Vol. 2, No. 1, 2025
DOI: 10.61975/gjbes.v2i1.41

ORIGINAL ARTICLE

The Effect of Aceh Government Spending Policy on Inclusive Growth: Income per Capita as a Mediating Variable

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Article History

Received
31 May 2024

Accepted
4 August 2024

Available Online
13 August 2024

Keywords

Government expenditure
Per capita income
Inclusive growth

Abstract

In 2021, inclusive growth in Aceh Province, Indonesia, as measured by the Inclusive Economic Development Index (IPEI), declined compared to the ranking achieved in 2011. Government intervention through spending policy faces new challenges, particularly due to a decrease in the allocation of the special autonomy fund (OTSUS) in 2022, which is set to fully end in 2027. This study aims to analyze the effect of local expenditure policies implemented by the Aceh government, using per capita income as a mediating variable. The analysis was conducted using the Random Effects Model (REM) and panel data from 23 districts/cities from 2011 to 2021. The results show that capital expenditure and social assistance expenditure negatively impact inclusive growth, whereas grant expenditure and per capita income have a positive effect. Additionally, the findings indicate that per capita income mediates the impact of capital expenditure on inclusive growth but does not mediate the effects of grant expenditure or social assistance on inclusive growth. Therefore, it is necessary to improve governance, budgeting policies, and regional expenditures in a more sustainable and targeted manner to promote inclusive growth and achieve more equitable welfare for all people in Aceh Province.

Introduction

One of the common measures used to assess a region's progress is economic growth [1–3]. This is typically evaluated by examining the growth of a region's Gross Domestic Product (GDP) or Gross Regional Domestic Product (GRDP). However, this indicator alone is not sufficient to accurately represent a region's true progress. Other important aspects include social, environmental, and community welfare factors [4–6]. These socio-economic aspects provide a comprehensive understanding of regional development, making them valuable for measuring, planning, and projecting a region's progress [7–9]. A region's prosperity is reflected in its economic growth, quality of life, and overall community welfare, characterized by improvements in education, health, income distribution, and environmental sustainability [10–12]. This aligns with the concept of inclusive growth, which emphasizes that prosperity and development should not only be measured by an increase in GDP but also by the extent to which this growth benefits everyone, especially the poor [13,14]. Inclusive growth theory highlights the importance of reducing poverty and inequality, ensuring that all members of society benefit from economic growth. It recognizes that a country's prosperity is not solely determined by GDP but by the extent to which this growth improves overall welfare [15].

Inclusive growth refers to growth that provides equal access to opportunities for everyone, aiming to reduce disparities between different groups. Unlike pro-poor growth, which focuses primarily on vulnerable populations below the poverty line [16–18], inclusive growth is more comprehensive, benefiting all levels of society, including the poor, near-poor, middle-income, and wealthy [19]. To support sustainable growth, three key components of policy and governance are essential: high and sustainable growth, social inclusion that ensures equal

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access to economic opportunities, and social safety nets to protect the poor and vulnerable [20]. Several indicators can be used to measure inclusive economic growth in a region, including real GRDP growth per capita, the Gini ratio, the percentage of poor people, the employment rate, expected years of schooling, the percentage of households using electricity or PLN, the percentage of children under five receiving complete basic vaccinations, and average daily protein consumption per capita. In Indonesia, inclusive growth at the regional level is measured through the Inclusive Economic Development Index (IPEI), which comprises three pillars, eight sub-pillars, and 21 indicators. This index evaluates the inclusiveness of development in Indonesia with dimensions of economic growth, inequality and poverty, and access and opportunity [21].

