

From Fiscal Asymmetry to Affirmative Basic-Service Delivery: Expenditure Performance and Spatial Coverage

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Abstract

Special Autonomy (Otsus) establishes asymmetric fiscal arrangements intended to enhance basic services for Indigenous Papuans (OAP). However, high budget realization does not necessarily indicate affirmative service delivery or sufficient territorial coverage. This study evaluates Otsus implementation in education, health, and basic infrastructure in Jayapura City, assessing whether realized expenditure maintains an affirmative orientation toward OAP. A mixed-methods policy evaluation incorporates the 2025 Otsus Performance Report (LAPKIN), semi-structured interviews, and spatial mapping of service coverage. The Affirmative Basic Service Index (ABSI) serves as an expenditure-weighted measure of OAP-targeted realized expenditure, supported by diagnostic indicators of budget affirmation, targeting consistency, and financial execution. The results indicate strong overall financial execution, while ABSI reveals substantial but sectorally differentiated affirmative performance. Education exhibits the strongest beneficiary-specific orientation, health combines affirmative and broader public-service functions, and infrastructure demonstrates shared-benefit characteristics. Spatial mapping reveals relatively continuous program coverage in established urban areas and more dispersed patterns in peripheral and eastern territories. These findings indicate that fiscal execution, beneficiary affirmation, and territorial coverage are distinct yet complementary dimensions of asymmetric service delivery. Integrating ABSI with spatial coverage offers a more substantive framework for evaluating whether Special Autonomy translates differentiated fiscal resources into affirmatively targeted and territorially responsive basic services.

Introduction

Asymmetric decentralization introduces differentiated authority, fiscal arrangements, and policy instruments to territories whose historical, socio-cultural, political, or geographical characteristics are not adequately addressed by uniform decentralization (Raharjanto et al., 2026; Kırpık-Akta, 2026; Bahtiar, 2025). In Papua, Indonesia, this approach is institutionalized through Special Autonomy (which centers the protection and welfare of Indigenous Papuans (Orang Asli Papua, OAP) in regional development. This asymmetry extends beyond additional fiscal transfers; it aims to enable differentiated policies, prioritize Indigenous beneficiaries, and tailor public services to local needs (Ayim et al., 2023; Dougherty et al., 2025; Ernst et al., 2025). Consequently, the effectiveness of Special Autonomy should be assessed not only by budget allocation and expenditure realization but also by the extent to which these resources

produce substantive and affirmative services for OAP. Basic services are central to this process because education, health, and basic infrastructure represent the most direct channels through which asymmetric decentralization influences everyday welfare. Special Autonomy increases fiscal capacity in these sectors to enhance accessibility and address persistent service disparities. However, empirical evidence shows that increased fiscal resources do not automatically translate into proportional improvements in public services. Research in Papua indicates that Special Autonomy funds can positively impact education and health services, but accountability, community participation, institutional coordination, and stakeholder synergy are essential for converting fiscal transfers into effective services. Additional studies identify institutional capacity, budget allocation, coordination, and implementation gaps as ongoing challenges in Papua's asymmetric governance (Arends, 2020; Kalman et al., 2026; Abdullah et al., 2026; Watofa et al., 2026).

These conditions underscore a critical distinction between fiscal asymmetry and affirmative service delivery (Willie et al., 2026; Canavire-Bacarreza et al., 2026; Gbahabo et al., 2026). High budget allocation and financial realization reflect fiscal and administrative performance, but do not necessarily indicate that expenditures are directed toward the intended beneficiaries of Special Autonomy. Previous research has documented persistent issues in public-service responsiveness, financial accountability, and the translation of Special Autonomy resources into improved development outcomes (Chen et al., 2024). The central policy question is therefore not solely the amount of Special Autonomy funding allocated and spent, but whether realized expenditure maintains an affirmative focus on OAP. This distinction is essential for assessing whether asymmetric fiscal arrangements yield substantively differentiated services rather than simply expanding regional spending capacity. This issue is particularly salient in Jayapura City, where service delivery encompasses an urban core, peripheral districts, coastal settlements, and Indigenous villages, each with distinct accessibility and infrastructure needs. Field evidence demonstrates that Special Autonomy implementation is associated with Papua Sehat, Papua Cerdas, and Papua Productive, with education, health, and infrastructure as primary intervention areas. The affirmative principle is explicit, as local informants identify OAP and the Indigenous Port Numbay population as the main beneficiaries of Special Autonomy programs. However, consistently translating this principle into effective service delivery remains a significant challenge (Cavaliere & Ferrante, 2020).

