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THE EFFECT OF LOCAL ORIGINAL REVENUE, GENERAL ALLOCATION FUNDS, AND CAPITAL EXPENDITURE ON REGIONAL FINANCIAL INDEPENDENCE (CASE STUDY OF REGENCY/CITY ON THE COASTAL LINE OF JAVA ISLAND 2020-2024)

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Abstract

Regional financial independence is an important indicator of the successful implementation of regional autonomy. However, the level of financial independence in most regencies and municipalities located in the coastal areas of Java remains relatively low due to their high dependence on transfers from the central government. This condition indicates the need to optimize regional revenue sources and manage expenditure effectively in order to strengthen regional fiscal capacity. This study aims to analyze the effects of Local Own-Source Revenue (PAD), the General Allocation Fund (DAU), and Capital Expenditure on Regional Financial Independence in regencies and municipalities located in the coastal areas of Java during the 2020–2024 period, both partially and simultaneously. This study employed a quantitative method with descriptive and verificative approaches. The data used were secondary data obtained from local government financial reports and publications issued by the Directorate General of Fiscal Balance (DJPK). The data were analyzed using panel data regression to examine the relationships between the independent and dependent variables. The results indicate that Local Own-Source Revenue has a positive and significant effect on Regional Financial Independence, whereas the General Allocation Fund has a negative and significant effect. Capital Expenditure has a positive effect on Regional Financial Independence. Simultaneously, PAD, DAU, and Capital Expenditure have a significant effect on Regional Financial Independence. The contribution of this study lies in providing empirical evidence regarding the factors that influence Regional Financial Independence in the coastal areas of Java, which have diverse economic and fiscal characteristics. The findings imply that local governments should optimize PAD, reduce dependence on central government transfers, and allocate Capital Expenditure to productive sectors in order to strengthen fiscal independence and support sustainable regional development.

Keywords: Local Own-Source Revenue, General Allocation Fund, Capital Expenditure, Regional Financial Independence

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INTRODUCTION

Regional autonomy gained significant momentum during Indonesia's reform era following the 1997-1998 crisis and growing demands for changes to the centralized system of government. This policy grants local governments broader authority to administer governmental affairs, public services, and development according to the needs of their communities. The implementation of regional autonomy is regulated under Law Number 23 of 2014 concerning Regional Government. One of its principal indicators of success is the ability of local governments to meet their fiscal needs independently and reduce their dependence on central government financing (Husnun & Nuwun, 2023; Pramesti & Hendaris, 2025).

Regional financial independence refers to the ability of local governments to finance governmental administration, development, and public services using revenue generated within their own jurisdictions. This independence is primarily reflected in the contribution of Local Own-Source Revenue, or *Pendapatan Asli Daerah* (PAD), relative to external revenue, particularly transfers from the central government. PAD consists of revenue derived from local taxes, local service charges, returns on separated local government assets, and other legitimate local revenue sources. A greater contribution of PAD indicates stronger fiscal capacity and lower dependence on central government transfers (Indriani et al., 2023; Syafira Frijunita et al., 2024).

In addition to PAD, regional financial independence is associated with the General Allocation Fund, or *Dana Alokasi Umum* (DAU), and Capital Expenditure. DAU is a transfer from the State Budget intended to reduce disparities in financial capacity among local governments. Although it serves as a fiscal equalization instrument, an excessively high proportion of DAU in local revenue may indicate substantial dependence on the central government (Yayang Fitriani & Hendaris, 2023). Capital Expenditure, meanwhile, is allocated to acquire or construct fixed assets, infrastructure, and public facilities that provide benefits for more than one fiscal period. Its effect on regional financial independence is generally indirect because infrastructure development requires time before it can stimulate economic activity, broaden the local tax and service-charge base, and generate additional PAD (Agustina et al., 2025).

Regencies and municipalities in the coastal areas of Java were selected because they possess economic and fiscal characteristics that distinguish them from other regions. These areas have considerable revenue potential derived from port activities, trade, fisheries, industry, logistics services, and tourism. At the same time, coastal local governments face substantial expenditure requirements for transportation networks, port facilities, sanitation, coastal protection, disaster mitigation, and public services. These conditions create two simultaneous fiscal characteristics: strong potential for own-source revenue and high development financing requirements. Differences in the ability to manage these economic resources result in unequal levels of fiscal independence among coastal local governments.

The ten regencies and municipalities were selected using a purposive sampling technique. The selection criteria included the following: the administrative area directly borders the coastal zone of Java; complete and consistent local government budget data were available for 2020-2024; data on PAD, DAU, Capital Expenditure, and the components required to measure regional financial independence were available; and the selected local governments represented different economic characteristics and fiscal capacities in the western, central, and eastern coastal areas of Java. Based on these criteria, the research objects consisted of Banyuwangi Regency, Cilacap

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Regency, Gresik Regency, Indramayu Regency, Subang Regency, Cilegon Municipality, Cirebon Municipality, Pekalongan Municipality, Semarang Municipality, and Surabaya Municipality.

Table 1.
Relationship Patterns and Levels of Regional Financial Independence

Financial Capacity	Independence Ratio (%)	Relationship Pattern
Very low	0-25	Instructive
Low	>25-50	Consultative
Moderate	>50-75	Participatory
High	>75-100	Delegative

Source: Mahmudi (2016).

According to this classification, a higher independence ratio indicates lower intervention and dependence on the central government. Conversely, a low ratio demonstrates that the local government remains highly dependent on central government transfers to finance governmental activities and regional development.

Table 2.
Regional Financial Independence of Regencies and Municipalities in the Coastal Areas of Java, 2020-2024 (%)

Regency/ Municipality	2020	2021	2022	2023	2024	Average	Level
Banyuwangi Regency	15	17	16	16	18	16.4	VL
Cilacap Regency	19	22	21	21	23	21.2	VL
Gresik Regency	31	33	35	34	37	34.0	L
Indramayu Regency	15	16	17	18	18	16.8	VL
Subang Regency	15	16	16	18	19	16.8	VL
Cilegon Municipality	40	35	41	37	38	38.2	L
Cirebon Municipality	27	30	37	37	36	33.4	L
Pekalongan Municipality	24	27	26	25	27	25.8	L
Semarang Municipality	46	50	51	50	52	49.8	L

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Regency/ Municipality	2020	2021	2022	2023	2024	Average	Level
Surabaya Municipality	57	57	60	60	61	59.0	M

Notes: VL = very low; L = low; M = moderate.
Source: Directorate General of Fiscal Balance, Ministry of Finance, *Regional Financial Information System Data Portal Local Government Budget*, accessed in 2026; processed by the researchers.

Table 2 indicates that regional financial independence remains dominated by the very low and low categories. Four local governments Banyuwangi Regency, Cilacap Regency, Indramayu Regency, and Subang Regency are classified as having very low financial independence. Five local governments Gresik Regency, Cilegon Municipality, Cirebon Municipality, Pekalongan Municipality, and Semarang Municipality are classified in the low category. Surabaya Municipality is the only local government classified in the moderate category.

Surabaya Municipality demonstrates a relatively higher level of independence because it has a broader base of economic activity, trade, services, industry, and local revenue. Semarang Municipality also shows a stronger financial independence ratio than most of the other research objects. Nevertheless, its average ratio of 49.8% remains within the low category under the revised classification. Other local governments continue to face limitations in optimizing PAD and remain relatively dependent on transfers from the central government. This condition indicates that substantial coastal economic potential does not necessarily result in strong fiscal capacity.

