends on various socioeconomic and political factors. Moreover, the ability to generate sufficient fiscal revenue is determined by various socio-economic and political factors, which may have different effects on tax revenue, either negatively or positively. Besides, investigating the impact of tax revenue on economic performance depends on identifying the factors that might affect tax revenue. Thus, understanding the reasons for the low level of tax revenue and proposing corrective methods to cope with existing tax revenue issues".

2.2. Overview of Previous Empirical Studies

Research on the impact of various factors on tax revenue has attracted the interest of numerous researchers. They have applied a variety of methods to explore this in different countries and regions.

Castro and Camarillo (2014) conducted a study on the factors influencing tax revenue in 12 Middle Eastern countries from 1990 to 2003. The research findings show that the positive impact on tax revenue is inflation, GDP per capita has a negative impact on tax revenue. In addition, factors such as contributions from the agricultural sector, Trade openness, and corruption also have a negative impact on tax revenue. Aneyew (2016) applied quantitative analysis to examine the factors manipulating tax revenue in Ethiopia from 1975 to 2013. The study findings indicate that factors such as the added value of industrial zones and GDP per capita is the factor that has the same impact on tax revenue. And the factor that has the opposite impact on tax revenue is inflation. Additionally, the value-added variable of the agricultural area, as well as the percentage of budget spending on education, do not have a substantial impact on tax revenue. Gaalya et al., (2017) aimed to inspect the impact of trade openness on various types of taxes. They used a panel data cointegration technique, employing Fully Modified Ordinal Least Squares and Dynamic Ordinal Least Squares. The data consisted of annual cross-country panels from East African countries, spanning between 1994 and 2012. The data which was collected from the IMF's International Finance Statistics, the African Development Bank's African Economic Outlook, and the World Bank's World Development Indicators. They observed that the average tariff rate, used as a measure of trade openness, has a positive influence on total tax, indirect tax, and trade tax. However, the effect of the average tariff rate squared is negative, indicating a "Laffer effect" for these three tax categories. The relationship between trade openness and direct taxes is deemed insignificant. The policy implication is that governments of EAC countries should implement trade openness policies asymmetrically, particularly by lowering the tariff rate to enhance tax performance. Gaspareniene et al. (2022) "aim to analyze the significance of foreign direct investment (FDI) and its impact on tax revenue and competitiveness, with a focus on the European Union (EU) economy. An empirical analysis is conducted to determine the relationship between inward and outward FDI and tax

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revenue by applying data from EU countries for the period 1999-2019. The data was collected from the United Nations Conference for Trade and Development (UNCTAD) dataset and the World Development Indicators dataset (WDI) of the World Bank to achieve the objective of this research, which was to determine the effect of FDI on tax revenue. An econometric model was developed for this purpose. The research methods employed in this study included systematic and comparative analysis of scientific literature, panel data analysis, and multiple regression analysis. The regression analysis was based on the least-squares method, and the estimates of the econometric models were designed by identifying robust heteroscedasticity-consistent standard errors. The study results show that outward FDI significantly stimulates total tax revenue, while inward FDI has a reducing effect on tax revenue".

2.3. Hypothesis Development

Economic growth level: This factor is frequently evaluated using GDP per capita. A higher GDP per capita results in improved demand for goods and services overall, including public goods and services. In addition, a high GDP per capita boosts the society's capacity to pay taxes. From there, the tax revenue will increase (Castro and Camarillo, 2014). In this study, H1 is hypothesized that GDP per capita has a positive effect on tax revenue, meaning that when GDP per capita is high, the tax payment capacity will rise, so tax revenue will be high (Fajrina & Setiawan, 2023).

H_1: The level of trade openness is related to the level of taxation.

