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# Finding the Optimum Value-Added Tax Threshold of Small and Medium Businesses in Indonesia

Rahadian Lungun

Faculty of Administrative Science, Universitas Indonesia, Depok, Indonesia

**ABSTRACT**

**Purpose:** This study investigates the optimal Value-Added Tax (VAT) registration threshold for small and medium enterprises (SMEs) in Indonesia, aiming to enhance VAT revenue without raising the tax rate. Despite VAT being a significant source of revenue for Indonesia, the current VAT registration threshold of 4.8 billion rupiahs is relatively high compared to other countries, potentially limiting tax revenue from businesses just below this level.
**Methodology:** The study calculates the optimal VAT threshold for various business sectors using the Keen and Mintz model and administrative data from the Directorate General of Taxes.
**Finding:** The results show that the average optimal threshold is lower than the current threshold, with the mining and quarrying sector having the highest threshold at approximately 4.26 billion rupiahs and the accommodation and food service sectors the lowest.
**Implication:** The implication of this study suggests that reducing the VAT threshold could expand the tax base and increase revenue without raising VAT rates.
**Originality:** The study contributes to the ongoing discourse on optimising Indonesia's VAT system and recommends revising the threshold to reflect sector-specific needs better and enhance overall tax efficiency.
**Keywords:** SMEs, Value-Added Tax, VAT Threshold

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**Corresponding Author:**
Rahadian Lungun
(rahadian.gabe@gmail.com)

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## 1. Introduction

The Value-added Tax (VAT) is vital for Indonesia's state budget, as it is one of the primary sources of tax revenue besides the income tax. The tax revenue trend over three years indicates that the VAT revenue is Indonesia's second highest tax revenue after the income tax revenue (*see* Table 1). However, one could argue that the government has yet to generate an optimum revenue from VAT. Based on the data from the OECD (2023a), compared to the other countries in Asia Pacific Countries' tax ratio, Indonesia's should be higher than the current condition (*see* Figure 1).

**Table 1.** Tax Revenue Realisation Trend

| Description | Revenue Realisation until 30 September (In Trillions of Rupiah) | | |
|---|---|---|---|
| | **2022** | **2023** | **2024** |
| Tax Revenue | 1,542.5 | 1,583.3 | 1,561.5 |
| a. Domestic Tax | 1,469.2 | 1,538.3 | 1,510.9 |
| i. Income Tax | **785.5** | **826.1** | **785.6** |
| 1. Oil and Gas Income Tax | 62.2 | 54.3 | 48.8 |
| 2. Non-Oil and Gas Income Tax | 723.3 | 771.7 | 736.8 |
| ii. VAT and Sales Tax on Luxury Goods | **504.5** | **536.7** | **546.7** |
| iii. Land and Building Tax | 14.8 | 17.3 | 16.6 |
| iv. Excise | 158.8 | 150.6 | 156.1 |
| v. Other Taxes | 5.6 | 7.7 | 6.0 |
| b. International Trade Tax | 73.3 | 45.0 | 50.6 |
| i. Import Duty | 36.3 | 36.9 | 38.4 |
| ii. Export Duty | 37.0 | 41.0 | 12.2 |

Source: Pocket Book of Indonesia's State Budget and Economic Indicator (Ministry of Finance, 2024)