Previous studies have produced inconsistent findings. Indriani et al. (2023), who examined the Government of Brebes Regency during 2018-2022, found that PAD had a positive and significant effect, while DAU had a negative and significant effect on regional financial independence. Capital Expenditure, however, had no significant effect. Simultaneously, PAD, DAU, and Capital Expenditure significantly affected regional financial independence.

In contrast, Maharani et al. (2025) examined 23 regencies and municipalities in Aceh Province during 2019-2023 using panel data regression with EViews 12. The results demonstrated that PAD had a positive and significant effect, DAU had a negative and significant effect, and Capital Expenditure had a positive and significant effect on regional financial independence. Thus, the principal differences between the two previous studies concern the effect of Capital Expenditure, the geographical coverage, the research period, and the analytical method.

The inconsistent findings concerning Capital Expenditure constitute a research gap that requires further examination. Moreover, Indriani et al. (2023) focused on a single regency, whereas Maharani et al. (2025) examined regencies and municipalities in Aceh Province. Research on regional financial independence among local governments in the coastal areas of Java, which possess both considerable economic potential and substantial infrastructure requirements, remains limited. This study extends the literature by examining ten coastal regencies and municipalities during 2020-2024, thereby capturing variations in fiscal capacity across local governments.

Based on the theoretical arguments and previous empirical findings, PAD is hypothesized to have a positive effect on regional financial independence, whereas DAU is hypothesized to have a negative effect. Capital Expenditure is expected to have a positive effect on regional financial

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independence. Simultaneously, PAD, DAU, and Capital Expenditure are hypothesized to have a significant effect on regional financial independence.

This study aims to examine and analyze the effects of PAD, DAU, and Capital Expenditure on regional financial independence among regencies and municipalities in the coastal areas of Java during 2020-2024, both partially and simultaneously. Theoretically, this study is expected to enrich the literature concerning the determinants of regional fiscal independence. Practically, its findings are expected to assist local governments in optimizing PAD, reducing dependence on central government transfers, and directing Capital Expenditure toward productive sectors capable of strengthening fiscal capacity sustainably.

REVIEW OF LITERATURE

Stewardship Theory

Stewardship Theory explains that organizational managers do not always act solely to pursue their personal interests. Instead, they may act as stewards who are responsible, trustworthy, possess integrity, and are committed to achieving organizational objectives. A steward prioritizes collective interests because organizational success is also viewed as evidence of the steward's successful fulfillment of the responsibilities entrusted to them (Donaldson & Davis, 1991).

In the context of local government, the community acts as the principal, while the local government acts as the steward entrusted with managing public resources effectively, efficiently, transparently, and accountably. The management of Local Own-Source Revenue reflects the local government's responsibility to identify and optimize local economic potential without disregarding the public interest. The General Allocation Fund must be managed to meet public service needs and reduce fiscal disparities rather than perpetuate dependence on the central government. Capital Expenditure should be directed toward productive infrastructure and public assets that generate long-term benefits for society.

Therefore, the responsible management of Local Own-Source Revenue, the General Allocation Fund, and Capital Expenditure is expected to strengthen local fiscal capacity and improve Regional Financial Independence. However, Stewardship Theory mainly explains the behavior and accountability of local government officials. It does not fully explain the distribution of fiscal authority or local governments' dependence on central government transfers. Therefore, Fiscal Decentralization Theory and the Flypaper Effect concept are also employed as supporting theoretical foundations in this study.

Fiscal Decentralization Theory

Fiscal Decentralization Theory explains the transfer of certain revenue-raising, expenditure, and public service responsibilities from the central government to local governments. Local governments are assumed to possess more accurate information regarding the characteristics and needs of their communities. Consequently, they are expected to allocate public resources more efficiently and in accordance with local priorities.

Fiscal decentralization provides local governments with the authority to develop their own revenue sources, determine expenditure priorities, and manage public services based on regional conditions. In this study, Local Own-Source Revenue reflects the ability of local governments to exercise their fiscal authority by identifying and managing local revenue potential. Capital Expenditure reflects the exercise of expenditure authority to provide infrastructure and public

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services. Regional Financial Independence indicates the extent to which such fiscal authority enables local governments to finance their activities without excessive dependence on the central government.

Accordingly, the more effectively fiscal decentralization is implemented, the greater the opportunity for local governments to increase Local Own-Source Revenue and strengthen their financial independence.

Flypaper Effect

The Flypaper Effect describes a condition in which intergovernmental transfers have a stronger influence on local government expenditure than an equivalent increase in local income or locally generated revenue. The concept illustrates how transferred funds tend to "stick where they hit," meaning that local governments may increase expenditure more strongly in response to central government transfers than in response to increases in their own revenue.

In this study, the Flypaper Effect is used to explain the relationship between the General Allocation Fund and Regional Financial Independence. The General Allocation Fund is necessary as an instrument of fiscal equalization. However, excessive dependence on this transfer may reduce local governments' incentives to optimize their own revenue sources. If such dependence continues, local governments may become fiscally reliant on the central government.

Therefore, a higher dependence on the General Allocation Fund is expected to reduce Regional Financial Independence. Nevertheless, this relationship must still be empirically tested because effectively managed transfers may also improve infrastructure, public services, and regional economic capacity.

Regional Autonomy

Law Number 23 of 2014 concerning Regional Government, Article 1 point 6, defines regional autonomy as the right, authority, and obligation of an autonomous region to regulate and administer its own governmental affairs and the interests of the local community within the system of the Unitary State of the Republic of Indonesia.

Regional autonomy is not limited to administrative authority. It also concerns the ability of local governments to manage revenue, expenditure, and financing to meet public needs. Through regional autonomy, regencies and municipalities are given the authority to optimize Local Own-Source Revenue, determine expenditure priorities, and manage transfers according to their development needs.

The success of regional autonomy from a fiscal perspective is reflected in the ability of local governments to finance public services and regional development through their own revenue sources. The greater the ability of a local government to meet its fiscal needs through Local Own-Source Revenue, the higher its level of financial independence. Conversely, the dominance of intergovernmental transfers in the regional revenue structure indicates that fiscal autonomy has not yet resulted in strong regional financial independence.

The regulation of financial relations between the central and regional governments during the research period must also consider regulatory changes. Law Number 1 of 2022 concerning Financial Relations between the Central Government and Regional Governments regulates regional revenue sources, Transfers to Regions, regional expenditure, regional financing, and national fiscal policy coordination.

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Local Own-Source Revenue

Local Own-Source Revenue, commonly referred to as *Pendapatan Asli Daerah* or PAD, is revenue collected by local governments from regional taxes, regional levies, returns from separated regional assets, and other legitimate local revenue sources in accordance with applicable laws and regulations. PAD reflects the ability of local governments to identify, manage, and optimize the economic potential available within their jurisdictions.

An increase in PAD is expected to improve the ability of local governments to finance governmental administration, development, and public services through their own revenue sources. The higher the amount of PAD, the stronger the local fiscal capacity and the lower the need to depend on transfers from the central government.

From the perspective of Stewardship Theory, the optimization of PAD represents the responsibility of local governments as stewards in managing local economic potential for the public interest. Fiscal Decentralization Theory further explains that revenue-raising authority provides local governments with opportunities to strengthen their own financing capacity.

Indriani et al. (2023) found that PAD had a positive and significant effect on Regional Financial Independence in Brebes Regency. Maharani et al. (2025) similarly found that PAD had a positive and significant effect on Regional Financial Independence in 23 regencies and municipalities in Aceh Province. However, other studies have found that PAD does not significantly affect Regional Financial Independence. These inconsistent findings indicate that the effect of PAD may depend on regional economic characteristics, revenue collection capacity, research location, and observation period.