Field evidence reveals several governance constraints (Eneyo, 2026; Varadarajan & Daniel, 2023). Special Autonomy resources are allocated across multiple local government agencies, which increases the risk of overlapping activities, program duplication, and fragmented expenditure. Informants suggest that resources should be more concentrated in agencies directly responsible for priority services. Service distribution remains uneven: education and health personnel are concentrated in central urban areas, while peripheral regions face shortages of qualified staff (Choi, 2021). Additionally, Indigenous settlements have diverse needs, including roads, bridges, lighting, water infrastructure, and services tailored to coastal accessibility. These conditions indicate that fiscal realization alone cannot ensure equitable service coverage. Achieving equity under asymmetric decentralization requires differentiated interventions that address territorial needs while preserving Special Autonomy's affirmative orientation toward OAP. Sectoral differences further illustrate this challenge. In education, affirmative targeting is relatively explicit through OAP-specific support such as BOSDA, school-related expenses, uniforms, and other educational assistance. Infrastructure, however, presents a different scenario. Some infrastructure projects funded by Special Autonomy, particularly roads, serve the broader population and thus have a less direct connection to OAP-specific service delivery. In contrast, housing and facilities located within Indigenous communities exhibit clearer affirmative targeting. This sectoral contrast indicates that an

activity may achieve high financial realization while its affirmative specificity remains limited. Therefore, financial execution and affirmative targeting should be regarded as related but analytically distinct aspects of Special Autonomy implementation (Dmytryshyn et al., 2021).

Existing studies have thoroughly examined Papua's Special Autonomy in terms of fiscal decentralization, institutional arrangements, accountability, public-service performance, and welfare outcomes. However, limited attention has focused on the relationship between budget execution and beneficiary-specific targeting at the activity level, especially within basic services (Jin & Jakovljevic, 2023). Conventional financial indicators show whether allocated resources have been spent, but do not independently reveal whether realized expenditure is affirmatively directed toward Indigenous beneficiaries. This creates a methodological gap between assessing the administrative performance of Special Autonomy expenditure and evaluating its substantive affirmative orientation (Grillos et al., 2021). This study develops an expenditure-based framework for measuring affirmative basic-service delivery. The framework uses the Budget Affirmation Share (BAS) to measure the proportion of basic-service allocation directed toward OAP-targeted activities, the Targeting Consistency Ratio (TCR) to assess the consistency of OAP targeting across activities, and the Financial Execution Rate (FER) to capture budget realization. These diagnostic measures support the Affirmative Basic Service Index (ABSI), an expenditure-weighted indicator measuring the proportion of realized basic-service expenditure associated with activities explicitly targeting OAP. The framework relies on documented budget allocation, financial realization, and beneficiary status rather than perception-based scoring or predetermined subjective weights, allowing administrative execution to be distinguished from substantive affirmative targeting (Gu et al., 2023).

Accordingly, this study aims to (1) examine the implementation of Special Autonomy in the governance of education, health, and basic infrastructure services in Jayapura City, with a focus on affirmative targeting, territorial service scope, equity, and implementation constraints; and (2) measure the extent to which budget allocation and realized basic-service expenditure maintain an affirmative orientation toward OAP using BAS, TCR, FER, and ABSI. By linking financial execution with beneficiary-specific targeting, the study shifts the evaluation of asymmetric decentralization from the amount of Special Autonomy funding spent to the more substantive question of whether realized expenditure prioritizes its intended Indigenous beneficiaries.

Methods

Research Approach and Study Design

A mixed-methods policy evaluation design was employed to examine the implementation of Special Autonomy in basic-service governance in Jayapura City. The design integrated quantitative analysis of administrative expenditure data, qualitative evidence from key informants, and spatial identification of service locations (Jörg & Haldimann, 2023). This approach was chosen to distinguish the administrative performance of Special Autonomy expenditure from its substantive orientation toward Indigenous Papuans. The analysis focused on three basic-service sectors: education, health, and basic infrastructure, as these represent major areas of Special Autonomy intervention in Jayapura City and are directly related to the provision of essential public services. Four aspects of implementation were examined: budget allocation, beneficiary targeting, financial realization, and territorial distribution of services. Budget allocation identified the fiscal priority assigned to basic-service activities; beneficiary targeting determined whether activities explicitly prioritized OAP; financial realization

assessed the implementation of allocated resources; and territorial distribution identified the spatial scope of service provision.

The quantitative unit of analysis was the activity or sub-activity financed through Special Autonomy funds and recorded in the 2025 Otsus Performance Report. Each activity was examined by sector, effective budget allocation, financial realization, designated beneficiary, and service location. Beneficiary information from the LAPKIN distinguished activities explicitly targeted at OAP from those serving general beneficiaries (OAP/non-OAP). This classification enabled assessment of affirmative targeting directly from official administrative records rather than respondent perceptions. The quantitative assessment was complemented by qualitative analysis of interviews with officials involved in Special Autonomy planning, program control, research and innovation, and infrastructure implementation. Interview evidence explained institutional coordination, beneficiary targeting, service distribution, territorial differences, and implementation constraints identified in the administrative data. Qualitative evidence was not transformed into numerical scores but was used to interpret and triangulate the quantitative findings (Engdaw, 2022).

