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Rethinking Fiscal Self-Reliance: Sectoral Dynamics of Industrialization and Agriculture in Indonesia's Local Economies

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ABSTRACT: Fiscal self-reliance of local governments is a key issue in Indonesia's decentralization, as it reflects their ability to finance development independently. This study examines how economic growth, GRDP from the industrial and agricultural sectors, and regional assets affect local government fiscal self-reliance across 100 districts/cities (2019–2023) using a fixed-effect panel model. The finding shows that both industrial GRDP and regional assets have a positive and significant impact on fiscal self-reliance, highlighting the importance of industrialization and effective asset management. Agricultural GRDP and economic growth, however, exert a minor influence owing to the predominance of the informal sector and weak fiscal integration. These findings affirm that fiscal self-reliance cannot be achieved solely through economic growth; it necessitates structural transformation towards high-value-added sectors and enhanced governance of regional assets.

Keywords: fiscal self-reliance, agricultural GRDP, industrial GRDP, regional assets, fiscal decentralization

***ABSTRAK**: Kemandirian fiskal pemerintah daerah menjadi isu penting dalam era desentralisasi di Indonesia, karena mencerminkan kemampuan daerah membiayai pembangunan secara mandiri. Penelitian ini menganalisis pengaruh pertumbuhan ekonomi, PDRB sektor industri dan pertanian, serta aset daerah terhadap kemandirian fiskal pada 100 kabupaten/kota periode 2019–2023 dengan model panel efek tetap. Hasil menunjukkan bahwa PDRB industri dan aset daerah berpengaruh positif dan signifikan, menegaskan pentingnya industrialisasi dan pengelolaan aset yang optimal. Sebaliknya, PDRB pertanian dan pertumbuhan ekonomi tidak berpengaruh signifikan akibat dominasi sektor informal dan lemahnya integrasi fiskal. Temuan ini menegaskan bahwa kemandirian fiskal tidak cukup didorong oleh pertumbuhan ekonomi saja, melainkan memerlukan transformasi struktural menuju sektor bernilai tambah tinggi serta penguatan tata kelola aset daerah.*

***Kata Kunci:** kemandirian fiskal, PDRB pertanian, PDRB industri, aset daerah, desentralisasi fiscal.*

INTRODUCTION

Fiscal self-reliance at the regional level is one of the key pillars for achieving effective and sustainable decentralization in developing countries, including Indonesia. Decentralization has the potential to enhance government efficiency and accountability, particularly when local governments have adequate revenue sources (Ginanjar et al., 2025). However, many regions remain trapped in a state of artificial fiscal comfort, as reflected in low levels of fiscal autonomy, limited institutional capacity, and suboptimal ability to develop their tax base (Bato et al., 2025). In the context of regional autonomy, a local government's ability to finance its own needs without relying heavily on central government transfers serves as a vital indicator of successful regional development and strengthened public financial governance (Matitaputty, 2024; Onofrei et al., 2022; Panao, 2021). Although Indonesia has implemented fiscal decentralization for over two decades, the majority of regions remain highly dependent on intergovernmental fiscal transfers. This persistent reliance has driven various efforts to identify key determinants that could enhance local fiscal self-reliance (Nurlina & Rakhmadi, 2022).

Several previous studies have examined the relationship between economic growth and regional fiscal self-reliance. Theoretically, a positive rate of economic growth in a given region should lead to an increase in local revenue capacity through expanded economic activity and tax base (Amri et al., 2023; Deller, 2025). Economic growth is a key indicator of a region's development capacity. As an economy grows, production and consumption activities tend to increase, which in turn can broaden the revenue base. In the context of fiscal autonomy, such conditions offer opportunities for local governments to strengthen their financial independence, particularly through increased locally generated revenue (Pendapatan Asli Daerah, PAD).

