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Poverty indicator dynamics and regional typology in Papua Province, Indonesia: A descriptive analysis of nine regencies and municipalities, 2021–2025

Marthinus Yohanes Ruamba[1,2*)]

[1]Department of Mathematics Education, Universitas Cenderawasih, Jayapura, Indonesia
[2]Center for Infrastructure and Spatial Data Infrastructure Development (PPIIG), Universitas Cenderawasih, Jayapura
[*]Corresponding Author: marthinusruamba94@gmail.com

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Abstract

This study examines changes in poverty incidence and poverty volume across a consistent set of nine regencies and municipalities within the current administrative boundaries of Papua Province, Indonesia, during 2021–2025. In this article, poverty dynamics refers to changes in aggregate jurisdiction-level indicators, not household transitions into or out of poverty. Using secondary data from the March Susenas published by Statistics Indonesia (Badan Pusat Statistik, BPS), the study compares the reported number of poor residents and the official poverty headcount ratio (P0) and develops a median-based typology for 2025. The sum of the nine jurisdiction-level poverty counts increased from 151.82 thousand in 2021 to 171.39 thousand in 2025 (12.9%). The unweighted mean P0 increased from 22.27% to 24.66%, a rise of 2.39 percentage points, and P0 increased in all nine jurisdictions. The largest increases occurred in Mamberamo Raya (+6.31 percentage points) and Supiori (+4.65 percentage points). The 2025 typology uses the medians of P0 (25.73%) and poverty volume (11.45 thousand) as relative thresholds; values equal to or above each median are classified as high. The resulting profiles distinguish high-incidence/high-volume, high-incidence/low-volume, low-incidence/high-volume, and low-incidence/low-volume jurisdictions. The findings demonstrate the complementary value of incidence and absolute volume for regional comparison within the current administrative boundaries of Papua Province. The typology is a descriptive screening tool for identifying dimensions that require further local assessment; it does not establish causes or determine effective interventions.

Introduction

Poverty alleviation remains a major priority in regional development across eastern Indonesia, particularly in Papua Province, where geographic fragmentation, limited infrastructure, and transportation constraints may restrict access to markets and essential public services, thereby complicating efforts to improve socioeconomic welfare (Difinubun et al., 2025; Muryani & Anggraini, 2025; Sugiharti et al., 2022). Within peripheral and poorly connected regions, these spatial frictions act as structural barriers that exacerbate severe welfare disparities (Miranti & Asdiyanti, 2026; Susanto & Wulandari, 2021). These conditions make it important to understand not only the overall level of poverty but also how poverty is distributed across administrative jurisdictions. Regional comparisons can help describe differences in the proportion of residents experiencing poverty and the absolute number of people affected. Such evidence is highly relevant to understanding subnational welfare disparities and informing context-sensitive development planning (Oktaviani et al., 2023; Zahra & Fernando, 2026). However, descriptive indicators alone cannot explain the complex causal mechanisms underlying chronic poverty or establish the effectiveness of policy interventions (Indrasari & Yulianto, 2025).

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Two complementary indicators are particularly relevant to regional poverty assessment: poverty incidence and poverty volume. Poverty incidence, measured by the official poverty headcount ratio (P0) published by Statistics Indonesia (Badan Pusat Statistik, BPS), represents the percentage of the population classified as poor under the BPS expenditure-based methodology. Poverty volume refers to the absolute number of poor residents reported for a jurisdiction. Although inherently related, these indicators capture distinct dimensions of subnational poverty. A jurisdiction with a relatively high poverty incidence—often found in remote, sparsely populated rural areas—does not necessarily contain the largest number of poor residents (Hardi et al., 2025; Widita et al., 2024). Conversely, a highly populous urban center may exhibit a lower poverty incidence yet contain a substantial absolute number of poor residents, placing additional pressure on local infrastructure and social assistance delivery (Pentury, 2023; Santoso et al., 2022). Reliance on either indicator alone provides an incomplete picture of regional poverty profiles, potentially leading to the misallocation of public funds and an imbalanced policy focus (Croon et al., 2023; Novianti et al., 2021; Sutjipto et al., 2026). Examining both dimensions provides a broader descriptive basis for comparing regional poverty profiles because the indicators capture different aspects of deprivation and, together, offer a more comprehensive understanding of socioeconomic disparities across geographic areas (Firdausy & Budisetyowati, 2022; Hill, 2021; Pulungan et al., 2026).

Previous research has examined poverty and regional development in Indonesia from several complementary perspectives. Studies on economic growth, decentralization, and welfare outcomes provide context for understanding the broader economic and institutional conditions associated with poverty (Anggraeni et al., 2022; Miranti & Mendez, 2023; Siburian, 2022; World Bank, 2022). Other studies have examined spatial poverty traps, geographic accessibility, infrastructure, and regional poverty patterns, highlighting the importance of geographic context for development in peripheral areas (Huda et al., 2023; Liang et al., 2022; Liu et al., 2017; Medeiros et al., 2021; Nugroho & Sujarwoto, 2021; Oktaviani et al., 2023; Wahyuni et al., 2022). Taken together, this literature offers important economic, institutional, and geographic perspectives. However, this literature generally focuses on poverty determinants, spatial relationships, infrastructure, or broader development processes rather than on geographically bounded descriptive comparisons that track both official poverty incidence and the absolute number of poor residents across a consistent set of jurisdictions. Household-level studies of poverty dynamics also address a different analytical question from analyses of changes in published aggregate indicators. Thus, a regional assessment that considers both dimensions remains useful.