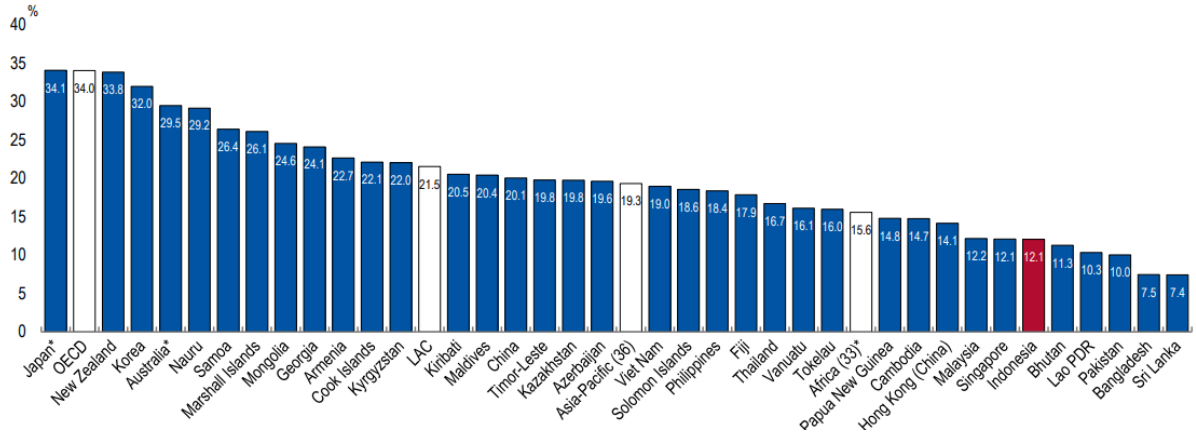


**Figure 1.** Tax to GDP Ratio of Indonesia Compared to other Asia Pacific Countries in 2022
Source: OECD (2023)

Sipayung et al. (2024) reveal that the income tax ratio has dominated the VAT tax ratio over the years. They report that from 2016 to 2020, Indonesia's VAT ratio was around 4% of the total tax ratio. This figure is much less than the Income Tax ratio, which exceeds 50% of the total tax ratio. Due to its form as the consumption tax, the VAT ratio should align with Indonesia's Gross Domestic Product (GDP). Meanwhile, Indonesia's total GDP is ranked as one of the biggest in the world (World Data.info, 2024). Therefore, they contend that Indonesia should have generated a higher tax revenue from VAT. In finding the optimum level of VAT ratio, Haryadi and Nainggolan (2024) have calculated the optimal VAT ratio of Indonesia. Adopting the regression analysis, they reveal that the optimal VAT ratio of Indonesia should reach 15,29%. This figure implies that the current VAT ratio of 4% is still far from the optimum value. This optimum value suggests that increasing the VAT revenue to the condition should stimulate Indonesia's economic growth. Therefore, the following question should be answered: How does Indonesia reach this optimum value of the VAT ratio?

It could be argued that the government should increase the VAT rate to generate the optimum VAT ratio. Smedoiu-Popoviciu et al. (2023) conducted empirical research on how the VAT rate relates to the fiscal revenue in Romania. They found that an optimal VAT rate should be based on the economy's composition, as there is an inverse relationship between marginal collections and rates. On the other hand, Musa et al. (2023) suggest that optimising value-added tax (VAT) revenue requires a nuanced approach beyond increasing rates. One of the ways is to expand the tax base to include more goods, services, and informal sector activities. Meanwhile, Indonesia has just increased the VAT rate in 2022 from 10% to 11%. The rate will also increase in 2025 to 12%. As a result, the DGT reports a significant increase in VAT revenue growth in 2022 to 2.04% (Directorate General of Taxes, 2023). However, it is revealed that the increase has a non-

significant impact on the VAT ratio. Hence, raising the rate could not be an option; it is argued that Indonesia should expand its tax base to increase its VAT ratio.

According to press release by the Coordinating Ministry for Economic Affairs (2024), Indonesia's GDP has been mainly dominated by relatively medium and small businesses, which is reaching 60,51% from the total of GDP. This data could imply that Indonesia holds significant potential, and the government must focus more on expanding VAT revenue for small and medium businesses. However, the current regulation of the VAT registration threshold could hinder the tax base expansion (Amendment to the Regulation of the Minister of Finance Number 68/PMK.03/2010 Concerning the Limitation of Small Business Value Added Tax, 2013). This VAT registration threshold means that if the business entity's business turnover does not exceed the specific threshold amount of 4.8 billion rupiah, the business entity is exempted from VAT collection. This regulation shows that the government does not levy the cost for VAT collection on small and medium businesses. However, it should be noted that the threshold is commonly applied in countries that adopt the VAT regimes because they want to reduce administrative and compliance costs for small and medium businesses.