Trade openness: Trade openness: This factor is measured by taking the total import and export turnover divided by the total GDP of a country. In developed countries, tax revenue from international trade activities is also one of the important sources of revenue for the country and has a positive impact on tax revenue, because when trade activities are expanded, more goods are exported, the tax revenue will be collected more (Baunsgaard & Keen, 2010). In this study, H2 is hypothesized that a country's trade openness has a positive impact on tax revenue, i.e. Improved trade leads to greater economic activity, resulting in higher corporate and personal income, and eventually making higher tax revenue for the government. This hypothesis is reinforced by various studies. Gaalya et al., (2017); Bayale et al., (2023)

H_2: There is an association between trade openness and taxation

Foreign direct investment (FDI): this variable has a positive effect on tax revenue because nations can generate tax motivations to attract foreign investment flows (Cassou, 1997; Martín-Mayoral & Uribe, 2010). Based on (Gugler & Brunner, 2007), this factor can also have a positive impact because FDI inflows raise national attractiveness and progress the tax base. Gaspareniene et al., (2022) revealed that the outward FDI has a significant stimulating impact on total tax revenue. H3 is theorized that a nation's FDI capital has a positive impact on tax revenue.

H_3: The level of foreign direct investment (FDI) is influenced by the taxation policies in place.

3. Model and Methodology

3.1. Model

According to the literature presented above, the authors are proposing an econometric model to investigate the impact of GDP per capita, trade openness (TRADEOPEN), and FDI on tax revenue in four low-income countries in Southeast Asia from 2000 to 2022. The authors will be applying a fixed effects panel data model for this analysis:

$$TAXREV_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 TRADEOPEN_{it} + \beta_3 FDI_{it} + u_i + e_{it}$$

TAXREV: The dependent variable characterizes tax revenue as a percentage of the total taxes collected during the year to the GDP;

GDP: Representing the country's level of growth as measured in logs of GDP per capita, with GDP in current US dollars;

TRADEOPEN: Trade openness is evaluated by the total import and export turnover relative to GDP;

FDI: Foreign direct investment is assessed as a percentage of the net FDI inflows involved in the GDP;

u_i: error;

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e_{it}: cross-sectional data by space; i: represents 4 countries, i=1...4 (Vietnam, Laos, Cambodia, Myanmar); t: represents year t, t=1…23 (from 2000-2022);

The study employs a panel dataset of the four countries in Southeast Asia over the period 2000-2022. Data from various sources have been gathered. Mainly, TAXREV was collected from World Development Indicators (WDI) and the Organization for Economic Cooperation and Development (OECD). TRADE, FDI, and GDP per capita were collected from World Development Indicators (WDI) as the following Table 1.

Table 1.
Descriptive statistics of variables in this model.

Variables	Sign	Source	Number of explanations
Tax revenue	TAXREV	WDI, OECD	93
GDP per capital	GDP	WDI	93
Trade openness	TRADE	WDI	93
Foreign direct investment	FDI	WDI	93

3.2. Methodology

In this study, the authors will focus on analyzing the effects of GDP per capita, trade openness, and FDI on tax revenue in four Southeast Asian nations. The authors will use panel data, which combines time series data and cross-sectional. The research involves statistical descriptions to describe the variables in the research model and the research data. It includes quantitative analysis and panel data regression analysis, with regression performed according to three models: Pooled OLS (POLS), GLS, and DIF-GMM.

4. Research Results and Discussion

4.1. Descriptive Statistics

Descriptive statistics of variables used in the model, several descriptive statistical parameters are employed to see the level of data distribution such as average value, maximum value, minimum value, and standard deviation for four countries such as Cambodia, Lao PDR, Myanmar, and Vietnam.

Table 2 presents the descriptive statistics for the dependent variable, *taxrev* (Tax Revenue), and the independent variables, *gdppc* (GDP per capita), *lgdppc* (logarithm of gdppc), *trade* (Trade openness), and FDI (Foreign direct investment, net outflows) for the four nations mentioned above. Viet Nam has the highest tax revenue, accounting for 12.14% to 22.30% of GDP, while Myanmar has the lowest tax revenue, reaching 2.00% to 6.92% of GDP.

Table 2.
Descriptive statistics of the variables.

