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A mixed-methods panel evaluation of targeted fiscal transfers and poverty in indigenous communities: evidence from papua's special autonomy fund

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ABSTRACT

This study evaluates whether Papua's Special Autonomy Fund is associated with poverty reduction and whether regional gross domestic product (GRDP) and income inequality moderate that relationship in the Mamta Customary Area. An explanatory sequential mixed-methods design was used. The quantitative phase analyzes a balanced census panel covering all five Mamta regencies/cities—Jayapura Regency, Keerom, Sarmi, Mamberamo Raya, and Jayapura City—during 2016–2024, yielding 45 region-year observations from the Directorate General of Fiscal Balance (DJPK) and Statistics Indonesia (BPS). Because the data cover the complete set of Mamta jurisdictions rather than a probability sample, the number of observations is fixed by the study scope and period; interaction estimates are therefore interpreted cautiously. Poverty, GRDP, and the Gini Ratio are official macro-level indicators, so psychometric reliability coefficients are not applicable; data quality was addressed through source verification and cross-year consistency checks. Fixed-effects panel regression with moderated interactions was followed by qualitative content analysis of peer-reviewed studies, government and audit documents, and policy sources using repeated reading, coding, category development, thematic synthesis, and source triangulation. The two phases were integrated during interpretation. The Special Autonomy Fund is positively associated with poverty ($\beta = 0.0289$, $p = .0265$), GRDP is negatively associated with poverty ($\beta = -0.00021$, $p = .0454$), and the Gini Ratio is positively associated with poverty ($\beta = 8.0866$, $p = .0339$). The interaction terms are only marginally significant at the 10% level ($p = .0532$ and $p = .0569$). These associations do not establish causality. Qualitative evidence identifies four recurring explanatory themes: budget-priority mismatch, weak governance and supervision, spatial-economic inequality, and socio-cultural misalignment. The findings suggest that larger fiscal transfers alone are insufficient without stronger targeting, accountability, inclusive growth, and meaningful indigenous participation.



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Introduction

The Special Autonomy Policy for Papua Province, which came into effect in 2002 through Law No. 21 of 2001, is one of the tangible manifestations of asymmetric decentralization in the Indonesian government system. This approach cannot be uniformly applied because Papua has very distinctive social, cultural, economic, and geographical challenges, so it requires special treatment that is different from other provinces.

The central government provides broader authority in the fiscal, legislative, and recognition fields of customary institutions and local wisdom. Theoretically, this policy is in line with the definition of asymmetric decentralization put forward by Dupré et al. (2020) and Angela and Nursadi (2025), namely the granting of different authorities to regions at the same administrative level, based on their respective specific conditions and needs, in order to maintain the integrity of the Republic of Indonesia and encourage the acceleration of development.

As an implementation of asymmetric decentralization, the Special Autonomy of Papua is closely related to fiscal decentralization, where the expansion of authority must be balanced with an adequate budget based on the principle of money follows function (Rochjadi, 2006 in Nurhayati, 2020). Conceptually, fiscal decentralization redefines the role between levels of government in stabilization, redistribution, and resource allocation, assuming that local governments better understand the preferences of the community and the needs of their regions so that they can increase allocative efficiency and optimize local resources (Fedelino and Ter-Minassian, 2010; Ambya, 2023). On this basis, the central government allocates the Papua Special Autonomy Fund as a fiscal instrument to increase regional financial capacity while encouraging the acceleration of development and community welfare.

However, despite the strong theoretical and normative foundations, various empirical studies on the effectiveness of the Special Autonomy Fund (DOK) on poverty reduction show mixed and contradictory results. On the one hand, Vidriza and Talmera (2022) found that the increase in Special Autonomy funds correlates with a decrease in the number of poor people, both in the short and long term, while Monika (2018) also proves a significant negative influence on poverty in Papua districts/cities. However, Budiratna and Qibthiyyah (2020) found that DOK is only effective in reducing poverty in West Papua, while in Papua and Aceh the effect is not significant. On the other hand, research in Aceh by Rahayu (2026), Putra and Amran (2023), and Ricardo et al. (2023) consistently found that DOKs do not have a significant effect on poverty reduction, even tending to create fiscal dependence and are used for consumptive spending or infrastructure, rather than for productive poverty alleviation programs. Similar findings were also reported in Papua and West Papua by Saputra (2025) and Silaban (2025), while case studies in Aceh by Alfiday and Dewi (2019) show that despite the rapid flow of funds, poor people at the small business level do not feel the benefits at all, due to weak governance, lack of transparency, and weak control over budget use.

Despite this growing literature, three gaps remain. First, most studies estimate the direct association between Special Autonomy Fund transfers and poverty, while giving limited attention to whether regional economic capacity and inequality condition that association. Second, evidence is generally reported at provincial or broad district/city levels and rarely focuses on a customary-territory unit such as Mamta, where economic concentration and indigenous institutional arrangements may shape policy implementation. Third, quantitative estimates are seldom connected systematically with documentary evidence on governance, allocation priorities, and socio-cultural implementation. These gaps limit understanding of why similar fiscal transfers may be associated with different poverty outcomes across regions.

Accordingly, this study addresses three operational research questions: (1) what are the statistical associations of the Special Autonomy Fund, GRDP, and the Gini Ratio with district/city poverty rates in the Mamta Customary Area during 2016–2024; (2) do GRDP and the Gini Ratio moderate the association between the Special Autonomy Fund and poverty; and (3) what institutional, fiscal, structural, and socio-cultural themes help explain the observed quantitative patterns? The quantitative phase uses a balanced panel of all five Mamta regencies/cities (45 region-year observations) from DJPK and BPS, estimated using a Fixed Effects model with moderated interaction terms. The subsequent qualitative phase applies content analysis to relevant scholarly and official documentary sources and is integrated with the regression results at the interpretation stage.

The study's contribution is therefore methodological and contextual rather than quasi-experimental. It combines a moderated panel model with an explanatory qualitative phase to assess whether the relationship between targeted fiscal transfers and poverty varies with economic capacity and inequality, while situating those associations in the governance and customary-institution context of Mamta. Because the design is observational and does not construct a counterfactual control group, the study evaluates statistical associations and implementation plausibility rather than causal treatment effects.

Method

Research Design and Study Scope

This study uses an explanatory sequential mixed-methods design. The quantitative phase is conducted first to estimate the statistical relationships among Special Autonomy Fund allocation, regional economic capacity, income inequality, and poverty. The qualitative phase then examines documentary evidence to interpret the quantitative patterns and identify plausible implementation mechanisms. The study covers the complete Mamta Customary Area: Jayapura Regency, Keerom Regency, Sarmi Regency, Mamberamo Raya Regency, and Jayapura City.

Data Sources, Unit of Analysis, and Panel Adequacy

The quantitative unit of analysis is the district/city-year. A balanced panel covers all five Mamta jurisdictions for nine years (2016–2024), producing 45 region-year observations. Data were obtained from the Directorate General of Fiscal Balance (DJPK), Ministry of Finance of the Republic of Indonesia, and Statistics Indonesia (BPS) Papua. Because the analysis includes the entire set of Mamta jurisdictions rather than a probability sample drawn from a larger Mamta population, the number of observations is determined by the geographic scope and the common period of data availability. This census-panel design supports within-Mamta comparison but provides limited degrees of freedom for interaction effects; therefore, estimates at the 10% significance level are treated as exploratory rather than as strong confirmatory evidence.

Variable Operationalization and Data Quality

The dependent variable is the poverty rate (Y), measured as the percentage of the population below the official poverty line. The main explanatory variable is the Special Autonomy Fund (X), measured in billion rupiah. Regional gross domestic product (GRDP; Z_1) is measured in billion rupiah, and income inequality (Z_2) is measured using the district/city Gini Ratio. Moderation is represented by the interaction terms $X \times Z_1$ and $X \times Z_2$. These variables are administrative macroeconomic indicators rather than latent constructs measured with multi-item questionnaires; consequently, Cronbach's alpha and factor loadings are not applicable. Reliability and validity were addressed by using official DJPK/BPS definitions, checking year-to-year completeness, verifying unit consistency, and cross-checking aggregated values against the source series before estimation.

Quantitative Analysis

The quantitative model is specified as $Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{1it} + \beta_3 Z_{2it} + \beta_4 (X_{it} \times Z_{1it}) + \beta_5 (X_{it} \times Z_{2it}) + \mu_i + \varepsilon_{it}$, where μ_i captures time-invariant district/city effects. Main variables were mean-centered before forming interaction terms to reduce non-essential multicollinearity. Model selection began with the Chow test for pooled versus fixed effects. The Hausman test could not be estimated reliably because the number of cross-sections was smaller than the parameterization required by the moderation model; this limitation is reported explicitly, and the Fixed Effects specification is retained on the basis of the Chow result and the study's focus on controlling for time-invariant differences across the five jurisdictions. Diagnostics include residual normality (Jarque–Bera), heteroskedasticity (Glejser), multicollinearity (centered VIF), and residual serial-correlation screening using the Durbin–Watson statistic. The primary significance threshold is $\alpha = .05$; p -values between .05 and .10 are reported only as marginal/exploratory evidence.

Qualitative Content Analysis and Mixed-Methods Integration

The qualitative corpus consists of sources relevant to the interpretation of Special Autonomy Fund implementation, including peer-reviewed empirical studies, official government and policy documents, audit reports, and authoritative contextual sources. Documents were included when they addressed at least one of the following: budget allocation, poverty outcomes, governance and supervision, regional inequality, indigenous participation, or socio-cultural implementation in Papua or comparable special-autonomy settings. Analysis proceeded through repeated reading, open coding of explanatory statements, grouping of codes into categories, comparison across source types, and refinement into higher-order themes. Credibility was strengthened through source triangulation: a theme was retained when it was supported by more than one type of source or was consistent with an independently observed quantitative pattern. Integration occurred at the interpretation stage by connecting the direction and uncertainty of the panel estimates with the qualitative themes; qualitative evidence was used to explain plausible mechanisms, not to convert correlational estimates into causal claims.

Results and Discussions

Description of Research Variables

Economic and Social Well-Being

The economic and social welfare of a region can be seen from two main aspects, namely the increase in the Gross Regional Domestic Product (GDP) and the reduction of poverty and income inequality. GDP describes the total added value generated by all economic sectors in a region, as well as an indicator of economic performance and regional competitiveness. Meanwhile, poverty indicators (number of poor people and poverty levels) and income inequality (Gini Ratio) provide an overview of the extent to which development results are enjoyed equally by all levels of society. The following are explained one by one the conditions of economic and social welfare in the Mamta Region based on the two macro indicators.

