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Budgetary Paradoxes and the Vital Role of Accountability as a Corrective Mechanism: An Empirical Mandatory Spending Study of the Achievements of the SDGs in Indonesia

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A B S T R A C T

This research aims to investigate the phenomenon of "budget paradoxes" in regional financial management in Indonesia, where the allocation of mandatory spending increases (mandatory spending) health and education functions are not yet in line with the acceleration of human development indicators. Specifically, the study examined the effectiveness of such spending on achievement Sustainable Development Goals (SDGs) as well as analyzing the role of financial accountability as a moderation mechanism. Using panel data from 85 regencies/cities in Indonesia during the 2019–2023 period with a total of 425 observations, this research applies Moderated Regression Analysis (MRA). Empirical results reveal significant budgetary inefficiencies. Health spending was found to have a significant negative effect on life expectancy, indicating allocative inefficiencies due to the dominance of physical capital spending which is prone to mark-ups. Meanwhile, education spending did not have a significant effect on the Pure Participation Rate, validating the budgetary slack phenomenon due to the rigidity of the employee spending structure. However, the key findings of this study suggest that financial accountability (projected through the CPC Opinion) acts as a vital corrective mechanism. In the health sector, accountability acts as Quasi Moderator which improves spending efficiency, while in the education sector it acts as Pure Moderator which is a sine qua non for budgetary effectiveness. The implications of this study suggest a shift in policy focus away from simply meeting budget percentages (spending compliance) towards strengthening governance (governance quality)

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INTRODUCTION

Achievement Sustainable Development Goals (SDGs) by 2030 are a global agenda that demands serious commitment from every country, especially in balancing economic, social and environmental dimensions (Kioupi & Voulvoulis, 2020). In the fiscal decentralization architecture in Indonesia, responsibility for achieving SDGs indicators, especially Goal 3 (Healthy and Prosperous Life) and Goal 4 (Quality Education), has been largely delegated to local governments. However, Amirya & Irianto, (2023) notes that the biggest challenge for the implementation of the SDGs at the local level is the alignment of planning and the limitations of execution capacity. To support this strategic role, the central government establishes aggressive fiscal policy through schemes mandatory spending. This policy requires an allocation of at least 20% of the APBD for educational functions in accordance with the mandate of the 1945 Constitution Article 31 paragraph 4, and 10% for health functions in accordance with Law no. 36 of 2009.

Philosophy behind policy mandatory spending is to ensure certainty of funding (fiscal certainty) for sectors that are considered crucial for human capital development. With this "fence" of appropriations, it is hoped that the health and education sectors will not be marginalized by short-term political interests. Theoretically, it refers to the Theory of Public Finance (Musgrave, 1959; Kryeziu, (2021), the budget allocation function aims at optimal provision of public goods. A linear logic that is often built is that increasing input (budget) will automatically be positively correlated with increasing outcome (well-being). This assumption is supported by findings Sari, (2020) and Hadianto, (2022) which shows that public spending has a positive impact on human development indicators.

However, the empirical reality in Indonesia suggests an anomaly that disrupts that logic, a phenomenon referred to as the "budget paradox". BPS data (2024) show a trend of nominally significant increases in spending on education and health functions, but the acceleration of key indicators such as life expectancy (AHH) and net enrolment (NCD) tends to be slow. This inconsistency was confirmed by previous empirical studies showing contradictory results. In contrast to theoretical assumptions, Suwandaru et al., (2021) and Aan Riana, (2022) found that education spending had no significant effect on economic growth or regional HDI. Even, Septriani et al, (2020) find evidence that health spending can actually be negatively correlated or ineffective in reducing poverty if targets are inaccurate (mistargeting).

Wide disparities in achievements between regions indicate that simply complying with compulsory spending quotas does not guarantee successful development. Quantitative amount of budget (size of spending) apparently does not necessarily represent the quality of shopping (quality of spending). Guerrero & Castañeda, (2022) identify that structural barriers to governance government often a barrier to the effectiveness of public spending. In line with that, Ochinyabo, (2021) his study revealed that public budgets often become "barren" (sterile budget) when faced with poor accountability. The study therefore argues that budgetary effectiveness depends to a large extent on the quality of financial

accountability (Abdullah, 2017). This research aims to fill a gap in the literature by placing accountability as a moderating variable to explain why large budgets can fail to produce the expected outcomes.

Previous studies provide strong evidence of this structural inefficiency. Suwandaru et al., (2021) finding that public spending on education in Indonesia does not have a significant causal impact on long-term economic growth, indicates that the budget is exhausted for recurrent spending without quality improvement. More extreme findings were revealed by Septriani et al, (2020), which found that health spending could actually be positively correlated with poverty levels in the event of mistargeting or inaccurate targeting of beneficiaries. This is reinforced by Riana, (2022) which concludes that government spending in the education sector does not have a significant effect on the Human Development Index (HDI) in Central Java, indicates a disconnection between spending and results.