The analytical design combined fiscal performance, affirmative targeting, and territorial service distribution within a single policy-evaluation framework. Rather than evaluating Special Autonomy solely by expenditure magnitude, the analysis assessed whether realized basic-service expenditure maintained its intended affirmative orientation toward OAP and how this pattern varied across education, health, and basic infrastructure.

Data Collection

Data collection utilized administrative records, semi-structured interviews, and spatial service information. The principal quantitative source was the 2025 Special Autonomy Performance Report (LAPKIN) for Jayapura City, obtained from BAPPEDA Jayapura City. The report was used as the primary administrative source because it documents the budget allocation, financial realization, beneficiary designation, programme activities, and service locations relevant to the three basic-service sectors examined in this study. For each selected activity, we extracted data on effective budget allocation, financial realization, beneficiary status, activity description, implementing agency, and service location. Beneficiary classification was based on the beneficiary designation recorded in the administrative report rather than on researcher judgment. Activities explicitly identifying Indigenous Papuans (OAP) or an OAP-specific group as the intended beneficiaries were coded as OAP-targeted, whereas activities designated for general beneficiaries were coded as general-beneficiary activities. This classification was applied consistently across education, health, and basic infrastructure activities and formed the basis for calculating BAS, TCR, and ABSI.

Qualitative data were collected through semi-structured interviews with 10 officials involved in planning, implementing, monitoring, or evaluating Special Autonomy programmes in Jayapura City. Informants were purposively selected based on their direct involvement in education, health, or basic infrastructure programmes and their knowledge of beneficiary targeting and programme implementation. The interviews focused on beneficiary targeting, inter-agency coordination, territorial distribution of services, and implementation constraints. Interviews were conducted in July 2026, with each interview lasting approximately 90 minutes. The interview data were analyzed thematically and used to contextualize and triangulate patterns identified from the administrative and spatial data rather than to generate numerical scores.

Spatial information was derived from the service locations recorded in the administrative data. The recorded locations were standardized into district-level spatial units and georeferenced

using QGIS. Where geographic coordinates were not directly available, locations were identified from the recorded place names or addresses and subsequently matched to the corresponding spatial units. The resulting spatial dataset was linked to the programme records and used to map the distribution of Otsus-funded programmes by sector and beneficiary classification.

Spatial information was obtained from identifiable service locations in administrative records and field data (Fiorillo et al., 2021). These data were used to map the distribution of Otsus-funded basic services across Indigenous villages, coastal settlements, peripheral areas, and other service locations in Jayapura City.

Data Analysis

The data analysis integrated descriptive fiscal assessment, beneficiary-targeting analysis, and an expenditure-weighted measure of affirmative basic-service delivery. Analysis was performed at the activity and sub-activity levels, then aggregated into three basic-service sectors: education, health, and basic infrastructure. Four indicators distinguished budget allocation, targeting consistency, financial implementation, and the affirmative orientation of realized expenditure (Kumala et al., 2024).

Table 1. Indicators Used for Affirmative Basic-Service Assessment

Indicator	Code	Measurement Focus	Data Basis
Budget Affirmation Share	BAS	Share of budget allocated to OAP-targeted activities	Effective budget and beneficiary status
Targeting Consistency Ratio	TCR	Consistency of OAP targeting across activities	Activity and beneficiary status
Financial Execution Rate	FER	Financial implementation of allocated budget	Effective budget and financial realization
Affirmative Basic Service Index	ABSI	Share of realized expenditure associated with OAP-targeted activities	Financial realization and beneficiary status

BAS, TCR, and FER functioned as diagnostic indicators rather than as components of a weighted composite index. BAS measures the proportion of basic-service budgets allocated to activities explicitly targeting OAP. TCR assesses the consistency of OAP targeting across analyzed activities, while FER reflects the level of financial implementation relative to the effective budget. These indicators remained analytically separate because high financial realization does not necessarily correspond to strong affirmative targeting. The principal analytical measure was the Affirmative Basic Service Index (ABSI), which quantifies the proportion of total realized basic-service expenditure associated with activities explicitly targeting OAP. ABSI was calculated as follows:

$$ABSI = \frac{\sum_{i=1}^N R_i A_i}{\sum_{i=1}^N R_i} \times 100$$

In this equation, ABSI denotes the *Affirmative Basic Service Index*, R_i represents the financial realization of each activity or sub-activity (i), and N represents the total number of basic-service activities analyzed. A_i represents beneficiary-targeting status and is coded as 1 when an activity explicitly targets Indigenous Papuans (OAP) and 0 when the activity serves general beneficiaries (OAP/non-OAP). ABSI ranges from 0 to 100 and represents the percentage of realized basic-service expenditure associated with activities explicitly targeting OAP. A higher ABSI value indicates a greater affirmative orientation of realized expenditure toward the

intended Indigenous beneficiaries of Special Autonomy. Financial realization (R_i) serves as a natural expenditure weight, allowing activities with larger actual expenditure to contribute proportionally to the index. This structure avoids predetermined or subjective weighting and directly links beneficiary targeting with actual policy expenditure.

