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Budget-Variance Efficiency in Local Government Procurement: Evidence from Central Java Regencies and Municipalities, Indonesia, 2025

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Abstract

Public procurement plays a central role in public financial management because it converts approved budget allocations into goods, services, works, and operational inputs for public administration. This study evaluates procurement budget efficiency in regency and municipality governments in Central Java Province, Indonesia, for fiscal year 2025 by comparing procurement planning values with procurement realization values. A descriptive quantitative design is employed using secondary data from the official open dataset issued by the National Public Procurement Agency of Indonesia (LKPP). The analysis covers 35 local governments, consisting of 29 regencies and 6 municipalities. Budget efficiency is treated as a budget-variance indicator and is measured through nominal efficiency and efficiency percentage. The results indicate that aggregate procurement planning reached Rp34.606 trillion, whereas aggregate realization reached Rp15.024 trillion, creating a positive variance of Rp19.582 trillion or 56.59 percent. At the local government level, the mean indicator was 54.07 percent and the distribution varied considerably across regions. Kota Pekalongan showed the highest indicator at 83.78 percent, while Kabupaten Temanggung showed the lowest at 11.84 percent. These results should not be read as a complete evaluation of procurement performance, since lower realization may reflect price efficiency but may also arise from package cancellation, reduced volume, planning overestimation, or delayed implementation. The study contributes to public sector accounting by illustrating how official open procurement data can support local budget performance analysis while stressing the need for metadata verification.

Keywords: Public Procurement; Budget Variance; Budget Efficiency; Local Government; Open Government Data; Central Java; Lkpp

INTRODUCTION

Public procurement functions as a major channel through which public budgets are implemented. It turns budget commitments into goods, services, works, infrastructure, and administrative inputs that enable government units to deliver public services. In local governments, procurement is therefore linked not only to spending activity, but also to the quality of planning, the reliability of budget execution, and the accountability of public financial management.

From a public sector accounting perspective, performance cannot be judged only by budget absorption. It also depends on whether public resources are managed with economy, efficiency, effectiveness, transparency, and accountability. Procurement is consequently a sensitive stage in the regional budget cycle. Poor planning can generate waste, implementation delays, weak absorption, low-quality outputs, or irregularities, whereas accurate planning and disciplined execution can improve expenditure efficiency and increase the public value produced by government spending.

In Indonesia, government procurement is governed by Presidential Regulation No. 16 of 2018 on Government Procurement of Goods/Services, as amended by Presidential Regulation No. 12 of 2021 and Presidential Regulation No. 46 of 2025. This framework places emphasis on

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efficiency, effectiveness, transparency, openness, competition, fairness, and accountability. These principles suggest that procurement performance should be assessed beyond price reduction alone, including its contribution to optimal budget use, compliance with rules, and public accountability.

One recurring issue in procurement governance is the difference between planned procurement value and realized procurement value. The amount entered in the procurement plan may differ from the value finally executed through contracts, transactions, or other procurement mechanisms. Such differences can be driven by supplier competition, negotiation outcomes, electronic catalogue transactions, package consolidation, specification changes, volume reductions, package cancellation, or shifts in local government priorities.

For that reason, this article uses the expression budget variance-based efficiency. The wording is used carefully so that the indicator is not overstated. A positive difference between planning and realization can point to budget savings, yet it does not by itself establish that procurement was substantively efficient, effective, or successful in output quality. A large variance may also reflect inflated planning values or incomplete execution. Thus, the planning-realization gap is interpreted here as an initial financial signal rather than a full measure of procurement performance.

Central Java Province is used as the research setting because it contains a diverse set of local governments, namely 29 regencies and 6 municipalities. The provincial boundary makes inter-regional comparison possible while keeping the analysis focused. This setting is also appropriate for descriptive quantitative work because it provides enough units for comparison while remaining within one provincial context.

Earlier procurement research has addressed issues such as e-procurement, transparency, accountability, internal control, procurement competence, fraud risk, and value for money. However, a large portion of this literature relies on survey data or perception-based measures. Studies that directly use official open procurement data to compare planning and realization values across local governments are still limited. This condition leaves room for public sector accounting research that is grounded in administrative open data.

The novelty of the study lies in applying official LKPP open data to calculate procurement budget variance-based efficiency at the regency and municipality level. Its contribution is threefold. First, it quantifies the 2025 gap between procurement planning and realization values in Central Java. Second, it demonstrates the analytical use of open government procurement data in public sector accounting research. Third, it highlights a methodological caution: procurement efficiency indicators should be interpreted alongside careful verification of dataset metadata.

