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Research Article

Human Resource and Infrastructure Investment Model on Cost Effectiveness and Economic Development Performance in Bojonegoro

Moh. Saiful Anam[1], Tri Andjarwati[2] , Sunu Priyawan[3]
[(1,2,3)]*Doctoral Program in Economics, Faculty of Economics and Business, University of 17 Agustus 1945 Surabaya*
E-mail: saifulanam1272200030@surel.untag-sby.ac.id[1], triandjarwati@untag-sby.ac.id[2] , sunu@untag-sby.ac.id[3]
Correspondence : Tri Andjarwati, triandjarwati@untag-sby.ac.id

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ABSTRACT

Introduction: Economic development is a process that aims to create a just, prosperous, and equitable society. The main goal of economic development is to improve people's quality of life, welfare, and access to various aspects of development, including politics, economics, social welfare, and security. A strong desire to carry out development, encourages community involvement in planning and formulating development policies, shows that the policy is inclusive and representative. Even in the face of global economic uncertainty, Indonesia's economic development has demonstrated a good trend, continuing to rise. Both family spending and exports contributed to the rise seen in the first quarter of 2023. Bojonegoro Regency is an area with abundant oil, gas, and agricultural potential that is located at the border between East and Central Java. Nevertheless, it still has problems including unstable economies and low Human Development Index (HDI) ratings. The substantial influence of infrastructure and human resource quality on economic performance is supported by a number of research. Employee performance has been found to be strongly correlated with the availability of infrastructure, and economic growth in ASEAN countries is positively impacted by excellent governance, notably the efficiency of the government and the fight against corruption. Similarly, political stability and freedom of speech strengthen economic resilience even more.

Objectives: These goals seek to comprehend the ways in which investments in infrastructure and human capital, either directly or indirectly, impact regional economic outcomes, especially through resource allocation efficiency.

Methods: The study employed a quantitative approach with descriptive and verifiable strategies to investigate the relationships between human resource investment, infrastructure, cost effectiveness, and economic development performance in Bojonegoro Regency.

Results: 1) Road Infrastructure Condition - This finding reflects the success of the local government in investing and improving road infrastructure, 2) Human Resource Investment - Despite the increase, there are still similarities between expectations and reality, which are likely caused by economic factors, access to education, and the quality of educational facilities and infrastructure, 3) Economic Development Performance (GRDP) - Gross Regional Domestic Product (GRDP) data per capita shows an increasing trend from IDR 604 million in 2007 to IDR 10,323 million in 2022. A significant increase occurred in 2010, reaching IDR 8,087 million, indicating a change in improvement in the regional economy, 4) Cost Effectiveness - The effectiveness of the education budget is measured through budget allocation and realization from 2007 to 2022. The total education budget increased from IDR 77.16 billion in 2007 to IDR 395.89 billion in 2022. However, there is a difference between the budget and realization, which reflects the difficulty in optimal budget management and absorption.

Conclusions: These findings highlight the need for integrated infrastructure strategies that prioritize efficient resource management, targeted skill development, and quality-focused planning to improve regional economic performance.

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Research Article

Keywords: Cost Effectiveness; Infrastructure, Human Resource Investment, Economic Development Performance, Economic Development

INTRODUCTION

The process of attempting to achieve the goals of a fair, thriving society is known as economic development. (Zhang et al., 2020; Krelev & Angeli, 2022). The community hopes to raise the standard of living, welfare, and quality of life through the process and application of economic development. The only way for the community to gain more power and expand access to several facets of development—political, economic, sociocultural, defence, and security—is through economic development. Pangastuti & Yap, 2023; Yap, 2023; Yap et al., 2024; Bekana, 2023). Because of the high degree of public expectations for economic growth, all individuals and groups are encouraged to participate in the planning and formulation of development policies in order to represent the objectives and direction of development. (Ye and others, 2023).