The relationship between economic growth and local fiscal capacity can also be explained through the framework of fiscal decentralization. Perugini (2024) argues that in a decentralized fiscal system, local economic growth plays a substantial role in supporting the effectiveness of the local government's allocation and distribution functions. In this framework, economically advanced regions are considered better equipped to provide public services independently.

Furthermore, Yushkov et al. (2026) emphasize that a region's fiscal capacity heavily depends on its local economic strength. The greater a region's economic potential, the greater the opportunity for local governments to optimize tax and user charge revenues. Hence, economic growth can be a driving factor in strengthening fiscal self-reliance that is, the condition in which local governments are not overly dependent on central government transfers.

Empirical support for this view has been found in various Indonesian studies. In East Java, both economic growth and local own-source revenue positively impacted regional financial independence (Rosidin & Saputra, 2020). Similarly, Ramadhani et al. (2024) note that economic growth significantly boosts PAD, particularly from local taxation.

In addition, the Gross Regional Domestic Product (GRDP) is often used as a general indicator to measure the level of economic activity in a region. GRDP reflects the total value of goods and services produced by a region over a certain period. It not only serves as a measure of economic activity but also reflects the potential fiscal capacity of a region. The industrial and agricultural sectors components of total GRDP indicate each sector's contribution to the regional economic structure and often have greater potential for generating local revenues due to their high value-added output, job creation, and investment appeal.

Conceptually, regions with high GRDP levels reflect strong economic output, which generally correlates with greater fiscal capacity. In the context of fiscal decentralization, regions with robust economic bases are theoretically more capable of financing their needs independently, without excessive reliance on central government transfers (Dharmawati et al., 2024). This aligns with the notion that local economic strength is a fundamental basis for regional fiscal autonomy.

Recent literature has begun to focus on the sectoral composition of GRDP, particularly the industrial and agricultural sectors, as engines of economic growth and sources of potential revenue for local governments (World Bank, 2020). However, most studies still analyze GRDP in aggregate without identifying specific sectoral contributions that could have more significant fiscal implications (Setiawan et al., 2023). In fact, the industrial and agricultural sectors in many Indonesian regions especially those with emerging manufacturing zones and agricultural hubs have considerable potential to generate PAD through taxes, user fees, and multiplier effects on other sectors (Hermawan et al., 2023).

Regional assets have also been identified as a potential factor in improving fiscal self-reliance, both through the utilization of fixed assets such as land and buildings and through liquid assets that can be managed to support local financing (Bragagnolo et al., 2021; Rogerson, 2020). However, the literature shows variations in asset management effectiveness among local governments, often influenced by human resource capacity, technology, and governance systems (Kaganova & Amoils, 2020; Kuddy et al., 2026).

Regional assets are economic resources owned or controlled by local governments that are expected to generate future economic benefits. In the context of public finance, assets not only serve as instruments for providing public services but also as potential revenue sources when managed productively, efficiently, and accountably (Christiaens et al., 2015).

Effective public asset management can enhance fiscal capacity and budget efficiency (Cahyaningrum et al., 2024). By maximizing the economic value of both tangible and intangible assets, local governments can create new revenue streams beyond taxation, such as through leases, joint ventures, or limited privatization. This directly strengthens regional fiscal self-reliance.

The New Public Financial Management (NPFM) theory also highlights the importance of asset management in public finance reforms, especially in improving accountability and fiscal sustainability (Guthrie & English, 1997). International practices from countries like New Zealand and Canada demonstrate that asset management can be a strategic fiscal tool rather than a financial burden.

Most prior studies have tended to analyze these variables in isolation or within aggregate models that do not account for sectoral economic structures. This is the research gap that the present study seeks to address. By incorporating sector-specific GRDP industrial and agricultural as independent variables in a model of fiscal self-reliance, this research aims to fill the gap in the literature concerning the direct link between sectoral economic structure and local fiscal capacity.

