

# When Money Isn't Enough: How Institutional Capacity Mediates the Economic Spending-Welfare Relationship in Indonesian Regions

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**ABSTRACT:** *This study investigates the mediating role of institutional capacity in the relationship between economic expenditure and social welfare within Indonesia's fiscal decentralization framework. Using panel data from 420 regencies and cities across Indonesia from 2013 to 2022, this research employs a quantitative approach with Fixed Effects Model analysis and the Sobel test for mediation analysis. Economic expenditure is measured as the percentage of economic spending relative to total regional government expenditure; institutional capacity is assessed through outcome ratios comprising economic growth, poverty reduction, and unemployment reduction performance indicators compared to national targets; while social welfare is proxied by the Human Development Index (HDI).*

*The findings reveal significant positive effects of economic expenditure on social welfare at the national level (coefficient = 0.061882,  $p < 0.01$ ), with substantial regional variations ranging from highly responsive regions such as Sumatra (0.089341) to non-significant effects in Papua and Nusa Tenggara-Bali. Economic expenditure also significantly influences institutional capacity (coefficient = 0.531129,  $p < 0.01$ ), though with lower explanatory power (adjusted  $R^2 = 0.351073$ ), indicating that institutional development is influenced by more complex factors beyond fiscal variables.*

*The mediation analysis confirms that institutional capacity significantly mediates the relationship between economic expenditure and social welfare ( $t$ -statistic = 6.13 > 1.97), with regional variations showing effective mediation mechanisms in Sumatra ( $t = 3.91$ ), Kalimantan ( $t = 2.19$ ), Java ( $t = 2.71$ ), and Sulawesi-Maluku ( $t = 4.76$ ), while Papua and Nusa Tenggara-Bali exhibit non-significant mediation effects.*

*These findings challenge the linear assumptions in fiscal federalism theory and support the development of a "mediated fiscal federalism" framework, emphasizing that fiscal decentralization effectiveness depends not only on resource allocation but also on institutional mediation mechanisms. The study contributes to the integration of New Public Management principles with Sen's capability approach, demonstrating that performance-based budgeting effectiveness varies significantly across institutional contexts.*

*The research provides critical policy implications for reformulating Indonesia's fiscal policy toward more contextualized and differentiated approaches, redesigning transfer systems based on institutional performance, and strengthening intergovernmental coordination mechanisms for sustainable development.*

**Keywords:** *Decentralization, Economic Expenditure, Fiscal Policy, Human Development Index, Outcome Ratio.*

## I. BACKGROUND

Fiscal decentralization represents one of the most influential policy reforms in the governance of developing countries, including Indonesia. This policy grants broader authority to regional governments in managing financial resources and public services, with the expectation of improving budget allocation efficiency and responding to local needs more effectively. The Fiscal Decentralization Theory proposed by Musgrave (1959) and further developed by Oates (1972) explains that regional governments possess informational advantages and proximity to communities, enabling them to design policies that align with local conditions and priorities.

Indonesia formally implemented its fiscal decentralization policy in 2001 through a financial balance system between central and regional governments. Regional governments receive significant budget portions through the General Allocation Fund (DAU), Special Allocation Fund (DAK), and local own-source revenue from taxes and levies. Fiscal decentralization is expected to accelerate regional development, reduce interregional disparities, and enhance social welfare through more targeted resource allocation.

Nevertheless, various studies demonstrate that these achievements have not been fully realized. Development gaps persist between regions, along with disparities in the Human Development Index (HDI) and

substantial variations in budget utilization effectiveness. This phenomenon indicates that the success of fiscal decentralization heavily depends on regional institutional capacity and sound budget governance.

Studies by Alawia et al. (2021) and Azam & Bouckaert (2024) confirm that although performance-based budgeting (PBB) has potential as a fiscal performance improvement tool, its implementation remains suboptimal due to weak institutional capacity in various regions, particularly in Eastern Indonesia. Limitations in institutional capacity, poor quality of performance information, weak evaluation culture, and varying levels of preparedness across regions constitute major barriers to effective PBB implementation.

Economic expenditure plays a strategic role in the context of fiscal decentralization as the primary instrument for regional governments to promote economic growth and enhance community welfare. Economic spending encompasses all expenditures directed toward activities that foster local economic development, including infrastructure development and investment in productive sectors.

The empirical literature reveals diverse findings regarding the impact of economic spending on social welfare. Several studies, including Oates (1972), Martinez-Vazquez & Timofeev (2018), and Khalid & Yasmin (2023), demonstrate that well-targeted government expenditure can promote better public services and social welfare improvement. Conversely, research by Bahl & Linn (2022) and Ivanyna & Shah (2018) warns that expenditure without adequate institutional capacity risks widening inequality and creating resource distribution imbalances.

Within Sen's (1999) human development theory framework, public spending should be directed toward expanding community capabilities and enhancing long-term welfare. However, studies by Suratman (2018) and Melayanti & Indrajaya (2021) show that economic growth resulting from fiscal decentralization does not always correlate proportionally with HDI improvement. This suggests constraints in the transmission of public budgets into welfare outcomes, presumably related to budgeting quality and institutional capacity.

To improve public spending quality, a performance-based budgeting (PBB) approach has been developed as part of the New Public Management paradigm (Hood, 1991). PBB links budget expenditure with measurable results (outputs and outcomes), thereby strengthening accountability, efficiency, and effectiveness of public budget utilization. However, PBB implementation in Indonesia faces significant challenges that demand in-depth analysis of institutional capacity's role as a mediating factor.

Although research on the relationship between fiscal policy and social welfare has experienced rapid development, several gaps remain inadequately addressed, particularly regarding the mediating role of institutional capacity in the relationship between economic expenditure and social welfare.

From a theoretical dimension, the integration between classical economic theory and modern fiscal decentralization theory has not been conceptually established. Although market concepts and allocation efficiency through the "invisible hand" mechanism (Adam Smith) and division of labor are highly relevant in local policy contexts, most contemporary studies have not explicitly linked these ideas with the fiscal federalism framework of Musgrave (1959) and Oates (1972).

Methodological aspects also exhibit significant limitations. Analytical approaches in various previous studies have not fully represented the complexity faced by regional governments in implementing fiscal decentralization. Siburian (2020) examined the relationship between fiscal decentralization and regional inequality but did not consider mediating variables such as institutional capacity that could influence final policy outcomes.

Empirical phenomena in the implementation of fiscal decentralization and PBB in Indonesia reflect the complexity identified in the theoretical framework. Significant disparities in performance target achievement indicate gaps in fiscal policy implementation. Variations in PBB implementation also present complexity that warrants deeper investigation.

The dynamics of fiscal allocation and social welfare demonstrate paradoxes that require theoretical and empirical explanation. The significant increase in balance funds of 145.06% since 2001 and average growth of 13.03% per year reflects substantial expansion in regional fiscal capacity. However, the persistence of HDI disparities ranging from 20-25 points and Gini coefficient variations between 0.26-0.44 indicate gaps between resource allocation and social welfare outcomes.

These inconsistent findings reflect the gap between theory and practice. The suboptimal results of fiscal decentralization and PBB implementation highlight the importance of further studies that integrate institutional and contextual aspects in evaluating fiscal policy and social outcomes. Particularly, few studies directly examine how institutional capacity can mediate the relationship between economic expenditure and welfare achievement.