Despite the global economic crisis, Indonesia's economic development performance is on the rise, with robust economic growth. Indonesia's economy grew faster in the first quarter of 2023 than it did in the previous quarter, according to data. (Dewanti et al., 2022; Baidoo et al., 2024; DataWorldBank, 2024; Badan Pusat Statistik Indonesia, 2022). All GDP components, including rising exports and household consumption, are contributing to this expansion. Sita Laksmi, Putu Ayu (2023). One of the areas in Indonesia with the highest APBD is Bojonegoro Regency, which is situated on the boundary between East and Central Java and has abundant natural resources, including agricultural products and oil and gas resources.

Previous studies have established the important roles of infrastructure, human resource investment, and governance in influencing economic development. Infrastructure positively correlates with employee performance, while good governance—characterized by government effectiveness, regulatory quality, and control of corruption—significantly contributes to economic growth. Likewise, investment in human resources, particularly through education and training, enhances innovation, productivity, and cost efficiency.

However, these relationships are often complex. Some studies report that although infrastructure investment is substantial, it doesn't always translate into improved economic outcomes due to poor quality or mismanagement. Similarly, increases in government spending do not automatically lead to better performance if not effectively allocated. These discrepancies highlight the need for a more nuanced approach in evaluating how infrastructure and human capital influence regional development.

In Bojonegoro, despite high regional revenues (APBD), challenges remain in translating fiscal capacity into effective development outcomes. Therefore, this study aims to explore the interconnected influence of human resource investment, infrastructure investment, and cost effectiveness on economic development performance. Specifically, this study: Analyzes the impact of human resource and infrastructure investment on economic performance, Assesses how cost effectiveness mediates the relationship between investment and outcomes, Highlights gaps in prior research by considering qualitative factors like governance quality, motivation, and project management in the evaluation of development success. By doing so, the research offers valuable insights for policymakers to make evidence-based decisions that optimize public spending, reduce regional inequality, and accelerate sustainable economic growth.

Research Irianto, Y. N. (2017). Infrastructure variables (X) and employee performance (Y) have a strong link; this relationship is classified as extremely strong with a value of r = 0.623. Infrastructure has a considerable impact on employee performance, as evidenced by the computed r value (0.623), which is higher than the r table for error levels of 5% (0.279) and 1% (0.361). The availability and quality of infrastructure can account for approximately 38.813% of the variation in employee performance, according to the R2 value of 0.38813 (38.813%). (Assagaf, 2019).

This study demonstrates how economic growth is impacted by effective governance. The rule of law, government efficacy, regulatory quality, and corruption control are all aspects of governance that are probably positively and significantly correlated with economic growth in ASEAN nations. The two factors that may have the biggest effects on economic growth are government effectiveness and corruption control, suggesting that both can promote faster

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Research Article

economic growth. ASEAN nations with strong rule of law and regulatory frameworks also exhibit more consistent and robust economic growth. Widjanarko (2021).

Voice and Accountability: Economic growth is significantly positively impacted by both freedom of expression and accountability. This demonstrates how economic growth can be stimulated when people are allowed to voice their thoughts and the government is held accountable. Absence of Violence and Political Stability: There are also notable benefits to political stability and low levels of violence. Nations with low levels of violence and strong political stability can foster an atmosphere that is more favourable to economic expansion. In 2023, Azhari et al.

The development of BUMDes in Bojonegoro has been found to be significantly influenced by the calibre of human resources (HR). Enhancing HR quality is crucial for promoting BUMDes managers' creativity, learning, expertise, and experience. Enhancing HR for the development of BUMDes places a high premium on innovation. It is anticipated that innovation will enable BUMDes to better utilise village potential, respond to local economic possibilities, and enhance the well-being of village communities. Gustiana (2022). The value of education and training Two essential strategies for enhancing both short-term skills (through training) and long-term competencies (through development) are employee training and development.

Training focuses on improving skills needed for current needs, while development prepares employees for greater responsibilities in the future. (Fedderke & Bogetić, 2009). Positive Impact of Infrastructure: After controlling for endogeneity, the study finds that infrastructure has a significant positive impact on output growth in the South African manufacturing sector. This means that infrastructure not only contributes to economic growth, but also has a significant economic impact. Significant Magnitude: The impact of infrastructure on output is shown to be not only statistically positive, but also economically meaningful. This suggests that investment in infrastructure can yield real and substantial returns in boosting productivity and growth in the manufacturing sector. (Kraipornsak, 2018).

