Working Paper 2025.1.3.1
- Vol 1, No 3

ẢNH HƯỞNG CỦA THUẾ GIÁ TRỊ GIA TĂNG VỚI BẤT BÌNH ĐẲNG THU NHẬP TẠI CÁC QUỐC GIA ĐANG PHÁT TRIỂN Ở CHÂU Á TỪ NĂM 2013 ĐẾN 2022

Ngô Hoàng Phương[1], Bùi Như Quỳnh, Khổng Thu Trang

Sinh viên K61 CLC Kinh doanh quốc tế – Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Nguyễn Thu Hằng

Giảng viên Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Tóm tắt

Nghiên cứu kinh tế hiện nay đưa ra nhiều cách giải thích về sự gia tăng bất bình đẳng thu nhập tại một số quốc gia. Trong đó, ngày càng có nhiều học giả phân tích vai trò của thuế giá trị gia tăng (VAT). Nghiên cứu này đóng góp vào khoảng trống lý thuyết bằng cách phân tích mối quan hệ giữa thuế VAT và bất bình đẳng thu nhập tại các nước đang phát triển ở châu Á giai đoạn 2013 đến 2022. Để xác định tác động của tính lũy tiến trong thuế VAT, nghiên cứu kiểm soát nhiều biến số liên quan. Kết quả cho thấy mối tương quan nghịch có ý nghĩa thống kê giữa mức độ lũy tiến của VAT và bất bình đẳng thu nhập. Phát hiện này bổ sung cơ sở lý luận hiện có thông qua phương pháp định lượng, cung cấp góc nhìn cho giới nghiên cứu và nhà hoạch định chính sách. Nghiên cứu đề xuất rằng các cơ quan thuế cần cân nhắc yếu tố lũy tiến của VAT nhằm nâng cao hiệu quả quản lý thuế, thúc đẩy tuân thủ thuế và giảm bất bình đẳng xã hội.

Từ khoá: các quốc gia Châu Á đang phát triển, bất bình đẳng thu nhập, thuế giá trị gia tăng (VAT)

[1] Tác giả liên hệ, Email: k61.2212150141@ftu.edu.vn

IMPACT OF VALUE ADDED TAX ON INCOME INEQUALITY IN ASIA DEVELOPING COUNTRIES FROM 2013 TO 2022

Abstract

Income inequality remains a significant challenge in many Asia developing countries, where tax policies play a crucial role in shaping economic disparities. Among various tax measures, value added tax (VAT) has been the focus of ongoing discussion due to its potential regressive effects, placing a heavier burden on lower-income households while benefiting higher-income groups. This study examines the relationship between VAT and income inequality in a selection of Asia developing countries from 2013 to 2022. Using a data-driven approach and accounting for various influencing factors, this research aims to better understand how VAT progressivity affects income disparity. The findings show a clear negative relationship between VAT progressivity and income inequality, suggesting that a more progressive VAT system may help reduce income gaps. This study builds on existing research by providing a broader perspective on the long-term impact of VAT policies within the economic context of Asia developing countries. Hence, the results offer practical insights for policymakers in improving tax structures to enhance efficiency, ensure fairer revenue distribution, and address income inequality more effectively.

Keywords: Asia developing countries, income inequality, value added tax (VAT)

1. Introduction

Taxes are one of the primary and most significant sources of revenue for most countries worldwide, particularly for those without substantial natural resources to trade. Even in nations with natural wealth, revenue from these resources typically serves as a supplementary source and is not as substantial as tax income. As a result, taxation plays a crucial role in funding government expenditures. Over time, tax systems as revenue instruments have evolved significantly to adapt to changing economic conditions and policy needs (Permadi & Wijaya, 2022).

Asia developing countries are experiencing rapid economic transformations characterized by technological advancements and complex structural changes. Despite impressive economic growth, the benefits have not been distributed evenly, leading to widening gaps between different social groups. The World Bank's GINI index consistently highlights substantial income gaps across different economies, underscoring the urgent need for comprehensive policy interventions. As governments seek effective policy instruments to address this concern, taxation emerges as a crucial tool for both revenue generation and economic redistribution. Among different types of taxes, Value Added Tax (VAT) has become a major tax and an important element in tax policy advice to Asia developing countries due to its potential efficiency in revenue collection and its broader economic implications (Bogetic et al., 1993). While governments recognize the potential of tax policies to redistribute wealth, the precise impact remains complex and insufficiently explored.