The descriptive tables in this section use 2021–2024 as a common recent window for presenting comparable GRDP, poverty, Gini Ratio, APBD, and Special Autonomy Fund profiles across the five jurisdictions. These four-year summaries are descriptive and are not treated as independent-sample tests of temporal change. Statistical inference about the study relationships is based on the full balanced 2016–2024 panel (45 region-year observations) reported in the regression section. Accordingly, no separate t-test or ANOVA is used to infer significance from the four annual aggregate points; the Fixed Effects panel model provides the inferential framework.

Gross Regional Domestic Product (GDP) is the main indicator that describes the economic performance of a region through the total added value generated by all production sectors in a given period. GDP reflects the amount of economic output that can be used to meet people's consumption, investment, and export needs. The higher the value of GDP, the greater the regional economic capacity in providing jobs, increasing income, and funding public services. The development of GDP for the Mamta Customary Territory (the sum of 5 regions) can be seen in detail in the following analysis.

Overall, Mamta's total GDP increased from IDR 37,852.96 billion in 2021 to IDR 42,321.24 billion in 2024, but the growth rate tends to slow down from 3.97 percent to 3.64 percent, see Table 1 for more details below.

Table 1. GDP by Expenditure ADHK 2010 Detailed by Expenditure Components in the Mamta Customary Territory in 2021-2024

Production Components	2021	2022	2023	2024
Household Consumption	17.273,99	18.183,63	18.781,78	19.504,86
LNPRC Consumption	1.875,60	1.976,48	2.111,20	2.381,19
Government Consumption	12.829,56	12.989,99	13.302,70	13.523,82
Gross Fixed Capital Formation	15.097,04	15.462,27	15.870,46	16.194,74
Inventory Changes	24,41	-107,41	1.100,73	251,21
Export of Goods and Services	18.985,21	18.859,98	18.566,33	19.107,23
Export of Goods and Services	28.232,86	28.010,80	28.898,63	28.641,80
Total PDRB Mamta	37.852,96	39.354,15	40.834,57	42.321,24

Source: BPS Papua Province (dynamic tables; retrieved 2026) (data processed)

The household consumption component appears to have increased from 17,273.99 billion rupiah to 19,504.86 billion rupiah, so it remains one of the main drivers of the regional economy. In addition to household consumption, government consumption and gross fixed capital formation also increased. Government consumption increased from 12,829.56 billion rupiah to 13,523.82 billion rupiah, while PMTB increased from 15,097.04 billion rupiah to 16,194.74 billion rupiah. However, imports of goods and services also remain high, namely 28,641.80 billion rupiah in 2024. This condition shows that Mamta's economic growth still needs to be strengthened through increasing local production capacity so that it is not too dependent on supply from outside the region.

The following table 2 presents Mamta's GDP growth which is positive, but tends to slow down. Total GDP grew by 3.97 percent in 2022, fell to 3.76 percent in 2023, and slowed down again to 3.64 percent in 2024.

Table 2. GDP Growth Rate in the Mamta Customary Territory in 2022-2024

Production Components	2022	2023	2024	Average
Household Consumption	5,27	3,29	3,85	4,14
LNPRC Consumption	5,38	6,82	12,79	8,33

Production Components	2022	2023	2024	Average
Government Consumption	1,25	2,41	1,66	1,77
Gross Fixed Capital Formation	2,42	2,64	2,04	2,37
Inventory Changes	-540,03	-1,124,76	-77,18	-580,65
Export of Goods and Services	-0,66	-1,56	2,91	0,23
Import of Goods and Services	-0,79	3,17	-0,89	0,50
Total PDRB Mamta	3,97	3,76	3,64	3,79

Source: BPS Papua Province, 2026 (data processed)

Table 2 also shows an average growth during the 2022–2024 period of 3.79 percent. This shows that the economy of Mamta is still growing, but it needs a stronger boost from productive sectors. The component with the highest average growth is LNPRT consumption of 8.33 percent, followed by household consumption of 4.14 percent. Meanwhile, PMTB grew by an average of 2.37 percent and government consumption by 1.77 percent. Exports of goods and services only grew by an average of 0.23 percent, indicating that export impetus is still weak. Therefore, economic policies need to be directed at increasing productive investment, strengthening local leading sectors, and expanding the production of competitive goods and services.

Furthermore, if you look at the expenditure structure, Mamta's GDP is still dominated by household consumption and exports. Household consumption has an average contribution of 45.98 percent per year during the 2021-2024 period, while the export component reaches 47.17 percent per year. This shows that public consumption and export trade are the main supports of economic activities in the Mamta Customary Territory.

Table 3. GDP Structure by Expenditure Components in the Mamta Customary Territory in 2021-2024

Production Components	2021	2022	2023	2024	Average
Production Components	45,63	46,21	45,99	46,09	45,98
LNPRT Consumption	4,95	5,02	5,17	5,63	5,19
Government Consumption	33,89	33,01	32,58	31,96	32,86
Gross Fixed Capital Formation	39,88	39,29	38,87	38,27	39,08
Inventory Changes	0,06	-0,27	2,70	0,59	0,77
Export of Goods and Services	50,16	47,92	45,47	45,15	47,17
Export of Goods and Services	-74,59	-71,18	-70,77	-67,68	-71,05
Total PDRB Mamta	100,00	100,00	100,00	100,00	100,00

Source: BPS Papua Province, 2026 (data processed)

However, the data in Table 3 shows that imports of goods and services contribute negatively on average -71.05 percent to Mamta's GDP, because in the expenditure approach, imports function as a reducer (not domestic production). The large amount of imports reflects Mamta's high dependence on supply from outside the region. Although exports recorded an average portion of 47.17 percent, the much larger value of imports caused the trade balance to always be in deficit, so that economic leakage was not closed.

The following data shows that the distribution of Mamta's GDP is highly concentrated in Jayapura City, which reached 60.45 percent during the 2021-2024 period. Jayapura Regency is in second place with an average contribution of 26.68 percent. Thus, more than 87 percent of Mamta's economic activities are concentrated in these two regions.

Table 4. Distribution of Regency/City GDP in the Mamta Customary Territory in 2021-2024

Regency/City	2021	2022	2023	2024	Average
Jayapura	26,70	26,88	26,55	26,59	26,68
Sarmi	4,90	4,84	4,84	4,86	4,86
Keerom	5,41	5,35	5,26	5,24	5,31
Mamberamo Raya	2,72	2,70	2,68	2,69	2,70
Jayapura City	60,28	60,23	60,67	60,62	60,45
Total Mamta	100,00	100,00	100,00	100,00	100,00

Meanwhile, Keerom only contributed an average of 5.31 percent, Sarmi 4.86 percent, and Mamberamo Raya 2.70 percent. This inequality shows that the center of economic growth in Mamta is still not evenly distributed. Therefore, regional economic development needs to encourage the strengthening of districts with

small contributions through increasing connectivity, developing leading sectors, expanding investment, and empowering the local community.

One of the most important indicators of social welfare is poverty, which can be measured through the poverty level or P0 (the percentage of the poor population to the total population). Table 5 below explains the development of poverty rates in the Mamta Region.

Table 5. Poverty Rate of Regencies/Cities in the Mamta Customary Territory in 2021-2024

Regency/City	2021	2022	2023	2024
Jayapura	12,13	11,94	11,45	11,60
Sarmi	13,84	13,76	13,21	14,05
Keerom	16,00	15,77	15,68	15,84
Mamberamo Raya	28,78	30,73	29,63	30,29
Jayapura City	11,39	11,12	10,50	10,72
Mamta	16,43	16,66	16,09	16,50
Papua Province	26,86	26,56	26,03	17,26

Table 5 shows that Mamta's aggregate poverty rate fluctuated from 16.43% in 2021 to 16.50% in 2024, after reaching 16.09% in 2023. In 2024, this aggregate rate was slightly below the Papua Province figure reported in the same table (17.26%), but substantial internal disparities remained. Mamberamo Raya recorded 30.29%, compared with 15.84% in Keerom, 14.05% in Sarmi, 11.60% in Jayapura Regency, and 10.72% in Jayapura City. The provincial comparison is used as a benchmark rather than as a causal control group. The within-Mamta spread indicates that an aggregate regional average can conceal persistent pockets of high poverty, especially in less accessible jurisdictions.

In addition to absolute poverty, social welfare also needs to be studied through relative poverty as measured by the Gini Ratio. The following table 6 shows that the Gini Ratio fluctuated from 0.356 in 2021 to 0.367 in 2024. The increase in the last year shows that inequality in people's income or expenditure has increased again. Although it is still in the category of moderate inequality, this condition still needs attention because it can hinder the equitable distribution of development results.

Table 6. Gini Ratio Income Inequality by Regency/City in the Mamta Customary Territory in 2021-2024

Regency/City	2021	2022	2023	2024
Jayapura	0,378	0,398	0,369	0,362
Sarmi	0,409	0,387	0,372	0,372
Keerom	0,393	0,407	0,381	0,414
Mamberamo Raya	0,324	0,330	0,350	0,394
Jayapura City	0,276	0,336	0,320	0,293
Mamta	0,356	0,372	0,358	0,367
Papua Province	0,397	0,406	0,386	0,362

In 2024, Keerom recorded the highest Gini Ratio among the five Mamta jurisdictions (0.414), followed by Mamberamo Raya (0.394), while Jayapura City recorded the lowest value (0.293). Mamta's aggregate Gini Ratio was 0.367, slightly above the Papua Province benchmark of 0.362 shown in Table 6. These descriptive differences reinforce the need to distinguish economic expansion from distributional inclusion: the direction of the inequality–poverty relationship is tested formally in the panel regression rather than inferred from the descriptive table alone.

Regional Finance and Papua Special Autonomy Fund

Regional finance is a reflection of a region's fiscal capacity in financing development and public services. In the Mamta Region, regional finance can be presented through two main aspects, namely the development of the APBD (Regional Revenue and Expenditure Budget) which describes the total regional revenue and expenditure, and the Papua Special Autonomy Fund which is an affirmative transfer from the central government as a form of commitment to accelerate the development of the welfare of the indigenous Papuan community.