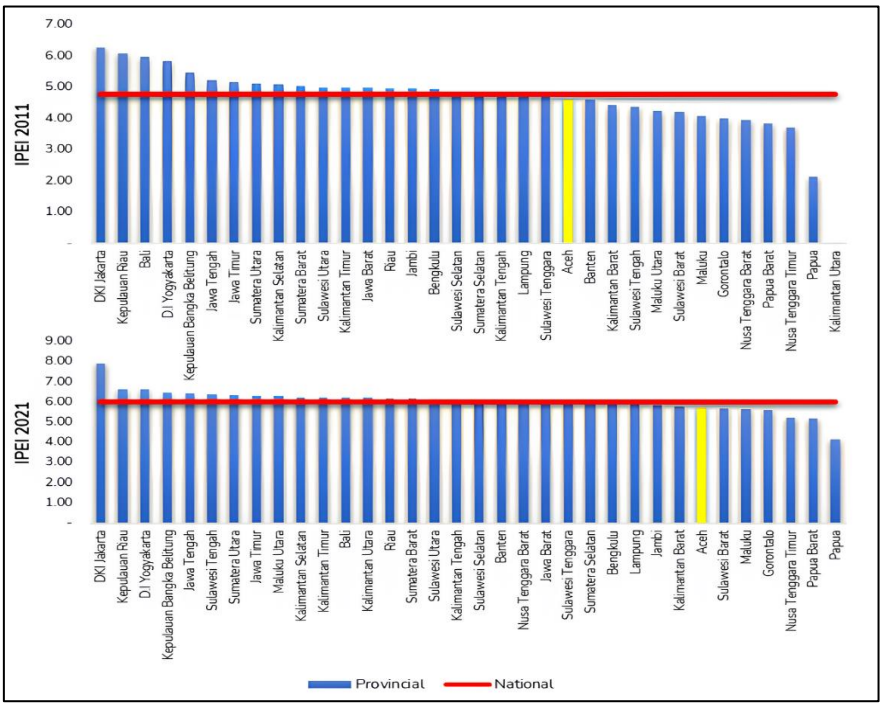

Figure 1. IPEI achievement at the provincial level in Indonesia in 2011 and 2021 (Source: Bappenas)

From 2011 to 2021, the performance of the IPEI in Indonesia at the national, provincial, and district/city levels continued to improve. However, the average ranking for Aceh Province has declined. In 2011, Aceh Province was ranked 22nd out of 34 provinces but fell to 28th place by 2021. This decline indicates that the performance of inclusive economic development in Aceh Province has slowed relative to other regions during the same period. This trend is further highlighted by the Statistics Indonesia (BPS) publication in 2023, which reports that the poverty rate in Aceh Province is 14.45 percent, placing it in the high category [22]. This suggests that the economic growth experienced has not sufficiently benefited the entire community, leading to social and economic inequality. Therefore, government intervention is needed to address these issues and promote inclusive and equitable growth.

Government spending is a key tool for intervening in the economic growth of a region. Through spending policies, government expenditure plays an important role in promoting inclusive growth [23]. Government spending significantly influences regional development, especially given the limited role of the private sector, making the government's role crucial [24,25]. When government spending is directed toward sectors that enhance economic activity, job creation, and social welfare, it positively impacts inclusive growth. Various studies have shown that inclusive growth is higher in countries with greater levels of government financial accountability [26]. Despite the decline in the IPEI ranking over the past eleven years, government spending in

Aceh Province has significantly increased during the same period. This is evident from the rise in realized local expenditures at the provincial and district/city levels, which grew by more than one hundred percent during this time.

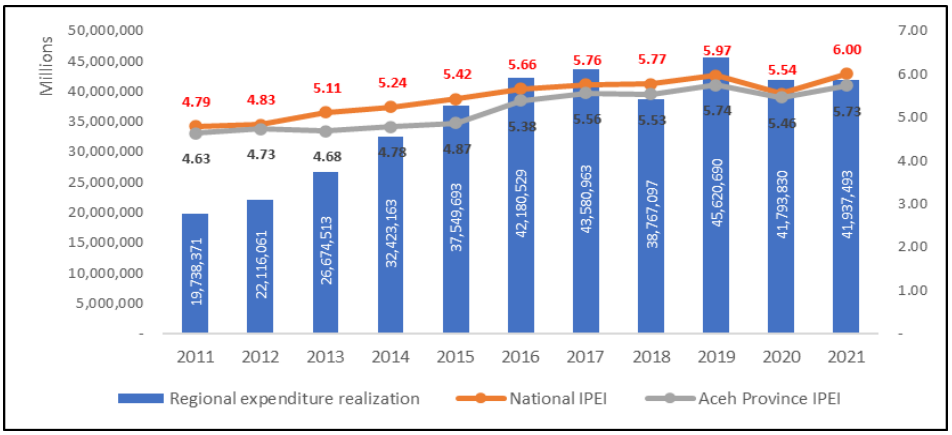

Figure 2. Government expenditure realization in Aceh Province (2011-2021) and IPEI achievement for Aceh Province and Indonesia (2011-2021) (Source: Ministry of Finance of the Republic of Indonesia)