This need is particularly relevant to Papua Province following the establishment of New Autonomous Regions (Daerah Otonomi Baru, DOB), which changed the province's administrative configuration. Comparisons over time require a consistent geographic definition to avoid combining observations from jurisdictions that no longer belong to the same province. Although previous studies have contributed to understanding poverty and regional development in Papua and Indonesia more broadly, a specific empirical need remains to examine changes in poverty incidence and poverty volume across the same nine regencies and municipalities that currently constitute Papua Province. A comparison of these two indicators over 2021–2025, using a fixed set of jurisdictions, provides a more consistent description of poverty conditions within the province's current administrative boundaries. This is a geographically bounded empirical gap, not a claim that poverty in Papua has been overlooked by previous research (Badan Pusat Statistik Provinsi Papua, 2023, 2024, 2025).

To address this gap, the present study uses secondary data from the March round of the National Socio-Economic Survey (Survei Sosial Ekonomi Nasional, Susenas) to examine changes in the reported number of poor residents and the official poverty headcount ratio across the nine regencies and municipalities of Papua Province during 2021–2025. It also applies a median-based descriptive typology to the 2025 observations, classifying jurisdictions according to their relative poverty incidence and poverty volume. The study's contribution is empirical and classificatory: it provides a comparison across a fixed set of jurisdictions using two complementary published indicators over time and applies an explicit, reproducible rule to distinguish regional poverty profiles. The median-based typology is a descriptive screening framework, not a new statistical method or a universal poverty threshold, and it does not constitute a statistically estimated clustering solution. It can identify dimensions that warrant further local assessment, but it does not establish causes or prescribe interventions. In this article, the term poverty dynamics refers exclusively to changes in aggregate regency/municipality-level indicators, not to household transitions into or out of poverty.

Accordingly, this study addresses two research questions: (1) How did the reported number of poor residents and official poverty headcount ratios change across the nine regencies and municipalities within Papua Province during 2021–2025? (2) How can these jurisdictions be differentiated according to poverty incidence

and poverty volume using a transparent median-based classification? The study aims to describe temporal patterns in the published poverty indicators and to develop a comparative regional typology for 2025. The unit of analysis is the regency or municipality, and interpretations of temporal changes are limited to aggregate indicators rather than household-level poverty transitions.

Method

Research location and study area map

This study focuses on the nine regencies and municipalities within the current administrative boundaries of Papua Province, Indonesia, following the establishment of the New Autonomous Regions (Daerah Otonomi Baru, DOB). The units of analysis comprise Jayapura Regency, Kepulauan Yapen Regency, Biak Numfor Regency, Sarmi Regency, Keerom Regency, Waropen Regency, Supiori Regency, Mamberamo Raya Regency, and Jayapura Municipality. These nine jurisdictions define the geographical scope of the study for all five annual observations. To maintain a common geographic frame, the analysis selects the same nine jurisdictions in each year and excludes jurisdictions that became part of the other newly established provinces. The comparison is thus a fixed-area aggregation reconstructed from jurisdiction-level observations, rather than a comparison of historical provincial totals published under changing administrative boundaries.

Figure 1 illustrates the geographical distribution and relative positions of the nine jurisdictions across the mainland and offshore islands. The map provides administrative context for the regional comparisons; it is not used to estimate spatial dependence or spatial spillover effects. The administrative coverage shown in the map corresponds to the nine jurisdictions retained throughout the 2021–2025 comparison.