Nevertheless, according to recent data from the OECD (2023b), Indonesia implements a relatively higher threshold than other countries. The data shows that Indonesia is implementing a yearly VAT registration threshold of 4.8 billion rupiahs or 315,000 USD in turnover. This figure is much higher than other countries, even for developed countries. One could argue that this relatively high threshold has overlooked the potential of VAT revenue collection from the business entity with a sales level below 4,8 billion rupiahs. It should be noted that there is a political consideration behind the implementation, which this study will not discuss. However, to the best of the author's knowledge, research has yet to be conducted to find the optimum VAT registration threshold below the current threshold in Indonesia. Therefore, this study attempts to find the optimum threshold at the sales level at which the threshold has already been implemented, which is below 4.8 billion rupiahs in a year.

## 2. Methodology

This research uses a quantitative approach to calculate the optimum value of the VAT threshold in Indonesia. This approach adopts the Keen and Mintz (2004) simple model in determining the optimal small business threshold. They argue that the VAT threshold must be set at the level where the benefit of tax revenue counteracts collection costs. Moreover, they also contend that finding the optimal VAT threshold for small businesses requires administrative and compliance costs. It is essential to establish the VAT threshold at a level where the additional tax revenue generated significantly exceeds the costs associated with its collection. This approach ensures a more efficient and beneficial tax system for all stakeholders involved, including taxpayers and the government.

Consequently, Keen and Mintz use administrative and compliance costs variables in the model. Moreover, they also use the marginal cost of public funds with the assumption that a dollar in the hands of the government has a more excellent social value than a dollar in the hands of individuals. Furthermore, they also use the tax rate and ratio of value added to sales at a given level of sales z to find the z (VAT optimum threshold). The formula of Keen and Mintz is as follows:

$$z = \frac{\delta A + \Gamma}{(\delta - 1)\tau v(z*)}$$

Notes:
$z =$ Optimum VAT threshold
$A =$ Administration Cost
$\Gamma =$ Compliance Cost
$\delta - 1 =$ Marginal Cost of Public Fund
$\tau =$ tax rate
$v(z*) =$ ratio of value added to sales at a given level of sales z

## 3. Results and Discussion

### 3.1. Results

This study uses administrative data from the Directorate General of Taxes, comprising of business entities from 46 Small and Medium Tax Offices. Using the micro-level and observational data, this study adopts the Keen and Mintz formula, modified by Brashares et al. (2014). This modified statistics formula specifies the levels of taxable sales (s) for small and medium businesses. Therefore, this study uses the statistics formula as follows:

$$z = \tau \, x \, VA_s \, \frac{\delta A_s + \Gamma_s}{(\delta - 1)}$$

Notes:
$z =$ Optimum VAT threshold
$\tau =$ tax rate
$V\,A_s =$ total value added within the level of taxable sales
$\Gamma_s =$ compliance cost at the given level of Sales
$\delta - 1 =$ Marginal Cost of Public Fund

Prior to finding the optimal value of the VAT threshold, this study first determines the required variable based on the statistics formula. Once all the variables are determined, this study classifies all the data based on the level of sales and the business field sector. This step is necessary to describe the optimal value of the VAT threshold comprehensively. However, due to the large number of business entities in Indonesia, this study uses sample data from the Directorate General of Taxes from the Medium and Small Taxpayers Tax Office. The sample data comprises 10,543 business entities that already exceed the current VAT threshold and are below the threshold. Secondly, before conducting calculation and analysis, it is required that the data be normally distributed. Therefore, this study conducts the normality test. Lastly, this study calculates the VAT threshold for each level of sales and the business field sector.

**Tax Rate**

Indonesia has been implementing 11% of the VAT rate since 2022. The rate is applied as a single rate for all levels of business, including Small and Medium Businesses. Meanwhile, this paper uses data on sales of business entities of Small and Medium Businesses in 2022. Consequently, this paper uses the VAT tax rate of 11% as an independent variable.