Because this study uses nominal financial data, PAD is measured using the realized amount of Local Own-Source Revenue received by each local government during a fiscal year and is expressed in billions of rupiah:

PAD = Realized Local Own-Source Revenue

The formula that divides realized PAD by budgeted PAD is not used because it measures the PAD effectiveness ratio, rather than the amount of PAD as the independent variable.

Based on the theoretical explanation and previous empirical findings, the following hypothesis is proposed:

H1: Local **Own-Source Revenue has a positive effect on Regional Financial Independence.**

General Allocation Fund

The General Allocation Fund, commonly referred to as *Dana Alokasi Umum* or DAU, is a transfer sourced from the State Budget and allocated to regional governments to equalize financial capacity among regions in implementing decentralization. DAU is intended to reduce the gap between the fiscal needs and fiscal capacity of each local government.

Therefore, DAU should not merely be described as funding for infrastructure development. It is primarily a fiscal equalization instrument designed to support local governments that have limited revenue capacity.

From the perspective of Stewardship Theory, local governments are responsible for using DAU effectively and in accordance with public needs. However, the Flypaper Effect suggests that large amounts of DAU may cause regional expenditure to respond more strongly to central

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government transfers than to increases in PAD. If this condition persists, local governments may become fiscally dependent and have weaker incentives to develop their own revenue sources.

Indriani et al. (2023) found that DAU had a negative and significant effect on Regional Financial Independence. Maharani et al. (2025) also reported a negative and significant relationship. In contrast, several other studies found that DAU did not significantly affect Regional Financial Independence. These differences indicate that the amount of DAU does not automatically determine financial independence because its effect also depends on the regional revenue structure and the effectiveness of financial management.

In this study, DAU is measured using the realized amount of the General Allocation Fund received by each local government during a fiscal year and is expressed in billions of rupiah:

DAU = Realized General Allocation Fund

The formula that divides DAU by Total Regional Revenue is not used because it measures the DAU dependency ratio, rather than the nominal amount of DAU. Using such a ratio would be inconsistent with the regression data if the analysis employs nominal financial values.

Based on the theoretical explanation and previous empirical findings, the following hypothesis is proposed:

H2: The General Allocation Fund has a negative effect on Regional Financial Independence.

Regulatory Note on the General Allocation Fund

The provision stating that the total amount of DAU must be at least 26% of Net Domestic Revenue was established under the previous regulatory framework. This provision should not be presented as though it remained unchanged throughout the entire 2020–2024 research period.

Law Number 1 of 2022 concerning Financial Relations between the Central Government and Regional Governments replaced the previous framework governing central–regional financial relations. Therefore, the statement concerning the minimum allocation of 26% should be removed from the general definition of DAU. If it is retained, the discussion must distinguish between the regulatory framework applicable before and after the enactment of Law Number 1 of 2022.

Capital Expenditure

Capital Expenditure refers to local government expenditure used to acquire or construct fixed assets and other assets that provide benefits for more than one accounting period. Capital Expenditure is generally allocated to infrastructure, transportation networks, educational facilities, healthcare facilities, public service facilities, and other assets that support governmental operations and community activities.

From the perspective of Stewardship Theory, local governments as stewards are responsible for allocating Capital Expenditure appropriately, productively, transparently, and according to public needs. Capital Expenditure directed toward productive infrastructure may improve public services, reduce the cost of economic activities, encourage investment, and expand the regional tax and levy base.

However, the effect of Capital Expenditure on Regional Financial Independence is generally indirect. Infrastructure development requires time before it can stimulate economic activity and generate additional Local Own-Source Revenue. Capital Expenditure may also fail to improve financial independence when it is allocated to unproductive assets, does not correspond to

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community needs, or creates additional maintenance costs without expanding regional revenue sources.

Maharani et al. (2025) found that Capital Expenditure had a positive and significant effect on Regional Financial Independence. Other studies have reported similar positive findings. In contrast, Indriani et al. (2023) found that Capital Expenditure had no significant effect, while some previous studies reported a negative effect. These inconsistent results indicate that the fiscal benefits of Capital Expenditure depend on asset productivity, allocation accuracy, and the time required for infrastructure to generate additional revenue.

Capital Expenditure in this study is measured using the realized amount of Capital Expenditure incurred by each local government during a fiscal year and is expressed in billions of rupiah:

Capital Expenditure = Realized Capital Expenditure

The formula that divides Capital Expenditure by Total Regional Expenditure and multiplies it by 100% should only be used when the variable is defined as the Capital Expenditure ratio. Because the data in this study use nominal financial values, the ratio formula is not applied.

Based on the theoretical explanation and previous empirical findings, the following hypothesis is proposed:

H3: Capital Expenditure has a positive effect on Regional Financial Independence.

Regional Financial Independence

Regional Financial Independence reflects the ability of a local government to finance governmental administration, regional development, and public services through revenue generated from its own jurisdiction. A high level of financial independence indicates that the local government has a greater capacity to meet its fiscal needs and a lower dependence on external sources of financing.

In this study, Regional Financial Independence is measured by comparing Local Own-Source Revenue with Transfer Revenue. Transfer Revenue represents external funding received by the local government. The formula is expressed as follows:

$$\text{Regional Financial Independence} = \frac{\text{Local Own-Source Revenue}}{\text{Transfer Revenue}} \times 100\%$$

A higher ratio indicates a greater ability of the local government to finance its activities through PAD relative to external transfers. Conversely, a lower ratio indicates that the local government's financial structure remains dominated by transfers from the central government or other governmental entities.

The formula that divides Local Own-Source Revenue by Total Local Own-Source Revenue is mathematically incorrect because the numerator and denominator are identical, meaning that the result will always be 100%. Therefore, the formula must be replaced with a ratio that uses Transfer Revenue or another external funding component as the denominator, based on the selected reference.

Based on the relationships among all research variables, the following simultaneous hypothesis is proposed:

H4: Local Own-Source Revenue, the General Allocation Fund, and Capital Expenditure simultaneously affect Regional Financial Independence.

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Methodological Issue Concerning Mathematical Relationships

The use of Local Own-Source Revenue as an independent variable while simultaneously placing PAD in the numerator of the Regional Financial Independence ratio creates a direct mathematical relationship between the independent and dependent variables. Similarly, DAU is generally included as a component of Transfer Revenue, which serves as the denominator of the Regional Financial Independence ratio.

Consequently, a positive relationship between PAD and Regional Financial Independence and a negative relationship between DAU and Regional Financial Independence may emerge partly because of the mathematical structure of the dependent variable, rather than solely because of an underlying economic relationship.

This condition does not automatically invalidate the research model. However, it must be explicitly explained in the research method and limitations sections. Using lagged values of PAD, DAU, and Capital Expenditure from the previous period, or $t-1$, may help reduce simultaneity, although it does not completely eliminate the mathematical relationship.

Therefore, the regression results should be interpreted as empirical associations rather than definitive evidence of causality.

Consistency of Variable Measurement

The operational definitions, formulas, measurement units, descriptive statistics, and regression results must use consistent measurements. The proposed operational measurements are presented below.

Tabel 3.
Variable Operationalization

Variable	Measurement	Unit
Local Own-Source Revenue	Realized Local Own-Source Revenue	Billion rupiah
General Allocation Fund	Realized General Allocation Fund	Billion rupiah
Capital Expenditure	Realized Capital Expenditure	Billion rupiah
Regional Financial Independence	PAD ÷ Transfer Revenue × 100%	Percentage

If the study instead uses the PAD ratio, DAU ratio, or Capital Expenditure ratio, all raw data, descriptive statistical tables, assumption tests, regression models, hypothesis-testing results, and discussions must be recalculated using percentage units. Ratio formulas cannot be methodologically combined with nominal financial data in the regression analysis.