This disparity between budget size and development results indicates that budget volume alone is not the sole determinant of success. The problem is no longer "how much money is spent", but rather "how it is managed". Kekri (2022) in his study in Papua found that the level of compliance with mandatory spending does not necessarily guarantee improvements in human development indicators, often due to operational inefficiencies in the field (Ahyuni & Sutjipto, 2023). Guerrero & Castañeda (2022) emphasize that the effectiveness of government spending depends largely on the ability to overcome "structural barriers" (structural bottlenecks) in governance. Without a good spending framework, the state budget risks becoming "barren" (sterile budget) which fails to trigger real growth (Ochinyabo, 2021; Osuji & Nwani, 2020).

Therefore, this research proposes Financial Accountability as a key that is thought to be able to repair these fractured relationships. Refers to Phaup, (2022), reform of the budget process emphasizing clear constraints and rules is necessary to increase efficiency. Bassey, (2024) also adds that budget transparency is a fundamental element to increase the trust and effectiveness of public programs. Darma, (2023) emphasizes the need for a shopping quality measurement model to detect budgetary slack. This research aims to fill a literature gap by empirically testing whether the quality of financial accountability (projected through the CPC Opinion) is able to moderate the influence of mandatory spending on SDGs achievements, changing inefficient budgets to be effective.

LITERATURE REVIEW

A. Public Financial Theory

This research is based on Public Financial Theory (Public Finance Theory) proposed by Richard A. Musgrave (1959). This classical theory underlines three main functions of government in the economy: the allocation function, the distribution function, and the stabilization function. In the context of this research, the main focus is on the allocation function, where local governments are responsible for allocating limited public resources (budgets) to provide public goods and services (public goods) such as health and education services. The aim is to correct market failures and promote public welfare that the private sector cannot fully meet.

However, Musgrave's theory speaks not only of "allocating", but also of "how to allocate correctly". In the context of modern public sector management, the crucial operational principle for evaluating this allocation function is the concept Value for Money (VfM). The VfM concept, which is the pillar New Public Management (NPM), not only emphasizes the input side (how much budget is saved or the economic aspect), but critically demands a balance of three elements (3E):

1. Economics (Economy): Obtain input at the lowest price and standard quality.
2. Efficiency (Efficiency): Produces maximum output with a specific input.
3. Effectiveness (Effectiveness): The extent to which the output produced is able to achieve the expected outcome or goal.

The paradoxical phenomenon of the budget at the heart of this research problem is basically an indication of the failure to achieve the VfM concept, especially in the efficiency and effectiveness aspects. When health and education budgets increase (the economic side is met), but life expectancy and school enrollment do not move up (effectiveness fails), there is a disconnection in the value chain (value chain) regional financial management. This shows that the size of resource allocation is not always directly proportional to the quality of services received by the population if the conversion process is hampered by inefficiencies.

B. SDGs and Implementation Challenges in the Region

The Sustainable Development Goals (SDGs) are a comprehensive global development agenda, aimed at balancing economic, social and environmental dimensions for future sustainability (Kioupi & Voulvoulis, 2020). In Indonesia, this commitment was formally adopted through Presidential Decree No. 59 of 2017. However, the transition from national commitments to execution at the local level faces a number of significant structural obstacles. The main challenge for implementing the SDGs in Indonesia lies in the weak planning alignment between the center and regions, as well as low stakeholder participation in overseeing targets local (Amirya & Irianto, 2023). This problem creates policy disconnection, where national priorities are often not translated well into Regional Medium Term Development Plans (RPJMD), making strategic targets difficult to achieve coherently. Allen et al., (2018) adding that without strong policy integration, progress in one sector is often not followed by another.

At the more micro level of government, such as villages, capacity challenges are a central issue that hinders the acceleration of achieving development goals. Aryani & Nurhasana, (2024) found that limited human resources and technical understanding of village officials meant that the strategy for achieving Village SDGs did not run optimally. Often, development programmes are implemented partially without adequate cross-sector coordination, which fails to touch the root causes of poverty and social inequality at the grass-roots level. This weakness of local institutions is a major barrier to translating global goals into local action with real impact. Besides, Bassey, (2024) highlighting that lack of transparency in local governance often undermines public confidence and public participation in sustainable development programmes.

Apart from institutional aspects, operational geographical and technical factors also hinder the effectiveness of public services in various regions of Indonesia. Ahyuni & Sutjipto (2023), in their study in regions with severe geographical challenges, highlighted that logistical and distribution constraints mean that basic services cannot reach people in remote areas evenly. This is compounded by weak data management problems. Septriani et al. (2023) emphasizes that the problem of inaccuracy of targets (mistargeting) in social and health protection programs is clear evidence of weak databases in the regions. As a result, government intervention often does not reach the groups most in need (the furthest behind), which ultimately hinders the acceleration of achievement of aggregate public welfare indicators.

