



Analysis of The Role of Government Spending on Inclusive Economic Development In Sumatra

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ABSTRAK

Pembangunan ekonomi inklusif menjadi perhatian penting dalam upaya mewujudkan pertumbuhan yang tidak hanya tinggi, tetapi juga merata dan berkeadilan. Penelitian ini bertujuan untuk menganalisis pengaruh belanja pemerintah fungsi pendidikan, belanja pemerintah fungsi kesehatan, belanja modal, dan Tingkat Pengangguran Terbuka (TPT) terhadap Indeks Pembangunan Ekonomi Inklusif (IPEI) provinsi-provinsi di Pulau Sumatera periode 2018–2023. Penelitian ini menggunakan pendekatan regresi data panel, di mana Fixed Effect Model (FEM) teridentifikasi sebagai model paling sesuai untuk analisis. Hasil analisis mengungkapkan bahwa belanja pemerintah fungsi pendidikan dan tingkat pengangguran terbuka berpengaruh negatif signifikan terhadap IPEI, belanja fungsi kesehatan berpengaruh positif signifikan, sementara belanja modal berpengaruh negatif tidak signifikan terhadap IPEI. Secara simultan, seluruh variabel independen berpengaruh signifikan terhadap IPEI. Temuan ini menunjukkan bahwa peningkatan kualitas modal manusia melalui belanja kesehatan dan penurunan pengangguran merupakan kunci utama dalam mendorong pembangunan ekonomi yang lebih inklusif di Sumatera.

ABSTRACT

Inclusive economic development is an important concern in efforts to achieve growth that is not only high, but also equitable and fair. This study is designed to assess the effect of government spending on education and health function, capital expenditure, and the Open Unemployment Rate (OUR) on the Inclusive Economic Development Index (IPEI) in the provinces of Sumatra during the period 2018–2023. This study uses panel data regression with the Fixed Effect Model (FEM) selected as the best model. The findings show that government spending on education function and the open unemployment rate have a significant negative impact on the IPEI, government spending on health function has a significant positive impact, while capital expenditure has a non-significant negative impact on the IPEI. Simultaneously, all independent variables significantly influence IPEI. These findings indicate that improving human capital quality through health spending and reducing unemployment are key factors in promoting more inclusive economic development in Sumatra.

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1. INTRODUCTION

Developmental success is no longer assessed solely through high economic growth, but also by the equitable distribution of its benefits to the entire community [1]. In their research, Ali & Zhuang [1] also stated that increasing inequality in developing Asian countries indicates that the benefits of high economic growth have not been distributed fairly. Therefore, inclusive economic development has become a strategic approach to achieving social justice and long-term sustainability.

To monitor the progress of inclusive development, the National Development Planning Agency (Bappenas) has developed the Inclusive Economic Development Index (IPEI) since 2018. This index takes into account three main pillars, namely economic growth, equitable distribution of income and reduction of poverty, along with the expanded access and opportunities.

In reality, high economic growth does not always correlate with inclusive development in all regions. Sumatra, which is the second largest economic contributor in the country after Java [2], still faces the challenge that its economic growth does not yet fully reflect fair and sustainable inclusive development.

Table 1. Economic Growth, Poverty Rate, Gini Ratio, and IPEI in Sumatra Island in 2023

Provinces	EG (%)	Poverty Rate (%)	Gini Ratio	IPEI
Aceh	4.23	14.45	0.296	6.02
Sumatera Utara	5.01	8.15	0.309	6.67
Sumatera Barat	4.62	5.95	0.280	6.45
Riau	4.21	6.68	0.324	6.46
Jambi	4.67	7.58	0.343	6.03
Sumatera Selatan	5.08	11.78	0.338	6.31
Bengkulu	4.28	14.04	0.333	6.19
Lampung	4.55	11.11	0.324	6.24
Bangka Belitung	4.38	4.52	0.245	7.00
Kepulauan Riau	5.16	5.69	0.340	6.95

Sumber: Badan Pusat Statistik dan Bappenas, diolah.

Table 1 shows the disparities between provinces in Sumatra in terms of economic growth, poverty rates, income inequality, and the Inclusive Economic Development Index (IPEI) value. For example, Aceh Province recorded economic growth of 4.23%, but had the lowest IPEI value of 6.02 and the highest poverty rate of 14.45%. South Sumatra Province experienced a similar situation with economic growth of 5.08%, but still had a relatively high poverty rate of 11.78%. This province also has the second-highest income inequality in Sumatra (Gini Ratio 0.338) with an IPEI value of 6.31. This inequality underscores that high economic growth alone is insufficient to achieve fair and equitable development, necessitating a more inclusive and equitable development approach focused on distributing benefits more evenly.