OBJECTIVES

The following are the objectives of the research conducted:

1. Analyzing the influence of human resource investment (X1) on cost effectiveness (Z) in Bojonegoro Regency.
2. Analyzing the influence of infrastructure investment (X2) on cost effectiveness (Z) in Bojonegoro Regency.
3. Analyzing the influence of cost effectiveness (Z) on economic development performance (Y) in Bojonegoro Regency.
4. Analyzing the direct influence of human resource investment (X1) on economic development performance (Y) in Bojonegoro Regency.
5. Analyzing the direct influence of infrastructure investment (X2) on economic development performance (Y) in Bojonegoro Regency.
6. Testing the mediating role of cost effectiveness (Z) in the relationship between:
   a. Human resource investment (X1) and economic development performance (Y)
   b. Infrastructure investment (X2) and economic development performance (Y)

METHODS

Design

This research design aims to collect and analyze data systematically, using a quantitative approach to explore the relationships between variables.(Guinot, 2020; Recuero-Virto & Valilla Arróspide, 2024). Descriptive and verifiable approaches are adopted to present a structured and factual picture of the facts and to test the hypotheses in a broader context.(Amijaya & Alaika, 2023; Soares et al., 2023).

Population and Sampling

The population in this study consists of variables related to economic development in Bojonegoro Regency, namely Human Resource Investment (X1) which includes education and average length of schooling, Infrastructure Investment (X2) which includes the length and condition of roads, Cost Effectiveness (Z) which is measured through government budget realization reports, and Economic Development Performance (Y) which is assessed based on GRDP per capita.(M. A. Irianto & Sukiman, 2021). The sample is taken from time series data that includes

information related to the four variables during the period 2007 to 2022, which provides a representative picture of the relationship between investment and economic development outcomes in the region.(A. & Kusumaningrum, 2016; Yunani & Widijawan, 2020).

Procedures and Data Collection

Secondary data from formal requests to the Bojonegoro Regency's Central Statistics Agency (BPS) and BAPPEDA were used in this study's data gathering approach. Information pertinent to the needs of the research is included in the secondary data that was gathered. Septiani and Setyaningrum, 2021). Quantitative data, which is statistical data that uses numbers to explain the phenomena that occur or are experienced by the research object, is the type and source of data that was employed. The quantitative descriptive research approach is used, in which documentation procedures are used to collect data, giving researchers a clear image of the subject under study.

Operational Variables

Four major constructs and the indicators that correspond to them were identified in this study. The education indicator, which uses the average length of schooling to quantify the first construct, is Human Resource Investment (X1). Road length and condition indicators are used to assess the second build, Infrastructure Investment (X2). (Candra & Pryono, 2016). The government budget realisation report is then used to quantify cost effectiveness (Z), and GDP per capita is used to show economic development performance (Y), the final construct. When examining many facets of sustainable development, these four interconnected constructs are crucial (Table 1).

Table1. Operational Variables

No	Construct	Indicator	Reference
1	Human Resource Investment (X1)	Education with average length of schooling	(Hesti Kusumaningrum et al., 2024; Tahir, 2017)
2	Infrastructure Investment (X2)	Road Length and Road Conditions	(Aldita & Muniruddin, 2018; Cahyaningrum et al., 2024)
3	Cost Effectiveness (Z)	Government Budget Realization Report	(Aldita & Muniruddin, 2018; Supriati et al., 2019)
4	Economic Development Performance (Y)	GRDP Per Capita	(Soekiman, 2023; Tibawa et al., 2023)

Source: data processing, 2025

Research Procedures

A number of significant value standards and criteria for validity, reliability, and hypothesis testing are included in the SmartPLS study. The loading factor and Average Variance Extracted (AVE) must both be > 0.70 and ≥ 0.50, respectively, for convergent validity. The Fornell-Larcker criterion, which requires that the square root of each construct's AVE be greater than the correlation between constructs, and cross loading, which requires that the loading factor of each indicator on the construct be greater than the loading on other constructs, are used to test discriminant validity. positive influence, whereas a negative one denotes a detrimental one.The R-Square (R^2) value is used to assess how well the independent variables explain the dependent variable, with the criteria $R^2 \geq 0.75$ considered strong, $0.50 \leq R^2 < 0.75$ moderate, and $0.25 \leq R^2 < 0.50$ weak. Finally, the Q-Square (Q^2) value must be greater than 0, indicating that the model has good predictability.