C. Mandatory Spending Dynamics and Sectoral Characteristics

Mandatory spending is a state expenditure mechanism regulated by law with the noble aim of providing certainty of funding (fiscal certainty) for strategic sectors, so as not to be eroded by fluctuations in annual budget politics (McIntyre et al., 2017). However, empirical literature and practice in the field point to complex trade-offs. On the one hand, this regulation guarantees the liquidity of funds for priority sectors. On the other hand, Phaup (2022) notes that stiffness (rigidity) This allocation often causes inefficiencies if it is not managed with a flexible framework. At the regional level, Kekri (2022) found that regional governments are often trapped in a mere "aborting obligations" mentality to reach a percentage of 10% or 20%, regardless of the quality of the funded programs, which leads to the budgetary slack phenomenon (Darma et al., 2023). Important to understand the unique characteristics of the two sectors studied, as their responses to the budget are different:

1. Health Sector (Capital Intensive)

This sector has capital-intensive characteristics. Health expenditure in the regions is often dominated by the procurement of physical infrastructure (construction/renovation of regional hospitals, health centres) and high-tech medical equipment. These characteristics make the health sector particularly vulnerable to information asymmetries. The public and auditors often find it difficult to assess the fairness of the price of medical equipment specifications, opening up large gaps for practice mark up procurement prices and inefficiencies. Septriani et al. (2023) found evidence that mistargeting in health

spending renders large budgets ineffective at reducing poverty or improving health status. If supervision is weak, the budget runs out for capital expenditure that is not as needed (white elephant projects), while basic operational services such as immunization and nutrition are experiencing funding shortages, as found by Ahyuni & Sutjipto (2023) in areas with high logistical challenges.

2. Education Sector (Intensive Labor)

Unlike health, the education sector is labour-intensive. The largest component in the education budget structure in Indonesia is employee spending, especially teacher salaries and allowances. This shopping is nondiscretionary (compulsory and rigid). Suwandaru et al. (2021) highlight that the large allocations for routine spending often urge fiscal space (fiscal space) for student quality improvement programs, creating an urge effect (crowding out effects). As a result, although administratively the education budget is 20%, the funds actually reaching students in the form of scholarships, classroom improvements or study facilities are often minimal. Riana & Khafid (2022) and Hadiyanto et al. (2022) confirm this, where increasing education spending does not always correlate significantly with increasing Pure Participation Rates (APM) or Human Development Index (IPM) due to quality problems in spending.

D. The Moderating Role of Accountability

In the perspective of agency relationships (principal agent relationship) between local government and society, moral hazard risks often arise due to information asymmetry, where agents (government) have more information than principals (society). Bassey (2024) emphasizes that under these conditions, budget accountability and transparency serve as vital control mechanisms for aligning interests and building public trust. Accountability requires the government not only to report, but also to be accountable (answerability) any managed resource allocation. In the methodological framework of Sharma et al. (1981), accountability is positioned as a variable of moderation yang have the capacity to strengthen or weaken the causality between budget inputs and development performance.

Quality financial accountability, which is proxied through the Unqualified Opinion (WTP) from the Financial Audit Agency (BPK), is assumed to be able to minimize these inefficiency gaps. Osuji & Nwani, (2020) argues that government expenditure frameworks will only effectively achieve sustainable development targets (SDGs) if they are supported by strong institutional quality. WTP Opinion provides guarantees (assurance) independent that financial reports are free from material misstatement and comply with applicable regulations. More than just an administrative predicate, a strict audit process forces local governments to improve their internal control systems, thereby closing the opportunity for budget leaks (leakage).

Without solid accountability mechanisms, public budgets risk becoming caught up in the so-called phenomenon Ochinyabo, (2021) as "sterile budget" budgets that are absorbed are used up administratively but fail to produce welfare impacts. Therefore, accountability is expected to act as a "catalyst" that transforms the regional financial management paradigm: from simply pursuing the realization of absorption (spending) towards ensuring the arrival of benefits to society (delivery). In line with the findings of Guerrero & Castañeda (2022),

strengthening governance is crucial to overcoming structural obstacles (bottlenecks) which has hindered the effectiveness of public spending..

E. Hypothesis Development

Based on a review of the literature, sectoral characteristics and normative theory of budgeting which implies that the availability of funds should be directly proportional to the improvement of the quality of services, the hypotheses proposed in this study are as follows:

H1 : Mandatory spending health has a positive effect on achieving SDGs 3 (AHH). This hypothesis is based on the theoretical assumption that increasing health budget allocations will increase the availability of facilities, medicines and medical personnel, which will ultimately increase the level of public health and life expectancy.

H2 : Mandatory spending education has a positive influence on achieving SDGs 4 (APM). This hypothesis builds on the premise that meeting the 20% education budget will ensure wider access to education through the provision of appropriate school infrastructure and subsidized education costs, thereby increasing school enrolment.

H3 : Accountability moderates the effect of health mandatory spending on SDGs 3. Highly accountable local authorities (WTPs) are assumed to have good internal controls. This control will prevent mark-up alkes and project inefficiencies physical, so that the existing health budget becomes more effective in improving the level of public health than in non-WTP areas.

H4 : Accountability moderates the influence of educational mandatory spending on SDGs 4. In the education sector where transactions are mass and dispersed (such as BOS funds), the risk of leakage is very high. Accountability ensures that operational funds are managed transparently and on target without wild deductions, which is crucial for maintaining school enrollment levels, especially for poor students.