Our research aims to bridge this gap by systematically examining the relationship between

taxation and income distribution in Asia developing countries from 2013 to 2022. By analyzing this relationship, the following research questions have been formulated:

1. How does VAT influence income inequality in developing Asian economies?
2. What factors contribute to income inequality in these countries?
3. What policy recommendations can be proposed to enhance the effectiveness of taxation?

By providing evidence-based insights, this research seeks to support policymakers in designing more effective taxation strategies that balance economic growth with social justice, ultimately contributing to more sustainable and equitable economic futures in Asia developing countries.

2. Literature Review

2.1. Prior research

The Value Added Tax (VAT), also known as the Goods and Services Tax (GST), is highly effective in generating significant tax revenues with minimal economic costs. This makes it one of the most crucial tax tools for developing countries, which typically need additional revenue and face challenges in collecting sufficient funds through direct taxes. As a result, VAT plays a vital role in domestic revenue mobilization and serves as a primary revenue source in many developing nations (UN, 2024). This literature review aims to provide insights into the complex relationship between VAT and income distribution across developing countries.

The research by Voto et al. (2024) suggested that a higher VAT exacerbates income inequality in both the short and long term, with a stronger impact over time. Another finding demonstrated that VAT adoption has increased income-based inequality while leaving consumption inequality unchanged. (Alavuotunki et al., 2018). Additionally, research has indicated that, when inequality is assessed based on disposable income, countries with a VAT system have seen rising inequality. However, in countries where inequality is measured by consumption, VAT adoption has not led to an increase in inequality. Furthermore, VAT has a substantial positive impact on the Gini coefficient, which measures income distribution. A higher VAT rate leads to an increase in the Gini coefficient, indicating greater income inequality (Naderi & Salatin, 2019). The Gini index calculation before and after VAT implementation shows a reduction in income disparities among consumers (Metekohy, 2015).

However, it is essential to acknowledge that previous studies also emphasize the potential benefits of VAT for middle- and low-income individuals under specific conditions. For example, research indicates that VAT revenue can support social welfare programs and public services that benefit all income groups, including those in the middle- and lower-income brackets (Mjaku, 2020). Additionally, VAT policies can encourage the formalization of the economy, resulting in more job opportunities and economic growth, which may ultimately benefit middle- and low-income individuals (Brockmeyer et al., 2024).

2.2. Research gap

Previous studies have primarily relied on linear regression, VAR model or GMM to analyze time-series or cross-sectional data. While these methods provide useful insights, they may not fully capture how taxation affects different income groups. This study applies quantile regression, allowing us to examine the effect of VAT at different points of the income distribution, which enables an examination of VAT's impact across various points in the income distribution, offering a more detailed perspective on its redistributive effects. Regarding data, while earlier studies have often used time-series or cross-sectional data, this research utilizes panel data from reliable sources such as the World Bank and the Income Inequality Database. This approach broadens the scope to include more developing countries in Asia and covers a more recent period, strengthening the robustness and relevance of the analysis.

This study extends the analysis by incorporating the total VAT-revenue-to-GDP ratio as a comprehensive measure of tax effort, capturing the overall tax burden on the economy. Moreover, we include control variables such as GDP per capita, inflation, unemployment, population, educational attainment, political ranking, trade openness, and government expenditure to account for their potential influence on income inequality.

By applying quantile regression, this study introduces an analytical approach to assess the impact of VAT on different income groups in Asia developing countries, providing a more nuanced understanding of its redistributive effects. Including the total VAT-revenue-to-GDP ratio allows for an examination of VAT's overall influence on income inequality—an area that has received limited attention in previous research on developing Asian economies.

The combination of a distinct methodological approach and a comprehensive dataset may yield findings that differ from prior studies, offering new insights into the relationship between VAT and income inequality in Asia developing countries. These findings could challenge existing perspectives and contribute to tax policy discussions.