RESULTS

Road conditions from 2007 to 2022 illustrate the dynamics of transportation infrastructure in a region. In 2007, the length of roads in good condition reached 267,745 km, with a total road length of 628,789 km. However, over time, there have been striking fluctuations, such as a decrease in the length of good roads in 2008 and then a significant spike in 2016 to 2022, reaching 722,540 km in 2022. During this period, the condition of severely damaged roads

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Research Article

decreased from 144,282 km to 43,390 km, indicating successful infrastructure improvement efforts. These data reflect the government's investment and attention to the repair and maintenance of road infrastructure (Table 2).

Table2. Road Conditions 2007 – 2022

Year	Road condition (km) road length and road condition				AMOUNT
	Good	Currently	Minor Damage	Severely Damaged	
2007	267,745	59,986	156,776	144,282	628789
2008	257.122	62,730	163,537	145,400	628789
2009	389,862	14,424	135,853	88,650	628789
2010	430,779	14,424	111,800	71,786	628789
2011	434,839	91,950	85,000	17,000	628789
2012	444,599	49,290	75,009	59,891	628789
2013	496.107	92,877	23,883	15,922	628789
2014	519,240	73,725	21,494	14,330	628789
2015	525,710	68,352	34,727	10,400	639189
2016	556,910	53,019	19,859	10,400	640188
2017	571,000	58,975	19,865	10,400	660240
2018	302,870	217,470	220,830	72.100	813270
2019	426,280	196,250	67,670	123,070	813270
2020	532,480	134,790	65,580	80,420	813270
2021	680,380	39,910	24,040	68,940	813270
2022	722,540	33,320	14,020	43,390	813270

Source: data processing, 2025

Expected years of schooling increased from 11.32 years in 2007 to 12.92 years in 2023, reflecting the community's expectation of better education and increased accessibility. Conversely, the average years of schooling also increased from 6.23 years in 2007 to 7.45 years in 2022, although still below expectations. This indicates a gap between expectations and reality, which may be caused by various factors, including the quality of education, infrastructure, and economic factors that affect access to education in the community (Table 3).

Table3. Average Length of Schooling

No	Year	Expected Years of Schooling (Years)	Average Length of Schooling (Years)
1	2007	11.32	6.23
2	2008	11.12	6.17
3	2009	11.54	6.11
4	2010	11.30	6.31
5	2011	11.40	6.43
6	2012	11.78	6.55
7	2013	11.99	6.78
8	2014	12.08	6.14
9	2015	12.09	6.64
10	2016	12.11	6.65
11	2017	12.34	6.71
12	2018	12.35	6.77
13	2019	12.36	7.09

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Research Article

14	2020	12.39	7.33
15	2021	12.68	7.38
16	2022	12.84	7.43

Source: data processing, 2025

The development of Gross Regional Domestic Product (GRDP) from 2007 to 2022 reflects significant economic growth. In 2007, GRDP was recorded at 604, experiencing a steady increase to reach 612 in 2009. A dramatic spike occurred in 2010, with GRDP reaching 8,087, indicating a structural change in the regional economy. Overall, GRDP continued to increase until 2022, reaching 10,323. Although there was a slight decline in 2020 due to the impact of the COVID-19 pandemic, recovery occurred in 2021 and 2022, indicating good economic resilience in facing global challenges (Table 4).