METHODOLOGY

A. Population and Sample

This research uses a quantitative causality approach with secondary data of the panel data type (combined time series and cross section). The research population includes all Regency/City governments in Indonesia. Given the wide coverage and availability of data, sampling techniques use purposive sampling with strict criteria to guarantee the validity and reliability of the data.

Sample inclusion criteria include :

1. Regency/City Governments that consistently publish complete Regional Government Financial Reports (LKPD) that have been audited (audited) during the observation period 2019–2023.
2. Have macro indicator data (HDI, AHH, APM) available in a complete and continuous manner in the database of the Central Statistics Agency (BPS)
3. Representing the geographical characteristics of the Western, Central and Eastern regions of Indonesia to maintain the generalization of research results so that they are not biased towards just one region.

Based on the selection process, 85 districts/cities were selected as a sample. With an observation period of 5 years, the total observations of panel data used amounted to 425 observations. This number is considered statistically adequate (n > 100) to meet the assumptions of normality and representativeness of the data.

B. Operational Definition of Variables

To ensure measurement accuracy and minimize interpretation bias, research variables are defined with indicators selected based on a strong theoretical basis and empirical relevance as follows:

1. Dependent Variables

SDGs 3 (Health), measured using Life Expectancy (AHH) at birth (Life Expectancy at Birth) in units of years.

$$\boldsymbol{Y1, it = AHHit}$$

$Y1, IT$: *Life Expectancy Value for districts/cities i in t.*

$AHHit$: *Life Expectancy Data from BPS for districts/cities i in t.*

The AHH indicator was chosen because it is an impact indicator (outcome/impact) the most comprehensive and internationally recognized (as by UNDP and WHO) to measure long-term public health. In contrast to output indicators (such as the number of health centers or the number of doctors) which only show the availability of facilities, AHH reflects the overall effectiveness of health interventions, including the success of nutrition, sanitation and infectious disease prevention programs that directly affect mortality.

SDGs 4 (Education), measured using the Pure Enrolment Rate (APM) at the high school/equivalent level (percent units).

$$\boldsymbol{Y2, it = APMit}$$

$Y2, IT$: *Net enrolment rate value for district/city I in year t.*

$APMit$: *Data Pure anticipation figures for districts/cities i in t.*

SMA APM was chosen because the upper secondary education level is the threshold for 12 years of compulsory education which is the focus of the current government, and is a crucial phase before entering the world of work or higher education.

2. Independent Variables

a. Mandatory Health Spending (X1)

Calculated from the ratio of Realized Expenditures from the Health Function to Total Realized Regional Expenditures in the APBD.

$$\mathbf{X1a, it} = \frac{\textbf{Realization of Expenditure on the health Function}}{\textbf{Total Realization of Expenditure on APBD}}$$

The use of Realization data (not Budget/Steam) is critical as it reflects real execution on the ground. There are often gaps (gap) between what is planned (budgeted) and what is actually spent. This ratio directly measures the level of compliance by local governments with the mandate of Law No. 36 of 2009 which requires an allocation of at least 10% beyond salary.

b. Mandatory Spending Education (X2)

Calculated from the ratio of Realized Expenditure in the Education Function to Total Realized Expenditure in the Region.

$$\mathbf{X2a, it} = \frac{\textbf{Realization of Expenditure on the Education Function}}{\textbf{Total Realization of Expenditure on APBD}}$$

Similarly to health, this indicator measures the real fiscal commitment of the regions to the education sector in accordance with the constitutional mandate (1945 Constitution) which requires a minimum allocation of 20%.

3. Moderation Variable (M): Financial Accountability

Measured using ordinal scores based on the BPK Audit Opinion on Regional Government Financial Reports (LKPD). The measurement scale used is:

$$\mathbf{M_{it}} \begin{cases} \mathbf{4\ if\ Opinion = WTP} \\ \mathbf{3\ if\ Opinion = WDP} \\ \mathbf{2\ \ if\ Opinion = \ TW} \\ \mathbf{1\ if\ Opinion = TMP} \end{cases}$$

The CPC opinion was chosen as a proxy for accountability because it is the only external assessment that is independent, has permanent legal force and is standardized based on government accounting standards (SAP) in Indonesia. Audit opinions are not simply an administrative assessment, but rather a reflection of the reliability of the internal control system and compliance with legislation, which are the main prerequisites for clean budget governance (clean government).

a. Data Analysis Techniques

Data were analyzed using Moderated Regression Analysis (MRA) for panel data with the help of EViews 12 statistical software. MRA was chosen because it was able to test whether the moderation variable (Accountability) strengthens or weakens the relationship between independent and dependent variables. The regression equation built is:

Model 1 (Health):

Model 1 (Health):

$$\boldsymbol{Y1_{it} = \beta_0 + \beta_1\, X1_{it} + \beta 2\, M_{it} + \beta 3\, (X1_{it} \times M_{it}) + \beta 4\, SIZE_{it} + eit}$$