Based on this background, the objective of this study is to analyze the effects of economic growth rate, industrial sector GRDP, agricultural sector GRDP, and regional assets on fiscal self-reliance in Indonesia. The novelty of this research lies in the inclusion of sector-specific GRDP variables rarely featured explicitly in fiscal self-reliance models despite their critical roles in local economic structures and fiscal potential.

The study covers all local governments in Indonesia over the most recent data period, utilizing a quantitative approach and panel data analysis to ensure robust findings. This research is expected to contribute theoretically to the development of regional public finance and fiscal policy studies, and practically to both central and local governments in designing strategies to enhance fiscal self-reliance based on leading economic sectors.

METHODS

This study adopts a quantitative approach using panel data regression analysis to examine the relationship between macroeconomic variables and local fiscal self-reliance. This approach is selected due to its ability to simultaneously accommodate variations across time (time series) and entities (cross-section), thereby improving estimation efficiency and controlling for individual heterogeneity (Baltagi, 2021).

The empirical model is designed to assess the impact of several independent variables economic growth rate, industrial sector GRDP, agricultural sector GRDP, and regional assets on the dependent variable, namely fiscal self-reliance of local governments. The model also considers both fixed effects and random effects specifications, determined based on the results of the Hausman test.

This study relies on secondary quantitative data obtained from local government financial reports, the Indonesian Central Bureau of Statistics (BPS), and the Ministry of Home Affairs of the Republic of Indonesia. The period of analysis spans from 2019 to 2023, enabling the examination of economic and fiscal dynamics in the aftermath of various decentralized fiscal policy implementations during this period.

The population includes all regency and municipal governments across Indonesia. Using purposive sampling, 100 local governments were selected to represent six major island groups Sumatra, Java, Kalimantan, Bali-Nusa Tenggara, Sulawesi and Maluku-Papua. Sample selection was based on the availability of complete data during the observation period and regional representativeness to ensure national-level generalizability of the findings.

This geographically representative approach is consistent with prior studies in the context of fiscal decentralization in developing countries, which highlight the importance of spatial variation in measuring local fiscal performance (Smoke, 2015).

The variables used in this study are defined and measured as follows:

Table 1. Operationalization of Variables

Type	Variable Name	Measurement	Source
Dependent	Fiscal Self-Reliance	Ratio of Local Own-Source Revenue (PAD) to total regional revenue, following Kuncoro (2020).	financial reports
Independent	Economic Growth Rate	Annual percentage change in GRDP at constant prices.	Statistic Indonesia
Independent	GRDP Agricultural Sector	Agriculture sector contribution to GRDP, expressed in percentage.	Statistic Indonesia
Independent	GRDP Industrial Sector	Industrial sector contribution to GRDP, expressed in percentage.	Statistic Indonesia
Independent	Regional Assets	Total fixed asset value reported in Local Government Financial Statements (LKPD).	financial reports

Panel regression analysis is conducted using Eviews software. Prior to hypothesis testing, diagnostic tests are carried out, including multicollinearity, heteroskedasticity, and autocorrelation tests to ensure model validity. The Chow and Hausman tests are employed to determine the most appropriate model whether fixed effects or random effects (Gujarati & Porter, 2009).

The general regression equation is specified as follows:

$$Reg\_Indep_{it} = \alpha + \beta_1\, Ec\_Growth_{\,it} + \beta_2\, GDP\_agri_{\,it} + \beta_3\, GDP\_indust_{\,it} + \beta_4 Asset_{4it} + e_{it}$$

To ensure data reliability, cross-checking is performed between data from LKPD and BPS. Year-to-year consistency is assessed through data cleaning and transformation to detect outliers or anomalies. The validity of variables aligns with definitions established in the empirical literature across similar studies (Boex & Martinez-Vazquez, 2007).