RESEARCH METHOD

This study employed a quantitative research design with descriptive and associative approaches. The descriptive approach was used to present the conditions of Local Own-Source Revenue (*Pendapatan Asli Daerah* or PAD), the General Allocation Fund (*Dana Alokasi Umum* or DAU), Capital Expenditure, and Regional Financial Independence. The associative approach was used to examine the statistical relationships between the independent and dependent variables.

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Because this study relied on secondary observational data rather than experimental data, the results were interpreted as empirical associations and did not necessarily establish causal relationships.

The unit of analysis was the local government-year. The dataset consisted of ten regencies and municipalities observed over five years, from 2020 to 2024, resulting in a balanced panel of 50 observations. Accordingly, panel data regression was considered more appropriate than ordinary multiple linear regression because the data combined cross-sectional variation among local governments and time-series variation across the research period.

The target population comprised regencies and municipalities located in the coastal areas of Java. The research sample was selected using purposive sampling. The selection criteria were as follows: the administrative area directly bordered the coastal zone of Java; complete and consistent Regional Revenue and Expenditure Budget realization data were available for 2020–2024; data on PAD, DAU, Capital Expenditure, and Transfer Revenue were available for every observation period; and no administrative changes or major data discontinuities occurred during the research period.

Based on these criteria, the sample consisted of Banyuwangi Regency, Cilacap Regency, Gresik Regency, Indramayu Regency, Subang Regency, Cilegon Municipality, Cirebon Municipality, Pekalongan Municipality, Semarang Municipality, and Surabaya Municipality. These local governments were selected to represent differences in economic structure, fiscal capacity, and coastal development characteristics across the western, central, and eastern parts of Java.

The study used secondary data obtained from the Regional Revenue and Expenditure Budget realization reports published through the Directorate General of Fiscal Balance of the Ministry of Finance. The data included the annual realized amounts of PAD, DAU, Capital Expenditure, and Transfer Revenue for each selected local government during 2020–2024. Data collection was conducted through documentation and a literature review. The source publication, database name, access year, and the statement "processed by the researchers" should be reported consistently in all tables.

Table 4.
Operational Definition and Measurement of Variables

Variable	Operational definition and measurement	Unit
Local Own-Source Revenue (PAD)	The annual realized amount of revenue derived from regional taxes, regional levies, returns from separated regional assets, and other legitimate local revenue sources	Billion rupiah
General Allocation Fund (DAU)	The annual realized amount of the General Allocation Fund received from the central government	Billion rupiah
Capital Expenditure	The annual realized amount of expenditure used to acquire or construct fixed assets and other assets that provide benefits for more than one accounting period	Billion rupiah
Regional Financial Independence	The ratio of Local Own-Source Revenue to Transfer Revenue	Percentage

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Regional Financial Independence was calculated using the following formula:

$$\text{Regional Financial Independence}_{\boldsymbol{it}} = \frac{\text{PAD}_{\boldsymbol{it}}}{\text{Transfer Revenue}_{\boldsymbol{it}}} \times \mathbf{100\%}$$

where $\boldsymbol{i}$represents the local government and $\boldsymbol{t}$represents the year of observation.

Because the fiscal size of the selected local governments differed substantially, the nominal independent variables were transformed into natural logarithms. This transformation was intended to reduce data dispersion, limit the influence of extreme fiscal values, and improve the comparability of observations across local governments. The panel regression model was specified as follows:

$$\text{RFI}_{\boldsymbol{it}} = \boldsymbol{\alpha} + \boldsymbol{\beta_1} \ln \text{PAD}_{\boldsymbol{it}} + \boldsymbol{\beta_2} \ln \text{DAU}_{\boldsymbol{it}} + \boldsymbol{\beta_3} \ln \text{CE}_{\boldsymbol{it}} + \boldsymbol{\mu_i} + \boldsymbol{\lambda_t} + \boldsymbol{\varepsilon_{it}}$$

where:

$\text{RFI}_{\boldsymbol{it}}$ = Regional Financial Independence of local government $\boldsymbol{i}$ in year $\boldsymbol{t}$,
$\boldsymbol{\alpha}$ = constant,
$\boldsymbol{\beta_1}, \boldsymbol{\beta_2}, \boldsymbol{\beta_3}$ = regression coefficients,
$\ln \text{PAD}_{\boldsymbol{it}}$ = natural logarithm of Local Own-Source Revenue,
$\ln \text{DAU}_{\boldsymbol{it}}$ = natural logarithm of the General Allocation Fund,
$\ln \text{CE}_{\boldsymbol{it}}$ = natural logarithm of Capital Expenditure,
$\boldsymbol{\mu_i}$ = unobserved local government-specific effect,
$\boldsymbol{\lambda_t}$ = year-specific effect,
$\boldsymbol{\varepsilon_{it}}$ = error term.

The panel data analysis involved three possible estimation models: the Common Effect Model, the Fixed Effect Model, and the Random Effect Model. The most appropriate model was selected through a series of specification tests. The Chow test was used to compare the Common Effect Model with the Fixed Effect Model. The Hausman test was used to determine whether the Fixed Effect Model or Random Effect Model was more appropriate. The Lagrange Multiplier test was used to compare the Common Effect Model with the Random Effect Model.

After selecting the appropriate panel model, diagnostic tests were conducted. Multicollinearity was assessed through the correlation matrix and variance inflation factor. Heteroskedasticity was examined using an appropriate panel heteroskedasticity test, while serial correlation was tested using the Wooldridge test. Cross-sectional dependence was evaluated using the Pesaran cross-sectional dependence test. When the model indicated heteroskedasticity, serial correlation, or cross-sectional dependence, robust or clustered standard errors were applied to obtain more reliable statistical inferences.

Hypothesis testing was conducted at a significance level of 5%. The individual effects of PAD, DAU, and Capital Expenditure were evaluated using the partial $\boldsymbol{t}$-test or the corresponding coefficient significance test in the selected panel model. Their simultaneous effect was examined using the $\boldsymbol{F}$-test or Wald test. The coefficient of determination was used to assess the proportion of variation in Regional Financial Independence explained by the independent variables.

The research hypotheses were formulated as follows:

H1: Local Own-Source Revenue has a positive effect on Regional Financial Independence.

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H2: The General Allocation Fund has a negative effect on Regional Financial Independence.
H3: Capital Expenditure has a positive effect on Regional Financial Independence.
H4: Local Own-Source Revenue, the General Allocation Fund, and Capital Expenditure simultaneously affect Regional Financial Independence.

A methodological limitation arises because PAD is used as an independent variable and simultaneously forms the numerator of the Regional Financial Independence ratio. DAU is also a component of Transfer Revenue, which forms part of the denominator. Therefore, the estimated positive effect of PAD and negative effect of DAU may partly reflect the mathematical construction of the dependent variable. The regression results should consequently be interpreted as statistical associations rather than definitive causal effects.

As a robustness procedure, the study may estimate an additional model using one-year-lagged independent variables. When lagged variables are applied separately for each local government, the effective sample decreases from 50 to 40 observations because the first-year observation for each of the ten local governments has no preceding value:

$$\mathrm{RFI}_{it} = \alpha + \beta_1 \ln \mathrm{PAD}_{i,t-1} + \beta_2 \ln \mathrm{DAU}_{i,t-1} + \beta_3 \ln \mathrm{CE}_{i,t-1} + \mu_i + \lambda_t + \varepsilon_{it}$$

The analysis should be performed using statistical software that supports panel data estimation, such as EViews, Stata, or R. The final manuscript must state the specific software and version actually used. IBM SPSS Statistics should not be stated as the principal analytical software unless the panel structure is explicitly accommodated through an appropriate estimation procedure.