3. Theoretical framework

3.1. Value Added Tax (VAT)

VAT is one of the categories of indirect tax that levies a charge at every production stage, distribution stage, and consumption chain stage. VAT was first introduced in France in 1954 by a politician and businessman called Carl Friedrich von Siemens. Since that time, many nations throughout the globe have adopted the VAT. Tax declarers and payers (essentially an intermediary for collection and payment) are the organizations and individuals that manufacture, trade taxable goods and services in nations and individuals that import goods or purchase services from abroad.

3.2. Income inequality

Income inequality refers to the disparity in disposable income among individuals or households within a given year (OECD, 2023). According to an OECD report (2012), income

inequality can be measured using two primary approaches: the Gini index, which provides a single numerical summary, and income distribution metrics at various points, often expressed as income shares or percentile ratios.

The Gini coefficient quantifies income inequality by calculating the average income differences between every pair of individuals in an economy, relative to the mean income. A Gini coefficient of zero represents perfect equality, where all individuals earn the same income, while a coefficient of one indicates extreme inequality, where a single person holds all the income while others have none.

Developing countries generally exhibit higher levels of income or wealth inequality. Their Gini coefficients can vary significantly depending on economic structures, social policies, and political stability, with some countries exceeding 0.50 or approaching 1.00. However, country-specific data is necessary for a precise and current assessment.

To gain a more comprehensive understanding of income distribution within a society, the Lorenz Curve serves as a useful visual tool. The Lorenz Curve is constructed by plotting the cumulative share of the population, ranked by income level, along the x-axis (ranging from 0 to 1), while the y-axis represents the cumulative share of total income. This curve helps illustrate the degree of income concentration within an economy by comparing actual income distribution to a perfectly equal distribution.

$$L(\frac{k}{P}) = \frac{\sum_{i=1}^{k} y_i}{Y}$$

Where:

$k=1,\ldots,n$ is the position of each individual in the income distribution;

$i=1,\ldots,k$ is the position of each individual in the income distribution;

P is the total number of individuals in the distribution;

y_i is the income of the i^{th} individual in the distribution;

$\sum_{i=1}^{k} y_i$ is the accumulated income up to the k^{th} individual

It is apparent that $\sum_{i=1}^{k} y_i$ ranges between 0, for $k=0$, and Y, for $k=n$ therefore $L(\frac{k}{P}) = \frac{\sum_{i=1}^{k} y_i}{Y}$ ranges between 0 and 1[3]

3.3. The impact of Value Added Tax on Income inequality

VAT is significant due to its impact on income distribution (Tait, 1991). As a consumption-based tax, VAT is considered regressive, disproportionately affecting low-income households who pay a higher share of their income compared to high-income groups. Research indicates that an increase in VAT revenue contributes to income inequality. However, Duncan & Sabirianova Peter (2012) argue that increasing income tax rates disproportionately reduces taxable income for high earners, implying that income taxes negatively impact low-income households. Meanwhile, Bye et

al. (2012) suggest that VAT can reduce income inequality through preferential policies, such as tax reductions or exemptions for essential goods, alleviating the burden on consumers (Obadic et al., 2014). Engel et al. (1999) argue that the progressivity of the tax system does not directly impact inequality, but tax efficiency can reduce inequality. Shome (2009) and Keen & Mintz (2004) emphasize the administrative and revenue-generating advantages of VAT.

OECD evidence indicates that in high-income countries, VAT is slightly regressive when measured against current income but proportional or slightly progressive relative to expenditure (OECD/KIPF, 2014). Nevertheless, even a proportional VAT may push households into poverty (Thomas, 2020), underscoring the need to compensate vulnerable groups for purchasing power losses. In low-income economies, VAT tends to be more progressive due to poorer households' reliance on informal markets (Bachas, Gadenne & Jensen, 2023). VAT rate cuts may not fully translate to lower consumer prices (Benedek et al., 2020; Fuest et al., 2024), whereas direct cash transfers are more effective in supporting low-income households than exemptions, which often benefit wealthier groups (OECD/KIPF, 2014; Thomas, 2020). Even when targeted schemes are unavailable, universal transfers outperform VAT reductions in redistributive efficiency (Warwick et al., 2022).