RESULTS

This section begins by presenting the descriptive analysis of the study's dataset. The results reveal considerable disparities in economic conditions and fiscal capacity across Indonesian regions. The average fiscal self-reliance ratio stands at only 0.128, indicating that the majority of regions remain heavily dependent on central government transfers. This fiscal disparity is also evident in the extreme variation of GRDP values, ranging from –38.52 billion rupiah to 45,842 billion rupiah, with a very high standard deviation. Although the industrial sector is considered strategic, its average contribution to GRDP remains modest at just 13.4%, suggesting that it has yet to become the dominant force in regional economies. High correlations between total GRDP and industrial GRDP (r = 0.901), and between GRDP and asset value (r = 0.78), indicate the potential for multicollinearity, though still within an acceptable range for interpretative purposes.

Descriptive Analysis

Table 2. Descriptive Statistics

	Reg_Indep (%)	Ec_Growth (%)	GDP_agri (Rp.000.000)	GDP_indust (Rp.000.000)	Asset (Rp.000.000)
Mean	0.128	4.55	5,568,368	3,140,824	3,928,918
Median	0.102	4.09	789,734	1,697,645	2,693,516
Maximum	0.530	504	83,869,010	194,000,000	24,079,680
Minimum	0.005	-38.52	480	33,590	1,122,678
Std. Dev.	0.099	22.84	13,576,808	9,061,387	3,722,229
Observations	500	500	500	500	500

Descriptive statistics indicate that regional fiscal self-reliance in Indonesia remains low, with an average of just 12.8%, reflecting widespread dependence on central transfers. The average economic growth rate stands at 4.55%, but the spread is extremely wide ranging from -38.52% to 504% suggesting highly volatile regional economic dynamics.

Similarly, GRDP values for the agricultural and industrial sectors reveal stark disparities. While the average agricultural GRDP is Rp 5.57 trillion and the industrial sector Rp 3.14 trillion, their respective medians are only Rp 789 billion and Rp 1.70 trillion, showing that a few regions dominate these sectors while the majority contribute far less. This pattern is also evident in asset values, which average Rp 3.93 trillion but range from Rp 1.12 trillion to Rp 24 trillion. These findings highlight significant disparities in fiscal and economic capacity across regions, which are critical to consider in assessing fiscal self-reliance.

Model Fitness and Diagnostic Tests

This study adopts a Fixed Effects Model (FEM) based on the results of the Chow and Hausman tests, which indicate that the fixed effects specification is more appropriate than the random effects model. This affirms the importance of accounting for unique regional characteristics that cannot be fully captured by observable variables.

The model shows strong explanatory power, with an R-squared value of 0.97 and an F-statistic of 91.46 ($p < 0.001$), indicating that the independent variables significantly explain variations in fiscal self-reliance. Classical assumption tests confirm no issues of heteroskedasticity or multicollinearity (with correlation coefficients below 0.85), further reinforcing the reliability of the model.

Table 3. Model Selection Tests

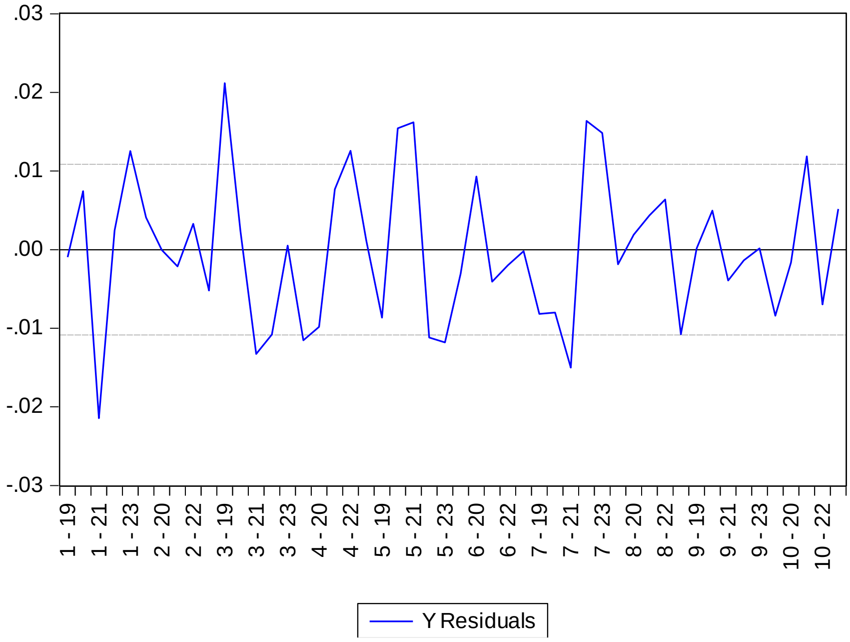
Test	Prob.	Conclusion
Uji Chow	0.0000	Select FEM
Uji Hausman	0.0168	Select FEM