Based on the explanation above, there is a noticeable gap between the significant growth in regional expenditure and the decline in inclusive growth performance in Aceh Province. Despite the increase in regional expenditure during this period, it has not translated into improved inclusive growth performance. If the government does not adopt policies favoring inclusive growth, the declining trend in IPEI performance observed from 2011 to 2021 is likely to continue. This concern is heightened by the anticipated reduction in the Regional Budget for Aceh Province starting in 2022, due to a decrease in the allocation of special autonomy funds (OTSUS) from 2 percent to 1 percent of the national general allocation funds, with the funds set to end entirely in 2027. Furthermore, the 2021 evaluation by the Supreme Audit Agency (BPK) of the Republic of Indonesia reveals a significant dependence of local governments in Aceh on central government transfer funds, as evidenced by the lack of regions in Aceh Province with an independent financial autonomy ratio. Additional challenges to achieving inclusive growth are detailed by Hapsari et al. [27], who link them to issues such as the quality of human resources, labor productivity, industrial competitiveness, corruption, regional development, environmental concerns, and bureaucracy. Agussabti et al. [28] further identify problems related to poorly managed and unstructured budget allocations for poverty alleviation programs, which have been less effective in reducing poverty in Aceh. Optimizing and improving the quality of local government spending is essential, as the government sector is a major contributor to economic growth in Aceh Province.

Various studies have examined the relationship between government spending and inclusive growth. Research by Prabowo et al. [29] in Indonesia indicates that education spending and the level of financial inclusion can promote inclusive growth, while government spending on the economic sector has a negative impact due to increasing development gaps, and there is no observed increase in inclusiveness from budget allocations in the health and social protection sectors. Chadha and Chadda [30] found in India that spending on social security and welfare significantly contributes to inclusive growth, whereas spending on marginalized class welfare and rural development is negatively related to inclusive growth. Afriliana [31] also conducted a study in Indonesia, showing that expenditures on education, health, and foreign investment positively influence inclusive growth, while domestic investment does not contribute to inclusive growth. In East Java, Ike et al. [32] found that spending on economic functions, health, education, and GRDP per capita has a positive and significant impact on inclusive growth. However, in the short term, economic function spending, GRDP per capita, and unemployment rates do not affect inclusive growth.

Aimon et al. [33] summarized conditions in West Sumatra, indicating that, in the long run, increased inclusiveness in poverty is positively influenced by government spending on health, education, and investment. However, inclusiveness in unemployment and income inequality is negatively affected by spending on these same sectors. Meanwhile, Prabandari and Santoso [34] concluded that economic growth inclusiveness in East Java has not been fully achieved. They found that fiscal policy, including budgets for education and health and the average length of schooling, contributes to enhancing economic growth inclusiveness. Kolawole [35] found that, in the long run, government spending on health, the economic sector, public resource use, and real GDP growth affects growth inclusiveness, while only real GDP growth shows a significant impact in the short term. This is consistent with Clements et al. [36], who demonstrated that in developing Asian countries, government spending on health and education, combined with fiscal redistribution through income tax and direct transfers, increases the likelihood of achieving inclusive growth. Selvanathan and Selvanathan [37] also found a positive effect of capital and routine expenditure on economic growth in both the short and long run. However, at the disaggregated level, expenditure on agriculture and health positively impacts economic growth in the long run, while welfare expenditure has a negative impact.

Nazikha and Rahmawati [38] found that, in addition to government spending policies, decentralization and local fiscal capacity in Indonesia positively influence inclusiveness. This finding is supported by Prasetyia [39] whose research shows that fiscal conditions and local financial performance have a substantial positive impact on inclusive economic growth in East Java. Regarding the role of government, studies by Mishra et al. [40] and Owusu Mensah [41] highlight the importance of fiscal authority quality in promoting sustainable and inclusive growth. This is consistent with Sabir and Qamar [42], who found that fiscal policy and institutional support can enhance inclusive growth, with effective institutions in developing Asian countries making fiscal policy more effective. Muliza et al. [43] noted that human resource development often fails to be effective because district and city governments allocate expenditure to areas that do not directly impact human development. In contrast, Muhammad et al. [44] found that significant reductions in the poverty rate in Indonesia could be achieved with increased budget allocations to education and health.