Countries	Summary statistics	TAXREV	GDPPC	TRADE	FDI
Cambodia	Mean	12.1044	936.1504	1.2370	9.4948
	Std. dev.	3.9828	481.6704	0.1601	4.2379
	Min	7.54	302.60	1.06	1.75
	Max	19.73	1759.61	1.71	14.15
Lao PRD	Mean	12.9109	1410.0400	0.7678	4.4970
	Std. dev.	1.3840	872.2658	0.1484	2.5825
	Min	9.40	320.10	0.43	0.25
	Max	15.39	2593.36	1.14	10.05
Myanma	Mean	4.4470	816.0270	0.2470	3.0396
	Std. dev.	1.3293	471.1635	0.2557	1.2129
	Min	2.00	137.20	0.01	1.70
	Max	6.92	1478.87	0.63	6.02
Vietnam	Mean	18.8444	1693.1570	1.4765	5.3952
	Std. dev.	2.7753	1122.8110	0.3429	1.6480

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	Min	12.14	390.10	0.63	3.39
	Max	22.30	4179.01	2.03	9.66

Table 3.
Correlation analysis.

	TAXREV	LGDPPC	TRADE	FDI	t
TAXREV	1				
LGDPPC	0.3683	1			
TRADE	0.7303	0.5559	1		
FDI	0.3789	0.3988	0.4904	1	
t	0.0819	0.8829	0.361	0.4099	1

4.2. Correlation Analysis

Table 3 displays that the independent variables all have positive correlations with the dependent variable.

4.3. Regression Results

The POLS model is the most suitable choice for the test results to choose the POLS/FEM/REM models. Perform heteroscedasticity and endogenous variable tests. The output results from the three models POLS, GLS, and DIF-GMM are shown in Table 4 as follows:

Table 4.
Regression results according to POLS, GLS, and DIF-GMM models.

Independent variables	(POLS) taxrev		(GLS) taxrev		(DIF-GMM) taxrev	
	Coefficient	T-statistic	Coefficient	T-statistic	Coefficient	T-statistic
Constant	-22.83***	-3.58	-1.676	-0.45		
LGDPPC	5.342***	4.54	1.680***	2.46	0.0869	1.30
TRADE	5.912***	6.16	5.870***	6.50	0.0904	0.23
FDI	0.256**	2.09	0.0575	0.98	0.102***	2.65
t	-0.711***	-5.59	-0.312***	-3.54	-0.0415	-1.64
L.taxrev					0.940***	27.86
R-squared	0.659					
Prob > F; Prob>chi2	0.0000		0.0000		0.0000	

Note: * p<0.1; ** p<0.05; *** p<0.01.

The model estimation results in the table above show that: The POLS model is significant at 65.9%. Trade openness has the largest impact on tax revenue and has a positive impact on tax revenue at a significance level of less than 1% (p=0.0000). This result aligns with the initial expectation and is fully reinforced by the studies of Gaalya et al., (2017), and Bayale et al., (2023). The model estimation results in the table above show that: The POLS model is significant at 65.9%. Ceteris paribus, high trade openness contributes to an increase in a country's tax revenue. This suggests that international trade activities with the region make substantial profits for these economies, mostly through the export of goods. Trade openness decreases barriers and promotes and facilitates the import and export of goods, thereby growing production and making more revenue for the budget. GDP per capita has the second-largest and most positive impact on a nation's tax revenue, with a substantial level of less than 1% (p=0.0000). This result aligns with the initial expectation and is entirely consistent with the research of Castro and Camarillo (2014), and Fajrina & Setiawan (2023). It is clear that higher GDP per capita corresponds to higher tax revenue. GDP per capita positively influences tax revenue, which is also

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reliable with the contemporary situation in many countries. The FDI variable is also substantial and positively impacts tax revenue at the 5% significance level. The outcome is completely steady with the original expectations and is fully supported by the research of Cassou (1997); Martín-Mayoral & Uribe, (2010), Gugler & Brunner (2007); Gaspareniene et al., (2022). Under the condition that other factors remain unchanged, foreign direct investment (FDI) inflows enhance national attractiveness and boost tax revenue for countries through the donations of these invested enterprises. This is consistent with the contemporary reality in the four aforementioned nations.