Furthermore, understanding of how regional variations affect fiscal policy effectiveness remains highly limited. Research by Melayanti & Indrajaya (2021) has not explored contextual heterogeneity across regions, including institutional capacity, geographical conditions, and bureaucratic culture, which can influence decentralization and PBB implementation.

These comprehensive theoretical, methodological, empirical, contextual, and implementation limitations demonstrate the need for more comprehensive and integrative research to answer how economic

expenditure can effectively enhance social welfare while considering institutional capacity as a mediating variable. This research is expected to enrich the literature on fiscal policy and contribute to formulating strategies for institutional strengthening and regional financial governance in Indonesia toward achieving more inclusive and equitable sustainable development goals.

## II. LITERATURE REVIEW

The Fiscal Federalism Theory, first introduced by Richard Musgrave in "The Theory of Public Finance" (1959), offers a conceptual framework for understanding the role of government in the public economy. Musgrave identified three fundamental government functions: resource allocation, income distribution, and economic stabilization. This framework subsequently became an important foundation for studying fiscal relationships among different levels of government.

Musgrave's thinking was expanded by Wallace Oates through the Decentralization Theorem in his seminal work "Fiscal Federalism" (1972). Oates argued that economic efficiency can be achieved through fiscal decentralization by delegating the provision of local-scale public goods to regional governments. This is based on the assumption that regional governments have a deeper understanding of local community preferences and needs.

Charles Tiebout, through his "pure theory of local expenditures" (1956), made an important contribution by reinforcing Musgrave and Oates' arguments. Tiebout contended that population mobility and interregional competition promote efficiency in local public goods provision through the concept of "voting with one's feet," which became an important pillar in fiscal federalism theory.

New Public Management (NPM), developed by Christopher Hood in "A Public Management for All Seasons?" (1991), offers a new paradigm in public administration that strengthens the implementation of fiscal federalism concepts. Hood articulated a fundamental transformation in public sector management by advocating the adoption of private sector management practices to improve public service efficiency and effectiveness.

Performance-Based Budgeting (PBB), developed by Robert Behn in "Rethinking Democratic Accountability" (2003), provides an operational framework that integrates fiscal federalism and NPM principles in public financial management. Behn emphasized the importance of linking resource allocation with measurable results, aligning with NPM's focus on public sector efficiency and effectiveness.

Robinson & Last (2009) demonstrated that PBB systems enable regional governments to operationalize the allocation efficiency concept that forms the core of Oates' (1972) fiscal federalism theory while meeting accountability demands emphasized in NPM. Wang (2010) showed that PBB strengthens fiscal decentralization implementation through three main mechanisms: enhancing resource utilization transparency, strengthening performance accountability, and optimizing budget allocation based on results.

The Development as Freedom theory developed by Amartya Sen (1999) provides an important perspective that integrates human welfare dimensions with fiscal decentralization, NPM, and PBB frameworks. Sen (1999) emphasized that development must be understood as a process of expanding substantive freedoms that enable individuals to live lives they value.

In the context of fiscal decentralization, Fukuda-Parr (2003) explained how Sen's capabilities approach enriches understanding of the decentralization objectives proposed by Oates. Decentralization is viewed not only as a policy to improve allocation efficiency but also as a mechanism to expand capabilities and freedoms of local communities in determining their development priorities.

Contemporary empirical investigations reveal multidimensional complexity in the interrelationships between fiscal decentralization and social welfare. Ahmad et al. (2024), in their study in Pakistan, identified significant potential of fiscal decentralization in welfare optimization through localized decision-making. This finding was validated by Ahmed et al. (2022), who demonstrated substantial improvements in responsiveness to local needs when regional fiscal autonomy was expanded.

In the Indonesian context, investigations by Akita et al. (2021) confirmed that fiscal decentralization effectiveness strongly correlates with regional capabilities in identifying and responding to constituent needs. Comparative studies conducted by Delgado et al. (2022) and Alberto et al. (2022) identified positive correlations between effective decentralization implementation and improved social welfare indicators, particularly in public service accessibility and community participation dimensions.

However, studies by Farida et al. (2021) in Eastern Indonesia revealed implementation paradoxes: although fiscal decentralization contributed to regional economic growth, its effectiveness in mitigating interregional development disparities remained limited. Longitudinal studies by Canare (2021, 2022) in the Philippines and comparative analysis by Digdowiseiso (2022) provided significant empirical evidence regarding effectiveness heterogeneity influenced by the specific characteristics of each region.

Contemporary empirical investigations reveal multiple factors influencing PBB implementation effectiveness. Collaborative studies by Mirzamani et al. (2022) and Li et al. (2024) identified two critical determinants: solid political commitment and active multi-stakeholder participation. These findings were

validated by research conducted by Karlina & Novianty (2023) in Indonesia, which demonstrated the effectiveness of the "Money Follows Program" approach in optimizing resource allocation.

Investigations by Alsharari (2022) and Ho et al. (2023) elaborated on complex interactions between political-economic pressures and PBB processes. Parallel to these findings, Solgi et al. (2022) and Biswan et al. (2023) underscored the significance of technical implementation aspects, particularly the urgency of robust performance measurement systems as fundamental to success.

Contemporary empirical investigations reveal complexity in the interrelationships among governance, budget effectiveness, and human development. Collaborative studies by Aminah et al. (2021) and Armawaddin et al. (2022) identified positive correlations between good governance implementation and optimization of public budget utilization, which has implications for improved public service quality.

Miranda-Lescano et al. (2024) enriched this understanding by demonstrating the significance of social sector public expenditure in accelerating human development. In the fiscal transfer dimension, investigations by Alam & Simanjuntak (2023) revealed significant positive correlations between fund transfer mechanisms and improvements in community welfare indicators.

Contemporary empirical investigations have revealed multidimensional complexity in the interrelationships among fiscal decentralization, PBB, and social welfare. Studies by Khoirunisa & Sulaeman (2022) identified significant bidirectional relationships between regional independence levels and social welfare, indicating that both variables mutually reinforce each other in a dynamic cycle.

Ramadanti et al. (2023) enriched this understanding by demonstrating that government spending effectiveness in mitigating disparities is heavily influenced by multiple contextual factors that vary across regions. In the financial governance dimension, investigations by Ferryono et al. (2022) provided robust empirical evidence regarding positive contributions of financial accountability and control systems to social welfare optimization.

Although empirical evidence has confirmed various aspects of relationships among fiscal decentralization, PBB, and social welfare, significant gaps remain in the literature. First, most studies focus on direct relationships among these variables without considering complex mediation mechanisms. Second, limited research analyzes the role of institutional capacity as a mediating factor in transforming economic sector expenditure into social welfare outcomes.

Third, contextual heterogeneity across regions in Indonesia has not been fully explored in the context of mediation analysis. Fourth, integration between classical fiscal federalism theory with the NPM paradigm and Sen's capabilities approach still requires further development within a comprehensive analytical framework. Fifth, temporal dimensions and dynamics of change in fiscal policy implementation have not received adequate attention in existing empirical literature.

These gaps indicate the need for more comprehensive and integrative research to understand how institutional capacity mediates the relationship between economic expenditure and social welfare in the context of fiscal decentralization in Indonesia.