Based on previous research, it can be concluded that government spending plays a crucial role in promoting inclusive growth, particularly through investments in health, education, and infrastructure. However, the effectiveness of such spending depends on economic conditions, institutional quality, and the specific sectors targeted. Therefore, it is essential to analyze the impact of government spending policies on per capita income and inclusive growth in Aceh Province. This analysis will provide valuable input for the government in formulating development budget priorities and identifying alternatives to limited funding and local resources. Enhancing the efficiency and effectiveness of resource use will support inclusive, optimal, and sustainable economic growth.

Materials and Methods

This study employs a quantitative approach to analyze the effects of government spending policies on per capita income (Model 1). Additionally, it examines the impact of these spending policies on inclusive growth in Aceh Province, with per capita income serving as a mediating variable (Model 2). The study uses panel data, which combines time series and cross-sectional data, allowing for a larger number of observations [45]. The cross-sectional data encompasses 23 districts and cities in Aceh Province, while the time series covers the period from 2011 to 2021. This time frame was selected due to the availability of IPEI data, which is only available for the 2011-2021 period. To facilitate the interpretation of the results, both independent and mediating variables were transformed into logarithms (log). Data sources include the Ministry

of Finance of the Republic of Indonesia (MOF) [46], the Statistics of Aceh Province (BPS Aceh) [47], and the National Development Planning Agency (Bappenas) [21].

Table 1. Operational definition of variables.

Status	Variable Name	Symbol	Variable Definition	Units	Source
Dependent	Inclusive Growth	IG	An inclusive growth indicator measures the inclusiveness of development in Indonesia through economic growth, inequality and poverty, and access and opportunity.	Point	Bappenas
Independent	Capital Expenditure	Log_CE	It is measured by the amount of government expenditure used to purchase fixed assets and other assets that have benefits beyond one accounting period.	Percent	MOF
	Grant Expenditure	Log_GE	It is measured by the amount of government expenditures in the form of transfers of money, goods, or services to other governments, international organizations, local governments, or state or local enterprises for which appropriations have been made	Percent	MOF
	Social Assistance Expenditure	Log_SAE	The amount of expenditure measured in the form of transfers of money, goods, or services provided by the government to the poor or disadvantaged to protect them from social risks, increase their economic capacity, or improve their welfare	Percent	MOF
Mediator	Per capita Income	Log_PI	The amount of income per person in a geographic area, such as a province or district. GRDP per capita is obtained by dividing an area's GRDP by its population.	Percent	BPS Aceh

This study utilizes panel data regression along with mediation analysis. Mediation analysis is employed to examine the relationship between two related variables by exploring the influence of a third variable, known as the mediator variable [48]. This type of analysis offers several advantages, including providing a deeper understanding of how relationships between variables are formed, evaluating theories related to mediation effects, and identifying indirect effects from independent variables to dependent variables. By understanding these mediation effects, better interventions can be designed. Overall, mediation tests are valuable for understanding the processes and mechanisms that link variables within a theoretical model. Based on the basic equation analysis of the panel data regression model, the model analyzed in this study is divided into two equations.

To analyze the direct effect of government expenditure—comprising capital expenditure, grant expenditure, and social assistance expenditure—on per capita income, the following equation (Model 1) is used:

$$Log_PI_{it} = \alpha_1 + \alpha_2 Log_CE_{it} + \alpha_3 Log_GE_{it} + \alpha_4 Log_SAE_{it} + \varepsilon_{it} \quad (1)$$

Furthermore, to analyze the effect of government expenditure variables and per capita income on inclusive growth, as well as to test whether per capita income mediates the effect of regional expenditure on inclusive growth, the following equation (Model 2) is used:

$$IG_{it} = \beta_1 + \beta_2 Log_CE_{it} + \beta_3 Log_GE_{it} + \beta_4 Log_SAE_{it} + \beta_5 Log_PI_{it} + \varepsilon_{it} \quad (2)$$

where IG represents inclusive growth, Log_CE is capital expenditure, Log_GE is grant expenditure, Log_SAE is social assistance expenditure, Log_PI is per capita income, α_1 and β_1 are constants, α_2 through α_4 and β_2 through β_5 are regression coefficients, ε is the error term, i denotes the i_{th} subject, and t denotes the t_{th} year.