Table 4. Multicollinearity Test

	Ec_Growth	GDP_agri	GDP_indust	Asset
Ec_Growth	1	-0.0059	0.0303	-0.0973
GDP_agri	-0.0059	1	0.8100	0.4922

GDP_indust	0.0303	0.8100	1	0.4399
Asset	-0.0973	0.4922	0.4399	1

Figure 1. Heteroskedastisity Test



Regression Analysis

Table 5. Fixed Effects Model Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.885825	0.387926	-4.861305	0.0000
Ec_Growth	1.34E-05	6.14E-05	0.219015	0.8268
GDP_agri	0.000706	0.005833	0.121008	0.9037
GDP_indust	0.057183	0.017606	3.247946	0.0013
Asset	0.043007	0.013432	3.201759	0.0015
Cross-section fixed (dummy variables)				
			R-squared	0.9362
			F-statistic	56.4433
			Prob(F-statistic)	0.0000

DISCUSSION

This study aims to identify and analyze the effects of economic growth rate (EGR), Gross Regional Domestic Product (GRDP), industrial sector GRDP, and total regional assets on the level of fiscal self-reliance among local governments in Indonesia. The findings not only validate parts of the theoretical literature on fiscal decentralization and regional economic development, but also introduce a new perspective regarding the structural limitations of local fiscal capacity in the face of institutional and sectoral realities. A key contribution of this research lies in its deliberate disaggregation of total GRDP and sectoral components particularly the industrial sector and its emphasis on asset management as a structural determinant of fiscal strength.

Economic Growth and Fiscal Self-Reliance

The regression results show that the economic growth rate does not have a statistically significant effect on regional fiscal self-reliance ($\beta = -0.0000134$; $p = 0.8268$). The findings indicate that economic growth does not have a significant effect on fiscal self-reliance, suggesting that increased economic activity does not automatically translate into higher local fiscal capacity (Canavire-Bacarreza et al., 2020; P. D. Nguyen et al., 2019).

Theoretically, within the modern fiscal decentralization framework, economic growth is expected to expand the tax base and enhance local revenue through increased production and consumption activities (OECD, 2021; Tiebout, 2021). However, recent empirical evidence suggests that the relationship between economic growth and fiscal capacity is highly dependent on institutional quality and the effectiveness of local tax administration (Boadway & Shah, 2020).

This phenomenon is widely observed in developing countries, where economic growth is often not accompanied by increased local revenue due to the dominance of informal sectors and limited local taxing authority ((Medina & Schneider, 2019). In the Indonesian context, this is reflected in regional economic structures dominated by sectors with low contribution to locally generated revenue (PAD), weakening the linkage between growth and fiscal independence.

Furthermore, the *Second-Generation Theory of Fiscal Federalism* emphasizes that fiscal outcomes depend more on institutional incentives, bureaucratic capacity, and governance quality than on economic growth alone (Rodden et al., 2019). Thus, without strengthening local tax systems, improving taxpayer compliance, and advancing fiscal digitalization, economic growth is unlikely to be effectively transformed into fiscal self-reliance (IMF, 2022; OECD, 2021).