Table4. GRDP

No	Year	GRDP
1	2007	604
2	2008	607
3	2009	612
4	2010	8087
5	2011	8413
6	2012	8809.44
7	2013	8934.19
8	2014	8963.65
9	2015	8993.21
10	2016	9420.00
11	2017	9553.00
12	2018	9926.00
13	2019	10265.00
14	2020	10121.00
15	2021	10221.00
16	2022	10323.00

Source: data processing, 2025

The allocation of funds for education from 2007 to 2022, illustrates the dynamics of funding and realization in the context of special autonomy for education. In 2007, the total education budget reached 77,163,908,000 with a realization of 76,646,980,677, indicating a fairly good effectiveness in the use of funds. However, there were fluctuations in the budget and realization throughout the year, such as in 2011, where the budget jumped significantly to 238,584,186,400 but the realization was only 232,385,432,900. In 2022, the total education budget reached 395,897,043,153, with a realization of 350,631,211,167, indicating a significant increase in education investment. However, the difference between the budget and realization in each year reflects the challenges in managing funds and achieving optimal education goals (Table 5).

Table5. Total Education Budget

No	Year	Special Autonomy For Education		Special Allocation Fund		Total Education Budget	
		Budget	Realization	Budget	Realization	Budget	Realization

Journal of Information Systems Engineering and Management
2025, 10(55s)
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https://www.jisem-journal.com/

Research Article

1	2.007	67,916,900,000	67,916,900,000	9,247,008,000	8,730,080,677	77,163,908,000	76,646,980,677
2	2.008	68,347,170,000	68,347,170,000	48,187,076,857	43,732,354,579	116,534,246,857	112,079,524,579
3	2.009	62,060,830,000	46,545,623,000	19,944,915,000	19,533,615,000	82,005,745,000	66,079,238,000
4	2.010	57,373,200,000	57,373,200,000	17,099,503,000	17,772,003,000	74,472,703,000	75,145,203,000
5	2.011	186,492,386,400	185.151.892.900	52,091,800,000	47,233,540,000	238,584,186,400	232.385.432.900
6	2.012	181,097,658,000	182.173.367.391	44,789,820,000	44,789,820,000	225,887,478,000	226.963.187.391
7	2.013	236,525,556,000	236,525,556,000	37,040,660,000	27,780,495,298	273,566,216,000	264,306,051,298
8	2.014	258,359,458,000	258,359,458,000	30,615,150,000	22,961,362,757	288,974,608,000	281,320,820,757
9	2.015	312,542,329,000	312,542,329,000	7,216,660,000	7,216,660,000	319,758,989,000	319,758,989,000
10	2.016	261,505,396,000	261,505,396,000	6,175,780,000	4,940,624,000	267,681,176,000	266,446,020,000
11	2.017	232,980,030,000	232,980,030,000	23,656,902,000	21.764.205.702	256,636,932,000	254.744.235.702
12	2.018	316,364,467,000	306,364,467,000	6,914,699,000	6,514,042,100	323,279,166,000	312,878,509,100
13	2.019	302.240.215.000	281.173.638.110	26,734,418,000	19,939,092,600	328,974,633,000	301.112.730.710
14	2.020	281,341,370,761	274,835,489,308	19,547,934,000	17,516,545,261	300,889,304,761	292,352,034,569
15	2.021	246,056,868,246	217,205,000,638	13,475,238,357	13,136,438,357	259.532.106.603	230,341,438,995
16	2.022	382,489,891,153	337.402.239.167	13,407,152,000	13,228,972,000	395,897,043,153	350.631.211.167

Source: data processing, 2025

Outer loading refers to the relationship between a measurement variable and the construct it represents in a statistical analysis, such as a Structural Equation Modeling (SEM) model. In this context, the cost effectiveness (Z), economic development performance (Y), human resource investment (X1), and infrastructure investment (X2) variables show perfect loading values (1,000). This means that each construct has a full and strong influence on the measurement variable concerned, without any noise or significant variability. This result confirms that each indicator in the model functions well to reflect and measure the dimensions of its construct, creating high validity in the study (Table 6).

Table6. Outer Loading

	Cost Effectiveness (Z)	Economic Development Performance (Y)	Human Resource Investment (X1)	Infrastructure Investment (X2)
X1			1,000	
X2				1,000
Y		1,000		
Z	1,000			

Journal of Information Systems Engineering and Management
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https://www.jisem-journal.com/

Research Article

Source: data processing, 2025

Reliability analysis using Cronbach's Alpha for cost effectiveness variables (Z), economic development performance (Y), human resource investment (X1), and infrastructure investment (X2). All variables have Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE) values of 1,000 each, indicating that the measuring instrument used in this study is very reliable and consistent. This perfect value indicates that each item in each variable is able to measure the intended construct effectively, providing confidence that the data obtained can be relied on for further analysis in the study (Table 7).