Model 2 (Education):

$$\boldsymbol{Y2_{it} = \beta_0 + \beta_1\, X2_{it} + \beta 2\, M_{it} + \beta 3\, (X2_{it} \times M_{it}) + \beta 4\, SIZE_{it} + eit}$$

Before estimating parameters, a test of selecting the best estimation model between Common Effect Model (CEM), Fixed Effect Model (FEM), or Random Effect Model (BRAKE). In this test, the significance level (α) is set at 10% (0.10). Determining this level of significance is based on the consideration that the Hausman Test is a specification test that is susceptible to having test strength (power of the test) low on limited samples. According Kennedy, (2008), the use of the conventional significance level of 5% does not have an absolute basis ("no good reason why 5% should be preferred"). He suggested that determining the level of significance should take into account the risk of decision errors (Loss Function).

In the context of selecting panel data models, Wooldridge, (2010) specifically warns that the Hausman Test often fails to reject the null hypothesis (Random Effects) even though the model is actually biased (Type II Error). Therefore, this study established a significance level of 10% (higher than the standard 5%) as a conservative step to increase the sensitivity of the test in detecting inconsistencies, in order to ensure that the resulting estimator is unbiased:

a. Test Chow: To choose between CEM and FEM.
b. Hausman Test: To choose between FEM and REM (using α=10%).
c. Lagrange Multiplier (LM) Test: To choose between CEM and REM (if required).

RESULTS

A. Descriptive Statistics (Portrait on Compliance and Governance)

The descriptive analysis provides a comprehensive overview of the profile of budgetary compliance and the quality of accountability of the 85 sampled regions. A statistical summary of the study variables can be found in Table 1.

Table 1. Descriptive Statistics of Research Variables

Variable	*N*	*Mean*	*Min*	*Max*	*Std. Dev*
Mandatory Health	*425*	*18,57*	*5.50*	*38,98*	*5,12*
Mandatory Education	*425*	*25,50*	*6,31*	*40,52*	*6,45*
Accountability	*425*	*3.90*	*1.00*	*4.00*	*0.38*
AHH	*425*	*71,24*	*65,12*	*77,89*	*5,30*
APM	*425*	*68,45*	*42,27*	*89,15*	*10,73*
Size	*425*	*28,45*	*26,12*	*30,55*	*1.15*

Source: Output Eviews, processed (2025)

The data in Table 1 reveal interesting facts. The average allocation of health expenditure reached 18.57%, far exceeding the mandatory 10% limit set by law. This shows that in aggregate, local governments have a high fiscal commitment to health. However, this average figure conceals extreme variations. The minimum value of 5.50% that occurred in Banyuwangi Regency in 2022 shows that there are still areas that fail to fulfill statutory obligations, which have the potential to harm the public's right to health services.

A similar pattern is seen in the education sector. The average allocation reached 25.50%, exceeding the constitutional limit of 20%. However, compliance imbalances are more marked in this sector. The minimum value of 6.31% (Magelang City, 2023) is a very low and worrying figure, far below the minimum standard. The higher standard deviation of education (6.45) than health (5.12) confirms that the disparity in education budget commitments between regions is wider.

In terms of accountability, an average score of 3.90 (close to a maximum scale of 4) indicates the predominance of WTP opinion. As many as 92.23% of observations have achieved this title, reflecting the success of government accounting reform in Indonesia. However, "almost perfect" is not flawless. There

are still 7.7% of regional observations that have WDP or even Disclaimer (TMP) status. Cases of declining opinions such as those experienced by Jember Regency (2019-2020) and Ambon City (2021-2023) are empirical evidence that the quality of governance is dynamic and can worsen if not maintained. This variation in governance quality, although small in proportion, provides invaluable analytical space for testing hypotheses: do these "little" differences in the status of audit opinions have a significant impact on budget effectiveness?

B. Selection of Estimation Models

The precision of model selection is crucial in panel data regression to avoid estimation bias. Based on a series of statistical tests carried out using significance levels (α) 10% specifically for the Hausman Test, the following model decisions are obtained:

1. Health Model (Random Effect Model - BRAKE)
   a. The Chow test shows probability Cross-section F 0.0000 (< 0.05), indicating FEM is better than CEM.
   b. The Hausman test produces a probability of 0.2140. This probability value is greater than the significance level of 10% (0.10).
   c. The Lagrage Multiplier (LM) test showed a probability of 0.0000 < 0.05, proving the REM is better than the CEM.

Therefore, the null hypothesis is accepted, and Random Effect Model (REM) was chosen as the best model. The theoretical implication is that the variation in AHH achievement between regions is considered to be random and uncorrelated with independent variables. To ensure consistency, Test Lagrange Multiplier (LM) was performed and showed a significant probability (< 0.05), which confirmed that REM is better than CEM. The theoretical implication is that variations in AHH achievements between regions are considered random (random) and does not correlate systematically with independent variables in the model. This means that differences in unique characteristics between regions (such as specific geographical or demographic conditions) do not cause bias in the estimation of regression coefficients, so the REM model treats individual effects as part of the component error random is the right choice.