This finding is also consistent with cross-country studies showing that fiscal decentralization enhances fiscal capacity only when supported by strong institutions, transparency, and accountability (Canavire-Bacarreza et al., 2020). Therefore, this study confirms that economic growth alone is insufficient to build fiscal self-reliance and must be accompanied by structural transformation and institutional strengthening.

Agricultural Sector GRDP and Fiscal Self-Reliance

In contrast to the industrial sector, the regression analysis shows that agricultural GRDP does not have a significant effect on the level of fiscal self-reliance ($\beta = 0.0007$; $p = 0.9037$). This result raises critical questions, as the agricultural sector has historically been considered the backbone of local economies, particularly in rural areas. However, these findings support the view of Fjeldstad & Moore (2009), who argue that informal sectors like agriculture are often difficult for local tax systems to reach due to the limited institutional capacity of fiscal authorities.

Theoretically, this limitation can be explained through the lens of informality, where agricultural activities are largely dominated by small-scale and informal units that are difficult to capture within formal taxation systems (La Porta & Shleifer, 2014; Medina & Schneider, 2019). Recent empirical studies also highlight that the agricultural sector in developing countries tends to exhibit low levels of formalization and tax compliance, resulting in minimal contribution to local revenue compared to formal sectors such as industry and services (IMF, 2022; OECD, 2021).

This phenomenon is evident in Indonesia, where agricultural activities are predominantly subsistence-based and household-oriented, limiting their integration into local fiscal systems. Furthermore, the agricultural sector generally generates lower value-added compared to the industrial sector, thereby reducing its fiscal potential (World Bank, 2020; McMillan et al., 2017). Within the framework of structural transformation theory, the shift from agriculture to industry and services is essential for enhancing productivity and fiscal capacity (McMillan et al., 2017)

Moreover, weak integration of agriculture into modern value chains and limited access to formal markets further constrain its fiscal contribution (FAO, 2022; OECD, 2021). This finding is consistent with cross-country evidence showing that economies heavily reliant on agriculture tend to have lower fiscal capacity and weaker local revenue generation (Canavire-Bacarreza et al., 2020; T. N. Q. Nguyen et al., 2022).

Therefore, enhancing the fiscal contribution of the agricultural sector requires structural transformation, including formalization of agricultural activities, value-added upgrading through agro-industry, and stronger integration into formal economic and taxation systems (FAO, 2022; IMF, 2022).

Industrial Sector GRDP and Fiscal Self-Reliance

The fixed-effects panel regression results indicate that industrial GRDP has a positive and significant influence on regional fiscal self-reliance (β = 0.0572; p = 0.0013). This finding aligns with prior studies, such as Hermawan et al. (2023), which highlight the strategic role of the industrial sector in expanding the local tax base and enhancing local fiscal capacity. The results indicate that industrial sector GRDP has a positive and significant effect on fiscal self-reliance, suggesting that the industrial sector plays a strategic role in strengthening local fiscal capacity (McMillan et al., 2017).

Theoretically, within the framework of structural transformation, the industrial sector serves as a key driver of productivity and value-added growth, which in turn expands the local tax base (Diao et al., 2019; Duarte & Restuccia, 2010). Recent empirical literature shows that regions with strong industrial bases tend to have higher fiscal capacity due to more formalized, organized, and taxable economic activities (IMF, 2022). This phenomenon is particularly relevant in developing countries, including Indonesia, where industrialization is often associated with increased local revenue through business taxes, user charges, and related economic activities (World Bank, 2020).

Furthermore, the industrial sector generates significant multiplier effects on other sectors such as trade, transportation, and services, thereby indirectly increasing sources of locally generated revenue (PAD) (Diao et al., 2019). From a regional economic perspective, industrial concentration also promotes economic agglomeration, enhancing efficiency, investment, and fiscal potential (Behrens et al., 2021).