RESULTS AND DISCUSSION

Descriptive Analysis

The descriptive analysis indicates substantial differences in fiscal capacity among the selected regencies and municipalities in the coastal areas of Java during the 2020–2024 period. All monetary variables in this study are expressed in billions of rupiah. Local Own-Source Revenue had a mean value of IDR 1,250.86 billion, with a minimum value of IDR 230 billion and a maximum value of IDR 6,114 billion. The relatively large standard deviation of IDR 1,453.76 billion indicates considerable variation in the capacity of local governments to generate revenue from local taxes, regional levies, returns from separated regional assets, and other legitimate local revenue sources.

Surabaya Municipality recorded the highest Local Own-Source Revenue among the research objects. This condition reflects its broad economic base, which includes trade, services, industry, port activities, property-related taxes, and other urban economic activities. In contrast, local governments with a more limited tax base and lower levels of formal economic activity generated considerably lower amounts of Local Own-Source Revenue. The General Allocation Fund had an average value of IDR 987.76 billion, ranging from IDR 183 billion to IDR 1,449 billion. The variation in DAU receipts reflects differences in fiscal needs and fiscal capacity among local governments. Regions with relatively limited own-source revenue generally require greater fiscal support from the central government to finance public services and regional administration.

Capital Expenditure had a mean value of IDR 642.50 billion, with a minimum value of IDR 92 billion and a maximum value of IDR 1,897 billion. The standard deviation of IDR 552.44 billion indicates substantial variation in the ability of local governments to finance infrastructure, public facilities, and other long-term assets. Regional Financial Independence had an average value of 31.16%, ranging from 14.77% to 60.93%. These results show that most of the selected local

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governments remained in the very low to moderate independence categories. Surabaya Municipality recorded the highest level of financial independence, whereas Banyuwangi Regency recorded the lowest average level. The descriptive statistics reported in the manuscript confirm that the monetary variables were measured in nominal values, while Regional Financial Independence was expressed as a percentage.

The variation among coastal local governments reflects differences in regional economic structures. Municipalities with major ports, industrial zones, tourism activities, extensive trade networks, and broader regional tax bases generally have greater opportunities to generate PAD. Conversely, regencies that depend more heavily on fisheries, agriculture, seasonal tourism, or less formal economic activities may have lower own-source revenue and greater dependence on intergovernmental transfers.

Table 5.
Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Local Own-Source Revenue	50	230	6114	1250.86	1453.755
General Allocation Fund	50	183	1449	987.76	359.335
Capital Expenditure	50	92	1897	642.50	552.444
Regional Financial Independence	50	14.77	60.93	31.1562	14.29513
Valid N (listwise)	50				

Note: Monetary variables are expressed in billions of rupiah, while Regional Financial Independence is expressed as a percentage.

Source: Data processed by the researchers using [software and version].

As presented in Table 5, Local Own-Source Revenue had a minimum value of IDR 230 billion and a maximum value of IDR 6,114 billion. Its mean value was IDR 1,250.86 billion, with a standard deviation of IDR 1,453.76 billion. The standard deviation was greater than the mean, indicating substantial differences in the ability of the selected local governments to generate revenue from local taxes, regional levies, separated regional assets, and other legitimate local revenue sources.

The General Allocation Fund ranged from IDR 183 billion to IDR 1,449 billion, with an average value of IDR 987.76 billion and a standard deviation of IDR 359.34 billion. These results indicate that the amount of DAU received by each local government varied according to differences in fiscal capacity and expenditure needs.

Capital Expenditure had a minimum value of IDR 92 billion and a maximum value of IDR 1,897 billion. Its mean value was IDR 642.50 billion, with a standard deviation of IDR 552.44 billion. This variation reflects differences in the fiscal capacity of local governments to finance infrastructure, public facilities, and other long-term regional assets.

Regional Financial Independence had a minimum value of 14.77% and a maximum value of 60.93%. Its mean value was 31.16%, with a standard deviation of 14.30%. These findings indicate considerable variation in financial independence among the selected coastal local governments.

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Nevertheless, the average value suggests that most local governments remained relatively dependent on transfers from the central government. The numerical values reported here are consistent with the descriptive statistics contained in Table 3 of the manuscript.

Classical Assumption Tests

Before estimating the multiple regression model, classical assumption tests were conducted to evaluate the characteristics of the regression residuals and the relationships among the independent variables. The tests consisted of the normality test, multicollinearity test, heteroskedasticity test, and autocorrelation test.

1. Normality Test

The normality test was conducted using the One-Sample Kolmogorov–Smirnov test on the unstandardized residuals.

Table 6. Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		49
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	4.01735789
Most Extreme Differences	Absolute	.115
	Positive	.115
	Negative	-.113
Test Statistic		.115
Asymp. Sig. (2-tailed)[c]		.122
Monte Carlo Sig. (2-tailed)[d]	Sig.	.103

Table 6 shows that the Kolmogorov–Smirnov test statistic was 0.115, with an Asymp. Sig. (two-tailed) value of 0.122. Because the significance value was greater than 0.05, the null hypothesis of normally distributed residuals was not rejected. Therefore, based on this test, the regression residuals were considered normally distributed.

The Monte Carlo significance value was 0.103, which was also greater than 0.05. This result further supports the conclusion that the residual distribution did not significantly deviate from normality.

2. Multicollinearity Test

The multicollinearity test was conducted by examining the tolerance and Variance Inflation Factor values of the independent variables.

Table 7.
Multicollinearity Test

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	LAG_X1	.405	2.468
	LAG_X2	.749	1.336

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	LAG_X3	.498	2.006
a. Dependent Variable: LAG_Y			

As shown in Table 7, lagged Local Own-Source Revenue had a tolerance value of 0.405 and a VIF value of 2.468. Lagged General Allocation Fund had a tolerance value of 0.749 and a VIF value of 1.336, while lagged Capital Expenditure had a tolerance value of 0.498 and a VIF value of 2.006.

All tolerance values were greater than 0.10, while all VIF values were below 10. These results indicate that there was no severe multicollinearity among the independent variables in the estimated model. Therefore, each independent variable contained sufficient distinct information to be included in the regression analysis.

3. Heteroskedasticity Test

The heteroskedasticity test was evaluated using the scatterplot of the standardized residuals and standardized predicted values.

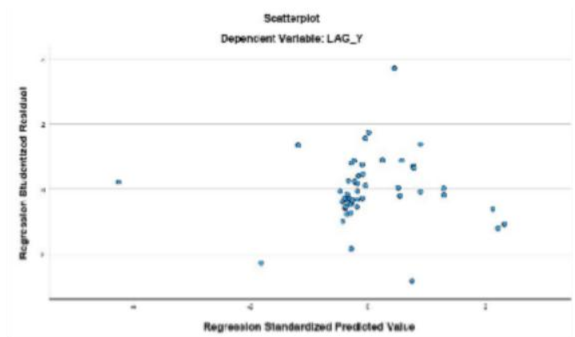

Figure 1.
Heteroskedasticity Test

Figure 1 shows that the residual points were distributed relatively randomly above and below the zero line on the vertical axis. The points did not form a clear systematic pattern, such as a funnel, wave, or progressively widening distribution. Based on the scatterplot, the estimated model did not indicate an obvious heteroskedasticity problem.

The discussion of the Durbin–Watson statistic should not be placed in this subsection because Durbin-Watson is used to assess autocorrelation rather than heteroskedasticity.

4. Autocorrelation Test

The autocorrelation test was conducted using the Durbin-Watson statistic.