Table 7. Regional Revenue and Expenditure Budget Detailed by Regency/City in the Mamta Customary Territory

Region/Account	2021	2022	2023	2024
Jayapura Regency				
Regional Revenue	1.248,44	1.333,26	1.455,46	1.557,80
Regional Spending	1.466,64	1.425,07	1.452,16	1.553,90
Regional Financing	327,69	137,44	3,30	3,90
Total APBD	3.042,77	2.895,76	2.910,93	3.115,60
Sarmi Regency				
Regional Revenue	983,80	1.025,31	1.070,81	1.088,13
Regional Spending	998,13	1.020,31	1.088,40	1.105,90
Regional Financing	14,34	5,00	27,59	21,78
Total APBD	1.996,27	2.050,62	2.186,79	2.215,81
Keerom Regency				
Regional Revenue	864,46	917,66	930,91	966,70
Regional Spending	814,46	895,66	922,91	966,70
Regional Financing	50,00	22,00	8,00	0,00
Total APBD	1.728,93	1.835,31	1.861,83	1.933,39
Mamberamo Raya Regency				
Regional Revenue	1.010,29	1.095,28	1.142,74	1.111,16
Regional Spending	980,29	1.081,78	1.156,93	1.117,59
Regional Financing	290,00	13,50	14,19	6,42
Total APBD	2.280,57	2.190,56	2.313,85	2.235,18
Jayapura City				
Regional Revenue	1.269,74	1.315,55	1.521,72	1.619,18
Regional Spending	1.282,69	1.337,14	1.549,75	1.698,84
Regional Financing	36,95	34,26	40,70	92,33
Total APBD	2.589,38	2.686,96	3.112,17	3.410,34

Source: DJPK RI, 2026 (data processed)

If observed partially in the district/city area, Table 7 above shows that the regency/city APBD in the Mamta Customary Territory generally increased during the 2021–2024 period. Jayapura City has the largest total APBD in 2024, which is 3,410.34 billion rupiah, followed by Jayapura Regency of 3,115.60 billion rupiah. The increase in the APBD in these two regions is in line with its role as a center for services, government, and economic activities. Meanwhile, Sarmi, Keerom, and Mamberamo Raya have smaller APBD scales, although they still show increases or fluctuations. Keerom has a total APBD of 1,933.39 billion rupiah in 2024, while Mamberamo Raya is 2,235.18 billion rupiah.

Because the APBD of each district/city is known, the Mamta Regional Budget can be determined through the sum of all APBD values in each district/city, so that the aggregate APBD is obtained. The following are the details of the Mamta Regional Budget in question.

Table 8. Details of the Regional Revenue and Expenditure Budget of the Mamta Customary Territory

Account	2021	2022	2023	2024
4. REGIONAL REVENUE	5.376,73	5.687,05	6.121,64	6.342,96
41. PAD	438,12	517,32	430,71	448,88
42. Transfer Income	4.913,18	5.080,61	5.461,08	5.820,00
43. Other Legitimate Regional Revenue	25,43	89,13	229,85	74,09
43. Other Income	0,00	0,00	0,00	0,00
5. REGIONAL SHOPPING	5.542,21	5.759,96	6.170,15	6.442,92
51. Operating Expenses	3.757,22	3.879,72	4.252,43	4.662,13
52. Capital Expenditure	929,59	1.008,89	1.155,00	1.018,88
53. Unexpected Shopping	48,14	117,46	49,18	31,50
54. Shopping Transfer	807,26	753,87	713,55	730,41
6. REGIONAL FINANCING	718,98	212,20	93,78	124,43
Total APBD	11.637,92	11.659,21	12.385,58	12.910,32

Source: DJPK RI, 2026 (data processed)

Based on Table 8 above, it can be seen that the total APBD of the Mamta Customary Region increased from 11,637.92 billion rupiah in 2021 to 12,910.32 billion rupiah in 2024. Likewise, Regional Revenue increased from 5,376.73 billion rupiah in 2021 to 6,342.96 billion rupiah in 2024, while regional expenditure increased from 5,542.21 billion rupiah to 6,442.92 billion rupiah. This increase shows an increase in fiscal capacity and financing needs for regional development.

However, the structure of the APBD is still dominated by balance funds or transfers. The proportion of transfers reached 91.38 percent in 2021, had dropped to 89.21 percent in 2023, but rose again to 91.76 percent in 2024. Meanwhile, the contribution of regional original revenue or PAD is still relatively small. In 2021, PAD only contributed 8.15 percent to total regional revenue. This figure had increased to 9.10 percent in 2022, but then decreased to 7.04 percent in 2023 and only slightly increased to 7.08 percent in 2024. The low contribution of PAD shows that the ability of regions to explore their own sources of revenue is still limited. This can be an indication that the regional tax base, regional levies, results of regional wealth management, and other sources of original income have not developed optimally.

Overall, Table 8 above shows that the regional revenue structure of the Mamta Customary Region is still not fiscally independent. The dominance of transfer revenue, which has always been in the range of 89 to 92 percent, shows that regional development financing is still highly dependent on fiscal support from the central government. Meanwhile, the contribution of PAD which is still below 10 percent shows the need for serious efforts to increase regional revenue independence.

As for the composition of regional spending, it can be seen that during the 2021-2024 period it was still dominated by operating expenditure. As presented in Table 4.23, the contribution of operating expenditure to total regional expenditure was recorded at 67.79 percent in 2021, although it decreased to 67.36 percent in 2022, but in 2023 it increased again to 68.92 percent, and increased even more to 72.36 percent in 2024.

Table 9. Regional Expenditure Structure of the Mamta Customary Territory in 2021-2024

Account	2021	2022	2023	2024
Operating Expenses	67,79	67,36	68,92	72,36
Capital Expenditure	16,77	17,52	18,72	15,81
Unexpected Shopping	0,87	2,04	0,80	0,49
Shopping Transfer	14,57	13,09	11,56	11,34
Total Regional Expenditure	100,00	100,00	100,00	100,00

Source: DJPK RI, 2026 (data processed)

Meanwhile, capital expenditure has a much smaller proportion than operating expenditure, with a contribution of 16.77% in 2021, increasing to 18.72% in 2023, but falling back to 15.81% in 2024. This decline needs to be a concern because capital expenditure plays an important role in infrastructure development, the provision of public facilities, and the strengthening of basic services, so if it continues to decline, the ability to encourage physical development and long-term economic growth may be limited. Unexpected expenditures have a small proportion and fluctuate, from 0.87% in 2021 to 2.04% in 2022, then to 0.49% in 2024, reflecting their use for emergency or unexpected needs. As for transfer spending, it shows a downward trend from 14.57% in 2021 to 11.34% in 2024, this condition needs to be observed because transfer spending plays a role in supporting development at the village level and equitable distribution between regions.

The next important regional financial profile to be submitted is the allocation of the Papua Special Autonomy Fund received by each district/city in the Mamta Region during the 2021–2024 period. The Special Autonomy Fund is an affirmative transfer from the central government which is allocated specifically for accelerating the development of the welfare of the Papuan Indigenous people (OAP) in the fields of education, health, economic empowerment, and basic infrastructure.

Table 10. Detailed Allocation of Papua Special Autonomy Fund by Regency/City in the Mamta Customary Territory for 2021-2024

Kabupaten/Kota	2021	2022	2023	2024	Total	Rata-rata
Jayapura	46,07	117,17	177,10	210,12	550,46	137,61
Sarmi	44,40	116,36	132,96	130,49	424,22	106,06
Keerom	29,02	108,63	114,80	93,47	345,92	86,48
Mamberamo Raya	59,07	128,20	174,38	158,59	520,25	130,06

Jayapura City	31,87	117,69	169,38	181,33	500,27	125,07
Total Mamta	210,43	588,05	768,63	774,01	2.341,12	585,28

Source: BPKAD Papua Province, 2025 (data processed)

Table 10 above shows that the allocation of the Papua Special Autonomy Fund for the Mamta Region increased sharply from 210.43 billion rupiah in 2021 to 774.01 billion rupiah in 2024. The total allocation during the 2021-2024 period reached 2,341.12 billion rupiah, with an average of 585.28 billion rupiah per year. This increase shows the increasing fiscal support of Special Autonomy for development in Mamta. Jayapura Regency received the largest total allocation, which was 550.46 billion rupiah, followed by Mamberamo Raya of 520.25 billion rupiah and Jayapura City of 500.27 billion rupiah. Keerom received the smallest total allocation of 345.92 billion rupiah.

So far, on average, Mamberamo Raya has obtained the largest proportion, namely 23.26 percent per year throughout 2021-2024, followed by Jayapura Regency at 23.00 percent and Jayapura City at 20.16 percent. Sarmi received an average of 18.76 percent, while Keerom received the lowest proportion of 14.82 percent.

Table 11. Distribution of Papua Special Autonomy Fund in Detail by Regency/City in the Mamta Customary Territory for 2021-2024

Regency/City	2021	2022	2023	2024	Average
Jayapura	21,89	19,92	23,04	27,15	23,00
Sarmi	21,10	19,79	17,30	16,86	18,76
Keerom	13,79	18,47	14,94	12,08	14,82
Mamberamo Raya	28,07	21,80	22,69	20,49	23,26
Jayapura City	15,15	20,01	22,04	23,43	20,16
Total Mamta	100,00	100,00	100,00	100,00	100,00

However, developments between years show changes in distribution patterns. Jayapura Regency experienced an increase in proportion from 21.89% in 2021 to 27.15% in 2024, while Sarmi and Keerom tended to decrease at the end of the period. This change in proportion needs to be further analyzed in relation to the real needs of each region, especially for areas with high poverty rates, difficult access, and limited basic services that require greater attention so that the Special Autonomy Fund truly supports the equitable distribution of development and the welfare of the OAP community.

Statistical Analysis

This statistical analysis includes a series of statistical procedures starting with a data panel model test to determine the most appropriate estimation approach, followed by a classical assumption test to ensure that the model used meets the Best Linear Unbiased Estimator (BLUE) criteria, and ends with a data panel regression analysis that simultaneously answers the research hypothesis regarding the influence of the Special Autonomy Fund on the level of poverty with regional income and Gini inequality as a moderation variable in the Mamta Indigenous Territory.

Test Data Panel Model

The data panel model test is carried out through three stages, namely the Chow Test to choose between the Common Effect and Fixed Effect models, the Hausman Test to choose between the Fixed Effect and Random Effect models, and the Lagrange Multiplier Test to choose between the Common Effect and Random Effect models, all of which aim to identify the estimation model that best matches the characteristics of the panel data used

Chow Test

The Chow test is a statistical test used in panel data analysis to determine whether the most appropriate model to use is the Common Effect (CEM) or Fixed Effect (FEM) model, where this test is based on a statistical hypothesis:

H_0 : Model Common Effect

H_1 : Model Fixed Effect

With the criteria, if the probability value (p-value) of the F test or the Chi-square test is less than the significance level ($\alpha = 0.05$), then the Common Effect model is rejected and the Fixed Effect model is selected, which means that there is a difference in interception between individuals (cross-section) so that the use of individual effects becomes significant.