Panel data regression analysis is conducted through several stages, beginning with the estimation of model selection using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). To determine the best model among these, three tests are employed: the Chow test to choose between the CEM and FEM models, the Hausman test to select between the REM and FEM models, and the Lagrange Multiplier (LM) test to decide between the CEM and REM models [49]. To ensure accurate and unbiased results, classical assumption tests are performed on the regression model. In this study, the classical assumption tests include the multicollinearity test, which examines the correlation between independent variables, and the heteroscedasticity test, which checks for unequal variance in the residuals across observations. The normality test is omitted because panel data, which includes many observations, generally does not require this test as a mandatory requirement [50,51]. Additionally, the autocorrelation test is not applicable to panel data, as autocorrelation is relevant primarily to time series data. Testing for autocorrelation in cross-sectional or panel data is not meaningful due to the nature of cross-section data [52,53].

Results and Discussion

Descriptive Statistics

Descriptive statistical analysis presents data on the characteristics of each variable used in the study, including mean, median, maximum, minimum, and standard deviation values. This data provides an overview of the distribution and variation of the variables. Table 2 shows the descriptive statistics of the variables used in the study for the period 2011-2021 across 23 districts/cities. Based on the data in the table, all variables have 245 observations. The IG variable, measured in points, has an average value of 5.11 points, a median of 5.04 points, a maximum of 6.44 points, and a minimum of 4.21 points. The Log_CE variable, expressed as a percentage, has an average of 11.26%, a median of 11.28%, a maximum of 12.34%, and a minimum of 10.67%. The Log_GE variable, also in percentage terms, has an average of 10.34%, a median of 10.40%, a maximum of 11.88%, and a minimum of 8.76%. The Log_SAE variable, likewise measured in percentages, has an average of 9.94%, a median of 9.98%, a maximum of 11.41%, and a minimum of 7.69%. Finally, the Log_PI variable, measured in percentage terms, has an average of 7.41%, a median of 7.40%, a maximum of 7.89%, and a minimum of 7.13%. The results indicate that the overall standard deviation of each variable is smaller than the average value, suggesting that the data tends to cluster around the average or that the variation in these variables is relatively small.

Table 2. Descriptive statistics.

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
IG	5.11	5.04	6.44	4.21	0.44	245
Log_CE	11.26	11.28	12.34	10.67	0.23	245
Log_GE	10.34	10.40	11.88	8.76	0.48	245
Log_SAE	9.94	9.98	11.41	7.69	0.57	245
Log_PI	7.41	7.40	7.89	7.13	0.15	245

The Results of Panel Regression Model Selection

To select the most appropriate panel data model, a model selection test analysis is conducted, including the Chow test, Hausman test, and Lagrange Multiplier test. The Chow test, used to

choose between the Common Effect Model (CEM) and the Fixed Effect Model (FEM), shows that the prob. value for the cross-section chi-square is 0.00, which is less than 0.05. This indicates that H_0 is rejected, suggesting that the FEM model is preferred over the CEM model. The Hausman test, used to determine whether the Random Effect Model (REM) or the FEM is more suitable, shows a prob. value for the random cross-section of 0.98, greater than 0.05, meaning H_0 is accepted and the REM model is favored over the FEM model. Lastly, the Lagrange Multiplier test, conducted to choose between the REM and CEM models, reveals a Breusch-Pagan cross-section prob. value of 0.00, which is less than 0.05. This leads to the rejection of H_0, indicating that the REM model is preferable to the CEM model. Based on these results, the REM model is concluded to be the best panel data model for Model I.

Table 3. Results of Chow test, Hausman test, and LM test (Model I and II).

Model	Test	Value Referral	Statistic	d.f.	Prob.
Model I	Chow Test	Cross-section F	56.22	-22.22	0.00
		Cross-section Chi-square	464.08	22.00	0.00
	Hausman Test	Cross-section random	0.21	3.00	0.98
	Lagrange Multiplier Test	Cross-section Breusch-Pagan	790.33		0.00
Model II	Chow Test	Cross-section F	29.37	-22.22	0.00
		Cross-section Chi-square	337.43	22.00	0.00
	Hausman Test	Cross-section random	1.74	4.00	0.78
	Lagrange Multiplier Test	Cross-section Breusch-Pagan	577.35		0.00

In the model selection test for Model II, the Chow test shows a prob. value of 0.00 for the cross-section chi-square, which is less than 0.05, indicating that H_0 is rejected and the FEM is preferred over the CEM. The Hausman test results show a prob. value of 0.78 for the cross-section random, which is greater than 0.05, meaning H_0 is accepted and the REM is preferred over the FEM. Additionally, the Lagrange Multiplier test reveals a Breusch-Pagan cross-section prob. value of 0.00, less than 0.05, leading to the rejection of H_0 and indicating that the REM model is better than the CEM model. Based on these results, the REM model is concluded to be the best panel data model for Model II.