2. Education Model (Fixed Effect Model - FEM):
   a. Chow's test showed a probability of 0.0000 (< 0.05), FEM is better than CEM.
   b. The Hausman test produces a probability of 0.0998. This value is still smaller than the significance level of 10% (0.10).

Thus, the null hypothesis is rejected, and Fixed Effect Model (FEM) selected. The choice of the 10% significance level for the Hausman Test tightens the H0 rejection criteria, making the decision to choose FEM more valid. This indicates that there is a correlation between regional individual effects (unobserved heterogeneity) with independent variables in the education model. This means that there are unique characteristics that are permanent (time-invariant) in each region such as local culture towards education, geographical conditions that influence school access, or local political preferences that consistently influence educational attainment over time. If this model is estimated using REM, bias will occur because the assumption that there is no

correlation between individual effects and independent variables will be violated. Therefore, FEM is the most appropriate and consistent model (unbiased) to estimate the influence of the budget on educational participation. Results of Hypothesis Test and Regression Analysis.

The results of the MRA regression estimates for both models are presented in detail in the following Table 2. This table summarizes the regression coefficients, statistical significance, and determinative power of the model.

Table 2. Panel Data Regression Estimation (MRA) Results

Independent Variables	Model 1: Health Random Effect Model (BRAKE)		Model 2: Education Fixed Effect Model (FEM)	
Constant	46,868*	0.036	75,824	0.484
Mandatory Spending (X)	-123,821	0.010 (Negative, Sig)	-137,957	0.053 (No Sig)
Accountability (M)	-6,540*	0.002 (Negative, Sig)	-8,878	0.097 (No Sig)
Interaction (X*M)	34,449	0.005 (Sig)	38,203	0.031 (Sig)
Size (Control)	1,877*	0.012 (Sig)	1,051	0.774 (No Sig)
R-Squared	0.0493		0.7560	
F-Stat (Prob)	0.0003		0.0000	

Source: Output Eviews, processed (2025)
*Significant at the 5% level

Table 2 presents very interesting statistical findings. In Model 1 (Health), the mandatory spending variable had a very large negative coefficient (-123,821) and was significant at the 5% level. This means that the increase in the health spending ratio actually reduces life expectancy. The accountability variable directly also had a negative effect, but the interaction variable (X*M) showed a strong and significant positive coefficient (34,449). R-squared the low (4.93%) in this model is reasonable, considering that health status (AHH) is a multidimensional variable that is influenced by many extrabudgetary factors, such as genetics, lifestyle and environment.

In Model 2 (Education), mandatory spending had a negative but not significant effect at the 5% level (-137,957), but more importantly, the accountability interaction again showed its fangs with a significant positive coefficient (38,203). R-squared the education model is very high (75.60%), which means it is very robust in explaining variations in school enrolment. This indicates that budget and governance factors are the dominant determinants of the success of the education sector.

DISCUSSION

1. Paradox of Health Expenditure Inefficiencies That Get Negative Results (H1 Rejected)

Although McIntyre et al., (2017)recommending an increase in government spending targets as the key to Universal Health Coverage, the empirical findings in this study actually show a serious anomaly: health spending has a significant negative effect (Coefficient -123,821) on Life Expectancy (AHH). Mathematically, any increase in the spending ratio is associated with a slowdown in welfare indicators. This finding rejects the assumption of input-output linearity in favor of studies Septriani et al., (2020) who found that spending on health functions in

Indonesia could actually be positively correlated with poverty levels due to inaccurate targets (mistargeting) program.

This inefficiency occurs because the characteristics of the capital intensive health sector are faced with what is called Guerrero & Castañeda, (2022) as a "structural obstacle" (structural bottlenecks). Local authorities tend to allocate budgets for monumental physical capital expenditures (RS Building, Advanced Medical Devices) for political visibility, but fail to address operational constraints. This is relevant to the findings Ahyuni & Sutjipto, (2023) in Papua, where large budget allocations are being absorbed by logistics costs and management inefficiencies in region difficult, so that the budget is not converted into quality medical services for the community.

Furthermore, the moral hazard risk in capital-intensive procurement is very high. Bassey, (2024) emphasizes that without adequate budget transparency, the public sector is vulnerable to the practices of rent hunters (rent-seeking) which distorts the price and specifications of goods. When large budgets are absorbed for physical projects that experience mark-up or mismatch specifications, a phenomenon occurs which Ochinyabo (2021) terms "sterile budget" budgets that are absorbed administratively in the realization report, but fail to have a welfare impact (welfare effect) the real one.

As a result, crowding out of preventive and promotive programs (such as nutrition and sanitation) actually has greater leverage. Though, Peña-Sánchez et al., (2021)) and Cristóbal et al. (2021) in their efficiency analysis confirms that the quality of management and appropriate allocation to preventive aspects are the main determinants of public health status, not just budget volume. The size of the health budget in this study is therefore counter-productive due to severe misallocation of resources.