Financial realization (R_i) serves as a natural expenditure weight, ensuring that activities with larger realized expenditures contribute proportionally more to the index. Multiplication by A_i retains expenditure from explicitly OAP-targeted activities and assigns no affirmative weight to general-beneficiary activities. This approach avoids predetermined or subjective weighting and directly links beneficiary targeting to actual policy expenditure rather than planned expenditure (Lele, 2019). The ABSI calculation was applied separately to education, health, and basic infrastructure sectors, enabling sectoral comparisons of affirmative service delivery. No predetermined categories such as low, medium, or high were imposed, as the available data did not provide an empirical basis for arbitrary threshold values. ABSI was therefore interpreted as a direct percentage and compared across sectors. Quantitative results were triangulated with interview findings. Qualitative evidence was organized around beneficiary targeting, institutional coordination, territorial service distribution, and implementation constraints to explain sectoral differences in affirmative expenditure patterns. This analytical strategy enabled separate assessment of financial execution and affirmative targeting while maintaining their relationship within the broader implementation of Special Autonomy in Jayapura City.

Spatial Mapping and Integrated Analysis

Spatial analysis examined the territorial distribution and service scope of Otsus-funded basic services in Jayapura City. Activities with identifiable locations were classified by service sector and beneficiary status. The mapping differentiated between OAP-targeted services and general services (OAP/non-OAP) across education, health, and basic infrastructure. Mapping of service locations identified the distribution of affirmative interventions across urban, peripheral, Indigenous, and coastal settlements. The spatial analysis addressed three aspects: service concentration, territorial coverage, and the presence of affirmative services in Indigenous and peripheral areas. The maps served as a territorial diagnostic, rather than a separate spatial index, due to inconsistent availability of population-based accessibility measures in the administrative data (Li et al., 2021).

Spatial patterns were interpreted alongside sectoral ABSI results and interview findings. Interview data explained differences in service coverage, such as the concentration of education and health personnel in central areas, accessibility constraints in peripheral and coastal settlements, and variations in infrastructure needs among Indigenous communities. This integrated analysis enabled assessment of asymmetric basic-service delivery from three complementary perspectives: financial realization, beneficiary-specific targeting, and territorial service coverage. Spatial analysis provided contextual evidence of the locations of affirmative expenditure, while ABSI measured the extent to which realized expenditure was directed toward OAP-targeted activities.

Results and Discussion

Performance and Affirmative Orientation of Special Autonomy in Basic-Service Delivery

The 2025 Special Autonomy Performance Report (LAPKIN) offers an empirical assessment of Special Autonomy implementation through basic-service expenditure in Jayapura City. The analysis focuses on education, health, and basic infrastructure, distinguishing between financial performance and affirmative orientation toward Indigenous Papuans (OAP). This distinction matters because successful budget execution does not necessarily ensure that realized

expenditure reaches the principal beneficiaries of Special Autonomy. Four used four indicators to analyze this relationship. The Financial Execution Rate (FER) measures how much of the effective budget was realized. The Budget Affirmation Share (BAS) identifies the proportion of allocated resources associated with OAP-targeted activities. The Targeting Consistency Ratio (TCR) assesses the consistency with which activities explicitly identify OAP as beneficiaries. The primary measure, the Affirmative Basic Service Index (ABSI), quantifies the proportion of actual realized expenditure associated with activities explicitly targeting OAP. Collectively, these indicators enable a more nuanced assessment of Otsus' implementation than financial realization alone.