Table7. Average Variance Extracted

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Cost Effectiveness (Z)	1,000	1,000	1,000	1,000
Economic Development Performance (Y)	1,000	1,000	1,000	1,000
Human Resource Investment (X1)	1,000	1,000	1,000	1,000
Infrastructure Investment (X2)	1,000	1,000	1,000	1,000

Source: data processing, 2025

The tested hypothesis shows the relationship between various investment factors and economic performance. The results of the analysis show that cost effectiveness (Z) has a significant effect on economic development performance (Y) with a T-statistic value of 2.347 and a P-value of 0.019, indicating a strong positive relationship. Meanwhile, human resource investment (X1) shows a nearly significant positive effect on cost effectiveness (Z) with a T-statistic of 1.961 and a P-value of 0.050. However, the direct effects of human resource investment (X1) and infrastructure investment (X2) on economic development performance (Y) are not significant, with P-values of 0.979 and 0.084 respectively, indicating that these two investments do not directly contribute to economic performance (Table 8).

Table8. Hypothesis Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Cost Effectiveness (Z) -> Economic Development Performance (Y)	0.701	0.668	0.299	2,347	0.019
Human Resource Investment (X1) -> Cost Effectiveness (Z)	0.771	0.827	0.393	1,961	0.050
Human Resource Investment (X1) -> Economic Development Performance (Y)	0.015	0.065	0.564	0.027	0.979
Infrastructure Investment (X2) -> Cost Effectiveness (Z)	-0.119	-0.173	0.390	0.304	0.761
Infrastructure Investment (X2) -> Economic Development Performance (Y)	-0.787	-0.794	0.455	1,732	0.084
Human Resource Investment (X1) -> Cost Effectiveness (Z) -> Economic Development Performance (Y)	0.540	0.535	0.391	1,382	0.168

Journal of Information Systems Engineering and Management
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Research Article

Infrastructure Investment (X2) -> Cost Effectiveness (Z) -> Economic Development Performance (Y)	-0.083	-0.094	0.281	0.296	0.767

Source: data processing, 2025

DISCUSSION

1. Analysis of Results and Hypothesis

1.1 Relationship between Cost Effectiveness (Z) and Economic Development Performance (Y)

The results of the analysis show that cost effectiveness (Z) has a positive and significant influence on economic development performance (Y) with a T-statistic value of 2.347 and a P-value of 0.019. This indicates that the more effective the costs applied, the better the economic performance produced.

Strategies That Can Be Applied :

a. Resource Optimization**:**Organizations and governments need to adopt an efficient approach to resource management, including the use of technology to minimize waste.
b. Performance Measurement:Develop clear and measurable performance indicators to assess cost effectiveness across projects and programs.

1.2 Relationship between Human Resource Investment (X1) and Cost Effectiveness (Z)

Investment in human resources (X1) also shows a significant effect on cost effectiveness (Z) with a T-statistic of 1.961 and a P-value of 0.050. This indicates that improving the quality of human resources can contribute to cost reduction, increasing overall cost effectiveness.

Strategies That Can Be Applied :

a. Training and Development:Focus on training programs that improve worker skills and productivity**.**
b. Selective Recruitment:Ensuring that individuals recruited have appropriate qualifications and the potential to contribute to the cost effectiveness of the organization.

1.3 Relationship between Human Resource Investment (X1) and Economic Development Performance (Y)

The direct effect of human resource investment (X1) on economic development performance (Y) shows insignificant results, with a P-value of 0.979. This shows that although investment in human resources is important, there is no significant direct effect on economic performance.

Strategies That Can Be Applied:

a. Enhancing Collaboration:Building collaboration between the education sector and industry to ensure that the education curriculum is in line with market needs.
b. Job Creation:Encourage investments that not only improve the quality of education, but also create jobs that match the skills needed.