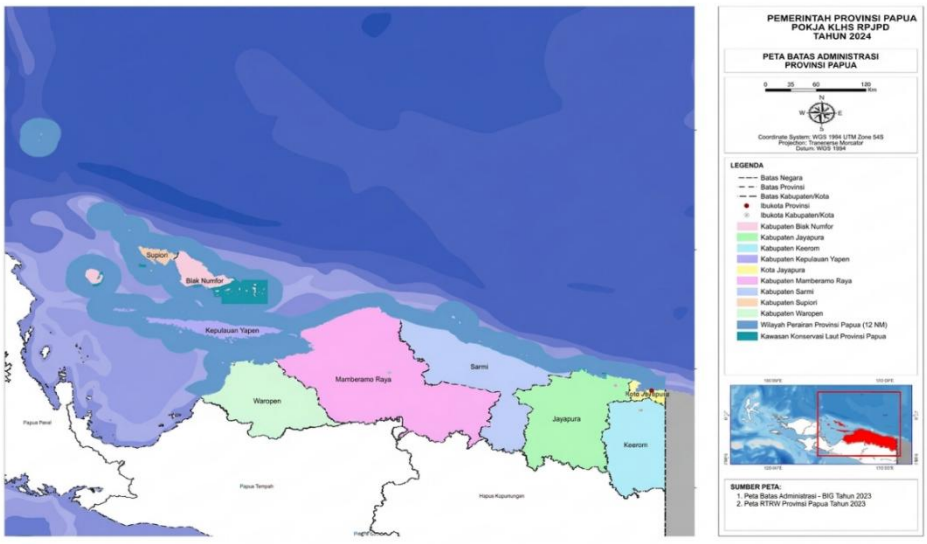


Figure 1. Spatial coverage map of post-DOB Papua Province showing the nine analyzed regencies and municipalities
Source: GIS Spatial Mapping based on BPS Administrative Boundaries (2025).

Research design

This study employs a quantitative descriptive research design to examine poverty patterns across nine regencies and municipalities in Papua Province during 2021–2025. The analysis follows four reproducible steps: (1) extract March observations for the same nine jurisdictions from BPS statistical tables; (2) arrange the number of poor residents (thousand of people) and the poverty headcount ratio (P_0, percent) by jurisdiction and year; (3) calculate annual fixed-area totals, unweighted regional means, and changes between 2021 and 2025; and (4) classify the 2025 regional profiles using the medians of the nine jurisdiction-level observations for P0 and the number of poor residents. All calculations are descriptive. The design does not estimate causal relationships, household transitions, or spatial statistical effects.

Data collection

This study uses secondary data published by Statistics Indonesia (Badan Pusat Statistik, BPS), particularly the official statistical table "Jumlah dan Persentase Penduduk Miskin Menurut Kabupaten/Kota di Provinsi Papua." The reference observation is March of each year (Susenas March 2021, March 2022, March 2023, March 2024, and March 2025). For every jurisdiction-year observation, the study records the number of poor

residents in thousand of people and the poverty headcount ratio (P_0) in percent. The relevant annual tables are published on the BPS Papua Province website. The 2025 table was last updated on February 5, 2026; the 2024 table reports March 2024 Susenas; the 2022 table reports March 2022, and the 2021 table reports March 2021 Susenas. The BPS Papua Province 2025 release provides an additional jurisdiction-specific check for the reported (P_0) of 42.56% (Badan Pusat Statistik Provinsi Papua, 2025).

The analytical dataset contains 45 jurisdiction-year observations for each of the two indicators: nine fixed jurisdictions observed in five March reference periods. To preserve geographic comparability after the creation of the new provinces, only the nine jurisdictions currently within Papua Province are retained in every year. The aggregate number of poor residents is calculated by summing the nine reported jurisdiction-level counts for each year. The unweighted mean of P_0 is calculated separately and is not interpreted as a population-weighted provincial poverty rate. Because the published jurisdiction-level counts are rounded to two decimal places, their sum may differ slightly from the BPS provincial aggregate calculated from unrounded estimates.

The annual BPS tables for the March Susenas observations from 2021 through 2025 were checked against the jurisdiction-level series used in the analysis. The checking process matched the jurisdiction name, reference period, indicator, and unit, and recalculated the fixed-area totals, unweighted means, percentage-point changes, percentage changes, and median thresholds. The review identified and corrected two transcription differences in the earlier dataset: the Kepulauan Yapen poor-population count for 2022 was standardized to 26.01 thousand, and Mamberamo Raya's 2022 P_0 was corrected to 30.73%. The Mamberamo Raya poor-population count for 2023 is reported as 7.56 thousand, consistent with the precision used for the other jurisdictions. The same nine jurisdictions are retained for all five years to maintain a fixed geographical scope after the establishment of the new provinces. Published jurisdiction-level counts are rounded to two decimal places; consequently, their sum may differ slightly from a provincial total calculated from unrounded estimates.

Data analysis

The analysis consists of four stages: examination of poverty indicators, construction of a median-based regional typology, aggregation of reported poverty counts, and descriptive presentation of the geographical context.

Poverty indicators

BPS publishes the Poverty Line (PL), the number of poor residents, and the Poverty Headcount Ratio (P_0) as part of its poverty statistics. The Poverty Line is the monetary threshold used in the BPS basic-needs approach to identify individuals whose per capita consumption expenditure falls below the minimum standard for food and non-food needs. In this study, PL is included only to explain the conceptual basis of official poverty measurement; it is not an empirical variable analyzed in the results. The two empirical indicators are the reported number of poor residents (poverty volume) and the official P_0 (poverty incidence).

The published BPS indicators are used as secondary data. This study does not independently estimate household poverty status or recalculate official P_0 from household-level microdata. The analysis compares the reported indicators across jurisdictions and years and constructs fixed-area sums of reported poverty counts. The Poverty Gap Index (P_1) and Poverty Severity Index (P_2) are not analyzed as empirical outcomes because they are outside the scope of the two research questions.