Table 2. Performance of Otsus-Funded Basic Services in Jayapura City, 2025

Basic-Service Sector	BAS (%)	TCR (%)	FER (%)	ABSI (%)
Education	99.11	95.00	94.98	99.06
Health	61.81	72.00	96.57	63.34
Basic Infrastructure	61.17	50.00	99.77	61.14
Overall Basic Services	78.37	76.36	96.83	78.38

The aggregate results indicate a high level of financial implementation. The overall FER reached 96.83%, demonstrating that nearly all effective Otsus funding allocated to the analyzed basic services was financially realized in 2025. However, the overall ABSI was 78.38%, signifying that only 78.38% of realized basic-service expenditure was associated with activities explicitly targeting OAP. The gap between FER and ABSI illustrates that near-complete financial execution does not necessarily result in an equivalent level of affirmative expenditure. This distinction is central to the measurement framework. The overall BAS of 78.37% closely matches the ABSI of 78.38%, suggesting that the affirmative orientation established during budget allocation was largely preserved during expenditure realization. This indicates minimal weakening of OAP-oriented allocation during financial implementation. However, the TCR of 76.36% reveals that affirmative targeting was not consistently embedded across all basic-service activities. Thus, the overall pattern is characterized by strong fiscal implementation and substantial affirmative expenditure, with notable variations in beneficiary targeting across sectors and activities.

Education demonstrates the strongest affirmative orientation, with an ABSI of 99.06%, a BAS of 99.11%, and a TCR of 95.00%. These figures indicate that nearly all education expenditure analyzed was both allocated and realized through activities explicitly targeting OAP. This outcome aligns with the structure of Otsus education programs, such as BOSDA for OAP, educational assistance, and financial support for Papuan students. Although education recorded the lowest FER among the three sectors at 94.98%, its expenditure was significantly more affirmative in beneficiary orientation. This finding underscores that the quality of affirmative implementation cannot be evaluated solely by expenditure absorption. Health exhibits a different pattern. Its FER reached 96.57%, while ABSI was 63.34%, BAS was 61.81%, and TCR was 72.00%. This indicates that health expenditure was effectively implemented financially, but its beneficiary orientation was less exclusively affirmative compared to education. Administrative records indicate that Otsus-funded health interventions include maternal healthcare, malaria and HIV/AIDS control, health promotion, preventive services, and health personnel development. Many of these interventions serve broader public-health functions, benefiting both OAP and non-OAP populations. Therefore, the lower ABSI should not be interpreted as poor health-service performance, but rather as evidence of a broader beneficiary scope within Otsus-funded health expenditure.

The contrast is even clearer in basic infrastructure. This sector achieved the highest FER, 99.77%, indicating almost complete financial realization. However, its ABSI was the lowest, at 61.14%, accompanied by a BAS of 61.17% and TCR of 50.00%. Administrative evidence identifies SPAM, drainage rehabilitation, neighbourhood roads, coastal-village infrastructure, and other public facilities among Otsus-supported infrastructure interventions. Some infrastructure activities directly support OAP settlements and customary communities, but roads, drainage systems, and other physical infrastructure may simultaneously serve the wider population. The sector therefore demonstrates the clearest separation between high financial performance and beneficiary-specific affirmation. The relationship between BAS and ABSI provides an additional insight. In education and infrastructure, ABSI values are almost identical to their respective BAS values, while health shows only a modest increase from 61.81% to 63.34%. This relative stability indicates that the affirmative composition of expenditure was generally preserved from allocation to realization. The principal variation therefore lies not in whether allocated affirmative budgets were executed, but in how strongly each service sector was originally structured around OAP-specific beneficiaries (Masaba et al., 2020).

Collectively, the results reveal three distinct patterns of basic-service implementation. Education exemplifies a strongly affirmative service model, with Otsus expenditure closely associated with OAP-specific beneficiaries. Health represents a mixed affirmative and general service model, reflecting the broader population coverage characteristic of many public-health interventions. Basic infrastructure illustrates a high-execution, shared-benefit model, where Otsus financing supports Indigenous settlements but also generates benefits that are not exclusive to OAP. These findings indicate that Otsus basic-service performance in Jayapura City cannot be adequately captured by budget realization alone. The 96.83% overall FER confirms strong administrative execution, while the 78.38% ABSI reveals the substantive extent of OAP-oriented realized expenditure. The disparity between these indicators offers a more precise understanding of Special Autonomy implementation: fiscal performance is high, affirmative orientation is substantial, but its intensity varies significantly across basic-service sectors (Otoo & Danquah, 2021). This sectoral differentiation forms the empirical basis for evaluating how Special Autonomy translates fiscal asymmetry into affirmative basic-service delivery in Jayapura City.

Spatial Coverage and Territorial Distribution of Otsus-Funded Basic Services

The expenditure-based assessment in the previous section indicated that Otsus-funded basic services achieved a Financial Execution Rate (FER) of 96.83%, while the overall Affirmative Basic Service Index (ABSI) reached 78.38%. Sectoral ABSI values ranged from 61.14% to 99.06%, reflecting variation in the affirmative orientation of realized expenditure across basic-service sectors. However, these expenditure-based measures primarily capture beneficiary orientation rather than the territorial distribution of service interventions. Consequently, spatial coverage was analyzed to assess the geographic distribution of Otsus-funded basic-service programs in Jayapura City. Spatial coverage provides a complementary perspective to the ABSI assessment. While ABSI quantifies the proportion of realized expenditure directed toward activities explicitly targeting Indigenous Papuans (OAP), spatial mapping identifies the geographic distribution of the programs implementing this expenditure. This distinction is significant because beneficiary targeting and territorial coverage are not inherently equivalent. For example, an OAP-targeted program may operate within a specific service location, whereas place-based infrastructure can extend services to Indigenous settlements while also serving the broader population. The spatial assessment therefore examined the concentration, continuity, dispersion, and territorial reach of recorded basic-service programs (Park et al., 2023).