Accordingly, this study aims to calculate and compare budget variance-based procurement efficiency among regency and municipality governments in Central Java Province for 2025. More specifically, it calculates nominal efficiency and efficiency percentage, identifies the highest and lowest local government indicators, and interprets the results from public sector accounting, value-for-money, and procurement governance perspectives.

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RESEARCH METHODS

Research Design

This research uses a descriptive quantitative design. A quantitative approach is suitable because the analysis is based on numerical procurement values, while a descriptive approach is appropriate because the objective is to calculate, describe, and compare budget variance-based procurement efficiency across local governments rather than to test causal relationships.

Regression analysis is not applied because the study does not specify independent and dependent variables within a causal model. The analysis instead focuses on measuring the difference between planning and realization values and interpreting the pattern that emerges across local governments.

Data Source and Data Validation

The primary data source is the official LKPP open dataset titled "Nilai Perencanaan dan Realisasi Pengadaan Barang/Jasa" for priority year 2025. The dataset records procurement planning values and realization values for ministries, agencies, and local governments, covering procurement financed through APBN or APBD and calculated from procurement contract values. Of the available file formats, the CSV resource is used because it was the most recently updated resource when the analysis was conducted.

The dataset was restricted to regency and municipality governments located in Central Java Province. The list of eligible regions was checked against official publications from BPS Central Java. Provincial-level records, ministries, agencies, and local governments outside Central Java were removed because the unit of analysis in this study is the regency or municipality government.

A metadata issue was found in the LKPP resource. The metadata states that RUP data for fiscal year 2025 were extracted from SiRUP on 5 January 2026, whereas realization data for fiscal year 2025 were extracted from SPSE and the electronic catalogue on 2 January 2025. This creates a chronological inconsistency because full-year realization data for 2025 would not normally be extracted at the start of the same year. As no official correction was identified during manuscript preparation, the inconsistency is disclosed as a metadata limitation, and the latest available CSV resource is used as the final dataset.

Table 1. Data validation and metadata audit

Item	Information	Research treatment
Dataset title	Nilai Perencanaan dan Realisasi Pengadaan Barang/Jasa	Official open data from LKPP
Priority year	2025	Fiscal year analyzed
Selected resource format	CSV	Selected as the most recently updated resource
Data last updated	31 March 2026	According to LKPP CSV metadata
Metadata last updated	31 March 2026	According to LKPP CSV metadata
Initial observations	658	All institutions contained in the CSV dataset

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Item	Information	Research treatment
Final sample	35	Central Java regency and municipality governments
Unit of analysis	Local government	Regency/municipality level
Metadata anomaly	Realization extraction date stated as 2 January 2025	Disclosed as a limitation without silent correction

Population and Sample

The population covers all local governments included in the LKPP 2025 procurement planning and realization dataset. Purposive sampling was used with five criteria: (1) the institution is a regency or municipality government in Central Java Province; (2) the observation is listed in the official LKPP dataset; (3) the procurement planning value is available; (4) the procurement realization value is available; and (5) the data can be checked through official sources. Applying these criteria produced a final sample of 35 local governments.

Operational Definition and Measurement

Table 2. Operational definition of variables

Variable	Definition	Measurement	Source
Procurement planning value	The planned monetary value of procurement activities recorded for a local government.	Rupiah value recorded in the LKPP dataset	LKPP/SiRUP
Procurement realization value	The monetary value realized through procurement implementation, contracts, or transactions.	Rupiah value recorded in the LKPP dataset	LKPP/SPSE/E-Catalogue
Nominal efficiency	The monetary gap between procurement planning value and procurement realization value.	Planning value - realization value	Researcher calculation
Efficiency percentage	A budget-variance indicator used to compare local governments.	((Planning - Realization) / Planning) x 100%	Researcher calculation

Nominal Efficiency = Procurement Planning Value - Procurement Realization Value

Efficiency Percentage = ((Procurement Planning Value - Procurement Realization Value) / Procurement Planning Value) x 100%

A positive result means that realization is lower than the planned value, while a negative result would mean that realization exceeds the planned value. In this study, every local government shows a positive result. These positive results are interpreted only as budget variance-based indicators, not as definitive proof of substantive procurement efficiency.

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Data Analysis Technique

The analysis proceeded through six stages. First, the dataset was downloaded and reviewed for format, update date, and metadata information. Second, the records were filtered to retain only regency and municipality governments in Central Java Province. Third, the completeness of planning and realization values was examined. Fourth, nominal efficiency and efficiency percentage were calculated. Fifth, descriptive statistics, including minimum, maximum, mean, median, and standard deviation, were generated. Sixth, local governments were ranked by efficiency percentage and interpreted from public sector accounting and procurement governance perspectives.