Table 8.
Autocorrelation Test

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.855[a]	.731	.713	4.14911	1.840
a. Predictors: (Constant), LAG_X3, LAG_X2, LAG_X1					
b. Dependent Variable: LAG_Y					

Table 8 reports a Durbin–Watson value of 1.840. Based on 49 observations and three independent variables, the upper critical value $(d_U)$was reported as 1.6723. The upper limit was calculated as follows:

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$$4 - d_U = 4 - 1.6723 = 2.3277$$

The Durbin–Watson value satisfied the following condition:

$$1.6723 < 1.840 < 2.3277$$

Because the Durbin–Watson statistic was located between $d_U$and $4 - d_U$, the estimated regression model did not indicate positive or negative autocorrelation based on the criteria used in the manuscript.

Multiple Linear Regression Analysis

Multiple linear regression analysis was conducted to examine the statistical relationships between lagged Local Own-Source Revenue, lagged General Allocation Fund, lagged Capital Expenditure, and lagged Regional Financial Independence.

Table 9.
Multiple Linear Regression Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.067	.919		9.869	<,001
	LAG_X1	.007	.001	.811	6.668	<,001
	LAG_X2	-.007	.002	-.272	-3.038	.004
	LAG_X3	.003	.002	.169	1.539	.131

Based on Table 9, the estimated regression equation was formulated as follows:

$$\text{LAG\_Y} = 9.067 + 0.007\text{LAG\_X1} - 0.007\text{LAG\_X2} + 0.003\text{LAG\_X3} + \varepsilon$$

The constant value of 9.067 indicates the estimated value of lagged Regional Financial Independence when lagged Local Own-Source Revenue, lagged General Allocation Fund, and lagged Capital Expenditure are assumed to be zero. However, this constant mainly functions as the intercept of the statistical model and may not have a direct practical interpretation because zero fiscal values are outside the normal conditions of local government finance.

Lagged Local Own-Source Revenue had an unstandardized coefficient of 0.007, a t-statistic of 6.668, and a significance value of less than 0.001. The positive coefficient indicates that higher Local Own-Source Revenue was statistically associated with higher Regional Financial Independence, holding the other variables constant. Since the significance value was below 0.05, the relationship was statistically significant.

The standardized coefficient for Local Own-Source Revenue was 0.811. This was the largest absolute standardized coefficient among the independent variables, suggesting that Local Own-Source Revenue had the strongest statistical relationship with Regional Financial Independence in the estimated model.

Lagged General Allocation Fund had an unstandardized coefficient of -0.007, a t-statistic of -3.038, and a significance value of 0.004. The negative coefficient indicates that higher DAU receipts were statistically associated with lower Regional Financial Independence, holding the other

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variables constant. Since the significance value was below 0.05, the relationship was statistically significant.

The standardized coefficient for DAU was -0.272. This result indicates that DAU had a negative statistical relationship with Regional Financial Independence, although its standardized relationship was weaker than that of Local Own-Source Revenue.

Lagged Capital Expenditure had an unstandardized coefficient of 0.003, a t-statistic of 1.539, and a significance value of 0.131. The coefficient showed a positive direction, but the significance value was greater than 0.05. Therefore, Capital Expenditure did not have a statistically significant relationship with Regional Financial Independence in the estimated model.

Accordingly, the partial hypothesis-testing results can be stated as follows. The hypothesis concerning the positive relationship between Local Own-Source Revenue and Regional Financial Independence was supported. The hypothesis concerning the negative relationship between the General Allocation Fund and Regional Financial Independence was also supported. However, the hypothesis concerning the positive relationship between Capital Expenditure and Regional Financial Independence was not statistically supported.

Coefficient of Determination

The coefficient of determination was used to evaluate the proportion of variation in Regional Financial Independence that could be statistically explained by Local Own-Source Revenue, the General Allocation Fund, and Capital Expenditure.

Table 10.
Coefficient of Determination

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.855[a]	.731	.713	4.14911
a. Predictors: (Constant), LAG_X3, LAG_X2, LAG_X1				
b. Dependent Variable: LAG_Y				

Table 10 reports an Rvalue of 0.855, an R^2value of 0.731, and an adjusted R^2value of 0.713. The coefficient of determination was calculated as follows:

$$KD = R^2 \times 100\%$$
$$KD = 0.731 \times 100\% = 73.1\%$$

The R^2value of 0.731 indicates that approximately 73.1% of the variation in Regional Financial Independence was statistically explained by the three independent variables included in the model. The remaining 26.9% was associated with other factors not included in the regression model, such as economic growth, population size, regional investment, tax administration quality, governance, regional asset management, and differences in regional economic structures.

The adjusted R^2value of 0.713 indicates that, after accounting for the number of independent variables included in the model, approximately 71.3% of the variation in Regional Financial Independence remained statistically explained by the regression model.

The Standard Error of the Estimate was 4.14911. This value represents the average dispersion of the observed dependent-variable values around the values predicted by the regression model. However, the value should not be used alone to declare that the model is valid or feasible.

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Model adequacy must also be considered based on the regression assumptions, coefficient significance, and consistency between the statistical method and the structure of the data.

Simultaneous Hypothesis Test

The simultaneous test produced an F-statistic of 40.669, which was greater than the reported critical F-value of 2.81. The significance value was less than 0.001 and therefore below the 0.05 significance level. These results indicate that Local Own-Source Revenue, the General Allocation Fund, and Capital Expenditure were jointly associated with Regional Financial Independence in the estimated model.

However, the significant simultaneous test does not mean that every independent variable was individually significant. The partial test results showed that Local Own-Source Revenue and the General Allocation Fund were statistically significant, whereas Capital Expenditure was not statistically significant. Therefore, the overall significance of the model was primarily supported by the statistically significant coefficients of Local Own-Source Revenue and the General Allocation Fund.

Relationship between Local Own-Source Revenue and Regional Financial Independence

The statistical results indicate that Local Own-Source Revenue had a positive and statistically significant relationship with Regional Financial Independence. The regression coefficient was 0.007, with a t-statistic of 6.668 and a significance value of less than 0.001. Since the significance value was lower than 0.05, the first hypothesis was supported.

The positive coefficient indicates that an increase in Local Own-Source Revenue was associated with an increase in Regional Financial Independence. Because PAD was measured in billions of rupiah, an increase of IDR 1 billion in PAD was statistically associated with an increase of approximately 0.007 percentage points in the Regional Financial Independence ratio, assuming that the other variables remained constant. This interpretation must be adjusted if the final model uses logarithmic transformation.

This finding indicates that the ability of local governments to generate revenue from regional taxes, regional levies, returns from separated regional assets, and other legitimate local revenue sources is closely related to their fiscal independence. Local governments with higher PAD have greater financial capacity to finance governmental administration, development programmes, and public services without relying excessively on transfers from the central government.

From the perspective of Fiscal Decentralization Theory, the result demonstrates that the delegation of revenue-raising authority to local governments can strengthen regional fiscal capacity. Fiscal decentralization provides local governments with opportunities to identify and manage economic resources according to their regional characteristics. When this authority is exercised effectively, PAD increases and local governments become more capable of financing their expenditures through internally generated revenue.

The result is also consistent with Stewardship Theory. Local governments, as stewards, are expected to manage regional economic potential responsibly, efficiently, transparently, and in the public interest. Effective management of regional taxes, levies, local assets, and other revenue sources represents the local government's accountability to the community. A higher level of PAD may therefore reflect better performance by local governments in fulfilling their responsibility to strengthen regional fiscal capacity.