Table 12. Data Panel Chow Test

Redundant Fixed Effects Tests			
Equation: EQ01			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	973.4461	(4,35)	0.0000
Cross-section Chi-square	212.4332	4	0.0000

Based on Table 12 above, the results of the Chow Test showed a Cross-section value of F of 973.4461 with a probability of 0.0000 and a Cross-section of Chi-square of 212.4332 with a probability of 0.0000, where the two probability values were much smaller than the significance level of 0.05, so it was decided to reject H_0 stating that the Common Effect model was more precise. Thus, these results indicate that there are significant differences in interceptions between districts/cities in the Mamta Customary Area, so that the Fixed Effect model is more suitable to be used than the Common Effect model because the characteristics of each region are specific and cannot be generalized in the same intercept, which means that each district/city has different initial conditions or poverty level baseline that cannot be explained by independent variables in the model.

Hausman Test

In the analysis of this panel data model, the Hausman Test could not be carried out because the number of *cross sections* used was only 5 regions in accordance with the scope of the Mamta Customary Territory (Jayapura Regency, Keerom, Sarimi, Mamberamo Raya, and Jayapura City), which was smaller than the estimated coefficient of 6 coefficients (including constants, Special Autonomy Fund, GDP, Gini ratio, and two interaction variables), so that technically the estimation of the covariance matrix could not be calculated properly due to insufficient freedom to perform the Hausman test. Because the Hausman Test could not be carried out, the final decision referred to the results of the Chow Test while still using the Fixed Effect model as the most appropriate estimation approach for the data of this research panel. This also indicates that the Lagrange Multiplier Test is no longer needed in the determination of panel data models.

Classic Assumption Test

After the panel data model is selected, the classic assumption test is then carried out which includes a normality test to ensure the residual of the model is distributed normally, a homoscedasticity test to ensure the absence of heteroscedasticity, a multicollinearity test to detect a high correlation between independent variables, and an autocorrelation test to ensure that there is no correlation between residuals in the model. One by one, the results of these classic assumptions test can be presented as follows.

Normality Distribution Test

The normality distribution test is a classical assumption test that aims to find out whether the residual or error of the regression model is normally distributed or not, where this test is important because one of the conditions in the least squared method (OLS) is that the residual must follow the normal distribution in order for the parameter significance test to be valid.

In this study, the normality test uses Jarque-Bera (JB) statistics with hypotheses, with the statistical hypotheses tested:

- H_0 : The model follows a normal distribution
 H_1 : The model does not follow the normal distribution

With criteria: H_0 accepted if $p\text{-value} \geq \alpha$, On the other hand H_0 Rejected if $p\text{-value} < \alpha$.

Tabel 13. Uji Distribusi Normal Model Panel Data

Series: Standardized Residuals	
Sample 2016 2024	
Observations 45	
Mean	1.23E-16
Median	-0.041104
Maximum	0.949423
Minimum	-0.757420
Std. Dev.	0.434353
Skewness	0.197584
Kurtosis	2.400475
Jarque-Bera	0.966727
Probability	0.616706

Based on Table 13 which presents the results of the normality test, the Jarque-Bera statistical value obtained is 0.966727 with a probability value (p-value) of 0.616706, where the p-value is much greater than the significance level of $\alpha = 0.05$, so it is decided to accept H_0 which means that the regression model follows the normal distribution. Thus, the data panel regression model in this study meets the residual normality assumption, so that the results of hypothesis testing and statistical inference produced are reliable and statistically valid.

Homoskedasticity Test

The homoscedasticity test is a classical assumption test that aims to find out whether the variance of the residual in the regression model is constant (homoscedasticity) or not (heteroscedasticity), where this assumption is important because if heteroscedasticity occurs, the resulting estimator remains unbiased but becomes inefficient so that the parameter significance test becomes invalid. In this study, the homoscedasticity test uses the Glejser test which regresses the residual absolute value to all independent variables in the model:

$$ABS_RES = b_0 + b_1 X + b_2 Z_1 + b_3 Z_2 + b_4 Z_1X + b_5 Z_2X$$

With the statistical hypothesis tested are:

H_0 : there is no heteroscedasticity, or there is homocedasticity

H_1 : heteroscedasticity occurs, or there is no homocedasticity

Criteria: H_0 accepted if p-value $\geq \alpha$, On the other hand H_0 Rejected if p-value $< \alpha$.

Table 14. Homoskedasticity Test Data Panel Model

Dependent Variable: ABS_RES				
Method: Panel Least Squares				
Date: 07/01/26 Time: 16:56				
Sample: 2016 2024				
Periods included: 9				
Cross-sections included: 5				
Total panel (balanced) observations: 45				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.9450	0.6803	1.3891	0.1736
X	-0.0072	0.0050	-1.4293	0.1618
Z1	0.0000	0.0000	0.2255	0.8229
Z1X	0.0000	0.0000	-0.0123	0.9903
Z2	-2.6240	1.4808	-1.7720	0.0851
Z2X	0.0269	0.0129	2.0870	0.0442

Table 14 provides mixed evidence on homoskedasticity. The Glejser p-values for X (0.1618), Z_1 (0.8229), $Z_1 \times X$ (0.9903), and Z_2 (0.0851) are above .05, whereas the $Z_2 \times X$ interaction has $p = .0442$. Therefore, the null of constant residual variance cannot be treated as uniformly satisfied across all regressors. This result indicates a potential heteroskedasticity concern associated with the inequality interaction term. The coefficient directions are retained for substantive interpretation, but conventional standard errors and borderline p-values—especially for interaction terms—should be interpreted cautiously. A replication using heteroskedasticity-robust or district-clustered standard errors would provide a stronger sensitivity check.

Multicollinearity Test

In a moderation model involving interaction variables, the presence of interaction variables (XZ_1 and XZ_2) naturally creates high multicollinearity between the main independent variable and its interaction product called non-essential multicollinearity. To overcome this problem, *mean-centering* is carried out on the independent variable before forming the interaction variable, namely by subtracting each variable value by its average value, so that the Variance Inflation Factor (VIF) value used to detect the level of multicollinearity is obtained, which can be described as follows.

The following table 15 presents the results of the multicollinearity test after *mean-centering* shows that all independent variables have relatively low centered VIF values, namely X of 1.1019, Z_1 of 1.2467, Z_2 of 1.4060, Z_1X of 1.4270, and Z_2X of 1.5880, where all of these VIF values are well below the required threshold of less than 10 (or even less than 5 for more stringent models).

Table 15. Multicollinearity Test of Panel Data Model in Mean-centering Values

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.5424	1.0179	
X _c	0.0002	1.1019	1.1019
Z1 _c	0.0000	1.2467	1.2467
Z2 _c	237.2436	1.4060	1.4060
Z1 _c *X _c	0.0000	1.4506	1.4270
Z2 _c *X _c	0.0834	1.5956	1.5880

Note: This VIF measurement uses a variable value in the form of mean-centering, with the formula:

- $\bar{X}X_c = X - \text{mean}(X)$
- $\bar{Z}_1 Z1_c = Z1 - \text{mean}(Z1)$
- $\bar{Z}_2 Z2_c = Z2 - \text{mean}(Z2)$

This result indicates that there is no serious multicollinearity between independent variables after *mean-centering*, because the VIF value close to 1 indicates that each independent variable is not strongly correlated with each other. Thus, the data panel regression model in this study is free from the problem of multicollinearity, so that the estimated regression coefficient is stable and reliable for the purposes of interpretation and hypothesis testing.

Autocorrelation Test

The autocorrelation test uses the Durbin-Watson (DW) test, with the statistical hypothesis tested being:

- H₀: There is no positive or negative autocorrelation on the residual model
H₁: There is a positive or negative autocorrelation in the residual model

The estimated Durbin–Watson statistic is 1.7019, which is reasonably close to 2 and does not suggest strong first-order residual serial correlation. However, the Durbin–Watson statistic is only a screening measure and is not a definitive serial-correlation test for a short panel. A panel-specific procedure such as the Wooldridge test, together with cluster-robust standard errors, would provide a stronger diagnostic. Because those additional tests are not available in the reported estimation output, residual serial correlation cannot be ruled out completely and is acknowledged as a limitation.

Data Panel Regression Analysis

Before interpreting the results of the regression analysis of the data panel model that was formed, it is necessary to re-describe the formulation of the research hypothesis that is the basis for statistical testing in this study. Based on the formulation of the research problem, five working hypotheses to be tested have been determined, namely:

- H₁: The Special Autonomy Fund has a significant effect on the poverty level in the Mamta Customary Territory
H₂: Regional income has a significant effect on the poverty level in the Mamta Customary Territory
H₃: Income inequality has a significant effect on the poverty level in the Mamta Customary Territory
H₄: Regional Revenue (GDP) moderates the influence of the Special Autonomy Fund on the poverty level in the Mamta Customary Area
H₅: Gini inequality moderates the influence of the Special Autonomy Fund on poverty levels in the Mamta Customary Territory.

The hypotheses are evaluated from the sign, magnitude, and p-value of each regression coefficient. Statistical significance at $\alpha = .05$ is treated as the primary evidentiary threshold. Results with $.05 \leq p < .10$ are reported as marginal or exploratory evidence only and are not described as conventionally significant. The interaction coefficients indicate whether the association between the Special Autonomy Fund and poverty changes with GRDP or the Gini Ratio.

Table 16. Panel Data Model Regression Results

Dependent Variable: Y					
Method: Panel Least Squares					
Sample: 2016 2024					
Periods included: 9					
Cross-sections included: 5					
Total panel (balanced) observations: 45					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Verdict
C	15.0522	1.6827	8.9454	0.0000	Significant at 5% *
X	0.0289	0.0125	2.3160	0.0265	Significant at 5% *
Z ₁	-0.00021	0.0001	-2.0755	0.0454	Significant at 5% *
Z ₂	8.0866	3.6629	2.2077	0.0339	Significant at 5% *
Z ₁ X	-0.00000046	0.0000	-2.0008	0.0532	Marginal at 10% **
Z ₂ X	-0.0627	0.0319	-1.9688	0.0569	Marginal at 10% **
Effects Specification					
Cross-section fixed (dummy variables)					
R-squared	0.9959	Mean dependent var		16.7258	
Adjusted R-squared	0.9948	S.D. dependent var		6.7581	
S.E. of regression	0.4870	Akaike info criterion		1.5921	
Sum squared resid	8.3011	Schwarz criterion		1.9935	
Log likelihood	-25.8212	Hannan-Quinn criter.		1.7417	
F-statistic	937.5427	Durbin-Watson stat		1.7019	
Prob(F-statistic)	0.0000				

Description:

*) Statistically significant at $\alpha = .05$

**) Marginal/exploratory evidence at $\alpha = .10$; not significant at $\alpha = .05$

Y: Poverty Rate (%)

X: Special autonomy fund (Billions of Rupees)

Z₁: PDRB (billions of rupees)

Z₂: Gini Ratio (poin)

Z₁X: First interaction

Z₂X: Second interaction

The Fixed Effects model shows a very high within-sample explanatory fit, with R-squared = 0.9959 and adjusted R-squared = 0.9948. The joint F-statistic is 937.5427 ($p < .001$), indicating that the included regressors and fixed effects are jointly associated with variation in the observed poverty rate. Given the small panel and the inclusion of jurisdiction fixed effects, the high R-squared should not be interpreted as out-of-sample predictive accuracy or as evidence of causality; it describes fit within the observed 2016–2024 panel.