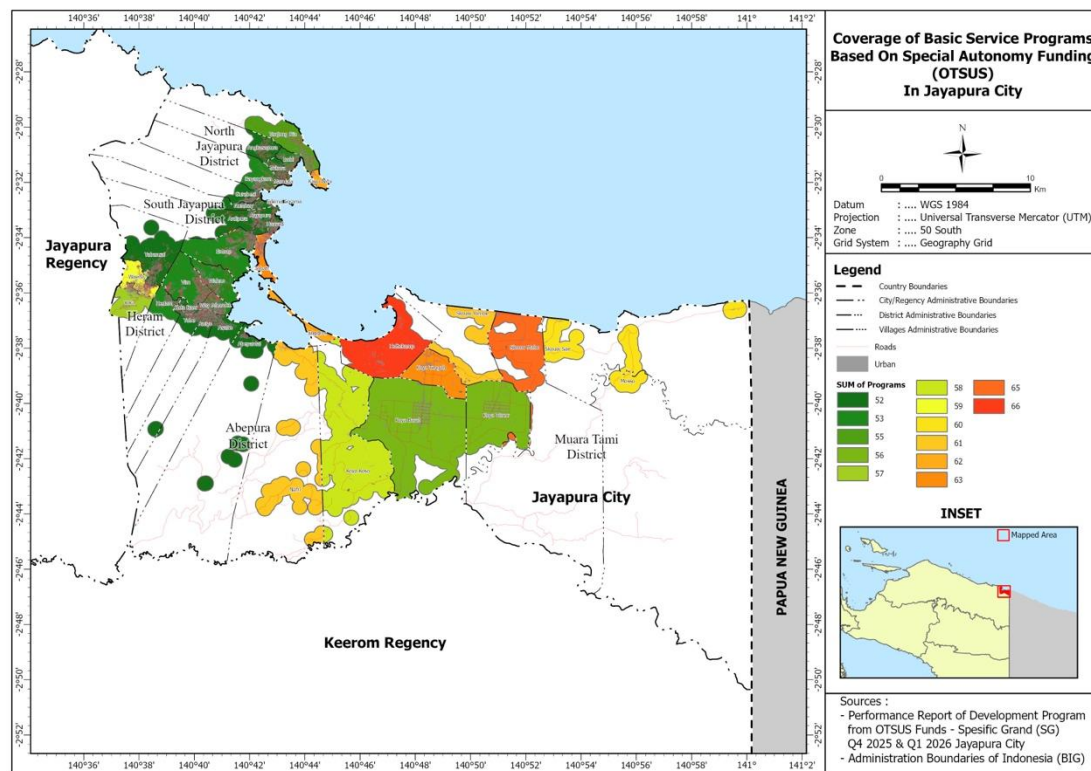


Figure 1. Spatial Coverage of Otsus-Funded Basic-Service Programs in Jayapura City

Figure 1 illustrates the spatial coverage of Otsus-funded basic-service programs in Jayapura City. The mapped values of 52–66 represent the total number of recorded Otsus-funded basic-service programmes within each spatial unit. These values indicate the distribution of recorded programmes rather than service quality, accessibility, or population-adjusted spatial equity. The spatial pattern demonstrates that Otsus-funded basic-service programs are distributed across the major administrative areas of Jayapura City, though their territorial configurations vary. A relatively continuous pattern of program coverage is observed in North Jayapura, South Jayapura, Heram, and parts of Abepura. Within these areas, mapped coverage forms compact configurations corresponding to established urban and settlement zones. However, program intensity varies within these districts, indicating that coverage is not spatially homogeneous even in more consolidated urban areas. A contrasting configuration appears in the eastern part of the city, particularly in Muara Tami District. Unlike the compact distribution observed in central and western Jayapura, program coverage in Muara Tami is more spatially dispersed. Several locations exhibit high program concentrations, while intervening areas show lower or discontinuous coverage. This pattern suggests that Otsus interventions in the eastern territory are distributed across geographically separated service areas rather than forming a continuous concentration.