4. Methodology

4.1. Research methodology

This study investigates how VAT affects income inequality in 29 Asia developing countries from 2013 to 2022. These countries were selected for their diverse economic structures, income levels, and fiscal policies, allowing for a broad analysis of VAT's role in income distribution. Some, like Thailand and Vietnam, are active in regional trade agreements and may experience different VAT effects compared to more inward-focused economies such as Laos and Oman. Variations in government spending and social welfare policies also provide insight into how VAT interacts with other fiscal mechanisms.

To analyze this relationship, the study applies the Quantile Regression (QR) method. Unlike Ordinary Least Squares (OLS), which focuses on the average effect, QR examines VAT's impact across different points in the income distribution. This approach is particularly useful when data exhibiting heteroskedasticity or income inequality measures are not symmetrically distributed.

The model estimates VAT's effect at the 25th, 50th, and 75th quantiles. The 25th quantile represents lower-income groups, the 50th quantile reflects middle-income groups, and the 75th quantile corresponds to higher-income groups. This method helps determine whether VAT affects income groups differently or has a uniform impact across all levels.

Based on existing literature and theoretical considerations, the study tests the following hypotheses:

- ***H₁:*** *Higher VAT rates increase income inequality among lower-income groups (Q25).*
- ***H₁':*** *VAT has little to no significant effect on income inequality for middle- and higher-income groups (Q50 and Q75).*

4.2. Research model

Based on the literature review and theoretical framework, this study develops the following model to analyze the impact of VAT on income inequality:

$$INC\_INE = \beta_0 + \beta_1 VAT + \beta_2 GDP + \beta_3 TO + \beta_4 PO + \beta_5 UNEM + \beta_6 EDU + \beta_{7POP} + \beta_8 INF + \beta_9 GOVEX + \varepsilon_{it}$$

In which:

$\beta 0$: the intercept of the regression model.

$\beta 1 - \beta 9$: the variables' regression coefficients.

INC_INE (Dependent variable): Income inequality, measured by the share of national income held by the top 10% of earners.

VAT: The proportion of total tax revenue generated from value added tax (VAT)..

GDP: Gross Domestic Product, representing the total value of all goods and services produced within a country over a specific period

TO: Trade openness, measured by the sum of exports and imports as a percentage of GDP.

PO: Political stability score (0-100), with higher scores indicating a lower risk of political instability or violence, ranked by WGI (Worldwide Governance Indicators).

UNEM: Unemployment rate, expressed as the percentage of the labor force that is unemployed.

EDU: a measure of an individual's formal education, typically classified by degrees or certificates earned (educational attainment, at least completed lower secondary, population 25+)

POP: the total count of individuals in a country, city, or region, including all age groups.

INF: measured by the Consumer Price Index (CPI), is the rate at which the average prices of goods and services increase over time.

GOVEXP: Government final consumption expenditure, capturing government spending on goods and services.

εit: The error term for country *i* in year *t*, accounting for omitted variables or unobserved factors that may influence the dependent variable but are not explicitly included in the model.

4.3. Data and data source

Table 1. Data description and data sources

Variables	Meaning	Source
Inc_Ine	Income inequality (top 10% income share)	World Inequality Database
VAT	value added tax revenue	WDI
GDP	Gross domestic product	WDI
TO	Trade openness	WDI
GOV	General government final expenditure	WDI
PO	Political stability	WDI
UNEM	Unemployment rate	WDI
EDU	Educational attainment	WDI
POP	National population	WDI
INF	Consumer prices	WDI

Source: Author

5. Empirical result

5.1. Correlation matrix

Table 2. Correlation matrix

	INC_INE	VAT	GDP	TO	PO	UNEM	EDU	POP	INF	GOVEX
INC_INE	1.0000									
VAT	0.0186	1.0000								
GDP	-0.0948	-0.1717	1.0000							
TO	-0.1862	-0.1029	-002152	1.0000						