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In the context of coastal areas of Java, the capacity to generate PAD differs substantially across local governments because each region has a different economic structure. Municipalities and regencies with major ports, industrial estates, trade centres, tourism activities, hotels, restaurants, property development, and transportation services generally possess a broader tax and levy base. Port activities can generate economic transactions related to logistics, warehousing, transportation, trade, and industrial services. Tourism activities may increase revenue from hotels, restaurants, entertainment, parking, and other local economic activities.

Surabaya Municipality, for example, has a relatively diversified economic structure consisting of trade, services, industry, property, transportation, and port-related activities. Such economic diversification creates a broader and more stable regional tax base. Semarang Municipality, Cilegon Municipality, and Gresik Regency also benefit from urban, industrial, port, and logistics activities. In contrast, regions whose economic activities are more dependent on fisheries, agriculture, seasonal tourism, or informal economic activities may face greater difficulties in expanding PAD.

The finding supports Indriani et al. (2023), who found that PAD had a positive and significant relationship with Regional Financial Independence in Brebes Regency. It is also consistent with Maharani et al. (2025), who reported that PAD was positively and significantly associated with the financial independence of regencies and municipalities in Aceh Province.

However, the result must be interpreted cautiously because PAD is not completely independent from the measurement of Regional Financial Independence. PAD is used as an independent variable and is simultaneously included as the numerator in the Regional Financial Independence ratio. Consequently, the positive relationship may partly arise from the mathematical construction of the dependent variable. An increase in PAD will mechanically increase the independence ratio when Transfer Revenue remains unchanged.

Therefore, the result should not be interpreted as definitive proof that increasing PAD automatically causes higher financial independence. It should instead be interpreted as evidence that greater PAD is statistically associated with higher Regional Financial Independence. The strength of this association may also depend on the effectiveness of tax administration, the quality of regional economic governance, the size of the local economy, and the ability of local governments to convert economic potential into actual revenue.

Overall, the result suggests that increasing Regional Financial Independence requires more than simply raising tax rates. Local governments need to improve taxpayer databases, digitalize tax administration, strengthen revenue supervision, reduce revenue leakage, improve public services related to taxes and levies, and develop new revenue sources without placing an excessive burden on the community.

Relationship between the General Allocation Fund and Regional Financial Independence

The statistical results show that the General Allocation Fund had a negative and statistically significant relationship with Regional Financial Independence. The regression coefficient was -0.007, with a t-statistic of $-3.038$and a significance value of 0.004. Since the significance value was lower than 0.05, the second hypothesis was supported.

The negative coefficient indicates that an increase in DAU was associated with a decrease in Regional Financial Independence. Because DAU was measured in billions of rupiah, an increase of IDR 1 billion in DAU was statistically associated with a decrease of approximately 0.007

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percentage points in the Regional Financial Independence ratio, assuming that the other variables remained constant. This interpretation must be revised if the final panel model applies logarithmic transformation.

DAU is an intergovernmental transfer intended to reduce differences in fiscal capacity among local governments. Regions with lower fiscal capacity or greater expenditure needs generally receive fiscal support from the central government. Therefore, DAU plays an important role in ensuring that local governments can provide minimum public services despite differences in their own-source revenue capacity.

Nevertheless, a large amount of DAU in the regional revenue structure may indicate that the local government remains highly dependent on external financing. When a substantial proportion of regional expenditure is financed by central government transfers, the contribution of PAD to regional financing becomes relatively smaller. As a result, the Regional Financial Independence ratio tends to decline.

This finding can be explained through the Flypaper Effect. The Flypaper Effect describes a condition in which local government expenditure responds more strongly to intergovernmental transfers than to increases in locally generated revenue. Transfers received from the central government may encourage local governments to expand expenditure, but they do not necessarily encourage equivalent efforts to strengthen PAD. If local governments continuously rely on DAU to finance routine expenditure and public services, their motivation to optimize regional taxes, levies, and regional assets may weaken.

However, the negative relationship does not mean that DAU is inherently harmful. DAU remains necessary to address fiscal disparities and support public services in regions with limited revenue capacity. The problem arises when DAU becomes a permanent source of dependence and is not accompanied by efforts to strengthen the local revenue base.

From the perspective of Stewardship Theory, local governments are responsible for managing DAU efficiently and directing it toward public needs. A responsible steward should use DAU to improve service capacity, strengthen economic infrastructure, and support programmes that may eventually expand PAD. If DAU is primarily absorbed by routine expenditure without strengthening regional economic capacity, its contribution to long-term fiscal independence will remain limited.

The negative relationship is particularly relevant to coastal regions of Java. Coastal local governments face considerable expenditure requirements for roads, drainage, coastal protection, flood control, sanitation, fisheries facilities, port connectivity, tourism infrastructure, and disaster mitigation. These responsibilities may exceed the capacity of locally generated revenue, especially in regions with a narrow tax base. Consequently, such local governments may depend heavily on DAU and other central government transfers.

Regions with large ports or industrial areas may still receive substantial DAU because fiscal allocation is influenced not only by revenue capacity but also by fiscal needs, population, regional size, infrastructure requirements, and other allocation indicators. Therefore, receiving a large amount of DAU does not always mean that a local government performs poorly. The critical issue is the proportion of transfer revenue compared with PAD and the manner in which transfer funds are managed.

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The finding is consistent with Agustina et al. (2025, who found that DAU had a negative and significant relationship with Regional Financial Independence in Central Java. It is also consistent with Indriani et al. (2023), who reported that a higher dependence on DAU was associated with lower financial independence in Brebes Regency.

Nevertheless, the finding must be interpreted carefully because DAU is generally included as part of Transfer Revenue, which serves as the denominator of the Regional Financial Independence ratio. When DAU increases while PAD remains unchanged, the denominator becomes larger and the independence ratio automatically decreases. Therefore, part of the negative statistical relationship may be generated by the mathematical structure of the variables.

This mathematical relationship should be stated as a research limitation. The result should be interpreted as an association between higher DAU receipts and lower Regional Financial Independence, rather than as definitive evidence that DAU directly causes a decline in independence.

The policy implication is not that local governments should reject DAU. Instead, they should use DAU strategically to strengthen productive capacity, improve tax-supporting infrastructure, develop regional economic activities, and gradually reduce the relative dominance of transfers in the regional revenue structure.

Relationship between Capital Expenditure and Regional Financial Independence

The statistical results indicate that Capital Expenditure had a positive but statistically insignificant relationship with Regional Financial Independence. The regression coefficient was 0.003, with a t-statistic of 1.539 and a significance value of 0.131. Since the significance value was higher than 0.05, the third hypothesis was not supported.

The positive coefficient suggests that higher Capital Expenditure tended to be associated with higher Regional Financial Independence. However, the relationship was not statistically strong enough to conclude that changes in Capital Expenditure were systematically associated with changes in Regional Financial Independence during the research period.

This finding indicates that a larger amount of Capital Expenditure does not necessarily produce an immediate increase in regional financial independence. Capital Expenditure is generally used to acquire or construct long-term assets, including roads, bridges, government buildings, markets, tourism facilities, drainage systems, transportation infrastructure, healthcare facilities, educational facilities, and other public assets.

The economic and fiscal benefits of such expenditure usually require time to materialize. A newly constructed road, market, port access facility, or tourism infrastructure may improve economic activity, but it may take several years before the project increases business activity, expands the regional tax base, or generates additional PAD. Therefore, Capital Expenditure in the current year may not immediately increase Regional Financial Independence in the same period.

This explanation is particularly relevant to coastal areas. Capital Expenditure in coastal regions may be allocated to sea walls, coastal protection, drainage, flood mitigation, fish markets, sanitation, port access roads, and disaster prevention facilities. These projects are essential for public safety and service provision, but they do not always generate direct revenue for the local government.