In theory, the government's role in fostering inclusive economic development is described through Keynesian theory and endogenous growth theory. Keynesian theory states that the government needs to intervene fiscally, particularly through spending on infrastructure, education, and health, in order to overcome market failures and create jobs. Meanwhile, endogenous growth theory emphasizes the crucial role of human capital investment and knowledge as drivers of long-term growth.

In this context, the government plays an essential part in supplying public goods through government expenditure allocation, with education and health sectors being top priorities as they form the foundation for human capital development [3]. Through decentralized public finance and the delegation of powers to local authorities aware of their specific needs, fiscal resources can be applied in a more effective and efficient manner, promoting advancement of the region, societal welfare, and sustainable economic progress [4]. As a vital resource, humans determine a nation's progress through active participation in development while also requiring improvements in well-being and quality of life [5].

Therefore, government spending in strategic sectors is an important instrument in building the foundation for inclusive, sustainable, and quality economic development. Spending on education and health is an important form of investment in human resources that aims to improve the quality, welfare, productivity, and income of the community [6]. Similarly, capital spending as an investment in physical infrastructure can expand market access, reduce distribution costs, and support interregional growth [7].

In addition to government spending, another important factor influencing inclusive development is the employment situation, as reflected in the open unemployment rate (OUR). The significant increase in unemployment rates has contributed to worsening income inequality. This is because high unemployment rates have caused more individuals and households to live below the poverty line, thereby widening the gap between high- and low-income groups [8].

Multiple prior studies have investigated the connection between government spending and various aspects of development. However, there is still limited research that analyzes the impact of public spending on education and health function, and capital expenditure in conjunction with the open unemployment rate on the Inclusive Economic Development Index (IPEI). This limitation is particularly evident in the context of regional areas such as Sumatra Island, which, despite contributing significantly to the national economy, still exhibits considerable development disparities among provinces.

Thus, this study offers a more comprehensive empirical contribution by analyzing the role of government spending on education and health function, capital expenditure, and the open unemployment rate on the Inclusive Economic Development Index in the provinces of Sumatra Island for the period 2018–2023.

2. METHOD

Using a quantitative descriptive approach, this research analyzes panel data comprising time series (2018–2023) and cross-sectional observations from ten provincial governments in Sumatra, such as Aceh, North Sumatra, West Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, Bangka Belitung Islands, and Riau Islands. The study uses secondary data sourced from various official sources, including Indonesian Ministry of National Development Planning (Bappenas), the Directorate General of Fiscal Balance (DJPK), and the Statistics Indonesia (BPS). The variables analyzed include the IPEI, expenditure on education and health functions, capital expenditure, and the open unemployment rate. Data analysis was conducted using EViews 12 software.

Table 2. Data and Data Source

Variabel	Simbol	Satuan	Periode	Sumber
Inclusive Economic Development Index	IPEI	Index	Yearly	Badan Perencanaan Pembangunan Nasional

Variabel	Simbol	Satuan	Periode	Sumber
Government Spending on Education	BP	Percent	Yearly	Direktorat Jenderal Perimbangan Keuangan
Government Spending on Health	BK	Percent	Yearly	Direktorat Jenderal Perimbangan Keuangan
Capital Expenditure	BM	Percent	Yearly	Direktorat Jenderal Perimbangan Keuangan
Open Unemployment Rate	TPT	Percent	Yearly	Badan Pusat Statistik

3. RESULT AND DISCUSSION

3.1 Model Selection Test

3.1.1 Chow Test (CEM VS FEM)

Tabel 1. Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	14.7342	(9,46)	0.0000
Cross-section Chi-square	81.3932	9	0.0000

The Chow test was applied to see which model was better to use between the fixed effect model (FEM) and the common effect model (CEM). The test showed a probability value of $0.0000 < 0.05$ for the F and Chi-square statistics, indicating that FEM was more suitable than CEM.

3.1.2 Hausman Test (FEM VS REM)

Tabel 2. Hausman Test

Test Summary	Chi-Sq. Statistic	d.f.	Prob.
Cross-section random	18.5562	4	0.0010

The Hausman test was conducted to determine whether FEM was more appropriate than REM. The test results showed a probability value of $0.0010 < 0.05$, indicating that the FEM model was more consistent and appropriate for the data.

Based on the consistent results of the Chow test and the Hausman test, which show a probability value < 0.05 , the best model used in this study is the Fixed Effect Model (FEM).