The study avoids making normative efficiency judgments based only on a fixed threshold. Although an earlier draft considered percentage-band categories, the final manuscript uses the continuous efficiency percentage as the primary indicator because all observations exceed 10 percent, making a threshold classification uninformative.

RESULTS AND DISCUSSION

Data Selection

The initial LKPP CSV file contained 658 observations covering ministries, agencies, and local governments. After the data were filtered to include only Central Java regencies and municipalities, 35 observations remained in the final sample. The final sample did not contain missing values for either procurement planning value or procurement realization value.

Table 3. Data selection process

Selection stage	Number of observations	Notes
Initial observations from LKPP CSV dataset	658	All institution types in the dataset
Observations after selecting Central Java regencies/municipalities	35	29 regencies and 6 municipalities
Observations with complete procurement planning value	35	No missing values identified
Observations with complete procurement realization value	35	No missing values identified
Final sample	35	Included in the analysis

Descriptive Statistics

For the 35 local governments, aggregate procurement planning amounted to Rp34.606 trillion, whereas aggregate procurement realization amounted to Rp15.024 trillion. The difference between the two totals was Rp19.582 trillion, corresponding to an aggregate budget variance-based efficiency indicator of 56.59 percent.

Table 4. Descriptive statistics

Variable	N	Minimum	Maximum	Mean	Median	Std. dev.
Procurement planning value (Rp billion)	35	272.96	3,969.12	988.75	918.71	613.64

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Variable	N	Minimum	Maximum	Mean	Median	Std. dev.
Procurement realization value (Rp billion)	35	168.98	1,536.42	429.26	379.53	247.80
Nominal efficiency (Rp billion)	35	32.31	2,432.70	559.49	528.20	411.84
Efficiency percentage (%)	35	11.84	83.78	54.07	58.18	14.65

Procurement Budget Variance-Based Efficiency by Local Government

Table 5 reports the budget variance-based procurement efficiency indicator for each regency and municipality government. The monetary values are presented in billion rupiah for readability. All local governments record positive values, meaning that realization was lower than planning; however, the size of the variance differs substantially across regions.

Highest and Lowest Indicators

Kota Pekalongan recorded the highest indicator, at 83.78 percent, while Kabupaten Temanggung recorded the lowest, at 11.84 percent. The lowest value should not automatically be treated as poor performance, because a smaller variance can also reflect more accurate planning or a higher level of procurement realization.

Table 6. Top five and bottom five local governments by efficiency indicator

Group	Rank	Local government	Indicator (%)	Difference (Rp billion)
Top five	1	Kota Pekalongan	83.78	913.19
Top five	2	Kabupaten Karanganyar	67.97	624.44
Top five	3	Kabupaten Brebes	67.94	1,108.60
Top five	4	Kabupaten Banjarnegara	67.75	593.02
Top five	5	Kabupaten Pekalongan	67.54	739.98
Bottom five	31	Kabupaten Purworejo	35.00	320.46
Bottom five	32	Kabupaten Blora	31.78	373.15
Bottom five	33	Kabupaten Pati	29.69	327.23
Bottom five	34	Kabupaten Purbalingga	24.07	150.33
Bottom five	35	Kabupaten Temanggung	11.84	32.31

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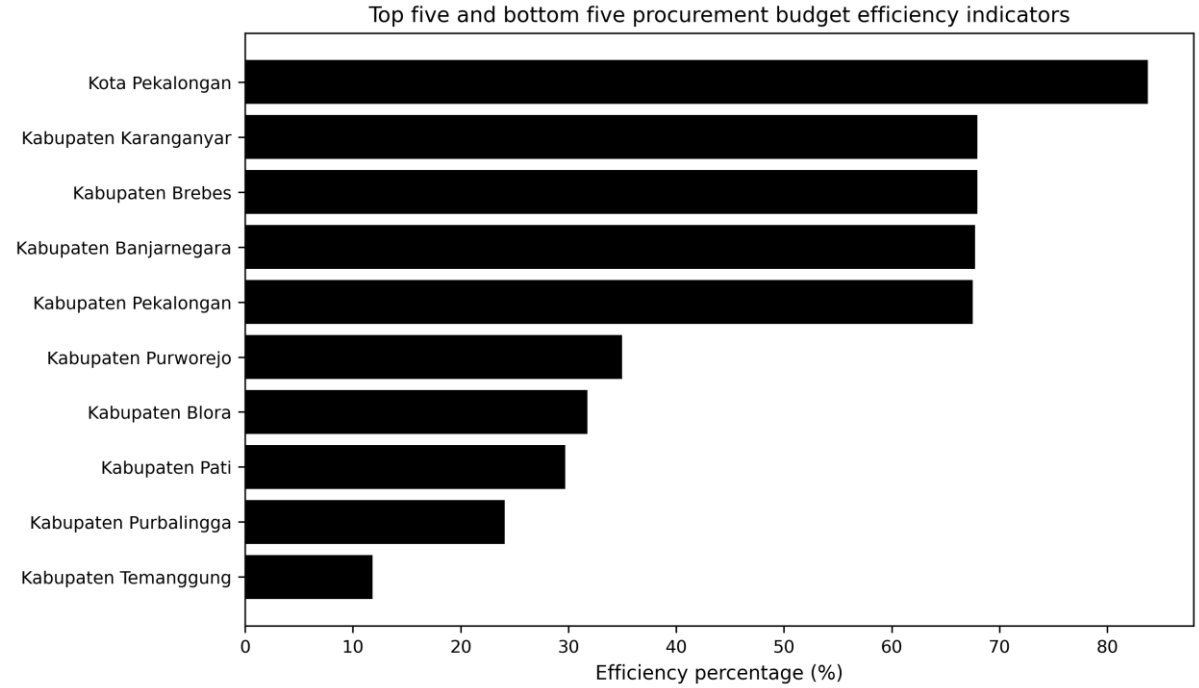