The Special Autonomy Fund coefficient is positive ($\beta = 0.0289$, $p = .0265$), providing evidence of a positive association between fund allocation and the poverty rate within the specified Fixed Effects model. Holding the other model terms constant, an additional IDR 1 billion in the fund is associated with an estimated 0.0289 percentage-point higher poverty rate. This direction is contrary to the policy objective of poverty reduction, but the observational design does not establish that larger fund allocations cause poverty to rise. Reverse targeting—where higher-poverty areas receive more funds—and omitted time-varying factors remain plausible alternative explanations.

GRDP (Z₁) has a negative coefficient ($\beta = -0.00021$, $p = .0454$), indicating a statistically significant negative association with poverty at the 5% level. Within the model, higher regional economic output is associated with a slightly lower poverty rate. The coefficient is small in unit terms because GRDP is measured in billion rupiah; substantive interpretation should therefore emphasize the direction and scale of realistic GRDP changes rather than a single-unit increment.

The Gini Ratio (Z₂) has a positive coefficient ($\beta = 8.0866$, $p = .0339$), indicating that greater income inequality is associated with higher poverty. A 0.1-point increase in the Gini Ratio corresponds to an estimated 0.8087 percentage-point higher poverty rate, conditional on the other model terms. This result is consistent with the descriptive evidence that economic gains are unevenly distributed across the Mamta jurisdictions.

The GRDP interaction term (X×Z₁) is negative ($\beta = -0.00000046$, $p = .0532$). Because this p-value is above .05 but below .10, the result is treated as marginal exploratory evidence rather than conventional

statistical significance. The negative sign suggests that the positive fund–poverty association becomes smaller at higher levels of GRDP, but the limited sample size and borderline p-value warrant cautious interpretation.

The inequality interaction term ($X \times Z_2$) is also negative ($\beta = -0.0627$, $p = .0569$) and is likewise marginal at the 10% level but not significant at the 5% level. The sign suggests that the estimated fund–poverty association varies with inequality, but this interaction should not be interpreted as firm evidence of a moderation effect. In addition, the Glejser diagnostic flags potential heteroskedasticity for this interaction, further strengthening the need for cautious interpretation and robustness checks.

Taken together, the regression results do not provide evidence that larger Special Autonomy Fund allocations are associated with lower poverty in the Mamta panel. Instead, the estimated main coefficient is positive, while GRDP is negatively associated with poverty and the Gini Ratio is positively associated with poverty. These patterns are consistent with concerns that the size of fiscal transfers alone may be insufficient when allocation quality, implementation capacity, spatial concentration of economic activity, and distributional inequality differ substantially across jurisdictions. However, these mechanisms are not identified causally by the panel regression and are examined only as plausible explanations in the qualitative phase.

The interaction estimates provide only weak evidence that regional economic capacity and inequality condition the relationship between the Special Autonomy Fund and poverty. Both interaction coefficients are negative but fall short of the 5% significance threshold. Accordingly, the study does not claim robust moderation; rather, the interaction results are treated as exploratory signals that motivate the qualitative examination of governance, allocation, inequality, and socio-cultural implementation.

Therefore, the quantitative phase supports a narrower conclusion: during 2016–2024, higher Special Autonomy Fund allocations were not associated with lower poverty after controlling for GRDP, inequality, and district/city fixed effects in the specified model. This finding should be read as an assessment of observed association rather than a causal estimate of program effectiveness. The subsequent mixed-methods interpretation evaluates whether documentary evidence on governance, targeting, participation, and local institutional fit can plausibly account for the observed pattern.

Comparative evidence helps place these estimates in context. The positive Special Autonomy Fund coefficient differs from Vidriza and Talmera (2022) and Monika (2018), which reported poverty-reducing relationships in Papua, but is closer to Budiratna and Qibthiyyah (2020), who found no sufficiently strong poverty association for Papua and Aceh, and to Ricardo et al. (2023), who found that the Special Autonomy Fund was not the significant poverty-reducing fiscal component in Aceh. Governance-oriented studies likewise report implementation and allocation problems in special-autonomy settings (Alfiday & Dewi, 2019; Putra & Amran, 2023; Angela & Nursadi, 2025). These differences indicate that transfer effectiveness is heterogeneous across periods, regions, specifications, and institutional settings rather than uniform.

Additional peer-reviewed evidence reinforces the need to distinguish fiscal resources from the institutional conditions that convert them into welfare gains. Using Indonesian panel data, Siburian (2022) reports a poverty-reducing association of fiscal decentralization after explicitly addressing endogeneity, while Siburian (2021) finds that decentralization is associated with lower regional fiscal disparity. Anggraeni et al. (2022) and Kartika et al. (2023) likewise report poverty-reduction roles for fiscal decentralization in Indonesian district-level settings, whereas Farida et al. (2021) show that decentralization in Eastern Indonesia has not automatically translated into stronger growth or lower development inequality. Internationally, Hussain et al. (2021) document a poverty-alleviation relationship in Pakistan, and Tang et al. (2024), using a rule-based transfer design and instrumental variables in the Philippines, find long-run income gains and poverty reductions from intergovernmental transfers. These stronger identification strategies underscore why the present Fixed Effects estimates should be interpreted as associations rather than causal effects. In Indonesia, Akita et al. (2021) show that equalization transfers affect fiscal disparities, while Agussalim et al. (2024), Purwanti (2024), Maurilla et al. (2022), Novianti and Panjaitan (2022), and Istiqomah and Floresti (2024) emphasize that growth, fiscal policy, and poverty outcomes are conditioned by inequality and regional heterogeneity. For Papua specifically, Hasibuan (2022), Reumi (2023), and Darus et al. (2024) identify governance, institutional capacity, participation, and inclusion as continuing challenges in the special-autonomy framework. Taken together, this literature is consistent with the mixed-method interpretation here: the magnitude of fiscal transfers alone is insufficient to establish effectiveness when allocation quality, inequality, governance, and local institutional fit vary across places.

The GRDP and inequality estimates are also consistent with a broader growth–distribution literature. Economic growth is generally associated with poverty reduction, although its magnitude depends on distribution and initial conditions (Akhmad et al., 2018; Balasubramanian et al., 2023; Henneh, 2023; Fauzia et al., 2025). The positive inequality–poverty relationship in this study is compatible with evidence that inequality can weaken the poverty-reducing capacity of growth and public spending (Touitou & Boudeghdegh, 2021; Affandi et al., 2025). Related Indonesian and regional studies emphasize that fiscal capacity, governance quality, and the composition of expenditure matter for whether growth and transfers translate into welfare improvement (Nurhayati, 2020; Harahap et al., 2022; Listia et al., 2026). Across these studies, the common implication is not that fiscal transfers are inherently ineffective, but that their observed association with poverty depends on allocation, institutions, economic structure, and distributional conditions.

Mix-Method Analysis

This analysis is the result of an integration between two research approaches used simultaneously, namely quantitative statistical analysis in the form of panel data regression with a Fixed Effect model and qualitative content analysis in the form of an in-depth study of various journal articles, *working papers*, official reports, authoritative books, and documented factual data. This *mixed methods approach* is applied with the principle of methodological triangulation, where numerical statistical findings are explained and interpreted through content analysis of academic and factual texts, so that a comprehensive understanding of the effectiveness of the Special Autonomy Fund in the Mamta Customary Territory is obtained.

The qualitative content analysis in this study was carried out through a systematic procedure that included repeated reading of all reference materials that included various empirical studies, authoritative books on Papuan Special Autonomy, published documented factual data, coding in each paragraph containing information about the effectiveness, obstacles, and determinants of the success of the Special Autonomy Fund, grouping the codes into thematic categories, and identifying major themes that explain the causal patterns behind the statistical findings.

Empirical Contradictions of Special Autonomy Funds: Between Policy Expectations and Implementation Reality in Mamta Customary Territories

The results of the panel data regression analysis in this study reveal a fact that is very interesting and contradictory to the expectations of the Special Autonomy policy. Statistically, the Special Autonomy Fund has a regression coefficient of 0.0289 with a significant probability value of 0.0265 at $\alpha = 0.05$. This finding means that every increase in the Special Autonomy Fund of 1 billion rupiah is actually followed by an increase in the poverty rate of 0.0289 percent in the Mamta Customary Territory during the 2016-2024 period. In other words, the Special Autonomy Fund has been proven to empirically increase poverty, not reduce it—a finding that is highly counterproductive to the mandate of Law Number 21 of 2001 and Law Number 2 of 2021 which targets the acceleration of development and improvement of the welfare of the Papuan people. These quantitative findings, which at first glance seem paradoxical, obtain an in-depth explanation through content analysis of various empirical studies, authoritative books, and published and documented government reports.

From the analysis of various references to the articles and documents of the report, two major conflicting narratives were identified regarding the effectiveness of the Special Autonomy Fund in reducing poverty in the Mamta Customary Area, which can be described as follows.

Optimism Structural

The first narrative is Structural Optimism which states that the Special Autonomy Fund is effective in reducing poverty. This argument is supported by quantitative evidence from various studies and official documents. Monika (2018) proves that "the Special Autonomy Fund, together with GDP, labor, and HDI, has a significant effect in reducing poverty in 29 districts/cities of Papua for the 2010-2016 period". As for Vidriza and Talmera (2022), "calculate its elasticity, where every additional 1 million rupiah of the Special Autonomy Fund is able to reduce 0.27 million poor people in Papua, both in the short and long term". The claim of the Government of Aceh (2019) also strengthens this narrative with data on the reduction of poverty in Aceh from 23.50 percent to 15.32 percent thanks to DOK. At its peak, the official document of the 2019-2023 Papua Provincial RPJMD (Papua Provincial Bappeda, 2020) firmly states that Special Autonomy "can be declared successful and able to reduce poverty levels, as evidenced by the drastic reduction in Papuan poverty from 54.75 percent in 1999 to 27.26 percent in 2017, as well as the acceleration of gap reduction faster than other regions, especially in the 2013-2017 period".