**Total Value Added Within the Level of Taxable Sales**

Determining the total value added within the level of taxable sales requires data on sales from the business entity. Therefore, this study gathered sales data from 10,543 business entities across 46 tax offices in Indonesia in 2022 from the Directorate General of Taxes. However, due to the data derived from the tax return reported by the taxpayers with the self-assessment system, there could be an error in reporting or filling in the required data. Therefore, as for the anticipation, this paper cleans the data by removing the sales data that contain minus or zero data.

**Administration Cost**

According to Allers (1994), *tax administration cost* is defined as the cost incurred by the public sector or the tax authorities to administer the tax-benefit system. In detail, Evans (2004, p. 450) mentions that the tax administration cost contains the costs of the revenue agencies to collect the tax revenue. He argues that the cost includes salaries, pensions, and the accommodation of the tax official, which has a direct relationship with tax collection. Moreover, the administration cost can also include legislative enactment related to the tax system.

This study focuses on the administration cost directly related to the VAT revenue collection of small and medium businesses. In this study, the population of the small and medium businesses is administered by the Small and Medium Tax Offices. Therefore, the administration cost used in this study is the cost within the tax offices. Moreover, regarding the administration cost at the tax office level, the tax office has separated the function of its employees to collect the tax revenue. Consequently, this study uses the administration cost proxy calculated by the salary of tax officials supervising the taxpayers. In tax offices, the Account Representative position is the one that has a

responsibility for supervising taxpayers directly. According to the President Regulation 37 in 2015 and the government regulation regarding Nineteenth Amendment to Government Regulation 7 of 1977 concerning Civil Servant Salary Regulations, the average income salary of the Account Representative is as follows:

**Table 2.** Total Salary of Account Representative

| Account Representative Rank | Civil Servant Rank | Average Basic Salary | Performance Allowance | Total Salary |
|---|---|---|---|---|
| I | IV/a | 4,084,900 | 14,684,812 | 18,769,712 |
| | III/d | 3,919,100 | 14,684,812 | 18,603,912 |
| | III/c | 3,760,100 | 14,684,812 | 18,444,912 |
| II | III/b | 3,390,500 | 13,986,750 | 17,377,250 |
| | III/a | 3,252,900 | 13,986,750 | 17,239,650 |
| III | II/d | 2,953,200 | 13,320,563 | 16,273,763 |
| IV | II/c | 2,726,500 | 12,686,250 | 15,412,750 |
| V | II/c | 2,726,500 | 12,316,500 | 15,043,000 |
| **Average** | | | | **17,145,619** |

Source: Perpres 37/2015, PP 7/1977

This study analyses 10,543 taxpayers from 46 tax offices. Given that the average number of Account Representatives in one tax office is 20 Account Representative, and the number of taxpayers supervised by one Account Representative is 100, the total average administration cost is Rp. 157,739,691.

**Compliance Cost**

Sandford et al. (1989) explain that compliance costs are taxpayers' costs to comply with the tax. Those costs include labour/time consumed, costs of expertise purchased, and incidental expenses related to tax activities (Evans, 2004). However, a lack of research has been conducted to calculate compliance costs in Indonesia. Susila and Pope (2012) conducted the first and foremost research regarding the compliance cost in Indonesia. By calculating the compliance cost based on the firm's size, they reveal that compliance costs are regressive regarding employee number, annual turnover, and total assets. This study attempts to analyse the compliance cost of small and medium businesses based on the sales or annual turnover in a year. On that account, this study uses the taxpayers' compliance costs data ratio of annual turnover based on Susila and Pope's research results. However, since 2016, significant changes have occurred in the tax administration system in Indonesia, such as the electronic invoice system (e-Faktur). These changes could reduce taxpayer compliance costs. Despite several pieces of research mentioning how the electronic invoice system can reduce compliance costs, such a decrease has yet to be measured as significant (Liing et al., 2023; Parso, 2024; Yuniati, 2020). Therefore, this study uses the compliance cost per annual turnover in the range of small and medium taxpayers' annual turnover based on Susila and Pope's research, which is still relevant.