The Results of Classical Assumption Test

The classical assumption test, which includes the multicollinearity and heteroscedasticity tests, was conducted for both Model I and Model II. The analysis results indicate that there are no violations of classical assumptions in either model. Specifically, the heteroscedasticity test was performed by regressing the independent variables against absolute residuals (RESABS). The results for both models show that all variables have a probability value greater than the alpha (α) level (prob > 0.05), concluding that the models are free from symptoms of heteroscedasticity.

Table 4. Heteroscedasticity test results.

Model	Variable	Coefficient	Std. Error	t-Statistic	Prob.
Model I	Log_CE	-0.05	0.030	-1.63	0.10
	Log_GE	-0.03	0.015	-1.77	0.08
	Log_SAE	-0.01	0.013	-1.16	0.25
Model II	Log_CE	-0.04	0.032	-1.31	0.19
	Log_GE	-0.03	0.015	-1.72	0.09
	Log_SAE	-0.01	0.013	-1.15	0.25
	Log_PI	-0.05	0.080	-0.60	0.55

In the multicollinearity test conducted on Model I and Model II, the analysis results show that the correlation coefficient values for all variables used in the model are below 0.80. Therefore, it can be concluded that the variables are free from multicollinearity problems. Based on the results of both the heteroscedasticity and multicollinearity tests, it is concluded that there are no violations of classical assumptions in the data and models, allowing the analysis to proceed.

Table 5. Multicollinearity test results.

	Log_CE	Log_GE	Log_SAE	Log_PI
Log_CE	1	0.34	0.26	0.23
Log_GE	0.34	1	0.27	0.14
Log_SAE	0.26	0.27	1	0.10
Log_PI	0.23	0.14	0.10	1

The Results of Direct Effect Estimation

In the analysis for Model I, the Random Effects Model (REM) was selected as the best model. This model assesses the direct effects of Log_CE, Log_GE, and Log_SAE on Log_PI. The REM model was also chosen for Model II, which examines whether Log_PI mediates the effects of Log_CE, Log_GE, and Log_SAE on IG. The estimation results are summarized in Table 6.

For Model I, the analysis reveals that Log_CE has a positive and significant effect on Log_PI, with a coefficient of 0.15. This indicates that a 1 percent increase in Log_CE results in a 0.15 percent increase in Log_PI. However, Log_GE and Log_SAE do not significantly affect Log_PI.

In Model II, Log_CE and Log_SAE have a negative and significant impact on IG, with coefficients of -0.20 and -0.09, respectively. Specifically, a 1 percent increase in Log_CE reduces IG by 0.20 points, and a 1 percent increase in Log_SAE reduces IG by 0.09 points. Conversely, Log_GE and Log_PI positively and significantly influence IG, with coefficients of 0.08 and 2.00, respectively. Thus, a 1 percent increase in Log_GE raises IG by 0.08 points, while a 1 percent increase in Log_PI increases IG by 2.00 percent.

The analysis of the simultaneous effect, indicated by the Prob. (F-statistic) for both models, shows that at a 1 percent significance level, the independent variables in both Model I and Model II collectively influence the dependent variable. In Model I, the Adjusted R-squared value indicates that Log_CE, Log_GE, and Log_SAE explain 22 percent of the variation in Log_PI, with the remaining 78 percent attributed to other factors not included in the model. In Model II, the Adjusted R-squared value demonstrates that Log_CE, Log_GE, Log_SAE, and Log_PI account for 37 percent of the variation in IG, leaving 63 percent explained by other variables outside the model.

Table 6. Results of panel data regression for model I and model II.