The Reality of Implementation

Although the narrative of optimism comes with encouraging macro data, the second narrative called the Implementation Reality Narrative actually dominates the findings of this study and is supported by the majority of studies and authoritative books reviewed.

The Implementation Reality Narrative does not deny the reduction in poverty rates, but highlights that the decline is very slow, uneven, and not proportional to the amount of funds that have been disbursed. For example, Tandean and Nurfai (2023) expressly state that although the total Papua Special Autonomy Fund that flows from 2002 to 2021 reached Rp114.65 trillion, its effectiveness is "still very limited due to unaccountable and transparent governance". They emphasized that the Special Autonomy Fund is not a simple problem, but "a complex issue involving legal aspects, policy implementation, and real impacts on community welfare". Furthermore, Malak (2012), as a native Papuan son and government practitioner, honestly admits that "there have been a number of failures in the implementation of Special Autonomy", especially when it is associated with the main objective of the policy, namely the welfare of indigenous peoples in the interior and mountains, and that "their welfare is still far from a decent standard". In fact, Malak (2012) presents the most ironic fact: "in 2002 when Special Autonomy was implemented, the poor population in Papua amounted to 984,000 people or 41.80 percent, but after a decade of Special Autonomy, there was an increase in the poor population by 33,870 people". This fact contradicts the optimistic narrative, as it shows that despite the decline in the percentage of poverty in aggregate, the absolute number of poor people in Papua is increasing—an indication that the growth of the poor population is faster than the efforts to alleviate it.

This Implementation Reality Narrative has four main pillars of argument that together explain why the Special Autonomy Fund fails to reduce poverty, and even tends to increase it, and these four pillars are consistently strengthened by the authoritative books analyzed in this study.

Pillar One: Budget Priority Errors

The ineffectiveness of the Special Autonomy Fund in reducing poverty is caused by incorrect budget allocation and not in accordance with the mandate of the law. Evidence from various sources shows that the Special Autonomy Fund is allocated more for infrastructure and operational spending, while the allocation for direct poverty alleviation programs is very small. Ricardo et al. (2023) found that "the average allocation for poverty alleviation programs is only 3.63 percent, while infrastructure gets a portion of 45.34 percent". Furthermore, Rahayu (2026) strengthens with the findings of the flypaper effect, where transfer funds actually encourage regional consumptive spending rather than increasing Regional Original Income. Meanwhile, Tandean and Nurfai (2023) as well as INDEF and Greetanpeace Indonesia (2022) consistently note that "the allocation for education and health is below the statutory mandate (30 percent and 15 percent), with average education spending only 13 percent and health 10 percent. As a result, the quality of Papuan human resources is very low, reflected in the average length of schooling of only 5.5-6 years, a literacy rate of 76.79 percent, and a life expectancy of 65 years—all well below the national average." In the Mamta Customary Area, the large fund of Rp1,077 billion per year is not balanced with targeting on productive sectors such as vocational education, people's economic empowerment, and basic health services in remote districts, so that the funds become an unproductive fiscal burden and do not touch the roots of poverty.

From a socio-cultural perspective, this budget priority error reflects a failure to understand the social structure of the indigenous people of Mamta. As described by Laras (2009), "people in the Mamta Region generally adhere to a patrilineal kinship system and live in very strong extended family ties, with cultural values such as mutual cooperation, deliberation, and respect for ancestors that are still highly upheld". Budget priorities that ignore the vocational education sector and people's economic empowerment mean ignoring the mechanisms of inheritance of knowledge and skills that have been going on through family and clan lines. Affandi (2025) in his research in Aceh found that "a strong patriarchal culture limits women's access to education and employment", and similar findings are relevant in Mamta where the patrilineal system can limit the access of certain groups to economic opportunities. As a result, funds that should be used to break the chain of intergenerational poverty through improving the quality of human resources actually flow to sectors that do not have a direct impact on building the capacity of indigenous peoples, so that the cycle of cultural poverty inherited from generation to generation continues.

Thus, the main proposition that can be drawn is that the Special Autonomy Fund will never be effective in reducing poverty in the Mamta Customary Territory as long as the budget priorities are not fundamentally changed. Increasing the allocation of funds without improving targeting in productive sectors, especially vocational education, basic health, and people's economic empowerment, will only repeat the same pattern,

namely: large funds flow into physical infrastructure, poverty remains high due to low quality of human resources, and inequality is widening in a more disciplined manner. Therefore, budget priority reform that directs the Special Autonomy Fund in a disciplined manner to sectors that have a direct impact on improving the quality of life of indigenous peoples is an absolute prerequisite for the effectiveness of the Special Autonomy policy in the future.

Second Pillar: Weak Governance and Supervision

The failure of the Special Autonomy Fund stems from weak governance, supervision, and accountability systems at all levels of government. Putra and Amran (2023) revealed that "the management of the Aceh DOK faces serious problems such as suboptimal budget distribution, weak transparency, and rampant budget abuse, caused by weak control systems, poor management, and low commitment of officials to follow up on audit findings". Meanwhile, Tandean and Nurfai (2023) explained the findings of BPK RI that have been repeated, such as "The HR Bureau does not yet have scholarship SOPs so it is not on target, repeated budgeting errors, late fines are not imposed, lack of work volume, and payment of the following year's activities using the current year's budget". A more worrying fact is that "eight districts in Papua received a Non-Expression Opinion opinion from BPK RI for five consecutive years", including Mamberamo Raya, which was caused by "the lack of competence of human resources at the district level in preparing accrual-based financial statements". This is strengthened by Sampurna et al. (2021) with the finding that out of "1,500 BPK recommendations, 35 percent have not been followed up, and identified three fundamental problems: incomplete regulations (grand design does not exist), weak MRP institutions (there is no Supervisory Committee), and incompetent human resources (placement of employees not in accordance with position analysis)".

The results of the evaluation of the management of the Papua Special Autonomy Fund for the period 2013-2016 (Bappeda Papua Province, 2016) further strengthen the findings of weak governance by revealing nine strategic issues that are the root of the problem. "First, the direct benefits for the Papuan Indigenous People are still low, only 37.87% of activities are estimated to be beneficial, and the realization of SKPD is only 24.43%. Second, performance indicators have not touched the outcome and impact, so the public doubts the impact of Special Autonomy. Third, immature planning, many activities without clear locations due to lack of data and field discussions. Fourth, sanctions against negligent Technical Implementation Officials of Activities are not enforced. Fifth, some regions do not understand the rules of the Special Autonomy Fund. Sixth, delays in implementation occur due to late disbursement, budget revisions, difficult access, raw material constraints, and slow accountability. Seventh, low transparency, the majority of residents do not know the benefits they receive from Special Autonomy. Eighth, management has not built public trust in the government and themselves. Ninth, the central elite still assesses that the low achievement of Special Autonomy is due to the unprofessionalism of the local government, not because of systematic".

This governance has a deep cultural dimension, as explained by Soeprapto (2012), "The Mamta region has an Ondoafi traditional leadership system that is inherited from generation to generation, where leadership rotation is carried out by inheritance to the descendants of the Clan leader". This system has a different accountability and internal oversight mechanism than the modern bureaucratic system. When a weak and non-transparent government bureaucratic system is faced with a society that has a strong customary oversight system but is not involved, there is an accountability gap that further exacerbates governance failures. Furthermore, as stated by Racelis and Guevara (2003), "social exclusion occurs when state institutions fail to protect the rights of poor groups or even actively treat them unfairly". In Mamta, this exclusion occurs in the form of bureaucrats' inability to understand and accommodate the customary leadership system in the management of public funds, resulting in indigenous peoples losing their sense of ownership and control over development programs that should be allocated to them. As a result, public trust in the government continues to erode, as noted by Malak (2012), and when trust is eroded, even substantially good programs are difficult to achieve their goals at the grassroots level.

The main proposition that emerges from the analysis of the Second Pillar is that the failure of the Special Autonomy Fund in reducing poverty in the Mamta Customary Territory is not caused by a lack of fund allocation, but by weak governance and systemic oversight at all levels of government. Evidence from various authoritative sources shows that large funds (an average of Rp1,077 billion per year) are not balanced with a quality planning, implementation, and supervision system, so that the benefits do not reach the poor in the interior. This systemic failure is reflected in the increase in poverty in Mamberamo Raya Regency from 29.52 percent (2016) to 30.29 percent (2024), while other districts have experienced a very slow decline.

The Third Pillar: Ineffectiveness of Special Autonomy Funds Compared to Participatory Mechanisms

The Special Autonomy Fund is significantly less effective than more participatory and community-based distribution mechanisms, such as the Village Fund, because centralized and less accountable Special Autonomy management fails to involve indigenous peoples in planning, implementation, and supervision. In this case, Silaban (2025) in West Papua proves that "the Village Fund significantly reduces poverty with an elasticity of -0.006 percentage points per Rp1 billion and reduces 9 poor people, while the Special Autonomy Fund has not been proven to have a significant effect on both poverty indicators". Meanwhile, Tandean and Nurfa (2023) noted that "the average absorption of the Special Autonomy Fund is only 91 percent, and the Additional Infrastructure Fund is only 82 percent, which indicates planning and implementation constraints due to limited human resource capacity and convoluted bureaucracy". Furthermore, Malak (2012) highlighted that "public trust in the government has decreased significantly, and when trust is eroded, even substantially good programs are difficult to achieve their goals". These findings show that the effectiveness of fiscal transfers is largely determined by the extent to which the community is involved and trusted. The failure of Special Autonomy lies in a top-down approach that ignores local participation and wisdom, while the Village Fund with a bottom-up approach has proven to be more effective because the community has a sense of ownership and control over the programs implemented. In the Mamta Customary Area, this condition is exacerbated by extreme fluctuations in fund receipts and unequal distribution, which further reduces public trust in the management of Special Autonomy Funds and hinders the effectiveness of sustainable poverty alleviation programs.

The superiority of the Village Fund over the Special Autonomy Fund can be explained through the concept of social capital put forward by Amalia (2015) that "social capital consisting of beliefs, norms, and social networks has the ability to facilitate productive collective actions". The bottom-up approach of the Village Fund allows communities to utilize their social capital, including the system of mutual cooperation and deliberation that is still upheld in Mamta, in the planning and implementation of programs. In contrast, the top-down approach of Special Autonomy ignores this social capital and replaces it with a rigid and centralized bureaucracy. As explained by Widayatsari (2016) in his research in Gunung Kidul, "the poor actually have complex survival strategies and strong value systems that allow them to survive in difficult conditions". However, when government programs do not respect and utilize these value systems and social capital, they lose their legitimacy and effectiveness. In Mamta, cultural values such as mutual cooperation, deliberation, and respect for ancestors (Laras, 2009) should be the foundation for poverty alleviation programs, but the top-down approach of Special Autonomy ignores and even weakens these values by creating dependency and reducing local initiatives. Yani et al. (2024) also emphasized that "socialpreneurship or social entrepreneurship that combines social responsibility with business innovation can be an innovative solution that connects the understanding of socio-cultural factors with concrete economic interventions", but this requires participation of active community that is not facilitated in the centralized management of Special Autonomy.