Median-based regional poverty typology

The 2025 regional typology is constructed using two dimensions: the official BPS poverty headcount ratio (P_0) and the reported number of poor residents. Based on the nine observations in the final dataset, the median P_0 is 25.73%, while the median number of poor residents is 11.45 thousand. A value equal to or greater than its corresponding median is classified as relatively high; a value below the median is classified as relatively low. Thus, observations exactly equal to either median are assigned to the high category for that dimension.

For each dimension, a jurisdiction is classified as relatively high when its value is equal to or greater than the corresponding median and relatively low when its value is below the median. Let (P_{0i}) denote the official P_0 for jurisdiction (i) in 2025, and let (M_i) denote its reported number of poor residents. The classification rules are:

$$I_i = \begin{cases} 1, & P_{0i} \geq \widetilde{P_0}, \\ 0, & P_{0i} < \widetilde{P_0}. \end{cases}$$

and,

$$V_i = \begin{cases} 1, & M_i \geq \widetilde{M}, \\ 0, & M_i < \widetilde{M} \end{cases}$$

where $\widetilde{P_0} = 25.73\%$ is the median official P_0 and $\widetilde{M} = 11{,}45$ thousand is the median number of poor residents. Here, (I_i) denotes the relative incidence category and (V_i) denotes the relative volume category.

Cross-classification produces four descriptive categories:

1. **Quadrant I (High Incidence–High Volume):** P_0 and the number of poor residents are both equal to or above their respective medians.
2. **Quadrant II (High Incidence–Low Volume):** P_0 is equal to or above its median, while the number of poor residents is below its median.
3. **Quadrant III (Low Incidence–High Volume):** P_0 is below its median, while the number of poor residents is equal to or above its median.
4. **Quadrant IV (Low Incidence–Low Volume):** P_0 and the number of poor residents are both below their respective medians.

The median-based typology provides a transparent and reproducible rule for comparing the nine jurisdictions in 2025. The categories represent relative positions within the study area rather than universal poverty thresholds or statistically estimated clusters. The median values are calculated from the same nine observations reported in Table 3 and used to construct Figure 3. The classification is cross-sectional and depends on the reference year, the jurisdictions included, and the selected thresholds.

Aggregation of poverty indicators

The number of poor residents is aggregated across the nine jurisdictions for each year from 2021 to 2025. Let (M_{it}) denote the reported number of poor residents in jurisdiction (i) in year (t), where ($i = 1, \ldots, 9$) and ($t = 2021, \ldots, 2025$). The aggregate number of poor residents is calculated as:

$$M_t = \sum_{i=1}^{9} M_{it}$$

Where compatible population denominators are available, a derived aggregate poverty percentage can be calculated as:

$$P_t^{agg} = \frac{\sum_{i=1}^{9} M_{it}}{\sum_{i=1}^{9} N_{it}} \times 100\%$$

where (N_{it}) denotes the corresponding total population of jurisdiction (i) in year (t). The numerator and denominator must refer to compatible geographical coverage, reference periods, population definitions, and measurement units. If these conditions cannot be verified, the aggregate percentage is not calculated or interpreted as a comparable measure.

The derived aggregate percentage, where calculated, is distinguished from the official BPS P_0. It is a ratio constructed from published counts and population denominators and is not presented as an independently verified official BPS poverty headcount ratio. The study therefore uses the official jurisdiction-level BPS P_0 for the 2025 regional typology.

The aggregate number of poor residents is also distinguished from the unweighted arithmetic mean of the nine jurisdiction-level P_0 values. An unweighted mean assigns equal weight to each jurisdiction regardless of population size and does not represent the poverty headcount ratio of the combined population. Accordingly, the unweighted mean of regional P_0 values is reported separately and is not labelled as the aggregate poverty percentage of Papua Province.

Provincial figures published by BPS are not assumed to be directly comparable with the study aggregate unless their administrative coverage, reference period, and indicator definitions are confirmed to be identical. All

aggregate calculations are conducted separately for each year, using consistent units and documented data coverage.

Scope and limitations of spatial analysis

The geographical component of the study is limited to mapping the study area and presenting descriptive comparisons among the nine regencies and municipalities. The study does not estimate spatial econometric models, test spatial autocorrelation, or assess spatial spillover effects. It also does not apply a statistical clustering algorithm to identify regional groups.

The regional typology is based on the cross-classification of official P_0 and the absolute number of poor residents using median thresholds. It is therefore a descriptive, threshold-based classification rather than a spatial statistical model. Given the small number of administrative units and the fragmented geography of the study area, formal spatial statistical procedures would require a separately specified analytical framework and a justified definition of spatial relationships. The findings are consequently interpreted as descriptive regional poverty patterns, not evidence of spatial dependence, spillovers, or causal effects.

Results

Temporal changes in poverty indicators, 2021–2025

The March Susenas observations for 2021–2025 describe changes in both poverty volume and poverty incidence across the same nine regencies and municipalities. Table 1 reports the two indicators separately for each jurisdiction and year. The fixed geographical scope retains the same nine jurisdictions throughout the observation period, allowing a consistent descriptive comparison within the current administrative boundaries of Papua Province.