### **III. METHODOLOGY**

This study adopts a quantitative approach with panel data analysis to investigate the mediating role of institutional capacity in the relationship between economic expenditure and social welfare. The research design is built upon a conceptual framework that integrates Oates' (1972) perspective on fiscal decentralization, Behn's (2003) views on performance-based budgeting, Bird's (2003) insights on public policy implementation, and Sen's (1999) theory of development as capability expansion.

The selection of a quantitative approach is based on the need to measure complex causal relationships among research variables within a broad and representative context. This approach enables researchers to test theoretical hypotheses empirically using verifiable and replicable data. Panel data analysis was chosen for its ability to capture both cross-sectional and time-series dimensions simultaneously, providing more comprehensive insights into the dynamics of inter-variable relationships within an extended temporal context.

This research design is specifically designed to explore the transmission mechanisms through which economic expenditure can transform public resources into enhanced capabilities and community welfare. The focus on mediation mechanisms is crucial given that previous literature demonstrates that direct relationships between government expenditure and social welfare are often inconsistent or even paradoxical across various implementation contexts.

This research was conducted with national coverage of Indonesia, encompassing all regencies and cities that meet the research criteria. The selection of Indonesia as the research locus is based on the unique characteristics of this archipelagic nation with extremely high levels of heterogeneity in geographical, economic, social, and institutional aspects. These conditions make Indonesia an ideal natural laboratory for testing the effectiveness of fiscal decentralization and performance-based budgeting implementation within diverse contexts.

The observation period covers a decade-long timeframe from 2013 to 2022, selected based on mature theoretical and empirical considerations. The selection of 2013 as the starting point is based on the consideration that during this period, Indonesia's fiscal decentralization system had entered a consolidation phase following initial implementation during the reform era. This period also marked the beginning of more serious implementation of performance-based budgeting at the regional level, aligned with broader public financial management reforms.

This decade-long time horizon enables in-depth analysis of fiscal policy evolution and performance-based budgeting implementation, including various policy reforms and institutional capacity strengthening at the regional level. This period also facilitates observation of capability transformation dynamics and community welfare as conceptualized in Sen's development theory, while enabling identification of long-term patterns in inter-variable relationships that might not be detected in shorter cross-sectional or time-series analyses.

The research population encompasses all regencies and cities in Indonesia, totaling 514 administrative units. The selection of regency and city levels as units of analysis is based on the consideration that this governmental level constitutes the locus of fiscal policy and performance-based budgeting implementation. At this level, budget allocations are translated into concrete programs that directly affect community life, and at this level, institutional capacity effectiveness can be observed more directly through the development outcomes produced.

The sample selection process applies strict inclusion and exclusion criteria to ensure consistency and validity of longitudinal data throughout the observation period. Inclusion criteria encompass regencies and cities that have existed administratively since 2013, possess complete and consistent data for all research variables during the 2013-2022 period, and demonstrate administrative status stability without significant changes during the observation period. Conversely, exclusion criteria are applied to regencies and cities resulting from administrative division during the research period, regions experiencing significant administrative status changes, and areas with incomplete or inconsistent data for key research variables.

Based on these criteria, from a total of 514 regencies and cities, this study utilizes 420 regencies and cities that meet the requirements for longitudinal analysis, representing 81.7% of the total population. Although 94 regencies and cities are not included in the main analysis due to various data limitations or administrative status changes, the research sample still provides highly adequate representativeness with high confidence levels. This sample size far exceeds the minimum threshold required for robust statistical analysis while enabling valid generalization of findings for the Indonesian context as a whole.

Economic expenditure in this study is conceptually defined as spending allocation conducted by regional governments with the specific objective of promoting economic growth and enhancing community welfare. This conceptualization aligns with the fiscal policy framework that integrates Behn's perspective on the importance of performance-based budgeting in transforming resource allocation into measurable development outcomes.

Operationally, economic expenditure is measured as the percentage of economic spending relative to total regional government expenditure, using the formula:

$$\text{Economic Expenditure} = (\text{Total Economic Expenditure} / \text{Total Government Expenditure}) \times 100$$

This study utilizes secondary data sourced from authoritative institutions with high credibility and validity in providing national statistical data. The selection of secondary data is based on the consideration that the data required for this research have been collected systematically and consistently by agencies with specific mandates in statistics and national development planning. Economic expenditure data are obtained from the Directorate General of Fiscal Balance, Ministry of Finance of the Republic of Indonesia, which provides comprehensive information on regional revenue and expenditure budget realization with high levels of accuracy and standardization.

Data for outcome ratio components are obtained from two complementary sources: the Central Bureau of Statistics for regional development achievement data and the Ministry of National Development Planning/Bappenas for national performance targets established in the RPJMN. Meanwhile, HDI data are obtained from the Central Bureau of Statistics through annual publications that have been standardized and internationally recognized. This triangulation from various authoritative data sources not only enables cross-validation to enhance analysis robustness but also facilitates comprehensive understanding of fiscal policy transmission mechanisms through performance-based budgeting toward social welfare.

The data collection procedure was conducted through three integrated phases that mutually support each other. The first phase constitutes the preparation phase that focuses on compiling data documentation matrices, analytical frameworks, and data collection protocols validated through expert judgment to ensure methodological robustness. The second phase constitutes the implementation phase involving comprehensive secondary data collection from various authoritative sources, accompanied by strict verification and validation mechanisms to

ensure data credibility and reliability. The third phase constitutes the processing phase encompassing data cleaning, coding, and structuring to ensure format consistency and compatibility for complex econometric analysis.

This study employs panel data regression analysis that enables simultaneous control of unobserved heterogeneity across units and temporal variation. The panel data approach was chosen for its ability to overcome limitations inherent in cross-sectional or time-series analyses conducted separately. Panel data analysis enables researchers to control for specific characteristics of each regency and city that remain unchanged over time (time-invariant unobserved heterogeneity) while capturing dynamics of changes occurring over time.

The models used include three main specifications: the Common Effect Model, which assumes that intercepts and slopes are constant for all cross-sectional and time-series units; the Fixed Effects Model, which considers variations in effects among individuals where such effects constitute unobservable parameters that can be estimated; and the Random Effects Model, which relies on generalized least squares techniques to estimate its parameters with the assumption that individual effects are random and uncorrelated with independent variables.

The selection of the best model was conducted through a series of systematic specification tests. The Chow Test is used to compare the Common Effect Model versus the Fixed Effects Model by testing whether there are significant differences among individuals or time in panel data that cannot be ignored. The Hausman Test is used to compare the Fixed Effects Model versus the Random Effects Model by testing whether there is correlation between errors and independent variables that could cause bias in estimation. The Lagrange Multiplier Test is used as additional validation when results from previous tests show inconsistency or require further confirmation.

To test the mediating role of institutional capacity in the relationship between economic expenditure and social welfare, this study adopts the Baron & Kenny (1986) approach, which has become standard in mediation analysis, enriched with Product of Coefficients techniques to enhance testing robustness. This approach involves estimating three interrelated econometric models to identify and quantify mediation effects.