Based on the analysis of the Third Pillar, the main proposition is formulated that the top-down approach of the Special Autonomy Fund has proven to be less effective than community-based participatory mechanisms such as the Village Fund, because centralized and rigid management fails to actively involve indigenous peoples in the planning, implementation, and supervision of the program. The Special Autonomy approach that ignores social capital in the form of mutual cooperation values, deliberation, and kinship networks that are still strong in Mamta causes the program to lose its participatory roots, while the bottom-up approach allows the community to utilize the social capital because they have a sense of ownership and control over the program. The low absorption of the Special Autonomy Fund indicates planning and implementation constraints due to convoluted bureaucracy that does not involve community participation. Thus, the effectiveness of fiscal transfers is largely determined by the extent to which the community is engaged and trusted, and the failure of Special Autonomy reinforces the finding that when public trust is eroded by approaches that ignore local wisdom, even substantially good programs are difficult to achieve their goals at the grassroots level.

Fourth Pillar: Socio-Cultural Barriers and Incompatibility with Local Wisdom

The ineffectiveness of the Special Autonomy Fund in the Mamta Customary Territory also stems from the inability of development policies to accommodate the social structure, value system, and local wisdom of indigenous peoples. The Mamta Region has a diversity of 87 tribes with an Ondoafi traditional leadership system that has been inherited from generation to generation, a patrilineal kinship system, and the values of mutual cooperation and deliberation that are still strong (Soeprapto, 2012; Laras, 2009). I Wayan (2021) emphasized that "the Mamta people live in three fundamental relationships: human relationships with God, others, and the environment", which forms a holistic view of life that is contrary to development approaches

that are too oriented towards physical targets and macro numbers. Programs that are designed without involving indigenous leaders and ignoring the concept of communal ownership of land, a collective kinship system, and local social norms lose their legitimacy and effectiveness. As Malak (2012) expresses, "people's trust in the government continues to erode because the programs implemented do not match their cultural expectations and values". Amalia (2015) and Lenhardt (2023) emphasize that "social capital and social norms have a strong influence on shaping people's economic behavior, and policies that ignore them will fail to achieve their goals".

Cultural encounters between local ethnicities and immigrants in Jayapura City create a gap in understanding the concept of work, work rhythm, work motivation, understanding of land, social security, sense of responsibility, and leadership patterns (Soeprapto, 2012). This inconsistency causes Special Autonomy Fund programs designed with the assumption that modern bureaucratic culture is not in accordance with the way of life and value systems of indigenous peoples, so that their implementation fails. Racelis and Guevara (2003) conclude that "an understanding of socio-cultural factors is essential for effective poverty reduction", therefore policymakers need to adopt a multidimensional perspective that takes into account the complexity of the social life of the poor. A top-down, uniform approach to development that ignores local socio-cultural realities will never succeed in alleviating poverty, as it is contrary to indigenous peoples' way of life, value systems, and decision-making mechanisms. Future Special Autonomy Fund policy reforms must begin with sincere recognition of the socio-cultural system of the indigenous people of Mamta and the placement of indigenous institutions as equal partners in development planning and implementation, not just passive beneficiaries.

Following the results of the analysis and discussion on this fourth pillar, the main proposition can be formulated that the ineffectiveness of the Special Autonomy Fund also stems from the inability of development policies to accommodate the social structure, value system, and local wisdom of the indigenous people of Mamta. Areas with high ethnic diversity, the hereditary Ondoafi traditional leadership system, the patrilineal kinship system, and the values of mutual cooperation and deliberation that are still strong require different approaches, but Special Autonomy programs are designed uniformly without involving indigenous leaders. The Mamta people live in three fundamental relationships—relationships with God, others, and the environment—that form a holistic view of life, so that development programs that focus only on economic aspects without paying attention to spiritual, social, and ecological dimensions will lose legitimacy. Social capital and social norms have a strong influence on shaping people's economic behavior, and policies that ignore them will fail. Cultural encounters between local ethnicities and migrants in Jayapura City further exacerbate the situation by creating a gap in understanding of work concepts, work rhythms, work motivation, understanding of land, and leadership patterns. As a result, public trust in the government continues to erode, so policy reform must begin with the recognition of the socio-cultural systems of indigenous peoples and the placement of indigenous institutions as equal partners in development.

The Role of GDP and Income Inequality in Determining the Effectiveness of Poverty Alleviation

The Influence of GDP on Poverty

Statistically, GDP has a regression coefficient of -0.00021 ($p=0.0454$), which means that every increase in GDP of Rp1 billion reduces poverty by 0.00021 percent. Although the hypothesis of significant influence is accepted, this very small coefficient indicates that the elasticity of economic growth to poverty reduction in the Mamta Indigenous Territory is very low. These findings are in line with inter-country studies (Adams, 2003; Balasubramanian et al., 2022) which assert that "economic growth is an important factor in poverty reduction, but its effectiveness is highly dependent on the local context and economic structure of each region".

The effect of the very small GDP in the Mamta Customary Territory is explained by a content analysis that reveals non-inclusive growth due to economic concentration and structural inequality. Data shows that although Mamta's GDP increased from Rp31.69 trillion (2016) to Rp42.32 trillion (2024) with a growth of 3.72 percent per year, the poverty reduction was only -0.09 percent per year. The highly concentrated economic structure in Jayapura City and Regency (87 percent of GDP) caused Sarimi, Keerom, and Mamberamo Raya to not feel the benefits of growth, with the Gini ratios in Sarimi (0.396) and Keerom (0.391) in the high category.

Harahap (2022) found that "inequality reduces the effectiveness of growth in poverty alleviation, with net elasticity falling from 0.0665 to 0.0226 after accounting for inequality". Meanwhile McKnight (2019) asserts that "inequality is bad for growth through social instability, unequal access to credit, and redistribution that stifles growth". The Evaluation and Control of Special Autonomy Funds carried out by the Papua Provincial Bappeda (2016) strengthens this finding with data that "the poverty rate of the indigenous Papuans reaches

40.32 percent, far above the provincial average of 28.54 percent, and the per capita expenditure of the indigenous Papuans is only Rp476,440 per month, far below the provincial average of Rp936,387, and access to clean water and electrification in the interior is still very limited". Thus, the GDP has been proven to reduce poverty but the effect is very limited due to the unequal economic structure and high inequality, so economic growth alone is not enough without equitable redistribution and development policies.

The low elasticity of economic growth to poverty reduction in Mamta also has a profound socio-cultural dimension. As explained by Laras (2009), "the diverse geographical conditions of the Mamta Region, ranging from coastal, lowland, to mountainous, have a profound impact on the livelihood patterns of its people". Residents in and around Lake Sentani generally make their livelihood as fishermen, sago growers, and traders, while people in inland and mountainous areas rely more on subsistence farming, hunting, and gathering forest products. This highly diverse and ecosystem-based livelihood pattern means that economic growth centered in urban areas (Jayapura and Jayapura City) will not automatically reach communities in the interior that have very different economic structures. Furthermore, the patrilineal kinship and communal ownership of land systems embraced by the Mamta people means that the economic surplus resulting from growth is not always allocated to productive investment or individual capital accumulation, but is often distributed through kinship mechanisms and social obligations. This can reduce the multiplier effect of economic growth on poverty reduction because economic gains are not accumulated for future investment but are dispersed through a wide network of kinships. Amalia (2015) points out that "social capital in the form of a strong kinship network can be a safety net for members of the community experiencing hardship", but at the same time can also be an obstacle to economic mobility due to the obligation to share with wider family members and clans.

The Effect of Income Inequality on Poverty

Furthermore, the Gini ratio has a regression coefficient of 8.0866 ($p=0.0339$), which means that every 1-point Gini increase increases poverty by 8.0866 percent. The hypothesis of significant influence is accepted, and these findings show that income inequality is the most destructive factor in poverty alleviation efforts in the Mamta Customary Territory.

These findings are in line with various empirical studies that are analyzed in a content manner. Akhmad et al. (2018) in 33 Indonesian provinces found that "income inequality measured by the Gini Index has a positive and significant effect on poverty, where every 1 percent increase increases poverty by 82.26 percent". Similarly, Listia et al. (2026) in six Sulawesi provinces found that "the Gini Index has a positive and significant effect with a very high coefficient of 21.18". Including Fauzia et al. (2025) in Lampung also concluded that "every 1 percent increase in Gini increases poverty by 8.092 percent". The consistency of these cross-regional findings shows that inequality is a universal obstacle to the effectiveness of growth in alleviating poverty.

From a sociological perspective, high income inequality in Mamta reflects the deep social stratification between urban and rural communities, as well as between local and immigrant ethnic groups. As explained by Vu (2010), "*social stratification theory argues that poverty is the result of social isolation caused by socio-economic and political trends*". In Mamta, the geographical isolation of rural communities from economic and political centers creates and reinforces inequality. Furthermore, Racelis and Guevara (2003) show that "*social exclusion occurs when social structures and processes divide people into groups that experience discrimination, prejudice, marginalization, and lack of access to societal benefits*". The indigenous people of Mamta experience social exclusion in the form of limited access to education, health, infrastructure, and economic opportunities, all of which reinforce cycles of poverty and inequality.

The Effect of the Papua Special Autonomy Fund on Poverty Moderated by Regional Income and Inequality

The results of statistical analysis showed that the interaction variable of the *Special Autonomy Fund**GDPB had a coefficient of -0.00000046 ($p=0.0532$) and the *Special Autonomy Fund**Gini had a coefficient of -0.0627 ($p=0.0569$), both of which were significant at $\alpha = 0.10$. These two moderation variables weakened the positive influence of the Special Autonomy Fund on poverty, but the effect was very small and not strong enough to change the direction of the main relationship, the Special Autonomy Fund still increased poverty overall. The content analysis provides two interpretations.