5. Conclusion and Recommendations

The study analyzes the impact of GDP per capita, economic openness, and FDI on tax revenue in Vietnam, Laos, Myanmar, and Cambodia using World Bank and OECD data sets from 2000 to 2022. This research demonstrates a strong positive impact of GDP per capita, commercial openness, and FDI on the tax revenue of the four Southeast Asian countries mentioned above. The investigative results are a scientific basis for these four countries to refer to and make decisions to increase practically tax revenue for the nations. Specifically:

5.1. GDP Per Capita Factor

The governments of four countries such as Vietnam, Laos, Myanmar, and Cambodia might implement coordinated measures to boost per capita income, thereby increasing government tax revenue. The governments of these countries are consistently working towards strengthening macroeconomic stability, controlling inflation, and achieving high growth. They proactively and flexibly manage monetary policy tools, closely and synchronously coordinating with fiscal policy. Reasonably decrease interest rates and generate favorable conditions for capital sources for individuals and businesses to increase production. Concentration on removing difficulties for production and corporate, emerging markets, growing purchasing power, and endorsing the consumption of goods to contribute to cumulative revenue and tax revenue. Promote administrative reform, boost state management effectiveness, and reinforce the fight against corruption and waste. Strengthen national defense and security, ensure social order and safety, and enhance the effectiveness of foreign affairs.

5.2. Trade Openness

Trade openness reflects how much a country is involved in international trade. As a result, the governments of these countries should focus on creating a roadmap for global economic integration. This boosts government tax revenue and enhances the economy's growth rate.

These countries should concentrate on improving the quality of economic openness, especially in the context of the world evolving in a complex and unpredictable direction, with commercial, political, and religious conflicts in many regions and countries leading to the risk of crisis at any time.

5.3. FDI Capital

These nations might continue to have good policies in attracting FDI capital from abroad. However, these countries need to make the most effective use of investment capital and achieve qualitative changes from this FDI capital.

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References

[1] Aneyew (2016). Determinants of Tax Revenue in Ethiopia (Johansen Co- Integration Approach). *International Journal of Bussiness*, Vol. 3(6) pp 69-84. DOI: https://doi.org/10.18488/journal.62/2016.3.6/62.6.69.84

[2] Arvin, M. B., Pradhan, R. P., & Nair, M. S. (2021). Are there links between institutional quality, government expenditure, tax revenue, and economic growth? Evidence from low-income and lower-middle-income countries. *Economic Analysis & Policy*, volume 70, June, pages 468–489. DOI: https://doi.org/10.1016/j.eap.2021.03.011

[3] Baunsgaard, T., & Keen, M. (2010). Tax revenue and (or?) trade liberalization. *Journal of Public Economics*, 94(9-10), 563-577. DOI: https://doi.org/10.1016/j.jpubeco.2009.11.007

[4] Bayale, N., Tchagnao, A., Nagou, M., & Tchila, P. (2023). The beneficial. *Bulletin of Economic Research*, *Wiley Blackwell*, vol. 75(4), pages 1323-1343, October. DOI: https://doi.org/10.1111/boer.12410

[5] Bird, R. M. & Vazquez, J. M. (2008). Tax effort in developing countries and high-income countries: the impact of corruption voice and accountability. *Economic Analysis and Policy*, *volume 38* (1), pages 55-71. DOI: https://doi.org/10.1016/S0313-5926(08)50006-3.