The first model tests the total effect of economic expenditure on social welfare without involving mediating variables:

$$HDI = \alpha_0 + \alpha_1(Economic\_Expenditure) + \varepsilon_1$$

The second model tests the effect of economic expenditure on the mediating variable (path a):

$$Outcome\_Ratio = \beta_0 + \beta_1(Economic\_Expenditure) + \varepsilon_2$$

The third model tests the effect of the mediating variable on social welfare while controlling for economic expenditure (paths b and c'):

$$HDI = \gamma_0 + \gamma_1(Outcome\_Ratio) + \gamma_2(Economic\_Expenditure) + \varepsilon_3$$

The significance of mediation effects is tested using the Sobel Test with the formula:

$$t = (a \times b) / \sqrt{(b^2Sa^2 + a^2Sb^2)}$$

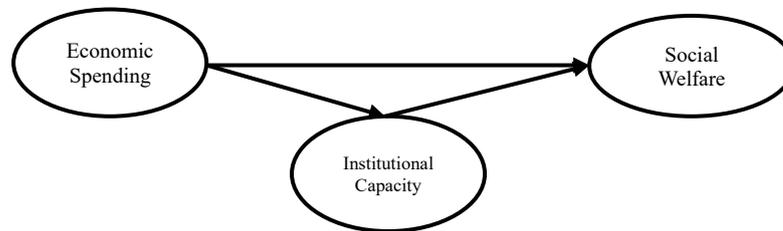
Where  $a$  represents the path coefficient from independent variable to mediator,  $b$  represents the path coefficient from mediator to dependent variable,  $Sa$  is the standard error of coefficient  $a$ , and  $Sb$  is the standard error of coefficient  $b$ .

The validity of analysis results is strengthened through a series of comprehensive classical assumption tests. Normality testing is conducted using the Jarque-Bera Test to evaluate whether model residuals are normally distributed, which is a prerequisite for statistical inference validity. Multicollinearity testing is conducted using the Variance Inflation Factor (VIF) to detect and quantify the level of correlation among independent variables that could affect parameter estimation stability. Autocorrelation testing is conducted using the Durbin-Watson Test to detect the presence of temporal dependence in residuals that could affect estimator efficiency. Heteroscedasticity testing is conducted using the Breusch-Pagan Test to evaluate residual variance consistency across observations, which is an important assumption in classical regression.

To ensure reliability and consistency of results, this study conducts a series of comprehensive robustness analyses. Sensitivity analysis is performed by testing various alternative model specifications to ensure that main findings do not depend on specific model specifications. Subsample analysis is conducted by comparing results between Western and Eastern Indonesia regions to identify regional heterogeneity in the mechanisms studied. Dynamic panel analysis using Arellano-Bond estimation is performed to address potential

endogeneity problems that may arise from reverse causality or omitted variable bias, providing more robust estimates against various violations of classical model assumptions.

This comprehensive analytical approach is designed to produce findings that are not only statistically valid but also robust against various alternative specifications and methodological sensitivities. The integration of various analytical techniques enables researchers to identify and quantify complex mediation mechanisms while maintaining high confidence levels in the validity of the findings produced.



Pic. 1 Empirical Model

#### IV. RESEARCH RESULTS

##### 4.1 Descriptive Results

This study analyzes data from 420 regencies and cities in Indonesia during the 2013-2022 period, generating 4,200 observations that provide a comprehensive overview of the dynamics of relationships among economic expenditure, institutional capacity, and social welfare within the context of fiscal decentralization. Descriptive analysis reveals significant variation in the three main research variables both temporally and spatially, indicating the complexity inherent in implementing fiscal policy and performance-based budgeting in Indonesia.

Economic expenditure shows a national average of 8.429 billion rupiah with considerable variation across regions. Papua demonstrates the highest allocation at 11.009 billion rupiah, followed by Nusa Tenggara and Bali at 9.424 billion rupiah, while Java shows the lowest allocation at 7.377 billion rupiah. This pattern indicates different fiscal strategies across regions, where areas with developing economic bases tend to allocate larger budget portions for economic spending as efforts to accelerate development.

Institutional capacity measured through outcome ratio shows a national average of 87.166, with Sulawesi and Maluku achieving the highest performance at 92.309, followed by Kalimantan at 89.002. Interestingly, regions with high outcome ratios do not always correlate with economic strength, indicating that institutional capacity is more determined by governance factors and performance management rather than resource availability alone.

Social welfare represented by HDI demonstrates relatively good convergence with a national average of 69.120. Java leads at 70.080, followed by Sumatra at 69.547, and Kalimantan at 69.187. Despite variations, the relatively small range of differences (66.666-70.080) demonstrates the success of national policies in equalizing basic services that support human development.

Panel data model specification testing through a series of statistical tests concludes that the Fixed Effect Model is the most appropriate specification for this analysis. The Chow Test yielded an F-statistic value of 54.087462 with probability 0.0000, indicating rejection of the null hypothesis and supporting the use of Fixed Effect Model over Common Effect Model. This finding confirms the existence of significant heterogeneity across regions in the sample that cannot be captured by the common effect model.

The Hausman Test yielded a Chi-Square statistic value of 206.855010 with probability 0.0000, providing very strong statistical evidence to reject the null hypothesis stating that the Random Effect Model is a consistent and efficient estimator. This result indicates that the random effect assumption about orthogonality between individual effects and regressors is not fulfilled in the context of this panel data, making the Fixed Effect Model a more robust choice.

Classical assumption testing shows several deviations from ideal conditions but not serious enough to invalidate the analysis. Normality testing using Jarque-Bera yielded a statistic of 11,465.28 with probability 0.0000, indicating deviation from residual normality. However, with a very large sample size (4,200 observations), the central limit theorem allows valid statistical inference application. Multicollinearity testing shows no extremely high correlation among independent variables (all correlation coefficients < 0.8), while autocorrelation testing using Durbin-Watson yielded a value of 1.272429, indicating moderate positive autocorrelation but not serious enough to disturb estimator consistency.

#### **4.1.1 Indonesia Overall**

Estimation results show that economic expenditure has a positive and significant effect on social welfare in Indonesia with a coefficient of 0.061882 ( $p < 0.01$ ). This finding indicates that every one percent increase in economic spending allocation relative to total regional expenditure contributes to an HDI increase of 0.062 points. The model overall demonstrates excellent explanatory power with an adjusted  $R^2$  of 0.856596, showing that the analyzed variables can explain 85.66 percent of variation in social welfare at the national level.

The significance of this relationship confirms theoretical validity stating that regional government investment in the economic sector can contribute positively to enhancing community capabilities as conceptualized in Sen's (1999) development theory. The moderate yet consistent coefficient magnitude indicates that although economic expenditure is not the sole determinant of social welfare, its contribution remains substantial and reliable as an effective policy instrument.

**Sumatra: High Responsiveness with Stable Consistency**

The Sumatra region shows a very interesting pattern with an economic expenditure effect coefficient on HDI of 0.089341 ( $p < 0.01$ ), which is the highest among all regions. This finding indicates that Sumatra has very high responsiveness to economic investment, where every increase in economic spending allocation provides greater impact on social welfare compared to other regions. The model for Sumatra shows an adjusted  $R^2$  of 0.796093, indicating robust explanatory power although slightly lower than the national average.

Sumatra's high responsiveness can be explained by the structural economic characteristics of this region dominated by primary sectors with strong linkage effects to other sectors. Investment in economic infrastructure in Sumatra, such as port development, roads, and processing facilities, tends to have significant multiplier effects because it supports export activities of plantation and mining commodities that are the mainstay of the regional economy. This condition creates an environment where government economic spending can function as a catalyst that activates existing economic potential, producing proportionally greater impact on improving community welfare.