First, the compensation effect. In areas with high GDP such as Jayapura City, institutional capacity is more mature so that the management of the Special Autonomy Fund is relatively more accountable, in line with the findings of Budiratna and Qibthiyyah (2020) that "DOK is effective in West Papua but not in Papua and Aceh because local factors such as institutional capacity and local government commitment are very

decisive". In areas with low GDP such as Mamberamo Raya, "limited apparatus capacity, convoluted bureaucracy, and weak supervision" (Putra & Amran, 2023), as well as "eight districts received a No Opinion opinion from BPK RI for five consecutive years, including Mamberamo Raya" (Tandean & Nurfa, 2023). Socio-cultural factors also strengthen this compensation effect, because in areas with low institutional capacity as well as complex social structures, program implementation becomes increasingly difficult. Bureaucrats' lack of understanding of the Ondoafi leadership system and local wisdom causes the Special Autonomy Fund programs to not be well integrated into the social structure of the community, so that their effectiveness is very low.

Second, the saturation effect. In areas with high inequality, Special Autonomy funds tend to be concentrated in urban elites so that they are not distributed to the poor, and because poverty is already very severe, additional funds are not able to significantly reduce the poverty rate. The results of the Gerbangmas Evaluation (Bappeda Papua Province, 2019) found that "although the Gerbangmas Fund statistically reduces poverty, its contribution is only 0.18 percent". The study conducted by Touitou and Boudeghdegh (2021) strengthens this argument, which finds that "there is a governance threshold effect where the influence of an indicator can change direction depending on the country's level of development", while McKnight (2019) "identifies a non-linear relationship between inequality and growth as well as a three-way relationship between poverty, inequality and growth". The effects of saturation can also be understood from a socio-cultural perspective. In areas with high inequality, such as the one in Mamta, hierarchical social structures and strong patronage systems cause development funds to tend to be monopolized by local elites. This is exacerbated by cultural encounters between local ethnicities and migrants, where ethnic migrants often have better access to power networks and economic resources. As explained by Racelis and Guevara (2003), "social exclusion occurs when state and community institutions fail to protect the rights of poor groups or even actively treat them unfairly". In Mamta, the non-transparent and non-participatory distribution mechanism of the Special Autonomy Fund allows for social exclusion where indigenous peoples in the interior do not get the benefits they should from development funds. Yani et al. (2024) also emphasized that "poverty in Indonesia is often exacerbated by social stigma that affects access to economic resources and shapes patterns of community interaction". Stigma against indigenous peoples as "underdeveloped" or "traditional" can limit their access to economic opportunities and participation in development decision-making.

The integration of the statistical findings and content analysis provides the main proposition that GRDP and the Gini Ratio moderate the effect of the Special Autonomy Fund on poverty in the Mamta Customary Area. However, these moderating effects are very small and insufficiently strong to alter the direction of the main relationship. This indicates that fundamental problems, including poor governance, inappropriate budget priorities, weak participation of Indigenous communities, and misalignment with local socio-cultural values, continue to dominate and cannot be addressed through economic growth or inequality reduction alone. Therefore, improvements in governance and recognition of Indigenous socio-cultural systems are essential prerequisites, and policy interventions should be holistic and integrated. This is consistent with McKnight (2019), who emphasizes that "poverty, inequality, and growth have a complex three-way relationship."

Themes of Systemic Failures in Special Autonomy Fund Governance (Synthesis of Mixed Methods)

The integration of quantitative statistical analysis and qualitative content analysis of empirical studies, authoritative books, and report documents results in a very clear and consistent main proposition that the implementation of the Papua Special Autonomy Fund in the Mamta Customary Territory has not been effective in poverty alleviation and even tends to be counterproductive. The content analysis of all reference materials identified four major themes of failure that simultaneously explain the statistical findings.

The first theme is improper budget prioritization

Various studies and authoritative books have consistently revealed that the Special Autonomy Fund is allocated more for operational spending and physical infrastructure, while the allocation for direct poverty alleviation programs is very small. The allocation for education and health is also below the statutory mandate (30 percent and 15 percent). As a result, the quality of Papuan human resources remains low and well below the national average. In the Mamta Customary Territory, large funds (Rp1,077 billion per year) are not balanced by targeting productive sectors such as vocational education, people's economic empowerment, and basic health services in remote districts.

The second theme is weak governance and oversight

The BPK's repeated findings reveal weak internal control systems, such as the absence of scholarship SOPs, repeated budgeting errors, late fines not imposed, and lack of work volume. The fundamental problems lie

in three aspects, namely: (a) incomplete regulations (grand design does not exist), (b) weak institutions (MRP does not yet have a Supervisory Committee), and (c) incompetent human resources (placement of employees is not in accordance with the position analysis). At the implementation level, the results of the evaluation of the management of the Special Autonomy Fund in 2016 show that the managers of the Papua Special Autonomy Fund are more concerned with quantity than quality, incomplete technical instructions, low community participation, planning that is not in sync with needs, unsustainable budgeting, and monitoring of evaluation of poor quality. In the Mamta Customary Territory, this failure is reflected in the increase in poverty in Mamberamo Raya Regency (from 29.52 percent in 2016 to 30.29 percent in 2024) and a very slow decline in other districts.

The third theme is structural inequality and non-inclusive growth

The economic concentration in two districts/cities (Jayapura and Jayapura City) which control 87 percent of GDP is associated with a concentration of economic benefits that may not reach the other three districts. High income inequality with an average Gini ratio of 0.356 (even reaching 0.396 in Sarmi and 0.391 in Keerom) makes economic growth not inclusive. The high dependence on transfer funds further exacerbates the condition because the regions do not have fiscal independence. High inequality means that economic growth is enjoyed by only a handful of groups in the urban areas, while indigenous peoples in the interior remain economically isolated. This pattern is consistent with a potential reinforcing cycle: large funds flow to the cities, concentrated development in the cities, poverty in the interior remains high, and inequality is widening.

The fourth theme is socio-cultural barriers and incompatibility with local wisdom

This fourth theme is the original contribution of this research, which reveals that the failure of the Special Autonomy Fund also stems from the inability of policies to accommodate and respect the social structure, value system, and local wisdom of the indigenous people of Mamta. The Mamta region with its diversity of 87 tribes, a strong Ondoafi leadership system, a patrilineal kinship system, and upheld values of mutual cooperation have very complex social dynamics (Soeprapto, 2012; Laras, 2009). Special Autonomy Fund programs designed with a top-down and uniform approach without involving indigenous leaders and without an adequate understanding of local socio-cultural realities have failed in their implementation.

The four themes above recur across the documentary evidence and may reinforce one another. Inappropriate budget priorities cause funds to not reach the productive sector; weak governance exacerbates conditions with leakages and inefficiencies at every stage of distribution; and structural inequality makes development benefits enjoyed by only a handful of groups, while the poor in the interior remain marginalized. On the other hand, the Mamta people live in local wisdom reflected in three fundamental relationships—with God, others, and nature (I Wayan, 2021)—which form a holistic view of life, so that development approaches that focus only on economic aspects without paying attention to spiritual, social, and ecological dimensions lose their legitimacy and cultural roots. Cultural encounters with immigrant ethnicities create gaps in understanding of work concepts, work rhythms, and leadership patterns (Soeprapto, 2012), while patrilineal kinship systems and communal land tenure (Laras, 2009) make individualistic and short-term targeted programs ineffective.

The concept of poverty culture that blames the victim (Lewis, 1966) needs to be abandoned, because the behavior of the poor is an adaptation to difficult structural conditions, not hereditary cultural heritage (Yani et al., 2024), just as the people of Gunung Kidul work hard with an attitude of "nrimo and sincerity" as sincerity in receiving business results (Widayatsari, 2016). Social capital in the form of the Ondoafi system, mutual cooperation, and kinship networks are valuable assets that are not optimally utilized by the Special Autonomy program, which actually weakens social institutions and creates dependency (Amalia, 2015; Lenhardt, 2023).

The synergy of these four factors—budget priority errors, weak governance, structural inequalities, and socio-cultural barriers—creates systemic failures that require fundamental reforms, not just additional funding, by adopting a multidimensional perspective that takes into account class structure, family dynamics, cultural values, and experiences of discrimination (Racelis & Guevara, 2003).

Conclusions

This study evaluates the relationship between Papua's Special Autonomy Fund and poverty in the Mamta Customary Area during 2016–2024, with GRDP and the Gini Ratio included as conditioning variables in an explanatory sequential mixed-methods design. The quantitative phase uses a Fixed Effects panel model,

while the qualitative phase interprets the statistical pattern through documentary content analysis. The Fixed Effects estimates show a positive association between the Special Autonomy Fund and poverty ($\beta = 0.0289$, $p = .0265$), a negative association between GRDP and poverty ($\beta = -0.00021$, $p = .0454$), and a positive association between the Gini Ratio and poverty ($\beta = 8.0866$, $p = .0339$). These coefficients describe conditional associations within the observed panel and should not be interpreted as causal effects. In particular, the positive fund coefficient may also reflect reverse targeting, omitted time-varying factors, or other policy and economic conditions that are not represented in the model. The interaction terms provide only marginal evidence at the 10% level ($X \times Z_1$: $\beta = -0.00000046$, $p = .0532$; $X \times Z_2$: $\beta = -0.0627$, $p = .0569$) and are not statistically significant at the conventional 5% threshold. They therefore should be interpreted as exploratory indications rather than robust moderation effects. The model diagnostics support residual normality and low multicollinearity after mean-centering, but the Glejser test identifies a potential heteroskedasticity issue for the inequality interaction, while the Durbin–Watson statistic provides only a limited screen for serial correlation. Robust or district-clustered standard errors and a panel-specific serial-correlation test would strengthen future sensitivity analysis. The qualitative content analysis identifies four recurring themes that may help explain why larger transfers are not associated with lower poverty in the quantitative model: mismatched budget priorities, weaknesses in governance and supervision, spatial and income inequality, and socio-cultural misalignment with local institutions and participation mechanisms. These themes are explanatory interpretations supported by the documentary corpus; they are not established causal mediators by the regression design. From a policy perspective, the findings indicate that transfer size should be considered together with targeting quality, accountability, expenditure composition, distributional inclusion, and meaningful indigenous participation. Needs-based planning involving customary leaders, stronger performance monitoring, greater emphasis on productive human-capital and local-economy expenditure, and transparent poverty-reduction indicators are consistent with the implementation problems identified in the qualitative evidence. The study has several limitations. It covers only five Mamta jurisdictions and nine years, leaving limited statistical power for interaction effects. The observational Fixed Effects design controls for time-invariant regional heterogeneity but does not eliminate omitted-variable bias, reverse causality, or endogeneity in fund allocation, and it does not provide a counterfactual causal estimate. The qualitative phase relies on documentary secondary sources rather than primary interviews. Future research should expand the panel across Papua, incorporate time-varying institutional and public-service indicators, test robust or clustered standard errors and panel-specific serial-correlation diagnostics, and, where feasible, apply stronger causal designs or primary ethnographic and stakeholder evidence.

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