Figure 1. Top five and bottom five procurement budget variance-based efficiency indicators

Discussion

The results indicate that every regency and municipality government in Central Java recorded procurement realization below its procurement planning value. Viewed from a budget variance perspective, this pattern represents positive variance. Nevertheless, it should not be taken as conclusive evidence that all local governments achieved substantive procurement efficiency. This distinction matters because procurement performance also involves output quality, timeliness, compliance, and the achievement of public service objectives.

The aggregate indicator of 56.59 percent shows that the overall difference between planning and realization is substantial. Several explanations may account for this gap. It may arise from effective supplier competition, negotiation, procurement consolidation, or electronic procurement mechanisms. Conversely, it may also be associated with planning overestimation, package cancellation, reduced volume, delayed execution, or differences in data extraction timing. Because the study does not verify each procurement package, these possible explanations cannot be separated empirically here.

Kota Pekalongan produced the highest indicator. This means that realization was far below planning, but it does not automatically make the city the best performer in procurement. Further checking through SiRUP, SPSE/LPSE, and electronic catalogue records would be needed to determine whether the variance resulted from real price efficiency, unrealized packages, or changes in procurement scope.

Kabupaten Temanggung recorded the lowest indicator, although its value remained positive. This result requires careful interpretation. A smaller planning-realization gap may show lower nominal savings, yet it may also indicate more realistic planning and more complete execution. Thus, the ranking should not be read as a normative ordering of good or poor procurement performance; it ranks the size of the planning-realization gap.

The findings demonstrate the usefulness of open government data for public sector accounting research. The LKPP dataset allows procurement patterns across local governments

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to be examined using official administrative data. At the same time, the analysis confirms that metadata verification is necessary. The chronological inconsistency found in the LKPP resource metadata illustrates why researchers should document the data source, file format, update date, extraction notes, and dataset limitations.

From a policy perspective, the results suggest that local governments need to review the accuracy of procurement planning. Very large positive variances should be followed up to distinguish genuine savings from under-realization. Local governments should improve needs assessment, price estimation, procurement scheduling, and monitoring of package execution. Efficiency indicators should also be connected with output quality and service delivery outcomes so that efficiency is not interpreted merely as spending less.

CONCLUSION

This study examines budget variance-based procurement efficiency among 35 regency and municipality governments in Central Java Province for fiscal year 2025 using official LKPP open data. The findings show that all local governments recorded positive differences between procurement planning and realization values. In aggregate, procurement planning reached Rp34.606 trillion and realization reached Rp15.024 trillion, producing a positive variance of Rp19.582 trillion, or 56.59 percent.

At the local government level, the mean indicator was 54.07 percent, the median was 58.18 percent, and the standard deviation was 14.65 percent. Kota Pekalongan had the highest indicator, whereas Kabupaten Temanggung had the lowest. These results indicate considerable variation in planning-realization gaps across local governments.

The main conclusion is that the planning-realization gap is a useful initial indicator for evaluating procurement budget execution, but it should not be used as the only measure of procurement performance. Positive budget variance may indicate savings, yet it may also reflect planning overestimation, package cancellation, reduced volume, delayed execution, or incomplete realization. Procurement efficiency therefore needs to be assessed alongside output quality, contract completion, timeliness, and accountability indicators.

This study contributes to public sector accounting literature by showing how official open procurement data can be used to measure procurement budget variance in local governments. It also offers a methodological contribution by emphasizing data validation and metadata transparency in open government data research.

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