**Kalimantan: Natural Resource Wealth Paradox and Moderate Efficiency**

Kalimantan shows the effect of economic expenditure on HDI with a coefficient of 0.046867 ( $p < 0.01$ ), which is significant but more modest compared to Sumatra. Interestingly, although Kalimantan has abundant natural resource wealth, responsiveness to government economic spending is not as high as expected. The model for Kalimantan shows a very high adjusted  $R^2$  of 0.945763, indicating that despite moderate marginal impact of economic spending, social welfare variability in this region can be predicted very well by the analyzed factors.

This phenomenon can be explained by Kalimantan's economic structure dominated by extractive industries with capital intensity that is relatively low in employment absorption. Government economic spending in Kalimantan might function more as a complement to large private investment already existing in mining and plantation sectors, so its marginal impact is not as large as in regions still requiring basic infrastructure. However, high predictability indicates that transmission mechanisms from economic spending to social welfare in Kalimantan operate in a very structured and consistent manner.

#### **4.1.2 Java: Advanced Economic Complexity with Diminishing Returns Effect**

Java shows the effect of economic expenditure on HDI with a coefficient of 0.073437 ( $p < 0.01$ ), which is significant but positioned in the middle of the regional responsiveness spectrum. The model for Java shows the highest adjusted  $R^2$  of 0.945763, indicating that inter-variable relationships in this region are very predictable and structured. This condition reflects the maturity of economic and institutional systems in Java that have developed over decades.

This moderate responsiveness can be explained by the diminishing returns phenomenon in an already advanced economy. Java as the national economic center already has relatively complete economic infrastructure, so additional investment in economic spending produces smaller marginal benefits compared to regions still in the development stage. However, very high predictability indicates that the system in Java is very mature and well-organized, so every rupiah invested in economic spending can be accurately predicted for its impact on social welfare.

#### **4.1.3 Sulawesi and Maluku: Excellence in Institutional Capacity**

Sulawesi and Maluku show the effect of economic expenditure on HDI with a coefficient of 0.071111 ( $p < 0.01$ ), which is significant and quite substantial. This region shows an adjusted  $R^2$  of 0.934549, indicating very good explanatory power. What is interesting about Sulawesi and Maluku is their achievement of the highest national outcome ratio (92.309), indicating excellence in institutional capacity despite not having the strongest economic base.

This phenomenon indicates that Sulawesi and Maluku have successfully developed optimal governance systems to transform economic spending into social welfare outcomes. The success of this region might be related to archipelagic characteristics that encourage innovation in service delivery and development of inter-island coordination systems. Investment in connectivity and maritime infrastructure in this region tends to have very large impact because it can reduce geographical isolation and facilitate inter-island economic integration.

#### Papua: Structural Challenges and Implementation Complexity

Papua shows a unique phenomenon where economic expenditure does not show significant effect on HDI with a coefficient of -0.009062 ( $p=0.6973$ ). This finding is very striking considering Papua has the highest national economic spending allocation (11.009 billion rupiah). The model for Papua shows an adjusted  $R^2$  of 0.865348, indicating that although economic spending is not significant, other factors in the model can still explain social welfare variation well.

This lack of significance can be explained by structural complexity faced by Papua, including extreme geographical challenges, basic infrastructure limitations, and institutional capacity disparities. Large economic spending in Papua might still be focused on basic infrastructure development that has not yet provided direct impact on HDI in the short term. Additionally, socio-political and geographical complexity might create leakages in implementation that reduce the effectiveness of economic spending in achieving social welfare targets.

#### Nusa Tenggara and Bali: Tourism Economy Paradox

Nusa Tenggara and Bali show non-significant economic expenditure effect on HDI with a coefficient of 0.019177 ( $p=0.2448$ ). This finding is paradoxical considering this region has good economic performance, especially from the tourism sector. The model for this region shows an adjusted  $R^2$  of 0.927670, indicating high predictability despite non-significant economic spending.

This lack of significance might be related to the tourism economic structure that is capital intensive and tends to be enclave, where economic benefits are not automatically distributed evenly to all layers of society. Government economic spending in this region might function more as supporting infrastructure for the tourism sector already controlled by the private sector, so its direct impact on aggregate social welfare becomes limited. Additionally, focus on tourism might create a dual economy where benefits are only enjoyed by certain segments of the population.

### **4.2 Analysis of Economic Expenditure Relationship to Institutional Capacity**

#### **4.2.1 Indonesia Overall**

Estimation results show that economic expenditure has a positive and significant effect on institutional capacity in Indonesia with a coefficient of 0.531129 ( $p<0.01$ ). This finding indicates that every one percent increase in economic spending allocation contributes to an outcome ratio increase of 0.531 points. The model overall shows an adjusted  $R^2$  of 0.351073, which is significantly lower compared to the previous model, indicating that factors affecting institutional capacity are much more complex and cannot be fully explained by fiscal variables alone.

The significance of this relationship confirms that investment in economic spending not only has direct impact on social welfare but also contributes to institutional capacity development through learning-by-doing effects and increased public management complexity. The process of implementing economic programs forces regional governments to develop more sophisticated monitoring, evaluation, and coordination systems, which in turn improve overall institutional capacity.

#### **4.2.2 Sumatra: Leadership in Institutional Development**

Sumatra shows the highest effect of economic expenditure on institutional capacity with a coefficient of 0.643547 ( $p<0.01$ ). This region also shows the highest adjusted  $R^2$  of 0.404480, indicating that the relationship between economic spending and institutional capacity development in Sumatra can be predicted better compared to other regions. This finding is consistent with Sumatra's performance in previous models and confirms that this region has a system that is very responsive to fiscal investment.

Sumatra's excellence in institutional development might be related to diverse and integrated economic characteristics, encompassing agriculture, plantations, mining, and processing industries. This diversity creates an environment that encourages the development of various types of institutional capacity to manage heterogeneous economic complexity. Additionally, proximity to Singapore and Malaysia might facilitate knowledge transfer and best practices in public management.

#### **4.2.3 Kalimantan: Institutional Efficiency with Resource Abundance**

Kalimantan shows the effect of economic expenditure on institutional capacity with a coefficient of 0.436990 ( $p<0.05$ ), which is significant but lower than Sumatra. The model for Kalimantan shows an adjusted  $R^2$  of 0.301167, indicating moderate predictability. This finding indicates that although economic spending contributes to institutional capacity development, its magnitude is not as large as in Sumatra.

This phenomenon can be explained by Kalimantan's economic structure dominated by extractive sectors with relatively standardized technology and management characteristics. Institutional capacity development in Kalimantan might be more incremental and evolutionary rather than revolutionary, because most systems are already established to manage mining and plantation sectors. However, economic spending still contributes to modernization and diversification of institutional capacity.

#### **4.2.4 Java: Maturity and Sophisticated Institution Building**

Java shows the effect of economic expenditure on institutional capacity with a coefficient of 0.524684 ( $p < 0.01$ ), which is substantial and significant. The model for Java shows an adjusted  $R^2$  of 0.362463, indicating fairly good predictability. This considerable effect magnitude confirms that although Java already has a strong institutional base, investment in economic spending still contributes to continuous improvement and innovation in institutional capacity.