Table 1. Number and percentage of poor people by regency/municipality in Papua Province, 2021–2025

Regency/Municipality	Indicator	2021	2022	2023	2024	2025
Kabupaten Jayapura	Poor Population (Thousand)	15,56	15,43	14,91	15,21	17,18
	Poverty Headcount Ratio (P_0, %)	12,13%	11,94%	11,45%	11,60%	13,03%
Kepulauan Yapen	Poor Population (Thousand)	25,67	26,01	26,03	26,09	28,70
	Poverty Headcount Ratio (P_0, %)	26,09%	26,15%	25,89%	25,69%	28,00%
Biak Numfor	Poor Population (Thousand)	36,38	36,80	35,70	35,94	39,74
	Poverty Headcount Ratio (P_0, %)	24,45%	24,48%	23,53%	23,46%	25,73%
Sarmi	Poor Population (Thousand)	5,56	5,60	5,45	5,87	6,41
	Poverty Headcount Ratio (P_0, %)	13,84%	13,76%	13,21%	14,05%	15,17%
Keerom	Poor Population (Thousand)	9,30	9,27	9,32	9,52	10,79
	Poverty Headcount Ratio (P_0, %)	16,00%	15,77%	15,68%	15,84%	17,76%
Waropen	Poor Population (Thousand)	9,69	10,02	9,86	10,30	11,45
	Poverty Headcount Ratio (P_0, %)	29,85%	30,22%	29,16%	29,85%	32,60%
Supiori	Poor Population (Thousand)	7,83	7,94	7,94	8,25	9,47
	Poverty Headcount Ratio (P_0, %)	37,91%	37,70%	36,99%	37,72%	42,56%
Mamberamo Raya	Poor Population (Thousand)	7,04	7,68	7,56	7,89	9,32
	Poverty Headcount Ratio (P_0, %)	28,78%	30,73%	29,63%	30,29%	35,09%
Kota Jayapura	Poor Population (Thousand)	34,79	34,36	32,78	33,84	38,33
	Poverty Headcount Ratio (P_0, %)	11,39%	11,12%	10,50%	10,72%	12,03%
Aggregated Total	Poor Population (Thousand)	151,82	153,11	149,55	152,91	171,39
	Unweighted Mean of Regency/Municipality P_0 (%)	22,27%	22,43%	21,78%	22,14%	24,66%

Source: Author's compilation and calculations based on BPS Papua Province March Susenas data, 2021–2025.

While Table 1 presents the annual trajectory of poverty indicators across the nine regencies and municipalities, Table 2 provides a comparative assessment of changes between the initial and final observation years (2021

and 2025). This comparison highlights the magnitude of changes in poverty incidence, measured in percentage points, and poverty volume, measured as the percentage change in the number of poor residents.

Table 2. Comparative changes in poverty headcount and poverty incidence between 2021 and 2025

Regency/Municipality	P_0 2021 (%)	P_0 2025 (%)	Change (pp)	Poor 2021 (thousand)	Poor 2025 (thousand)	Change (%)
Kabupaten Jayapura	12.13	13.03	+0.90	15.56	17.18	10.4
Kepulauan Yapen	26.09	28.00	+1.91	25.67	28.70	11.8
Biak Numfor	24.45	25.73	+1.28	36.38	39.74	9.2
Sarmi	13.84	15.17	+1.33	5.56	6.41	15.3
Keerom	16.00	17.76	+1.76	9.30	10.79	16.0
Waropen	29.85	32.60	+2.75	9.69	11.45	18.2
Supiori	37.91	42.56	+4.65	7.83	9.47	20.9
Mamberamo Raya	28.78	35.09	+6.31	7.04	9.32	32.4
Kota Jayapura	11.39	12.03	+0.64	34.79	38.33	10.2

The sum of the nine jurisdiction-level poverty counts was 151.82 thousand in 2021, 153.11 thousand in 2022, 149.55 thousand in 2023, 152.91 thousand in 2024, and 171.39 thousand in 2025. The 2025 sum is based on the rounded jurisdiction-level values in Table 1; the BPS provincial table reports 171.38 thousand, a 0.01-thousand difference consistent with aggregation from unrounded estimates. The unweighted mean of regional P0 values was 22.27% in 2021, 22.43% in 2022, 21.78% in 2023, 22.14% in 2024, and 24.66% in 2025. This mean gives equal weight to each jurisdiction and is not a combined-population poverty rate.

Between 2021 and 2025, the sum of poor residents across the nine jurisdictions increased by 19.57 thousand, equivalent to 12.9% relative to the 2021 sum. The increase was not monotonic: the total declined by 3.56 thousand between 2022 and 2023 before rising in the following two observations. Between 2024 and 2025, the sum increased by 18.48 thousand (12.1%). Because the counts are aggregated from rounded jurisdiction-level estimates, small differences from BPS provincial totals may occur.