This finding is consistent with cross-country studies indicating that industrialization significantly contributes to fiscal capacity, particularly in regions with higher levels of economic formalization (Canavire-Bacarreza et al., 2020). However, the extent to which the industrial sector contributes to fiscal self-reliance depends on the ability of local governments to effectively manage taxation systems, regulatory frameworks, and investment climates (IMF, 2022). Therefore, strengthening the industrial sector must be accompanied by adaptive fiscal policies and strong institutional capacity to ensure that economic gains are effectively translated into increased fiscal self-reliance.

Regional Assets and Fiscal Self-Reliance

Among the variables analyzed, regional assets emerge as the most consistently significant factor in explaining variations in fiscal self-reliance across local governments (β = 0.0430; p = 0.0015). The results indicate that regional assets exert a positive and significant influence on fiscal self-reliance, highlighting that public assets should not merely be viewed as instruments for service provision, but also as potential sources for enhancing local fiscal capacity (Onofrei et al., 2022). From a public financial management perspective, regional assets represent economic resources that can generate additional value when managed effectively, either through direct utilization or collaboration with external stakeholders (Luongo et al., 2023; Weller & Rainnie, 2023).

Existing studies suggest that local governments with well-established asset management systems—characterized by accurate inventory, proper valuation, and strategic utilization—tend to exhibit stronger fiscal capacity and lower dependence on intergovernmental transfers (World Bank, 2020; OECD, 2021).

In Indonesia, however, a considerable portion of public assets remains underutilized, largely due to institutional limitations and suboptimal governance practices (IMF, 2022). Therefore, strengthening asset management should become a strategic priority in enhancing fiscal self-reliance, particularly through improved asset inventory systems, optimized economic utilization, and the development of alternative non-tax revenue sources.

CONCLUSIONS

This study examines the relationship between sectoral economic structure, regional asset value, and the level of fiscal independence in 100 districts/cities in Indonesia during the period 2019–2023. Using a fixed effect model panel data approach, the results of the analysis show that not all economic sectors contribute equally to regional fiscal capacity.

In particular, the industrial sector is proven to have a positive and significant effect on regional fiscal independence. This finding confirms the importance of the role of industrialization in strengthening the base of regional original revenue (PAD), This indicates that the development of the industrial sector is not only a driver of economic growth, but also a strategic instrument in building more stable fiscal independence at the regional level.

In contrast, the agricultural sector's GRDP does not show a significant relationship with the level of fiscal independence. These results indicate that although the agricultural sector is still dominant in many regions, its contribution to regional revenue is not optimal. Therefore, efforts to modernize and formalize the agricultural sector need to be accelerated so that its economic potential can be better integrated into the regional financial system. Other findings show that the value of regional assets has a significant positive effect on fiscal independence. Assets that are managed effectively can be an important source of non-tax revenue for regions, expanding fiscal space without having to rely on central transfers.

Meanwhile, the aggregate economic growth rate does not have a significant effect on fiscal independence. These results indicate that regional economic growth has not been fully converted into adequate fiscal revenue, possibly due to the dominance of sectors that are not closely related to PAD, or because of the weakness of regional fiscal institutions in absorbing this growth potential.

Based on the findings above, there are a number of policy implications that can be drawn. First, local governments need to prioritize strengthening the industrial sector as a potential source of PAD, by ensuring that fiscal regulations provide space for regions to capture added value from industrial activities. Second, the agricultural sector needs to be reformed not only in terms of productivity, but also from the fiscal side, by encouraging formalization and integration into the regional taxation system. Third, regional asset management must be made a strategic priority in local fiscal policy, either through mapping, valuation, or optimization of economic utilization. Finally, economic development cannot be measured solely from aggregate growth, but needs to be directly linked to fiscal institutional capacity so that development results can strengthen regional financial independence in real terms.

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