1.4 Relationship between Infrastructure Investment (X2) and Cost Effectiveness (Z)

The results of the analysis show that infrastructure investment (X2) has a negative effect on cost effectiveness (Z) with a T-statistic of 0.304 and a P-value of 0.761. This shows that increasing infrastructure investment does not directly increase cost effectiveness, and can even potentially increase the cost burden.

Strategies That Can Be Applied:

a. Project Feasibility Analysis:Before undertaking an infrastructure project, it is important to conduct a comprehensive feasibility analysis to ensure that the project will provide good economic value.
b. Good Project Management:Adopt good project management practices to avoid waste and ensure infrastructure projects are completed on time and within budget.

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Research Article

1.5 Relationship between Infrastructure Investment (X2) and Economic Development Performance (Y)

Infrastructure investment (X2) shows a negative relationship with economic development performance (Y), with a T-statistic of 1.732 and a P-value of 0.084, indicating a potential relationship, but not significant enough. This may indicate that the quality of infrastructure should be considered, not just its quantity.

Strategies That Can Be Applied:

a. Focus on Infrastructure Quality:Raise quality standards in infrastructure development to ensure that investment has a positive impact on the economy.
b. Public Participation**:**Inviting the community to participate in planning and developing infrastructure to suit their needs.

2. Path Model

The analysis conducted shows that human resource investment (X1) has a positive effect on cost effectiveness (Z) which then has an impact on economic development performance (Y). However, the direct effect of human resource investment and infrastructure investment on economic development performance is not significant. This indicates that there needs to be an indirect path through cost effectiveness to improve economic development performance.

Proposed Path Model :

Human Resource Investment (X1) → Cost Effectiveness (Z) → Economic Development Performance (Y)

a. Infrastructure Investment (X2) does not contribute directly to economic development performance, but can increase cost effectiveness if managed well. Positive Correlation: There is a fairly strong positive correlation between the gap in GRDP per capita and the gap in infrastructure between provinces, indicating that provinces with better infrastructure tend to have higher GRDP per capita.(Musa et al., 2023).
b. Negative Effects of Public Debt: The findings show that public debt hinders economic growth across all quantiles, indicating that increasing public debt does not always translate into increased economic growth. The Role of Good Governance: In the context of countries with good governance, public debt can actually boost economic growth, especially in the middle to high quantiles. This suggests that good governance plays a significant role in determining the effectiveness of public debt.(Finasri & Triani, 2023).
c. Human Resource Quality: Found to have a positive and significant impact on economic growth in Indonesia. This shows that improving the quality of human resources contributes to increasing economic growth.
d. Cooperatives: Has a negative and insignificant impact on economic growth. This could indicate that the existence of cooperatives does not always have a positive impact on the economy in the period studied.(Putra, 2020).
e. Relationship between Regional Expenditure and PAD: A significant and positive relationship was found between the amount of regional expenditure and Regional Original Income (PAD), which means that an increase in regional expenditure tends to be followed by an increase in PAD.
f. Relationship between Budget Efficiency and GRDP: The results of the study showed a significant and positive relationship between budget efficiency and the growth of Gross Regional Domestic Product (GRDP), indicating that districts/cities that are more efficient in budget management tend to have better economic growth (Cahyaningrum et al., 2024; Dewanti et al., 2022; Pradana et al., 2020).

The analysis of the relationship between human resource investment (X1), infrastructure investment (X2), cost effectiveness (Z), and economic development performance (Y) shows that cost effectiveness has a positive and significant effect on economic development performance with a T-statistic of 2.347 and a P-value of 0.019, indicating that the more efficient the costs applied, the better the economic performance produced. Meanwhile, human resource investment contributes positively to cost effectiveness with a T-statistic of 1.961 and a P-value of 0.050, but does not have a direct significant effect on economic development performance, with a P-value of 0.979. On the other hand, infrastructure investment shows a negative effect on cost effectiveness and economic performance, with a T-statistic of 0.304 and a P-value of 0.761 and a T-statistic of 1.732 and a P-value of 0.084. This indicates the need for better management strategies, such as resource optimization, focusing on infrastructure quality, and clear performance

measurement to improve cost effectiveness and, in turn, overall economic development performance. By implementing this approach, it is hoped that significant improvements in economic development performance can be achieved through better management of human resources and infrastructure.

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