Poverty incidence also increased in all nine jurisdictions between 2021 and 2025, although the magnitude varied. The largest increase in P_0 occurred in Mamberamo Raya (+6.31 percentage points), followed by Supiori (+4.65 points) and Waropen (+2.75 points). The smallest increases were observed in Kota Jayapura (+0.64 points) and Kabupaten Jayapura (+0.90 points). In terms of poverty volume, the largest relative increase was recorded in Mamberamo Raya (32.4%), while the smallest was in Biak Numfor (9.2%). These comparisons show why percentage-point changes in P_0 must be distinguished from percentage growth in the number of poor residents.

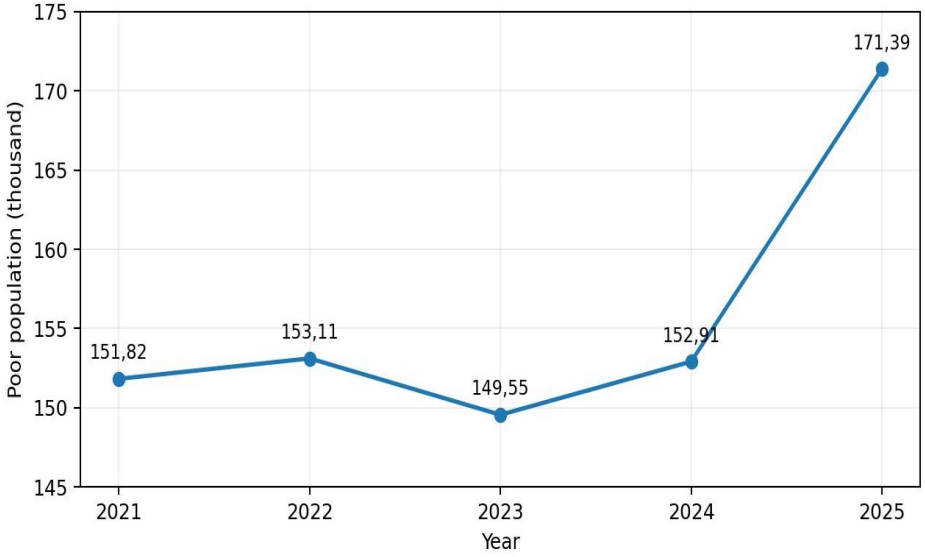


Figure 2. Aggregated trend of the poor population in Papua Province, 2021–2025.
Source: Author's calculations based on BPS Papua Province March Susenas data, 2021–2025.

Regional poverty typology based on March 2025 data

The March 2025 observations classify the nine regencies and municipalities according to the official BPS poverty headcount ratio (P_0) and the absolute number of poor residents. The median P_0 is 25.73%, and the median number of poor residents is 11.45 thousand. Values equal to or above the relevant median are classified as high, while values below the median are classified as low. Waropen, with exactly 11.45 thousand poor residents, is therefore classified as high volume.

Based on these criteria, Kepulauan Yapen, Biak Numfor, and Waropen were assigned to Quadrant I (High Incidence–High Volume). Supiori and Mamberamo Raya were assigned to Quadrant II (High Incidence–Low Volume). Kota Jayapura and Kabupaten Jayapura were assigned to Quadrant III (Low Incidence–High Volume), while Sarmi and Keerom were assigned to Quadrant IV (Low Incidence–Low Volume).

The four quadrants represent relative positions within the study area, not universal thresholds or statistically estimated clusters. Table 3 and Figure 3 use the same 2025 observations, with the number of poor residents on the horizontal axis and P_0 on the vertical axis. The vertical and horizontal reference lines are placed at 11.45 thousand and 25.73%, respectively.

Table 3. Empirical median-based regional poverty typology in Papua Province, 2025

Regency/Municipality	Poverty Ratio (%)	Poor Population (Thousand)	Typology
Kepulauan Yapen	28.00	28.70	Quadrant I — High Incidence, High Volume
Biak Numfor	25.73	39.74	Quadrant I — High Incidence, High Volume
Waropen	32.60	11.45	Quadrant I — High Incidence, High Volume
Supiori	42.56	9.47	Quadrant II — High Incidence, Low Volume
Mamberamo Raya	35.09	9.32	Quadrant II — High Incidence, Low Volume
Kota Jayapura	12.03	38.33	Quadrant III — Low Incidence, High Volume
Kabupaten Jayapura	13.03	17.18	Quadrant III — Low Incidence, High Volume
Sarmi	15.17	6.41	Quadrant IV — Low Incidence, Low Volume
Keerom	17.76	10.79	Quadrant IV — Low Incidence, Low Volume

Source: Compiled by Author based on BPS Susenas March 2025 Data.

Figure 3 was reconstructed from the final Table 3 dataset. Each plotted coordinate corresponds to the jurisdiction-level values of the reported number of poor residents and P_0 in March 2025. The quadrant assignment follows the same median thresholds used in the table; therefore, the figure is a visual representation of the tabular classification rather than a separate spatial analysis.