3.2. Classical Assumption Test

3.2.1 Normality Test

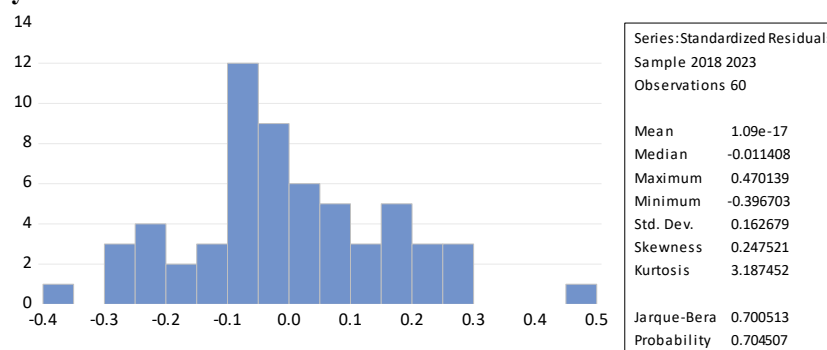


Figure 1. Normality Test

The classical assumption test results for the Fixed Effect Model (FEM) indicate that the data is normally distributed, as evidenced by a Jarque-Bera probability value of 0.704507, which is greater than the 0.05 significance threshold.

3.2.2 Multicollinearity Test

Tabel 3. Multicollinearity Test

	BP	BK	BM	TPT
BP	1	-0.242043	-0.402561	0.037133
BK	-0.242043	1	0.174692	0.000051
BM	-0.402561	0.174692	1	-0.311715
TPT	0.037133	0.000051	-0.311715	1

Multicollinearity test results show that all correlation values between independent variables are below the threshold of 0.8. Therefore, the model shows no signs of multicollinearity.

3.2.3 Heteroscedasticity Test

Tabel 4. Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.323446	0.199511	1.621194	0.1118
BP	-0.001234	0.002232	-0.552781	0.5831
BK	-0.012424	0.008179	-1.519072	0.1356
BM	-0.007711	0.004111	-1.875735	0.0670
TPT	0.017556	0.019982	0.878572	0.3842

The heteroscedasticity test results using the Glejser method indicate that all independent variables possess probability values greater than 0.05, namely BP (0.5831), BK (0.1356), BM (0.0670), and TPT (0.3842). Thus, the model is declared free from heteroscedasticity problems.

3.3.3 Autocorrelation Test

Tabel 5. Autocorrelation Test

Durbin-Watson stat	2.074790	Prob(F-statistic)	0.000000
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The autocorrelation test using the Durbin–Watson method produced a DW value of 2.074790. With 60 observations (n) and 4 independent variables (k), the lower limit (dL) is 1.4443 and the upper limit (dU) is 1.7274. Since the DW value falls between dU and 4–dU (1.7274 < 2.074790 < 2.2726), which suggests that there is no autocorrelation present in the regression model.

3.3. FEM Panel Data Regression

Tabel 6. Fixed Effect Model Panel Data Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-squared.
C	7.162799	0.414840	17.26642	0.0000	0.826629
BP	-0.026769	0.004640	-5.768683	0.0000	
BK	0.050120	0.017005	2.947275	0.0050	
BM	-0.014247	0.008548	-1.666686	0.1024	
TPT	-0.095749	0.041549	-2.304489	0.0258	

From the Fixed Effect Model estimation results, the following regression equation is derived:

$$IPEI_{it} = 7.162799 - 0.026769 BP_{it} + 0.050120 BK_{it} - 0.014247 BM_{it} - 0.095749 TPT_{it} + \varepsilon_{it}$$

The regression findings suggest that if all independent variables remain unchanged, the IPEI value is 7.16. A 1% increase in education expenditure (BP), capital expenditure (BM), and open unemployment rate (TPT) will decrease the IPEI value by 0.027, 0.014, and 0.096 index points, respectively. Conversely, a 1% increase in health expenditure (BK) will increase the IPEI value by 0.050 index points. This indicates that BK has a positive relationship with inclusive economic development, while the other variables have a negative relationship.

The t-test findings indicate that the BP, BK, and TPT variables exert a significant influence on the IPEI (probability value < 0.05), while the BM variable is not significant (probability value > 0.05).

The F-statistic test yields an F value of 16.87128 with a probability of $0.000000 < 0.05$, meaning that the four independent variables simultaneously have a significant effect on the IPEI.

The R-squared value of 0.826629 indicates that 82.66% of the variation in IPEI can be interpreted through the variables in the model, while the remaining 17.34% is influenced by variables not included in the model.

3.3 Discussion

3.3.1 The Effect of Education Expenditure on IPEI in Sumatra

The estimation results show that education spending has a negative and significant effect on the IPEI in Sumatra, where a 1% increase in education spending lowers the IPEI by 0.027 index points, indicating that a larger education budget allocation does not necessarily foster inclusive economic growth in the region.