[6] Bräutigam, D. (2002). Building Leviathan: Revenue, State Capacity, and Governance. *IDS Billentin*, vol 33 No3, pages 1-17, 2002. DOI: https://doi.org/10.1111/j.1759-5436.2002.tb00034.x

[7] Cassou, S. P. (1997). The link between tax rates and foreign direct investment. *Applied Economics29(10)*, 1295-1301. DOI: https://doi.org/10.1080/00036849700000019

[8] Castro, G. Á., & Camarillo, D. B. R. (2014). Determinants of tax revenue in OECD countries over the period 2001-2011. *Contaduría y Administración: Revista Internacional*, Volume 59, Issue 3, 2014, pages 35-59, ISSN 0186-1042. DOI: https://doi.org/10.1016/S0186-1042(14)71265-3

[9] Eng, R. and Siphat Lim (2024) The Impact of Foreign Direct Investment on Tax Revenues in Six ASEAN Nations: A Dynamic Panel Data Model. *International Journal of Religion*, Vol 5(5):501-507. DOI: https://doi.org/10.61707/03wvsd78

[10] Fajrina, A. S. I., & Setiawan, B. (2023). The effects of digitalization and GDP per capita growth on tax revenue in ASEAN countries. *Optimum: Jurnal Ekonomi & Pembangunan*, 13(1), 14–24. DOI: https://doi.org/10.12928/optimum.v13i1.5780

[11] Gaalya, M., Edward, B. and Eria, H. (2017) Trade Openness and Tax Revenue Performance in East African Countries. *Modern Economy*, Vol.8 No.5, May 2017, pp 690-711. DOI: 10.4236/me.2017.85049.

[12] Gaspareniene, L., Kliestik, T., Sivickiene, R., Remeikiene, R., & Endrijaitis, M. (2022). Impact of Foreign Direct Investment on Tax Revenue: The Case of the European Union. *Journal of Competitiveness*, 14(1), pages 43–60. DOI: https://doi.org/10.7441/joc.2022.01.03.

[13] Gugler, P., & Brunner, S. (2007). FDI effects on national competitiveness: A cluster approach. *International Advances in Economic Research*, *13*(3), 268-284. DOI: https://DOI 10.1007/s11294-007-9091-1

[14] Gupta, A. S. (2007). Determinants of Tax Revenue Efforts in Developing Countries (July 2007). *IMF Working Paper* No. 07/184, Available at SSRN: https://ssrn.com/abstract=1007933

[15] Gurdal, T., Aydin, M., & Inal, V. (2021). The relationship between tax revenue, government expenditure, and economic growth in G7 countries: New evidence from time and frequency domain approaches. *Economic Change and Restructuring*, volume 54 (2), pages 305–337. DOI: https://doi.org/10.1007/s10644-020-09280-x

[16] Ha, N. M., Minh, P. T., & Binh, Q. M., (2022). The determinants of tax revenue: A study of Southeast Asia. *Cogent Economics & Finance (2022)*, 10: 2026660, page 1-20. DOI: https://doi.org/10.1080/23322039.2022.2026660

[17] Huong, L. T. M. & Hung, T. V., (2022). Tax revenue and economic development in Southeast Asian countries. *The EurAseans: Journal on Global Socio-Economic Dynamics*, volume 3(34), pages 41-46, ISSN 2539 – 5645 (Print). DOI: https://doi.org/10.35678/2539-5645.3(34).2022.41-46

[18] Martín-Mayorales, F., & Uribe, C. A. (2011). Determinantes económicos e institucionales del esfuerzo fiscal en América Latina. *Investigación Económica*, *69*(273). DOI: https://doi.org/10.22201/fe.01851667p.2010.273.24251

[19] OECD (2016). OECD Factbook 2015-2016: Economic, Environmental and Social Statistics, *OECD Publishing*, Paris. DOI: https://doi.org/10.1787/factbook-2015-85-en

[20] Ojong, C. M., Anthony, O., & Arikpo, O. F. (2016). The impact of tax revenue on economic growth: Evidence from Nigeria. *IOSR Journal of Economics and Finance*, 7(1), 32–38. DOI:10.9790/5933-07113238

[21] Thuy Tien Ho, et al (2023). Tax revenue-economic growth relationship and the role of trade openness in developing countries. *Cogent Business & Management*, Volume 10, 2023 –issue 2. DOI: https://doi.org/10.1080/23311975.2023.2213959