This condition reflects the very complex and dynamic economic characteristics of Java, encompassing manufacturing, services, technology, and creative economy. This complexity encourages continuous adaptation and innovation in institutional capacity to accommodate structural and technological changes. Economic spending in Java might be more focused on upgrading and modernizing institutional systems rather than building from scratch.

#### **4.2.5 Sulawesi and Maluku: Institutional Excellence through Innovation**

Sulawesi and Maluku show the effect of economic expenditure on institutional capacity with a coefficient of 1.043165, although not statistically significant ( $p = 0.2227$ ). The model for this region shows an adjusted  $R^2$  of 0.387219. Despite not being significant, the very large coefficient magnitude indicates substantial potential impact if the right conditions are met.

This lack of significance might be related to high volatility in implementing economic programs in archipelagic regions. Fragmented geographical characteristics create challenges in coordination and implementation that can produce variable outcomes. However, achieving the highest national outcome ratio (92.309) indicates that when the system functions optimally, Sulawesi and Maluku can achieve extraordinary excellence in institutional performance.

#### **4.2.6 Papua: Structural Constraints in Institution Building**

Papua shows non-significant effect of economic expenditure on institutional capacity with a coefficient of -0.007169 ( $p = 0.9715$ ). The model for Papua shows an adjusted  $R^2$  of 0.399811, which is fairly good but with stagnant institutional development. This finding confirms the structural complexity faced by Papua in transforming fiscal investment into institutional improvement.

Challenges faced by Papua in institutional development might be related to basic infrastructure deficits, limited human capital, and fundamental geographical constraints. Economic spending in Papua might still be focused on addressing basic needs rather than institutional sophistication. Additionally, unique cultural and social dynamics might require institutional development approaches different from conventional templates.

#### **4.2.7 Nusa Tenggara and Bali: Tourism Economy and Institutional Specialization**

Nusa Tenggara and Bali show non-significant effect of economic expenditure on institutional capacity with a coefficient of 0.390017 ( $p = 0.1015$ ). The model for this region shows the lowest adjusted  $R^2$  of 0.234727, indicating that factors affecting institutional capacity in this region are very different from the economic variables analyzed.

This finding might reflect institutional specialization focused on tourism and creative economy, where traditional measures of institutional capacity might not fully capture the unique competencies developed. Tourism economy requires institutional capabilities very different from manufacturing or extractive industries, with emphasis on service quality, cultural preservation, and environmental management. Conventional economic spending might be less relevant for developing these specialized institutional capabilities.

### **4.3 Institutional Capacity Mediation Analysis**

#### **4.3.1 Indonesia Overall**

Mediation test results using the Sobel test show that institutional capacity measured through outcome ratio plays a significant mediating role in the relationship between economic expenditure and social welfare in Indonesia. The calculated t-value of 6.13, which is greater than the table t-value of 1.97, confirms the significance of mediation effect at the 95 percent confidence level. This finding indicates that part of the effect of economic expenditure on social welfare is transmitted through increased institutional capacity.

This significant mediation effect confirms the validity of the theoretical framework stating that the relationship between fiscal investment and development outcomes is not mechanical and direct, but rather mediated by the quality of implementation processes and institutional capacity. The substantial magnitude of mediation effect indicates that investment in institutional capacity development can be an effective strategy to enhance the impact of economic spending on social welfare.

#### **4.3.2 Sumatra: Optimal Mediation with High Performance**

Sumatra shows significant mediation effect with a calculated t-value of 3.91 that exceeds the table t-value of 1.98. This finding confirms that in Sumatra, the transmission mechanism from economic expenditure to social welfare through institutional capacity operates very effectively. Sumatra's consistent performance across all analyzed models indicates that this region has developed an optimal integrated system in transforming fiscal investment into development outcomes.

Sumatra's success in institutional mediation might be related to balanced development between economic growth and institutional strengthening that has been ongoing for decades. Experience in managing commodity boom and bust cycles might have forced Sumatra to develop superior institutional resilience and adaptability. Additionally, the economic diversity of this region creates a learning environment that encourages institutional innovation and cross-sectoral knowledge transfer.

#### **4.3.3 Kalimantan: Effective Mediation with Resource-Based Economy**

Kalimantan shows significant mediation effect with a calculated t-value of 2.19 that exceeds the table t-value of 2.02. Although significant, the magnitude of mediation effect in Kalimantan is more modest compared to Sumatra, consistent with patterns observed in previous analyses. This finding indicates that the resource-based economy in Kalimantan has effective institutional mediation mechanisms but with characteristics different from diversified economies.

Institutional mediation in Kalimantan might be more focused on efficiency improvement and environmental management rather than broad-based institutional development. Resource extraction industries require specialized institutional capabilities in areas such as environmental monitoring, community relations, and revenue management that differ from traditional public administration. The significant mediation effect indicates that investments in economic spending successfully enhance these specialized institutional capabilities, which then contribute to social welfare through improved environmental quality and better revenue distribution.

#### **4.3.4 Java: Complex Mediation in Advanced Economy**

Java shows significant mediation effect with a calculated t-value of 2.71 that exceeds the table t-value of 1.98. This substantial mediation effect magnitude confirms that although Java has an already advanced institutional base, continuous investment in economic spending still contributes to meaningful institutional enhancement. Advanced economy in Java requires continuous institutional adaptation to accommodate rapid technological and structural changes.

Institutional mediation in Java might be more focused on innovation and adaptation rather than basic capacity building. Investments in economic spending in Java contribute to the development of cutting-edge institutional capabilities in areas such as digital governance, innovation management, and metropolitan coordination. The significant mediation effect indicates that even in advanced institutional environments, strategic investments can produce meaningful improvements in institutional performance.

#### **4.3.5 Sulawesi and Maluku: Institutional Excellence with High Volatility**

Sulawesi and Maluku show significant mediation effect with a calculated t-value of 4.76 that substantially exceeds the table t-value of 1.96. This very high mediation effect magnitude confirms that achieving the highest national outcome ratio (92.309) is not coincidental but rather the result of very effective institutional mediation mechanisms. The island characteristics of this region might have encouraged the development of unique and highly effective institutional innovations.

Institutional mediation in Sulawesi and Maluku might be characterized by high adaptability and innovation developed as a response to geographical challenges. Island economies require specialized institutional capabilities in areas such as inter-island coordination, maritime logistics, and decentralized service delivery. Success in institutional mediation indicates that this region has successfully developed institutional solutions that are not only locally effective but can also serve as models for other regions with similar characteristics.

#### **4.3.6 Papua: Institutional Mediation Constraints**

Papua does not show significant mediation effect with a calculated t-value of 0.04, which is far below the table t-value of 2.12. This finding confirms that structural constraints faced by Papua not only affect the direct impact of economic spending but also hinder the development of effective institutional mediation mechanisms. This condition indicates that Papua requires fundamentally different approaches in institutional development.

The absence of significant institutional mediation in Papua might be related to basic infrastructure deficits that hinder the development of integrated institutional systems. Geographic isolation, limited connectivity, and human capital constraints might create institutional fragmentation that impedes the development of coherent mediation mechanisms. This condition suggests that Papua might require massive investments in basic institutional infrastructure before sophisticated mediation mechanisms can develop.

#### **4.3.7 Nusa Tenggara and Bali: Specialized Economy with Limited Institutional Mediation**

Nusa Tenggara and Bali do not show significant mediation effect with a calculated t-value of 0.95, which is below the table t-value of 2.02. This finding is consistent with the non-significance of economic spending effects in previous models and confirms that tourism-based economies have institutional dynamics very different from other economic structures. Specialized economies might require specialized institutional mediation mechanisms not captured by conventional measures.