These results align with Bono [9], who reported that recurrent education spending negatively affects inclusive growth due to inefficiency, rent-seeking, and corruption. Faizin and Prabowo [10] also found that education spending negatively impacts the growth component of the IPEI, as budget realization does not align with improving economic inclusiveness.

In the context of Sumatra, the finding that education spending has a negative impact on IPEI is likely related to the budget allocation structure, which does not optimally support efforts to improve the quality and equity of access to education. Based on the data used, most of the education budget in all provinces is absorbed by personnel expenses, which are part of routine expenditures.

Thus, the imbalance in the structure of education expenditures, particularly the dominance of personnel expenditures over capital expenditures and other strategic expenditures, is indicated as one of the main factors contributing to education expenditures not yet providing a positive contribution to inclusive economic development in the Sumatra region.

3.3.2 The Effect of Health Expenditure on the IPEI in Sumatra

The estimation results indicate that health expenditure exerts a positive and significant influence on the IPEI in Sumatra, where a 1% increase in health spending raises the IPEI by 0.050 index points. These findings imply that higher allocations for the health budget help foster more equitable and inclusive economic development across Sumatra.

This outcome aligns with several previous studies showing that government health sector spending positively and significantly impacts inclusive economic growth. Arrfah & Syafri [11] and Safitri et al. [12] consistently reported that health expenditure supports IPEI improvement.

The consistency of these results reinforces the view that efficient and well-targeted health budget allocations play a vital role in advancing economic inclusion, enhancing living standards, and narrowing welfare disparities between regions and social groups. Since the quality of human resources is a key driver of national economic growth, higher-quality human capital leads to greater productivity [13]. Accordingly, strategic health spending not only improves human resource quality but also serves as a fundamental pillar for achieving more inclusive and equitable economic development in Sumatra.

3.3.3 The Effect of Capital Expenditure on IPEI in Sumatra

The estimation results show that capital expenditure has a negative but insignificant effect on IPEI in Sumatra, where a 1% increase in capital expenditure is estimated to reduce the IPEI by 0.014 index points, but this effect is not statistically strong enough to be considered significant in this model. This finding aligns with Metu [14], which also shows a significant negative effect of capital expenditure on inclusive growth, caused by weak governance, corruption, and inappropriate resource allocation. The similarity of these results emphasizes the importance of effective capital expenditure management in order to contribute to inclusive development.

Capital expenditure in Sumatra has not had a significant impact on inclusive economic development, possibly due to low efficiency and effectiveness in project implementation. Delays in the impact of infrastructure projects and a lack of integration with the needs of the poor can increase inequality and hinder the achievement of inclusive development.

3.3.4 The Effect of Open Unemployment Rate on IPEI in Sumatra

The analysis results show that the open unemployment rate (OUR) indicates a negative and statistically significant effect on IPEI in Sumatra with a coefficient of -0.096216 and a probability value of $0.0000 < 0.05$. This indicates that a 1% increase in the unemployment rate will reduce the IPEI by 0.096 index points.

The results align with Safitri et al. [12] and Oktavia [15], indicating that the OUR indicates a negative and statistically significant on IPEI. Both emphasize that high unemployment is a major obstacle to achieving equitable and fair development, as vulnerable groups are often disadvantaged in accessing income and basic services.

Ulya et al., [16], state that an increase in unemployment rates is highly correlated with an increase in poverty rates. Individuals who are unemployed lose their source of income to meet basic needs, thereby failing to contribute to economic growth and unable to enjoy the fruits of development. This situation impacts aggregate productivity, widens inequality, and increases social exclusion, thereby reducing the value of the IPEI as an indicator of equitable and inclusive economic development.

Thus, the findings of this study emphasize that reducing open unemployment rates must be a priority in inclusive development strategies in the Sumatra region. Local governments need to focus on creating jobs that are not only numerous but also decent and productive.

4. CONCLUSION

The analysis results indicate that education spending and open unemployment rates had a negative and significant effect on the IPEI in the provinces of Sumatra, while health spending had a positive and significant effect. Capital spending showed a negative but insignificant effect. This evidence points to the importance of the quality of public spending and the ability of local governments to create jobs in order to promote inclusive and equitable economic growth.

Local governments need to evaluate the effectiveness of education and capital expenditure allocations to ensure they are more targeted and support equitable distribution of development benefits. In addition, improving access to health services and creating productive jobs should be a priority to reduce open unemployment. Integrating economic development programs with efforts to reduce social inequality is also necessary to strengthen IPEI achievements in a sustainable manner.

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