For example, coastal protection infrastructure may prevent economic losses and protect residential areas, but it does not directly create local tax revenue. Similarly, drainage and sanitation

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projects improve public welfare and environmental quality, but their effect on PAD may be indirect and long term. Consequently, a region may have high Capital Expenditure without immediately experiencing an increase in financial independence.

The insignificant result may also be influenced by the composition and quality of Capital Expenditure. Capital Expenditure that is directed toward productive infrastructure may stimulate economic growth and PAD, while expenditure on administrative buildings, vehicles, or assets with limited economic effects may not expand the regional revenue base.

Therefore, the amount of Capital Expenditure alone may not adequately explain Regional Financial Independence. The productivity, allocation, implementation quality, completion rate, and economic relevance of the expenditure are also important. Two local governments may spend the same amount on Capital Expenditure but obtain different fiscal outcomes because the types and quality of the assets differ.

The result is consistent with Indriani et al. (2023), who found that Capital Expenditure did not have a significant relationship with Regional Financial Independence. It is also consistent with the finding attributed to Frijunita et al. (2024) in the manuscript. However, other studies have reported a positive and significant relationship, indicating that the effect of Capital Expenditure may differ across locations, periods, and infrastructure characteristics.

The absence of statistical significance may also result from the short observation period. The study covers only five years, including the 2020–2024 period, during which regional economic and fiscal conditions may have been affected by extraordinary changes. Infrastructure projects often have multi-year implementation and benefit periods. Therefore, a five-year observation period may not fully capture their long-term fiscal effects.

A correctly constructed lag model is required to examine this delayed relationship. When a one-year lag is used, the Capital Expenditure of year $t-1$is related to Regional Financial Independence in year t. However, the existing lag calculation must be corrected because a panel consisting of ten regions over five years should produce 40 observations after applying a one-year lag, not 49.

A longer lag of two or three years may also be theoretically relevant because infrastructure may require more than one year to affect business activity and PAD. Nevertheless, the short panel period limits the number of observations available for longer-lag estimation.

The previous discussion referring to budgetary slack should be removed because budgetary slack does not directly explain why Capital Expenditure fails to increase Regional Financial Independence. More relevant explanations concern infrastructure productivity, expenditure quality, implementation delays, asset utilization, maintenance costs, and the time required for public investment to affect economic activity and PAD.

From the perspective of Stewardship Theory, local governments are responsible not only for allocating a large Capital Expenditure budget but also for ensuring that the expenditure produces public and economic benefits. Responsible financial stewardship requires project selection based on public needs, cost effectiveness, economic feasibility, and long-term fiscal impact.

The practical implication is that local governments should not evaluate Capital Expenditure solely based on the amount spent or budget absorption. Evaluation should also consider whether the constructed assets are operational, properly utilized, economically productive, and capable of supporting additional regional revenue.

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Joint Relationship of Local Own-Source Revenue, the General Allocation Fund, and Capital Expenditure with Regional Financial Independence

The simultaneous test produced an F-statistic of 40.669, which was higher than the critical F-value of 2.81, with a significance value of less than 0.001. Since the significance value was lower than 0.05, the fourth hypothesis was supported.

The result indicates that PAD, DAU, and Capital Expenditure, when included jointly in the regression model, had a statistically significant relationship with Regional Financial Independence. In other words, a model containing the three fiscal variables provided greater explanatory power than a model without those variables.

However, the significant F-test does not mean that every independent variable was individually significant. The partial tests showed that PAD and DAU were statistically significant, whereas Capital Expenditure was not significant. Therefore, the statement that Capital Expenditure "still contributed because the F-test was significant" should be removed.

The significance of the overall model was most likely driven by the strong statistical relationships of PAD and DAU with Regional Financial Independence. The F-test only confirms that at least one independent variable had a non-zero relationship with the dependent variable.

The simultaneous finding demonstrates that Regional Financial Independence is related to both the revenue and expenditure structures of local governments. PAD represents internally generated fiscal capacity, DAU represents dependence on central government transfers, and Capital Expenditure represents the allocation of resources to long-term assets and infrastructure.

A local government with high PAD, controlled dependence on DAU, and productive Capital Expenditure is expected to have a stronger fiscal position. Conversely, a local government with low PAD, high dependence on transfers, and less productive Capital Expenditure is likely to have lower financial independence.

In coastal areas of Java, these three variables interact with regional economic characteristics. Port cities and industrial regions generally have broader opportunities to generate PAD, but they also require substantial infrastructure expenditure. Tourism-oriented regions may generate revenue from hotels, restaurants, attractions, and parking, but such revenue may fluctuate depending on visitor numbers and economic conditions. Fisheries-based regions may require public investment in fish markets, cold storage, port facilities, and transportation networks, although these investments may not immediately generate PAD.

The result is consistent with Maharani et al. (2025), who found that PAD, DAU, and Capital Expenditure jointly had a statistically significant relationship with Regional Financial Independence in regencies and municipalities in Aceh Province. Nevertheless, the comparison should focus on the joint significance of the model and should not state that all variables had positive effects because DAU in the present study had a negative coefficient.

The simultaneous relationship can also be explained through the combined theoretical framework. Fiscal Decentralization Theory explains that regional financial independence depends on the ability of local governments to exercise revenue and expenditure authority. Stewardship Theory emphasizes the responsibility of local governments to manage PAD, DAU, and Capital Expenditure in the public interest. The Flypaper Effect explains why excessive dependence on transfers may weaken regional financial independence.

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The coefficient of determination showed an R^2value of 0.731. This indicates that approximately 73.1% of the variation in Regional Financial Independence was statistically associated with the variation in PAD, DAU, and Capital Expenditure in the estimated model. The remaining 26.9% was associated with other factors not included in the research model.

These other factors may include regional economic growth, population size, investment, employment structure, tax administration quality, regional asset management, governance quality, fiscal policy, economic diversification, tourism activity, industrial development, and differences in public service responsibilities.

However, the R^2value should not be interpreted as evidence that PAD, DAU, and Capital Expenditure causally determine 73.1% of Regional Financial Independence. It only describes the explanatory power of the estimated statistical model.

The relatively high R^2may also be influenced by the mathematical relationship between the variables. PAD forms the numerator of the Regional Financial Independence ratio, while DAU may form part of its denominator. Therefore, the model may produce a high explanatory value partly because the independent variables are structurally related to the calculation of the dependent variable.

Overall, the simultaneous results show that strengthening Regional Financial Independence requires an integrated fiscal strategy. Local governments need to expand PAD through improved tax administration and economic development, manage DAU without creating excessive transfer dependence, and allocate Capital Expenditure toward productive assets that can strengthen the local economy over the long term.

CONCLUSION

The results of this study conclude that, simultaneously, Local Own-Source Revenue, the General Allocation Fund, and Capital Expenditure have a significant relationship with Regional Financial Independence in regencies and municipalities located in the coastal areas of Java during the 2020–2024 period. Partially, Local Own-Source Revenue has a positive and significant relationship with Regional Financial Independence. This finding indicates that an increase in Local Own-Source Revenue reflects the ability of local governments to optimize local economic potential, thereby reducing dependence on the central government and strengthening regional fiscal capacity. The General Allocation Fund has a negative and significant relationship with Regional Financial Independence. This result indicates that a high level of DAU receipts continues to reflect local government dependence on transfers from the central government, thereby reducing the ability of local governments to finance development needs independently. Capital Expenditure does not have a significant relationship with Regional Financial Independence. This condition indicates that a larger allocation of Capital Expenditure does not necessarily lead to an immediate increase in regional financial independence when the assets and infrastructure developed have not yet generated an optimal increase in Local Own-Source Revenue and regional fiscal capacity.

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