Limited institutional mediation in Nusa Tenggara and Bali might reflect mature specialization in tourism economy where institutional development is already optimized for specific sector needs. Traditional measures of institutional capacity might not fully capture specialized capabilities developed for tourism

management, cultural preservation, and environmental protection. The absence of significant mediation effects suggests that further institutional development in this region might require investments more targeted toward specialized institutional needs rather than general economic development.

## V. CONCLUSION

### 5.1 Theoretical Implications

#### 5.1.1 Reconceptualizing Fiscal Federalism Theory in the Context of Institutional Mediation

This research provides significant contributions to the development of fiscal federalism theory through identifying institutional mediation mechanisms that have been the missing link in the literature. Oates' (1972) Decentralization Theorem, which emphasizes allocation efficiency through proximity and superior information of regional governments, proves to require important qualifications. Research results demonstrate that proximity and information advantage do not automatically produce optimal development outcomes without being mediated by adequate institutional capacity.

Extreme variation in the effectiveness of economic expenditure across regions, where Sumatra shows a coefficient of 0.089341 while Papua and Nusa Tenggara-Bali are non-significant, confirms Bird's (2003) criticism of perfect information assumptions in Oates' theory. This finding indicates that local information advantages must be combined with institutional capacity to process and translate that information into effective policies. The fundamental theoretical contribution of this research is the conceptualization of "mediated fiscal federalism" where fiscal decentralization effectiveness is determined not only by proximity and information but also by the quality of institutional mediation mechanisms.

The finding that Sulawesi and Maluku achieved the highest outcome ratio (92.309) despite having relative economic limitations confirms Shah's (2007) argument about the importance of institutional design in fiscal federalism. This challenges linear assumptions in the literature that tend to associate economic strength with decentralization effectiveness. This research proposes a new theoretical framework that positions institutional capacity as an intervening variable that can amplify or dampen the effects of fiscal instruments on development outcomes.

#### 5.1.2 Integration of New Public Management with Development Theory

This research successfully integrates the New Public Management (NPM) paradigm of Hood (1991) with Sen's (1999) development as freedom theory through empirical evidence of the mediating role of performance-based budgeting. The finding that institutional capacity measured through outcome ratio mediates the relationship between fiscal expenditure and human development confirms the relevance of NPM principles in development contexts, albeit with important caveats.

The significant mediation effect in Indonesia overall ( $t=6.13$ ) but with extreme regional variations indicates that NPM principles cannot be applied universally without adaptation to local contexts. The non-significance of mediation effects in Papua and Nusa Tenggara-Bali challenges universality claims of NPM and supports Pollitt & Bouckaert's (2004) argument about the importance of contextual adaptation in public management reforms.

The novel theoretical contribution of this research is the development of a "contextual NPM framework" that recognizes that the effectiveness of performance-based management is highly dependent on underlying institutional contexts. This framework provides a theoretical bridge between NPM's technical efficiency focus and broader development concerns emphasized in Sen's capability approach. This integration produces more nuanced understanding of how managerial reforms can contribute to human development goals without sacrificing local specificities and cultural contexts.

#### 5.1.3 Evolutionary Institutional Economics and Capability Development

This research's findings provide empirical validation of evolutionary institutional economics propositions that emphasize path dependency and context specificity in institutional development. The variation in outcomes across regions that cannot be fully explained by economic variables (adjusted  $R^2$  for institutional capacity model only 0.35) confirms North's (1990) argument about complex causality in institutional change.

The success story of Sulawesi and Maluku in achieving institutional excellence despite economic limitations provides evidence for the theoretical proposition that institutional development can be autonomous and not always dependent on economic resources. This supports theoretical arguments about "institutional entrepreneurship" where local leaders and communities can develop innovative institutional solutions that transcend economic constraints.

This research proposes the theoretical concept of "institutional resilience" defined as the ability of local institutions to optimize limited resources through innovative management practices. This concept enriches literature on institutional capacity by emphasizing adaptive and creative dimensions of institutional performance, moving beyond traditional focus on formal structures and procedures toward understanding dynamic institutional capabilities.

## **5.2 Managerial Implications**

### **5.2.1 Transformation of Regional Financial Management Approaches**

This research's findings demand fundamental transformation in regional financial management approaches from purely fiscal orientation toward integrated fiscal-institutional management. Evidence that institutional capacity mediates the relationship between expenditure and outcomes indicates that regional financial managers must develop competencies beyond traditional budgeting and accounting skills.

Variation in economic expenditure effectiveness across regions implies the need for differentiated management approaches tailored to specific institutional contexts. Sumatra with high responsiveness (coefficient 0.089341) requires management strategies focused on scaling up and optimizing existing successful practices. Conversely, Papua and Nusa Tenggara-Bali with non-significant effects require fundamental restructuring of expenditure management systems.

Practical implications for financial managers include developing integrated performance monitoring systems that not only track fiscal indicators but also measure institutional development outcomes. Managers need to develop capabilities in institutional diagnosis to identify specific bottlenecks that hinder transformation from expenditure to development outcomes. Training programs for financial managers must incorporate elements of organizational development, change management, and performance measurement to enable more holistic approaches to financial management.

### **5.2.2 Redesigning Planning and Budgeting Systems**

Evidence of the mediating role of institutional capacity implies the need for fundamental redesign of planning and budgeting systems to explicitly incorporate institutional development components. Traditional approaches that focus on sectoral allocations without consideration of institutional requirements prove inadequate for achieving optimal outcomes.

Managerial implications include developing integrated planning frameworks that simultaneously address fiscal allocations and institutional capacity building requirements. Planning processes must incorporate institutional assessments to identify capacity gaps that may constrain the effectiveness of planned expenditures. Budgeting systems need to be designed to enable flexible allocations that can respond to emerging institutional development needs.

Practical implications for planners and budget managers include adopting adaptive management approaches that allow for continuous learning and adjustment based on institutional performance indicators. Systems need to be developed to enable rapid feedback loops between expenditure decisions and institutional outcomes, facilitating real-time adjustments in resource allocations. Performance measurement systems must evolve to capture both fiscal efficiency and institutional development outcomes.

### **5.2.3 Human Resource and Organizational Capacity Development**

Findings about the critical importance of institutional capacity in mediating fiscal-development relationships imply the need for massive investments in human resource development and organizational capacity building. Success stories like Sulawesi and Maluku demonstrate that institutional excellence can be achieved even with economic limitations, highlighting the crucial role of human capital and organizational innovation.

Managerial strategies need to focus on developing multi-dimensional competencies that combine technical fiscal management skills with broader development management capabilities. HR development programs must incorporate elements of systems thinking, stakeholder engagement, and innovation management to enable more effective transformation of fiscal resources into development outcomes.

Organizational implications include restructuring traditional hierarchical bureaucracies toward more flexible, learning-oriented organizations that can adapt to changing contexts and emerging challenges. Performance management systems for individual employees must evolve to reward not only fiscal compliance but also contributions to institutional innovation and development outcomes. Leadership development programs need to emphasize capabilities in institutional entrepreneurship and change management.