Model	Independent Variable	Coefficient	Std. Error	t-Statistic	Prob.
Model I	Log_CE	0.15*	0.02	7.25	0.00
	Log_GE	0.01	0.01	0.59	0.56
	Log_SAE	0.00	0.01	0.13	0.89
	R-squared	0.23			
	Adjusted R-squared	0.22			
	F-statistic	23.50*			
	Prob (F-statistic)	0.00			
Model II	Log_CE	-0.20*	0.06	-3.15	0.00
	Log_GE	0.08*	0.03	2.76	0.01
	Log_SAE	-0.09*	0.02	-3.62	0.00
	Log_PI	2.00*	0.18	11.14	0.00
	R-squared	0.38			
	Adjusted R-squared	0.37			
	F-statistic	37.54*			
	Prob (F-statistic)	0.00			

Note: * indicates significance at the 1% level.

The Results of Indirect Effect Estimation

Table 7 displays the results of the mediation analysis using the Sobel test. The t-statistic results of the Sobel test are compared with the critical values from the t-distribution table. The analysis

reveals that the Log_CE variable affects the IG variable through the Log_PI variable, as indicated by the calculated t-value of 6.08, which is greater than the critical value of 1.97. Conversely, the analysis shows that the Log_GE variable does not affect the IG variable through the Log_PI variable, as evidenced by the t-value of 0.59, which is less than the critical value of 1.97. Additionally, the Log_SAE variable does not affect the IG variable through the Log_PI variable, as indicated by the t-value of 0.11, which is also less than the critical value of 1.97. Based on these results, it can be concluded that the Log_PI variable mediates the influence of the Log_CE variable on the IG variable. However, it does not mediate the influence of the Log_GE variable or the Log_SAE variable on the IG variable.

Table 7. Sobel test estimation results.

Variable	Sobel Test Value		
	Test Statistic	**Std. Error**	**Prob.**
Log_CE	6.08	0.05	0.00
Log_GE	0.59	0.02	0.56
Log_SAE	0.11	0.02	0.91

Note: t-table value = 1.97

Discussion

The analysis indicates that government budget policies in the Aceh region, particularly through capital expenditure, positively impact per capita income. This finding is consistent with research by Kemisola et al. [54], which demonstrated that investment in infrastructure contributes to increased per capita income. However, the analysis of budget policies for grant expenditure and social assistance by the Aceh government reveals no significant effect on per capita income. This contrasts with Olukayode et al. [55], who found that government spending on social and community services, as well as transfer expenditures, significantly increased real per capita income. Maulidi et al. [56] argues that government fiscal policies at both central and local levels may exacerbate income inequality due to budget allocations not focusing on increasing people's income and the weakness of local governments in creating effective social assistance distribution systems and accurate targeting. Social assistance policies and grants often fail to enhance per capita income because they are consumptive rather than productive, leading to issues such as dependence, reduced incentives for work and entrepreneurship, unequal distribution, inadequate scale, and insufficient empowerment. To improve per capita income, there is a need for entrepreneurship development, infrastructure investment, skills upgrading, and structural economic reforms. Social assistance and grant policies should be integrated into broader strategies that promote inclusive and sustainable economic growth.

The analysis of the impact of capital expenditure policy on inclusive growth reveals that capital expenditure during the study period negatively affects inclusive growth. This finding contrasts with Selvanathan and Selvanathan [37], who concluded that both capital and routine expenditures positively impact economic growth in the short and long term. Yunar [57] found that the infrastructure sector, due to its large economies of scale, can have a non-linear impact, with significant effects on productivity and growth only occurring once investment reaches a certain threshold. This suggests that the negative effect of capital expenditure on inclusive growth may stem from policies focusing on large infrastructure investments, whose benefits are often concentrated among certain economic groups. Additionally, substantial infrastructure projects are frequently concentrated in specific regions, potentially widening regional development gaps. Another contributing factor is the low level of community participation in activities financed by capital expenditure. To foster more inclusive economic growth, capital expenditure should be redirected towards projects that directly benefit poor and vulnerable groups, such as rural infrastructure, irrigation systems, and access to education and healthcare facilities.