2. In The Education Sector, The Initial Hypothesis (H2) Was Rejected

Statistical results show that educational mandatory spending has a negative but not significant effect on net enrolment rates (NCDs). The negative regression coefficient (-137,957) indicates the lack of leverage in the budget for school enrolment. These findings strengthen empirical evidence from Chandra (2023) in Lampung Province, who found that education sector government spending had no significant impact on reducing poverty or improving welfare indicators, due to allocations that tended to run out for bureaucratic routines.

The fundamental problem of this ineffectiveness can be explained by analysis Safitri et al., (2022), which highlights that even though the SDGs education strategy already exists, its implementation in Indonesia is still hampered by gaps in the quality of facilities and infrastructure between regions. The 20% budget is often stuck in employee spending (nondiscretionary) rigid, so that fiscal space for quality interventions such as teacher training or repair of damaged facilities becomes very limited. Consequently, as noted by Siahaan et al., (2023) although the access (quantity) indicator is improving slowly, the quality and relevance aspects of education that are at the heart of SDGs 4 are actually running in place. Furthermore, this phenomenon reflects what is called by Allen et al., (2018) as a "silo" approach to policy implementation. The education office works alone to pursue budget absorption targets without strong integration with regional

development outcome targets. In conditions where governance is weak, the increase in the education budget becomes "sterile" (barren). This is exacerbated in areas with low fiscal capacity as found Kekry, (2022) in Papua, where non-compliance with allocation mandates means that school operating funds are often victims of cuts, forcing the burden of costs back to parents and hindering the participation of poor students.

3. Vital Role of Accountability: Corrective Mechanisms (H3 & H4 Accepted)

Amidst the gloomy picture of inefficiency above, the results of this study provide a glimmer of hope through the accountability variable. This finding is new (novelty) main research, which empirically proves that quality governance is able to change the direction of the relationship (moderation) between budget and performance, beyond direct influence analysis (direct effects) which was dominant in previous studies.

a. Health Sector (Accountability as Quasi Moderator)

The results of the H3 test were accepted, showing that the interaction between health spending and accountability had a significant positive effect (Coefficient 34,449). This is a crucial finding that answers the previous paradox. Even though spending independently has a negative effect, when managed by an accountable local government (WTP), this effect turns positive. In typology Sharma et al., (1981), accountability here acts as Quasi Moderator, because the accountability variable itself also has a significant direct effect.

This finding proves that the WTP Opinion is not merely an administrative seal. The CPC's strict audit mechanism in the WTP area forces local governments to comply with procurement standards, reducing risks mark up drug/alkes prices, and ensure capital expenditure is truly functional. As Bassey (2024) explains, accountability acts as a "filter" or "safety valve" that filters out inefficiencies. In areas with poor governance (Non WTP), additional health budgets will worsen inefficiencies (negative effects are greater because corruption is greater). In the WTP area, on the other hand, a strong internal control system is able to direct this capital expenditure to effectively support health services, so that AHH can increase.

b. Education Sector (Accountability as Pure Moderator)

The results of the H4 test were accepted, showing a slightly different but no less important pattern. The accountability variable is independently insignificant, but its interaction with education spending is very significantly positive (Coefficient 38,203). It classifies accountability as Pure Moderator (Sharma et al., 1981). The implications are very deep. Where accountability is an absolute requirement (necessary conditions) for the effectiveness of education spending.

Without accountability (WTP), education budgets are "dead funds" that will never significantly affect student participation because they are undermined by inefficiency or bureaucratic spending, similar to phenomena sterile budget (Ochinyabo, 2021). However, with the arrival of accountability, the budget becomes "living" and powerful. In areas with WTP governance, supervision of School Operational Assistance (BOS) funds and regional scholarships is running more good. The risk of aid being circumcised, illegal levies in schools or delays in disbursement of funds is minimised. The transparency of the management of

these funds removes economic barriers for poor students to attend school, directly boosting the net enrolment rate. These findings confirm the view of Osuji & Nwani (2020) that for the education sector, it is massive and dispersed (thousands of schools per region), governance is everything. Increasing the education budget without first improving its governance is a waste of resources.

CONCLUSIONS AND RECOMMENDATIONS

This research succeeded in proving empirically the existence of a budget paradox in Indonesian regional governments. Allocation amount mandatory spending alone does not guarantee, or even distort, the achievement of SDGs targets. Three main conclusions can be drawn from the results of this comprehensive analysis:

1. Alocative Inefficiencies of the Alarming Health Sector

Findings showed a significant negative relationship between health spending and life expectancy (AHH). This indicates that the health sector in the region is trapped in a serious capital expenditure bias. The excessive focus on physical procurement and monumental infrastructure, which are often prone to budget leakage and inefficiency, has shifted priorities away from more basic health interventions cost effective. Budget increases do not translate into improvements in services, but rather into new burdens of inefficiency.

2. Structural Pitfalls in the Education Budget

Educational spending was shown not to have a significant impact on school enrolment, confirming the phenomenon of "sterile budgets". The rigidity of the spending structure dominated by teacher salaries (nondiscretionary spending) leaves very narrow fiscal space for programmatic interventions that directly impact students. Without structural reforms to the composition of spending, additional education budgets will only run out of bureaucratic spending without touching the root of the problem of access to education.