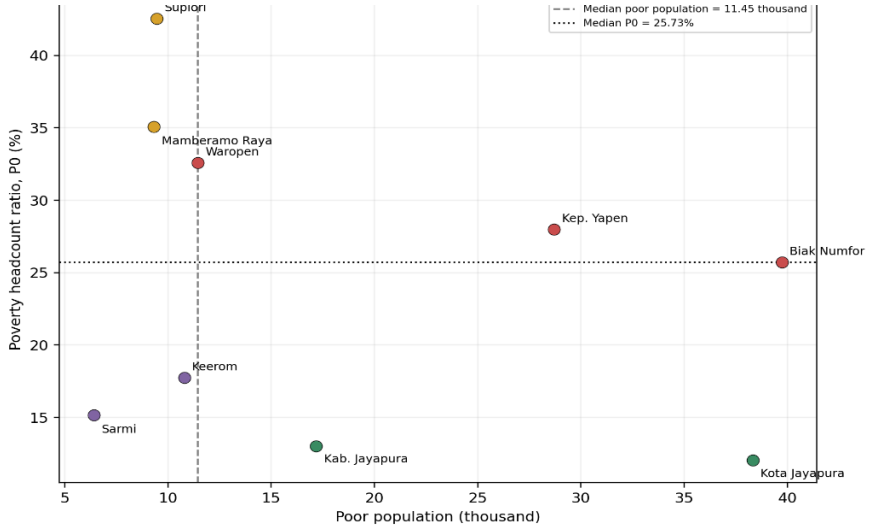


Figure 3. Scatter plot of poverty incidence and poor population by regency/municipality, March 2025
Source: Author's plot based on the same March 2025 BPS observations reported in Table 3.

Discussion

Interpreting poverty dynamics

The time series indicates that poverty volume and incidence did not move identically across jurisdictions. Although the fixed-area sum of poor residents rose by 12.9% between 2021 and 2025, the unweighted mean P_0 increased by 2.39 percentage points (from 22.27% to 24.66%). The largest P0 increases were concentrated in Mamberamo Raya and Supiori, while the largest relative increase in poverty volume also occurred in Mamberamo Raya. By contrast, the largest absolute number of poor residents in 2025 was found in Biak Numfor and Kota Jayapura, reflecting the distinction between the proportion of a jurisdiction's population experiencing poverty and the absolute scale of the affected population. These patterns are descriptive; the available indicators do not identify the socioeconomic mechanisms behind them.

The descriptive design does not establish the causes of the observed changes. Local prices, household economic vulnerability, geographical accessibility, labor-market conditions, and social-protection coverage may be relevant explanatory factors, but their individual contributions cannot be assessed using the two indicators examined here. The results should therefore be interpreted as changes in published aggregate indicators, not as evidence of household-level transitions or causal mechanisms. This distinction is important because studies of poverty dynamics based on household panel data answer a different question: whether particular households enter, remain in, or exit poverty over time.

Regional differences in poverty incidence and volume

The 2025 typology demonstrates the complementary value of poverty incidence and poverty volume. The median-based cross-classification separates regions with a high proportion of poor residents from those with a large absolute number of poor residents. For example, Supiori and Mamberamo Raya have high incidence but relatively low volume, whereas Kota Jayapura and Kabupaten Jayapura have low incidence but relatively high volume. This contrast indicates that a single indicator can conceal important differences in the scale and distribution of poverty across jurisdictions.

Under this classification, Kepulauan Yapen, Biak Numfor, and Waropen fall into Quadrant I (High Incidence–High Volume). Supiori and Mamberamo Raya fall into Quadrant II (High Incidence–Low Volume), while Kota Jayapura and Kabupaten Jayapura fall into Quadrant III (Low Incidence–High Volume). Sarmi and Keerom fall into Quadrant IV (Low Incidence–Low Volume).

The typology is best understood as a screening device for deciding which dimensions require further local assessment. High incidence may warrant closer examination of the share of households facing basic-needs constraints and the accessibility of essential services. High volume may warrant examination of the scale and geographic reach of service delivery and social-protection coverage. Where both are high, both the proportion affected and the absolute number of people should be considered. Where both are below the study medians, monitoring remains necessary because "low" is relative to the nine-jurisdiction comparison and does not mean poverty is absent.

The quadrants do not imply that jurisdictions within the same category have identical socioeconomic conditions or require identical interventions. The classification also depends on the reference year, the jurisdictions included, and the selected median thresholds. It should therefore be interpreted as a relative comparison for 2025, rather than a permanent ranking, a universal poverty threshold, or a statistically estimated clustering result.

Implications for regional policy prioritization

For Quadrant I (high incidence and high volume), assessment could examine both the proportion of households experiencing poverty and the number of people requiring access to social assistance, essential services, and livelihood support. For Quadrant II (high incidence and low volume), the priority for further assessment is the intensity and local concentration of deprivation, including access barriers that may affect a large share of a smaller population. These are assessment questions, not preselected interventions.

For Quadrant III (low incidence and high volume), the absolute number of poor residents indicates that the scale and coverage of services and social-protection programs merit examination even when the incidence is below the study median. For Quadrant IV (low incidence and low volume), continued monitoring and verification of underserved communities remain important. In every quadrant, program selection requires information beyond the typology.