## **5.3 Policy Implications**

### **5.3.1 Reformulating National Fiscal Policy toward Contextual Approaches**

This research's findings imply the need for a fundamental shift in national fiscal policy from one-size-fits-all approaches toward highly contextualized and differentiated policy frameworks. Evidence that economic expenditure effectiveness varies dramatically across regions (from non-significant in Papua to 0.089341 in Sumatra) demonstrates that uniform fiscal policies cannot achieve optimal outcomes in diverse institutional contexts.

Policy implications include developing asymmetric fiscal frameworks that provide different levels of autonomy, support, and incentives based on specific institutional contexts and development needs of each region. Regions with high institutional capacity like Sulawesi-Maluku can be granted greater autonomy in expenditure decisions, while regions with institutional constraints like Papua require intensive technical assistance and capacity building support.

Central government needs to develop sophisticated institutional assessment capabilities to enable evidence-based differentiation in fiscal policy applications. Policy frameworks must incorporate mechanisms for continuous monitoring of institutional development and adaptive adjustments in fiscal arrangements based on changing institutional contexts. Investment in institutional development must be recognized as a legitimate and necessary component of fiscal policy, not merely technical supporting activity.

#### **5.3.2 Redesigning Fiscal Transfer Systems Based on Institutional Performance**

Evidence of the mediating role of institutional capacity implies the need for fundamental redesign of fiscal transfer systems to explicitly incorporate institutional performance dimensions. Traditional transfer systems primarily based on fiscal capacity and basic needs indicators prove inadequate for achieving optimal development outcomes without considering institutional readiness to effectively utilize transferred resources.

Policy recommendations include developing performance-based transfer systems that provide incentives for institutional development alongside fiscal capacity building. Transfer formulas should incorporate institutional performance indicators to ensure that regions with higher institutional capacity receive appropriate recognition and resources for scaling up successful practices. Simultaneously, regions with institutional deficits must receive targeted support for capacity building before receiving large-scale fiscal transfers.

Practical policy mechanisms include establishing institutional development funds that specifically target capacity building activities, developing technical assistance programs that provide intensive support for institutionally weak regions, and creating institutional performance monitoring systems that enable evidence-based adjustments in transfer allocations. Inter-regional learning platforms must be developed to facilitate knowledge transfer from high-performing regions to others that can benefit from their experiences.

#### **5.3.4 Transforming Performance-Based Budgeting Systems**

The finding that institutional capacity variations significantly affect performance-based budgeting effectiveness implies the need for major reforms in PBB implementation strategies. Evidence shows that PBB effectiveness is not uniform across regions, with some regions achieving excellence while others struggle with basic implementation.

Policy implications include developing graduated PBB systems that provide different levels of sophistication based on institutional readiness. Regions with high institutional capacity can implement advanced PBB systems with complex performance indicators and sophisticated monitoring mechanisms. Regions with institutional constraints need to start with simplified PBB systems that focus on basic performance tracking and gradually build complexity as institutional capacity develops.

Implementation strategies must include comprehensive capacity building programs that address technical, managerial, and political dimensions of PBB implementation. Training programs need to be customized for specific regional contexts and institutional needs. Monitoring and evaluation systems for PBB implementation must evolve to capture not only fiscal performance but also institutional development outcomes that result from PBB processes.

#### **5.3.5 Strengthening Coordination and Collaboration Among Government Levels**

Evidence of complex relationships among fiscal expenditure, institutional capacity, and development outcomes implies the need for enhanced coordination mechanisms among central, provincial, and local governments. Traditional approaches that rely on hierarchical command-and-control mechanisms prove inadequate for managing complex institutional development processes that require collaborative approaches.

Policy frameworks need to be developed to enable multi-level governance approaches that facilitate collaboration and knowledge sharing among different government levels. Central government roles must evolve from primarily regulatory toward more facilitative, providing technical assistance, capacity building support, and platforms for inter-regional learning. Provincial governments can play crucial coordinating roles in facilitating collaboration among local governments with similar institutional contexts.

Practical mechanisms include establishing regional institutional development consortiums that bring together governments with similar challenges for collaborative problem-solving, developing technical assistance programs that leverage expertise from high-performing regions to support others, and creating policy learning platforms that facilitate systematic documentation and sharing of successful institutional innovations. Performance monitoring systems must evolve to capture collaborative outcomes, not just individual government performance.

#### **5.3.6 Developing Institutional Infrastructure for Sustainable Development**

Research findings confirm that sustainable development requires more than financial resources—it demands robust institutional infrastructure that can effectively transform resources into development outcomes. Policy implications include massive investments in institutional infrastructure development as a foundation for sustainable development strategies.

Long-term policy strategies need to focus on developing comprehensive institutional ecosystems that include not only government institutions but also civil society organizations, private sector entities, and academic institutions that can contribute to development processes. Investment in education, training, and

research institutions that support institutional development must be recognized as critical components of development policy.

Policy frameworks need to incorporate mechanisms for systematic learning from both successes and failures in institutional development, enabling continuous improvement in institutional design and implementation strategies. International cooperation programs can play important roles in facilitating knowledge transfer and technical assistance for institutional development, particularly for regions struggling with basic institutional capacity building.

All these implications demonstrate that optimizing fiscal expenditure for development outcomes requires fundamental transformation in theoretical understanding, managerial practices, and policy frameworks that move beyond traditional fiscal management toward integrated fiscal-institutional development approaches. Success in achieving sustainable development in Indonesia requires recognition that institutional capacity is not merely a supporting factor but a central determinant of development effectiveness.

## VI. RESEARCH LIMITATIONS

This study is subject to several methodological and conceptual limitations that should be acknowledged to ensure an accurate interpretation of the findings. A primary concern lies in the choice of indicators. The Human Development Index (HDI), used as a proxy for social welfare, does not fully capture broader dimensions of well-being, such as environmental quality, social cohesion, and subjective aspects of welfare emphasized in Sen's capability approach. Similarly, the outcome ratio, employed as an indicator of institutional capacity, primarily measures the technical efficiency of budget allocation while overlooking critical factors such as planning quality, community participation, and the complexities inherent in the implementation of New Public Management reforms.

Temporal and spatial constraints also affect the validity of the results. The observation period of 2013–2022 is relatively short for assessing the long-term impacts of fiscal decentralization reforms and performance-based budgeting, as fiscal policy effects often require considerable lag time to materialize in social welfare outcomes. Moreover, the aggregation of data at the provincial level neglects the heterogeneity present at the district/municipal level, where fiscal policies and performance-based budgeting are actually implemented. Consequently, variations in institutional capacity and local characteristics within provinces are not fully captured in the analysis.

Model-related limitations further restrict the explanatory scope of this study. The analytical framework does not incorporate potentially influential control variables such as the quality of bureaucratic human resources, information technology infrastructure, levels of civic participation, or more specific geographical factors. Additionally, the mediation model assumes relatively static relationships and does not account for dynamic changes or interactions among fiscal policy variables that may generate synergistic or substitutive effects over time.

Finally, issues of generalizability must be considered. The findings are highly context-specific to Indonesia and may have limited applicability to other developing countries with different institutional structures, levels of economic development, and socio-political characteristics. Even within Indonesia, the results reflect conditions during a particular period and may not hold for other time frames. Furthermore, the significant differences observed between the western and eastern regions of the country highlight the need for caution in making generalizations, even within a single national context, given the substantial heterogeneity across regions.

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