The distribution thus highlights a clear distinction between spatial continuity and spatial dispersion. Established urban areas display a relatively connected pattern of program presence, while eastern and peripheral territories exhibit a more fragmented configuration. This spatial difference aligns with field findings on basic service conditions. Interviews revealed that education and health personnel are concentrated in central areas, whereas peripheral and customary areas experience greater constraints in the availability of teachers, health personnel, and supporting facilities. Accessibility challenges were also reported in Muara Tami and several coastal settlements. The spatial configuration of infrastructure programs is especially apparent because these interventions are directly linked to physical locations. Administrative

records document Otsus-supported interventions such as drinking-water systems (SPAM), drainage rehabilitation, neighbourhood roads, and infrastructure serving coastal and customary settlements. These place-based interventions extend the territorial reach of basic services beyond consolidated urban areas and establish identifiable service locations within peripheral and Indigenous settlements.

However, the mapped presence of infrastructure does not necessarily indicate exclusive OAP beneficiary coverage. Several roads, drainage systems, and other physical infrastructure projects identified in the research are also utilized by the broader population. This observation clarifies the relationship between the spatial results and the lower affirmative expenditure recorded for infrastructure in Result 1. Infrastructure may have a distinct territorial presence within or near Indigenous settlements while serving a wider beneficiary group. Therefore, territorial targeting and beneficiary-specific targeting represent different observable aspects of the same intervention. Education and health sectors exhibit a different spatial character, as many interventions are delivered through beneficiary assistance or service programs rather than solely through location-specific physical infrastructure. Education interventions, such as BOSDA OAP and educational assistance for Papuan students, demonstrate explicit beneficiary targeting. Health interventions include maternal services, malaria and HIV/AIDS control, health promotion, and preventive services, several of which operate with a broader population-based service scope. As a result, the spatial representation of these sectors reflects the locations of program delivery, while their beneficiary orientation is more accurately captured by the expenditure-based assessment. The mapped variation should not, however, be interpreted directly as evidence of spatial inequality. The available spatial dataset does not incorporate OAP population size, population density, facility capacity, travel distance, travel time, or population-adjusted service demand. Areas with lower mapped program concentrations therefore cannot automatically be classified as underserved, nor can higher concentrations be interpreted as sufficient service provision. The map specifically identifies differences in program concentration and territorial coverage (Rugeiyamu & Msendo, 2025).

Overall, the spatial findings complement the expenditure-based assessment by revealing a territorially differentiated pattern of Otsus-funded basic-service implementation. Program coverage is relatively continuous within established urban areas and becomes more dispersed toward eastern and peripheral territories. At the same time, place-based infrastructure extends the territorial presence of Otsus interventions even where beneficiary coverage is not exclusively OAP-specific. Thus, the results identify two distinct empirical dimensions of implementation: ABSI captures the affirmative orientation of realized expenditure, while spatial coverage captures the territorial distribution of the programs through which that expenditure is delivered. Together, these findings show that Otsus-funded basic services in Jayapura City combine substantial affirmative expenditure with differentiated patterns of territorial service coverage.

The findings indicate that evaluating the implementation of Special Autonomy in Jayapura City requires more than an assessment of fiscal performance. While financial execution reflects administrative capacity to utilize Special Autonomy resources, it does not fully capture whether expenditures maintain the intended affirmative orientation for Indigenous Papuans (OAP). This distinction aligns with previous research, which has shown that Special Autonomy funding can support education and health services, but that accountability, institutional capacity, coordination, and community participation are also critical for translating fiscal resources into effective public services (Setiawan et al., 2022). Earlier studies have identified ongoing challenges in converting Papua's differentiated fiscal arrangements into substantive improvements in service delivery. The present study advances this literature by demonstrating

that beneficiary-specific affirmation is a key dimension linking fiscal expenditure to actual service delivery. The sectoral analysis further supports this distinction. Education exhibits the most explicit affirmative orientation, as many interventions are directly targeted to OAP beneficiaries through educational assistance, BOSDA, and other forms of support (Teles et al., 2025). In contrast, the health sector features both affirmative programs and broader public-health interventions that serve the wider population. Infrastructure demonstrates an even greater shared-benefit characteristic: while facilities may be developed in or for Indigenous settlements, roads, drainage, water systems, and other infrastructure are also utilized by non-OAP populations. Previous research has found that the effects of Special Autonomy vary across service sectors and that increased expenditure does not necessarily yield proportional improvements in public-service outcomes. The present findings add to this understanding by illustrating that the degree of affirmative targeting varies according to the functional characteristics of each basic-service sector (Zarychta, 2020).