The typology does not determine which intervention will be most effective or justify automatic resource allocation. Before selecting programs, decision-makers would need household-level information, local prices, access to schools and health facilities, social-assistance coverage, fiscal and implementation capacity, and community priorities. The classification therefore helps identify what should be investigated next; it does not replace local needs assessments or participatory verification.

Data limitations and implications for targeting

The study is limited to nine regencies and municipalities within the current administrative boundaries of Papua Province and uses March poverty indicators for 2021–2025. The fixed-area approach excludes jurisdictions that became part of other new provinces, while the underlying historical BPS tables were published under administrative arrangements that changed over time. The annual jurisdiction-level series was checked against the relevant BPS March tables, including the corrections to Kepulauan Yapen's 2022 poverty count and Mamberamo Raya's 2022 P_0. Nevertheless, comparisons should be interpreted with attention to the fixed geographical scope and the rounding of published jurisdiction-level counts, which can produce small differences from totals calculated from unrounded estimates.

The regional typology is based on official BPS P0 and the reported absolute number of poor residents. Its median thresholds are relative to the nine jurisdictions and the 2025 reference year. Consequently, the classification may change if a different year, set of jurisdictions, or threshold is used. It is a descriptive screening instrument, not a causal model, predictive tool, or statistically estimated clustering method.

For policy assessment, the four quadrants can help identify regional profiles and the aspects that require further investigation. However, they should not be used as the sole basis for assigning interventions or allocating resources. Household conditions, service accessibility, local prices, social-assistance coverage, and community-level priorities are needed to assess local needs and determine appropriate responses.

Future research should verify the comparability of poverty counts and related population data across years, examine the robustness of the typology under alternative thresholds, and incorporate additional socioeconomic indicators. Where data availability permits, analyses at district, village, or household levels could provide a more detailed understanding of differences within each jurisdiction. These steps would strengthen the evidence base for assessing regional poverty patterns and developing locally appropriate poverty-reduction policies in Papua Province.

Conclusion

This study described changes in poverty volume and incidence across nine regencies and municipalities within the current administrative boundaries of Papua Province during 2021–2025. The sum of the nine reported jurisdiction-level counts increased from 151.82 thousand in 2021 to 171.39 thousand in 2025 (12.9%), although the series fluctuated between years. The unweighted mean P_0 rose from 22.27% to 24.66%, an increase of 2.39 percentage points. P_0 increased in all nine jurisdictions; the largest increases were in Mamberamo Raya (+6.31 percentage points) and Supiori (+4.65 points). These findings show that both poverty volume and incidence increased over the period, but the magnitude of change differed across jurisdictions.

The 2025 median-based typology answers the second research question by distinguishing four regional profiles: Kepulauan Yapen, Biak Numfor, and Waropen had high incidence and high volume; Supiori and Mamberamo Raya had high incidence and low volume; Kota Jayapura and Kabupaten Jayapura had low incidence and high volume; and Sarmi and Keerom had low incidence and low volume. The study's contribution is a fixed-area descriptive comparison that combines the proportion of residents classified as poor with the absolute number affected and applies an explicit, reproducible classification rule. The typology can guide the next stage of regional assessment by identifying which dimensions of need should be examined, but it cannot select interventions or establish their effectiveness.

The findings should be interpreted in light of the study's fixed administrative scope and the rounding of published jurisdiction-level counts. The analysis does not track household transitions, establish causes, or predict future outcomes. Further research could test the sensitivity of the typology under alternative thresholds and incorporate household, service-access, and other socioeconomic information.

Ethics Statement

This study uses publicly available, aggregated secondary statistics published by Statistics Indonesia (Badan Pusat Statistik, BPS). It does not involve direct interaction with human participants, collection of data from

individual respondents, or access to identifiable personal information. Informed consent was therefore not applicable to this study. No institutional ethics approval or formal exemption is claimed.

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Transparency Statement

The author confirms that the study's geographical scope, secondary data sources, observation periods, indicators, aggregation procedures, and median-based classification criteria are described in the manuscript. The analysis uses published BPS statistics and does not involve primary data collection from individual respondents.

Data Availability Statement

The data supporting this study are drawn from the publicly accessible March Susenas statistical tables published by Statistics Indonesia (Badan Pusat Statistik, BPS), cited in the References. The analytical dataset comprises jurisdiction-level observations for the nine regencies and municipalities included in the study during 2021–2025.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this manuscript, the author used Google Gemini to assist with language editing, grammar checking, and improving readability. The author critically reviewed and revised the AI-assisted suggestions and takes full responsibility for the accuracy, integrity, and final content of the manuscript.

Statement of originality and plagiarism-free

The author declares that this article is an original work that has not been published elsewhere and is free from plagiarism. All references and citations have been properly acknowledged according to the applicable standards.

Declaration of conflicts of interest

The author declares no conflicts of interest related to this research, authorship, or publication.

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