3. Accountability as a Key Determinant of Success

The most crucial finding of the study is the vital role of financial accountability (CPC Opinion) as a moderating variable. Accountability has been proven to be able to reverse the direction of negative influence on the health sector and activate positive influence on the education sector. This confirms that good governance is not just a complement, but an absolute prerequisite. In the hands of accountable local governments (WTP), public budgets are managed with the principles of value for money, minimizing leaks, and ensuring development programs are right on target. Accountability serve as a corrective mechanism that converts potential waste into productive public investment.

Policy Implications

Based on these findings, this research recommends a series of concrete strategic steps for stakeholders:

1. For the Central Government (Ministry of Finance, Bappenas, & Ministry of Home Affairs)

a. Fundamental Redesign of Fiscal Incentives

The Regional Incentive Fund (DID) scheme needs to be totally reformed. The provision of incentives should no longer be based solely on the administrative compliance of the percentage of appropriations (already up to 20%). Incentives should be based on Quality of Spending and Outcome Performance. Regions that are able to show a positive correlation between budget increases and increases in AHH or APM should receive a much greater incentive weight.

b. nFlexibility and Restructuring of Education Budgets

There needs to be breakthrough regulations that limit the proportion of employee spending in the 20% component of the education budget, or radically exclude the teacher salary component from the 20% calculation. This is crucial to ensure the availability of real (non-salary) operating funds for learners and the improvement of learning facilities.

c. Strengthening the Role of APIP

The national government should strengthen the independence and capacity of the Government Internal Oversight Services (APIP) in the regions to oversee the planning and budgeting process from the outset, not just at the reporting stage, in order to prevent allocative inefficiencies.

2. For Local Government (Executive & Legislative)

a. Reorientation of the Meaning of WTP

Regional heads and DPRD must change the mindset that WTP Opinions are not just trophies or tools of political imagery. WTP must be interpreted and function as a standard for a living internal control system (living system) which must be maintained every day to prevent budget leaks

b. Efficiency and Reallocation of Health Expenditure

Local authorities must have the courage to impose a moratorium or strict restrictions on the construction of new health buildings if the utility of existing facilities is not optimal. Budgets should be shifted massively to promotive-preventive programmes (immunization, nutrition, sanitation) which proved cheaper but had a major impact on life expectancy.

c. Transparency Fund Management

The Education Office shall ensure full transparency in the distribution and use of School Operational Assistance (BOS) funds. The inclusion of school and community committees in the supervision of education funds is a tactical measure to ensure that these funds are not misused.

Limitations and Suggestions

Although this research makes a significant empirical contribution and offers new perspectives on the interaction of budget and accountability, researchers recognize that there are several limitations that need to be carefully considered in interpreting results, while opening up broad opportunities for future research:

1. Limitations of Single Accountability Proxy

This study only used the CPC Audit Opinion as a single proxy to measure the financial accountability variable. Although the CPC opinion is the gold standard of formal legality and the most objective indicator today, it has inherent limitations because it focuses more on the fairness aspect of presenting financial reports (fairness) and administrative compliance (compliance), not on the program performance aspect (performance) or the quality of public services felt directly by the community. A region may get WTP because of administrative order, but fail to provide excellent public services.

2. Delay Effect (Time Lag) in Human Development

Human development, especially in the health (AHH) and education (APM) sectors, is a long-term investment process whose results are not always visible instantly or linearly in the same fiscal year (current year). The health budget spent this year on improving under-five nutrition, for example, may only have a real impact on increasing life expectancy in the next 5 to 10 years. This study uses annual panel data that may not yet fully capture the delay effect (lag effect) is perfect. It is recommended for subsequent researchers to apply more dynamic econometric models, such as Dynamic Panel Data (e.g. methods Generalized Method of Moments / GMM) or use the lag variable in government spending (t-1, t-2, etc.) to estimate the long-term impact of budget interventions more precisely.

3. The Need for a Qualitative Methodological Approach

Quantitative findings on the negative influence of health spending and the insignificance of education spending are "black box" phenomena that require further deepening to understand "what is really happening on the ground". Quantitative approaches often fail to capture the dynamics of the budget political process, informal negotiations, and bureaucratic practices in back these statistical figures. Therefore, future research is highly recommended using mixed methods (mixed method) or in-depth qualitative case studies (in depth case study). The focus of the study can be directed at areas experiencing extreme anomalies (high budget but low outcome, or vice versa). In-depth interviews with regional financial management officials, DPRD members and auditors can reveal practices budgetary slack, hidden inefficiencies, political motivations behind capital expenditure allocations, or bureaucratic structural obstacles that are not detected by macro statistical data.

FURTHER STUDY

This research still has limitations so that further research is needed regarding Budgetary Paradoxes and the Vital Role of Accountability as a Corrective Mechanism: An Empirical Mandatory Spending Study of the Achievements of the SDGs to perfect this research and increase insight for readers and authors.

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