The analysis of grant expenditures reveals that grant expenditures by local governments in Aceh Province positively impact inclusive growth. This finding aligns with Chadha and Chadda [30], who demonstrated that government spending on social security and welfare significantly contributes to inclusive growth. Conversely, this study's results differ from those regarding social assistance spending, which shows a negative effect on inclusive growth in Aceh Province. Agussabti et al. [28] support this, noting that issues in Aceh arise from poorly managed and unstructured budget allocations for poverty alleviation programs, which tend to be less effective in reducing poverty and thus hinder inclusive growth. Consequently, the role and quality of government management in budget policies are crucial for supporting sustainable and inclusive growth, as highlighted by Mishra et al. [40], Owusu-Mensah [41], and Sabir and Qamar [42]. The analysis of the per capita income variable indicates a positive influence on inclusive growth, consistent with the findings of Hapsari et al. [27], Hasbi and Setiawan [58], and Hidayat and Woyanti [59], who report a positive effect of per capita income on inclusive growth. However, Sajid and Ali [60] and Alekhina and Ganelli [61] present research showing that per capita income can either enhance or inhibit inclusion depending on other conditions. Although per capita income is correlated with economic growth, it does not necessarily lead to reduced income inequality.

The mediation effect analysis concludes that per capita income mediates the effect of capital expenditure on inclusive growth. This suggests that capital expenditure impacts inclusive growth more significantly through its influence on increasing per capita income. Therefore, efforts to boost per capita income through capital expenditure and other policies are crucial for achieving more inclusive growth. To promote equitable growth and engage vulnerable and poor populations, a more comprehensive approach is necessary, one that extends beyond relying solely on capital expenditure. Conversely, the analysis indicates that per capita income does not mediate the effect of grant and social assistance expenditure on inclusive growth. Grant and social assistance expenditures can be distributed more evenly compared to capital expenditure, which often benefits the middle and upper classes more. As a result, an increase in grant and social assistance spending does not necessarily lead to a rise in per capita income but has a direct impact on inclusive growth. These expenditures provide more direct interventions to improve the welfare of poor and vulnerable groups. The direct nature of these interventions facilitates an inclusive growth impact without requiring an increase in per capita income, unlike capital expenditure, which is typically structural and long-term in nature.

Conclusions

This study investigates the effects of government budget policies—capital expenditure, grant expenditure, and social assistance expenditure—on per capita income and inclusive growth in Aceh Province, using panel data from 23 districts/cities for 2011-2021. The findings reveal that capital expenditure significantly increases per capita income, promoting economic growth, while grant and social assistance expenditures do not. However, both capital and social assistance expenditures negatively impact inclusive growth, suggesting that current programs are ineffective in this regard. In contrast, grant expenditure and per capita income positively influence inclusive growth, indicating that grants and higher community income contribute to more equitable development. Mediation analysis shows that per capita income mediates the effect of capital expenditure on inclusive growth, meaning that capital investment boosts inclusive growth indirectly through increased per capita income. Conversely, per capita income did not mediate the impact of grant and social assistance expenditures on inclusive growth, suggesting that these expenditures do not necessarily lead to a rise in per capita income but have a direct impact on inclusive growth.

Based on the results of the research, several policy recommendations are proposed for the government of Aceh Province to promote inclusive and equitable growth. These interventions

include strengthening the planning and coordination of capital expenditure management by increasing investment in sectors that enhance productivity, economic efficiency, and economic activity. Additionally, there should be an evaluation and improvement in the management of grant expenditure and social assistance by prioritizing productive investments and community empowerment programs to boost per capita income. Improvements are needed in planning, budgeting, targeting databases, and cross-sectoral coordination to enhance the effectiveness of expenditure allocations. To further increase the effectiveness of expenditures, integrated policies and programs should be implemented, with continuous monitoring and evaluation, and better synchronization of various programs funded through different types of expenditure to encourage more equitable and sustainable growth.

This study has several limitations, including the scope and period of the analyzed data. It focuses solely on government expenditure variables, which limits the perspective to budget allocations for promoting inclusive growth. Inclusive growth is a multidimensional concept encompassing economic, social, and environmental aspects. To measure it comprehensively, diverse and complex indicators are required, such as macroeconomic conditions, policies, infrastructure, demographic characteristics, and human resources. Therefore, a more in-depth analysis using additional variables and econometric methods that can evaluate both short-term and long-term relationships is needed. Future research should expand the scope of data, variables, and econometric techniques and examine the link to central government policies, such as Law No. 1 of 2022 on financial relations between central and regional governments, to better understand the government's role in fostering inclusive growth in the future.

Funding: This study does not receive external funding.

Data Availability Statement: Data is available upon request.

Acknowledgments: The authors would like to thank Pusbindiklatren Bappenas for providing an in-country scholarship to continue his master's degree in economics at Universitas Syiah Kuala.

Conflicts of Interest: All the authors declare no conflicts of interest.

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