	INC_INE	VAT	GDP	TO	PO	UNEM	EDU	POP	INF	GOVEX
PO	-0.1177	0.1530	-0.0396	0.4773	1.0000					
UNEM	-0.3212	0.1830	-0.1515	0.0662	-0.4576	1.0000				
EDU	0.0928	0.2076	0.0807	0.2103	0.0684	0.1684	1.0000			
POP	0.2143	-0.2392	0.7917	-0.2941	-0.1158	-0.1879	-0.0809	1.0000		
INF	0.2143	-0.1710	-0.0570	-0.1194	-0.1620	-0.0416	-0.1221	-0.0452	1.0000	
GOVEX	0.1063	0.0789	0.0260	-0.0871	0.0484	0.0043	0.1652	-0.1010	-0.1428	1.0000

Source: Authors' calculation

A correlation matrix is constructed to assess the relationships among variables. The correlation coefficient ranges from -1, indicating a strong negative relationship, to +1, indicating a strong positive relationship, with 0 meaning no relationship.

- **INC_INE vs. VAT**: Weak positive correlation of 0.019, suggesting that VAT revenue has little direct impact on income inequality.
- **INC_INE vs. GDP**: Negative correlation of -0.095, indicating that higher GDP levels may be associated with slightly lower income inequality.
- **INC_INE vs. TO**: Negative correlation of -0.186, suggesting that greater trade openness may contribute to reduced income inequality.
- **INC_INE vs. PO**: Positive correlation of 0.153, implying that higher political stability may be linked to slightly higher income inequality.
- **INC_INE vs. UNEM**: Moderate negative correlation of -0.321, indicating that higher unemployment rates are associated with lower income concentration at the top.
- **INC_INE vs. EDU**: Positive correlation of 0.093, showing little direct relationship between education levels and income inequality.
- **INC_INE vs. POP**: Positive correlation of 0.164, suggesting that countries with larger populations tend to experience slightly higher income inequality.
- **INC_INE vs. INF**: Positive correlation of 0.214, indicating that higher inflation rates may be linked to greater income inequality.
- **INC_INE vs. GOVEX**: Positive correlation of 0.106, suggesting that government spending has a minimal effect on income inequality.

Overall, the correlation coefficients remain relatively low, suggesting a low likelihood of

multicollinearity in the regression model. These preliminary findings provide insight into the expected relationships between variables but require further validation through regression analysis.

5.2. Estimated result

Table 3. Parameter estimates

	Q(0.25)	Q(0.5)	Q(0.75)
VAT	**0.0028715**	**0.0008783**	**0.0014499**
P > |t|	**0.004**	**0.001**	**0.004**
GDP	-1.93e-14	3.70e-15	-1.27e-14
P > |t|	0.005	0.000	0.000
TO	0.0001166	0.0000481	0.0000768
P > |t|	0.049	0.002	0.059
PO	-0.0002751	0.0001584	-0.0009326
P > |t|	0.092	0.000	0.000
UNEM	-0.0011247	0.000304	-0.0016899
P > |t|	0.000	0.000	0.000
EDU	0.0007686	0.0002668	0.0007575
P > |t|	0.002	0.013	0.000
POP	1.38e-10	1.22e-11	9.70e-11
P > |t|	0.022	0.000	0.000
INF	0.001007	0.0003024	0.0006705
P > |t|	0.004	0.001	0.040
GOVEX	0.0016648	0.001628	0.0033292
P > |t|	0.271	0.111	0.000

Source: Authors' calculation

At the 25th Quantile (Q 0.25): $\beta_1 VAT$ = 0.0029

The coefficient estimate indicates that a one-unit increase in VAT is associated with a 0.0029-unit increase in income inequality at the lower end of the income distribution. This suggests that VAT may contribute to widening disparities among lower-income individuals.

At the Median (Q 0.50): $\beta_1 VAT$ = 0.0029

At the median income level, the effect of VAT remains consistent with the 25th quantile, implying that its regressive nature extends beyond the lowest earners. The positive coefficient suggests that VAT continues to be associated with an increase in income inequality for middle-income groups.

At the 75th Quantile (Q 0.75): $\beta_1 VAT$ = 0.0015

For higher-income individuals, the estimated coefficient remains positive but decreases to 0.0015. This indicates that while VAT is still correlated with greater inequality, the magnitude of its effect is lower at the upper quantile compared to lower segments of the income distribution.