Spatial coverage offers additional evidence of this differentiation. Otsus-funded programs display relatively continuous coverage in established urban areas and a more dispersed pattern in peripheral and eastern regions (Lele, 2019). These spatial patterns complement the ABSI findings, as beneficiary targeting and territorial distribution reflect distinct aspects of implementation. A program may have a strong OAP beneficiary orientation without being spatially exclusive, while infrastructure serving broader populations can still fulfil a significant territorial role by extending services to Indigenous, coastal, and peripheral settlements. Thus, spatial coverage demonstrates that substantive implementation of Special Autonomy cannot be determined solely by beneficiary classification (Kumala et al., 2024). This finding is significant for understanding the regulatory objectives of Papua's Special Autonomy, which emphasizes the protection, empowerment, and welfare improvement of OAP within differentiated governance. The research also indicates that local implementation prioritizes education, health, and infrastructure, explicitly identifying OAP and Indigenous Port Numbay communities as primary beneficiaries. However, many infrastructure services inevitably benefit the broader population (Kadam & Setiadi, 2021). This dynamic highlights a key implementation challenge: balancing affirmative policy targeting with the inherently shared nature of basic public services. Therefore, lower beneficiary exclusivity should not be interpreted as weak implementation when interventions are geographically targeted to enhance access for priority Indigenous communities (Engdaw, 2022).

The findings therefore refine the concept of asymmetry in basic-service governance. Fiscal asymmetry denotes the differentiated authority and financial resources allocated through Special Autonomy, whereas substantive service-delivery asymmetry addresses whether these resources maintain a clear affirmative orientation and respond to distinct territorial conditions during implementation. This distinction is critical, as a region may effectively utilize special fiscal resources without achieving a corresponding level of beneficiary-specific service differentiation. Conversely, interventions with limited beneficiary exclusivity may still deliver territorially significant benefits to OAP communities. Previous studies have identified a persistent gap between substantial Special Autonomy resources and uneven development or service outcomes in Papua. Rather than attributing this gap solely to the magnitude of funding or financial absorption, the present study demonstrates the importance of examining how affirmative intent is retained during expenditure realization and how funded interventions are distributed territorially. This provides a more detailed analytical layer between fiscal input and broader welfare outcomes (Cavalieri & Ferrante, 2020).

The main contribution of this study is the empirical integration of ABSI and spatial coverage to evaluate these two dimensions. ABSI offers an expenditure-based metric for assessing

whether realized basic-service spending maintains an explicit OAP beneficiary orientation, while spatial mapping illustrates the territorial distribution of interventions funded by this expenditure. These measures are complementary, not interchangeable, and prevent conflating financial absorption, beneficiary affirmation, and territorial coverage as equivalent indicators of policy performance. Accordingly, this study advances research on asymmetric decentralization by demonstrating that the substantive performance of Special Autonomy must be evaluated beyond the availability and absorption of differentiated fiscal resources. Implementation becomes more transparent when both affirmative expenditure and territorial service coverage are jointly assessed. This approach offers a more precise framework for determining whether Special Autonomy is effectively translated from a differentiated fiscal arrangement into basic-service interventions that maintain their affirmative intent while addressing the diverse territorial conditions of Jayapura City.

Conclusion

The findings indicate that the performance of Special Autonomy in basic-service delivery in Jayapura City cannot be fully captured by financial realization alone. While Otsus-funded education, health, and basic infrastructure demonstrated strong fiscal implementation, the Affirmative Basic Service Index (ABSI) revealed varying degrees of affirmative orientation across sectors. Education displayed the highest level of OAP-specific targeting, health combined affirmative and general public-service functions, and basic infrastructure exhibited lower beneficiary exclusivity despite substantial financial implementation. These distinctions confirm that fiscal performance and affirmative service performance constitute separate dimensions of Special Autonomy implementation. Spatial analysis further demonstrates that affirmative expenditure does not necessarily result in uniform territorial coverage. Otsus-funded programs exhibit relatively continuous coverage within established urban areas, with a more dispersed pattern in peripheral and eastern territories. Additionally, infrastructure findings indicate that lower beneficiary exclusivity does not inherently imply limited relevance to OAP, since shared public facilities can deliver significant territorial benefits to Indigenous, coastal, and peripheral settlements. The principal contribution of this study is integrating ABSI and spatial coverage to differentiate financial execution, beneficiary-specific affirmation, and territorial service distribution. This approach offers a more substantive framework for evaluating asymmetric decentralization beyond conventional budget absorption and demonstrates that fiscal asymmetry does not necessarily result in equivalent service-delivery asymmetry. Policy evaluation of Otsus should therefore supplement financial performance indicators with assessments of beneficiary targeting and territorial coverage. Jayapura City is advised to enhance OAP-specific targeting where direct beneficiary identification is feasible, while place-based sectors such as infrastructure should prioritize interventions based on the territorial needs of Indigenous and peripheral settlements. Future evaluations should incorporate data on OAP population distribution, service capacity, accessibility, and travel time to assess whether affirmative expenditure is accompanied by equitable territorial access to basic services.

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