**Marginal Cost of Public Funds**

The Marginal Cost of Public Funds (MCPF) can be defined as the cost of direct tax burden changes in social welfare given the increase in tax revenue (Browning, 1976). This cost is usually a guideline for tax reform because it can estimate social welfare generated by the reform or program. In this study, the MCPF of sales tax instrument estimated by Devarajan et al. (2001) is used due to its solely research conducted to measure the MCPF in Indonesia. The estimation is still relevant because Indonesia has yet changed its VAT regime and rarely uses a wider portion of the price regulation (Chisari & Cicoweiz, 2010).

**The Optimum VAT Threshold**

Before conducting statistics calculations, this study conducts a normality test to ensure the sample data is valid and reliable. Based on Figure 2, the histogram plot shows that it is drawn close to the bell-shaped plot. Thus, the data that is being used in this study is valid and reliable.

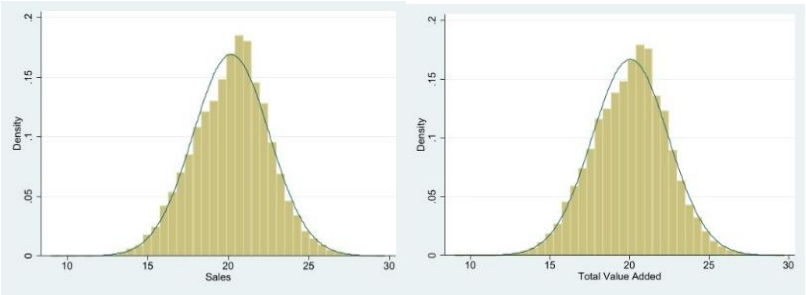


**Figure 2.** Histogram Plot of Data Sales and Total Value Added
Source: Data Processing Result

Given the variables are determined, the result of the VAT threshold is as follows:

**Table 3.** VAT Threshold Based on Business Sector and Sales

| Business Sector | Average of Sales | Average of Value Added | Average of Adm. Cost | Average of Compliance Cost | VAT Threshold |
|---|---|---|---|---|---|
| Agriculture, forestry and fishing | 11,156,457,574 | 10,289,671,286 | 8,763,316 | 256,598,524 | 892,799,121 |
| Mining and quarrying | 48,065,683,627 | 47,896,760,495 | 8,763,316 | 1,105,510,723 | 4,264,793,169 |
| Manufacturing | 47,529,889,946 | 45,049,312,539 | 8,763,316 | 1,093,187,469 | 3,962,675,925 |
| Electricity, gas, steam and air conditioning supply | 36,304,023,713 | 33,206,121,502 | 8,763,316 | 834,992,545 | 2,892,532,950 |
| Water supply; sewerage, waste management and remediation activities | 5,050,641,117 | 4,253,157,431 | 8,763,316 | 287,886,544 | 200,595,192 |
| Construction | 3,299,042,750 | 2,946,028,761 | 8,763,316 | 188,045,437 | 146,757,982 |
| Wholesale and retail trade; repair of motor vehicles and motorcycles | 3,137,917,824 | 2,840,028,441 | 8,763,316 | 178,861,316 | 143,371,929 |
| Transportation and storage | 7,992,167,534 | 7,955,581,488 | 8,763,316 | 455,553,549 | 456,810,482 |
| Accommodation and food service activities | 1,099,782,294 | 901,047,266 | 8,763,316 | 62,687,591 | 34,745,014 |
| Information and communication | 6,796,775,867 | 6,596,424,103 | 8,763,316 | 387,416,224 | 368,688,147 |
| Financial and insurance activities | 9,484,628,208 | 9,329,678,515 | 8,763,316 | 540,623,808 | 531,321,283 |
| Real estate activities | 6,522,637,700 | 6,191,768,019 | 8,763,316 | 371,790,349 | 338,253,343 |
| Professional, scientific and technical activities | 2,533,773,616 | 2,482,897,525 | 8,763,316 | 144,425,096 | 135,111,150 |
| Administrative and support service activities | 2,896,545,203 | 2,672,473,965 | 8,763,316 | 165,103,077 | 137,335,747 |
| Education | 1,404,304,200 | 1,372,551,809 | 8,763,316 | 80,045,339 | 70,972,902 |
| Human health and social work activities | 1,433,769,367 | 1,403,485,388 | 8,763,316 | 81,724,854 | 72,862,520 |
| Arts, entertainment and recreation | 1,818,926,175 | 1,711,584,365 | 8,763,316 | 103,678,792 | 86,975,085 |
| Other service activities | 1,237,437,660 | 1,166,350,493 | 8,763,316 | 70,533,947 | 56,859,580 |
| **Average** | **10,986,911,354** | **10,459,162,411** | **8,763,316** | **356,036,955** | **821,858,974** |