5.3. Discussion

The positive coefficient of VAT at lower quantile indicates that VAT contributes to widening income disparities among lower-income individuals. This suggests that VAT, as an indirect tax, disproportionately affects those with lower earnings, reinforcing its regressive nature. Since lower-income individuals allocate a larger proportion of their income to consumption, VAT tends to impose a heavier burden on them relative to their total earnings. Moreover, at the median income level, the coefficient remains the same at 0.0029, suggesting that the adverse effects of VAT on income inequality extend beyond the lowest earners to the middle-income segment. This consistency indicates that VAT does not solely burden the poorest but also affects those in the middle of the income distribution, further contributing to income disparity. For individuals at the higher quantile, the VAT coefficient remains positive but decreases to 0.0015, indicating a smaller impact on income inequality, suggesting that wealthier individuals are relatively less affected by VAT.

Moreover, while VAT is often criticized for disproportionately affecting lower-income individuals, our study finds that the influence of VAT on income inequality is present but not as significant as anticipated. This indicates that while VAT may still contribute to inequality, its overall effect could be shaped by other factors, such as economic growth, population size, trade openness, inflation or unemployment rates, suggesting that the relationship between VAT and income disparity is more complex and influenced by the broader economic context.

Our results show that VAT seems to have little impact on the wealthiest individuals, suggesting that these policies might need to be adjusted to better achieve fairness. Moreover, our findings stress that tackling income inequality is not just about taxes. Other factors, like GDP, population size, unemployment, and inflation, are also linked to inequality. These factors interact with tax policies and make addressing inequality more complicated. This is consistent with previous

research, which emphasizes the need for a broader, more well-rounded approach to reducing inequality.

In conclusion, policymakers should consider these findings when designing tax policies. Relying only on progressive tax systems without looking at the bigger picture may limit how effective they are. A more balanced approach that includes tax reforms along with social welfare programs and efforts to promote inclusive growth will likely have a bigger impact on reducing income inequality. Future research should explore the long-term effects of VAT and other consumption taxes on inequality, and find better ways to close the income gap.

5.4. Violation testing & remedies

To ensure the reliability of the regression model, variance inflation factors (VIF) are examined to detect potential multicollinearity among independent variables.

The hypothesis for multicollinearity testing is formulated as follows:

- H_0: The model does not exhibit multicollinearity.
- H_1: The model exhibits multicollinearity.

After calculating, all VIF values are below 5, with the highest VIF observed for population (3.16) and GDP (2.91). The mean VIF is 1.90, indicating that the model does not have multicollinearity. In this case, H_0 is accepted, confirming that the model does not suffer from multicollinearity. Therefore, no remedial measures are necessary, and the estimated coefficients can be interpreted. The detailed VIF results for each variable are presented in the table below:

Table 4. VIF features

Variable	VIF
VAT	1.42
POP	3.16
GDP	2.91
PO	2.35
TO	1.94
UNEM	1.81
EDU	1.24
GOVEX	1.12

Variable	VIF
INF	1.11
Mean VIF	1.90

Source: Authors' calculation

6. Conclusion & Implication

This study investigates the impact of Value Added Tax (VAT) on income inequality in Asia developing countries over a 10 year period from 2013 to 2022. The findings suggest that VAT has a regressive effect, weighing more heavily on lower-income households while benefiting higher-income groups. The results indicate a statistically significant relationship between VAT policies and income disparity, with countries relying heavily on VAT experiencing greater income inequality.

These findings align with previous research, which demonstrates the regressive nature of VAT in developing nations in Asia. However, this study expands the relevance of prior research by concentrating on VAT's effects on income inequality that are linked with broader macroeconomic factors. This research suggests that addressing income inequality requires a more comprehensive approach that takes into account various economic factors. By including a decade-long dataset, this study provides a wider perspective on the long-term consequences of VAT policies in Asia developing countries.

In practice, policymakers should reconsider the structure of VAT systems to mitigate their regressive effects. Strategies such as graduated VAT rates, specific exemptions for basic goods, and direct wealth redistribution measures can help reduce the burden on lower-income households. Additionally, governments could complement tax reforms with employment initiatives, social support programs, and inflation control measures to ensure a fairer distribution of income.

In Asia developing countries, tax policies are still relatively "loose" (with many loopholes) and not tight in income control, making it difficult to use income tax as a tool to reduce inequality. Therefore, the government may find that using VAT on goods and services is more effective in controlling income inequality, as VAT is easier to monitor. This study underscores the need for tax reforms in Asia developing countries to address income inequality effectively. Additionally, these countries should be cautious when increasing VAT revenues, as numerous studies have shown that indirect taxes are harder to monitor in terms of identifying the direct consumers of goods and services, and the exemptions and reductions in these taxes can be quite complicated. These countries should also proactively develop a tax system based on direct taxes to regulate income more feasibly. Policymakers should focus on implementing compensatory mechanisms, such as cash transfers or tax credits for low-income households, to counteract the regressive impact of

VAT. Additionally, governments could complement tax reforms with employment programs, social welfare initiatives, and inflation control measures to ensure a more equitable income distribution. Strengthening tax compliance and reducing tax evasion among high-income groups can help create a fairer tax system.

The study was limited to a few Asia developing countries due to the lack of publicly available data across all nations, which may affect generalizability. Future research should include a larger, more diverse sample of countries and utilize more comprehensive, publicly accessible datasets to enhance the validity and applicability of findings. Furthermore, the study did not account for all potential confounding factors, such as the possibility that the wealthy might work less or simply report a lower actual income to reduce their income tax obligations (income concealment). Taxpayers could apply the latter option through tax avoidance or evasion activities, making progressive taxes potentially ineffective in achieving the goal of reducing income inequality.

References

Permadi, D.G. (2022). 'Analysis of determinants of value added tax revenue in Asia'. Available at: https://www.researchgate.net/publication/365499015_Analysis_of_determinants_of_value_added_tax_revenue_in_Asia.

Bogetic, Z. & Hassan, F.M.A. (1993). 'Determinants of value added tax revenue: A cross-section analysis'. Available at: https://www.researchgate.net/publication/23721666_Determinants_of_value_-_added_tax_revenue_a_cross_section_analysis.

United Nations (2023). 'CRP. 10 Annex A (Overview of VAT-GST in developing countries) 28th Session'. Available at: https://financing.desa.un.org/document/crp-10-annex-overview-vat-gst-developing-countries-28th-session.

Voto, T.P., Ngepah, N. & Gerendawele, N.H. (2024). 'Value added tax, ethnic fragmentation and income inequality in sub-Saharan Africa'. Available at: https://sajems.org/index.php/sajems/article/view/5793.

Alavuotunki, K., Haapanen, M. & Pirttilä, J. (2018). 'The effects of the value added tax on revenue and inequality'. Available at: https://www.tandfonline.com/doi/full/10.1080/00220388.2017.1400015#abstract.

Naderi, S. & Salatin, P. (2019). 'Impact of value added tax on income distribution in middle-income selected countries'. Available at: https://www.researchgate.net/publication/339501725_Impact_of_Value_Added_Tax_on_Income_Distribution_in_middle-income_selected_countries.

Metekohy, S. (2015). 'The influence of value added tax (VAT) assessment on income distribution of consumer of garment in West Java'. Available at:

https://ccsenet.org/journal/index.php/res/article/view/48979.

Mjaku, G. (2020). 'Value added tax as an important factor of tax revenues in the Republic of Kosovo'. Available at: https://www.researchgate.net/publication/344735579_Value_Added_Tax_as_an_important_factor_of_tax_revenues_in_the_Republic_of_Kosovo.

Brockmeyer, A., Mascagni, G., Nair, V., Waseem, M. & Almunia, M. (2024). 'Does the value added tax add value? Lessons using administrative data from a diverse set of countries', *Journal of Economic Perspectives,* Vol. 38 No. 1, pp. 107–132.

Eydam, U. & Qualo, H. (2023). 'Income inequality and taxes – an empirical assessment'.

Urban-Brookings Tax Policy Center (2023). 'Income measure used in distributional analyses by the Tax Policy Center'. Washington, DC.