Source: Data Processing Result (2024)

### 3.2. Discussion

Table 3 illustrates the VAT thresholds for various business sectors in Indonesia. The findings reveal that the Mining and Quarrying Sector exhibits the highest optimal VAT threshold at Rp. 4,264,793,169. Despite this high figure, the optimal threshold for this sector still falls below the currently applied threshold of Rp. 4.8 billion. Conversely, the Accommodation and Food Service Sector reports the lowest optimal VAT threshold at Rp. 34,745,014. The average optimal VAT threshold across all sectors is Rp. 821,858,974, significantly lower than the current threshold. This disparity underscores the potential inefficiency of the existing threshold in capturing VAT revenue.

**Sectoral Insights**

The variation in optimal thresholds across sectors highlights the heterogeneity in cost structures and profit margins. For instance, sectors such as the Mining and Quarrying Sector, characterised by high-value transactions and substantial capital investments, justify a higher threshold due to their operational scale. On the other hand, sectors like Accommodation and Food Services, which typically operate on tighter margins and lower transaction values, benefit from a considerably reduced threshold. These findings suggest the need for a different approach to VAT threshold regulation. By differentiating thresholds to specific sectoral characteristics, the government can achieve a balance between administrative efficiency and revenue generation. Such an approach would ensure that the VAT system aligns with the economic realities of different industries, minimising the risk of overburdening smaller enterprises while maximising tax revenue.

**Implications for Revenue and Compliance**

Reducing the VAT threshold could significantly expand the tax base by incorporating businesses currently exempt under the high threshold. This expansion is particularly relevant given that small and medium enterprises (SMEs) contribute approximately 60.51% to Indonesia's GDP. Lowering the threshold would enable the government to harness untapped revenue potential from these businesses, enhancing the overall VAT ratio.

However, such a policy shift must consider the associated administrative and compliance costs. The findings show that the average administrative cost for supervising SMEs, calculated based on Account Representative salaries, is Rp. 157,739,691. While this figure indicates a considerable expenditure, the potential revenue gains from an expanded tax base could outweigh these costs. Furthermore, compliance costs for SMEs must be managed carefully to avoid undue burdens. Implementing digital tools like the e-Faktur system could streamline compliance processes and mitigate costs for smaller businesses.

## 4. Conclusion

This study highlights the significant potential for increasing Indonesia's VAT revenue by revisiting small and medium businesses' current VAT registration threshold. The research shows that the threshold of 4.8 billion rupiahs is relatively high compared to other countries, limiting the government's ability to capture VAT revenue from businesses below this threshold. Using the Keen and Mintz model and administrative data, the study calculates an optimal VAT threshold for various business sectors, finding that the average optimal threshold is significantly lower than the current 4.8 billion rupiahs. For instance, the mining and quarrying sector has an optimal threshold of approximately 4.26 billion rupiahs, while the accommodation and food service sectors have the lowest optimal thresholds.

This study suggests that reducing the VAT threshold could broaden the tax base and generate more revenue without raising the VAT rate, which may have less impact than anticipated. Moreover, the optimal thresholds for different sectors vary, indicating that a more tailored approach to VAT registration could enhance efficiency. In order to maximise VAT revenue, it is recommended that Indonesia revises the threshold to align more closely with these optimal levels. Additionally, the government could consider implementing measures to ease the administrative burden on small businesses, ensuring that the tax system remains fair and efficient. This research contributes to the ongoing discussions on improving Indonesia's VAT system and optimising tax revenue in line with the country's economic potential.

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