

The impacts of Human Development Index (HDI) and capital expenditure on economic growth in regencies/cities of north Sulawesi from 2012-2021

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International Journal of Science and Research Archive, 2023, 08(01), 150–156

Publication history: Received on 11 November 2022; revised on 24 December 2022; accepted on 27 December 2022

Article DOI: <https://doi.org/10.30574/ijrsra.2023.8.1.0324>

Abstract

The research affords an analysis of the impacts of human development index (HDI) and capital expenditure on economic growth in regencies/cities of North Sulawesi from 2012-2021. The secondary data sources covered 10-year data. We used a double linear regression using EViews. The results demonstrated that

- Human development index (HDI) positively and significantly affected economic growth in districts/cities of North Sulawesi from 2012-2021,
- Capital expenditure positively and significantly affected economic growth in regencies/cities of North Sulawesi from 2012-2021,
- Human development index (HDI) and capital expenditure simultaneously and significantly affected economic growth in regencies/cities of North Sulawesi from 2012-2021 at a coefficient of determination of 47.27%.

Other variables unexamined here, i.e., natural resources, human resources, accumulated capital, managerial labor, production organization, science, technology, government political and administrative factors, and socio-cultural aspects, explicated economic growth by 52.73%.

Keywords: Economic Growth; HDI; Capital Expenditure; Indonesia

1. Introduction

As regards economic growth in North Sulawesi, we concentrate on five regencies/cities in the Bolmong Raya category, namely Kotamobagu, Bolaang Mongondow, Bolaang Mongondow Utara, Bolaang Mongondow Selatan, and Bolaang Mongondow Timur. The five regencies/cities will be merged into a province predominated by the Mongondow community. We choose the area because of several economic gaps there. For example, Kotamobagu has excellent economic growth as opposed to Bolaang Mongondow and Bolaang Mongondow Utara.

Economic growth in the regencies/cities of North Sulawesi is poor. The economy in the regencies/cities increasingly decreased in 2016-2020. The economic growth was insignificant even before the COVID-19 pandemic. It reflects the inability of all regencies/cities to optimize their potencies to augment economic activities. The economic state was indeed elevated in 2021 as a result of the economic rise after the economic growth of < 1% by virtue of COVID-19.

It explicates poorly implemented government policies concerning economic development, especially enhancing human development index and fiscal policies, as attested by general allocation funds. Human development is one of the indicators of development which can boost economic growth (Dewi & Sutrisna, 2014). Capital expenditure is the expenditure in the context of capital allotment to add to fixed assets/inventories administering more benefits for more

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than one accounting term, including expenditures for maintenance costs to maintain or escalate the useful life to heighten the capacity and quality of assets (Mardiasmo, 2012). The higher the capital investment level, the higher the quality of public services, which in turn, is expected to improve public participation levels in development, reflected in increased local income rates and economic growth.

The arguments above illuminate how human development index (HDI) and capital expenditure are imperative to economic growth are. Accordingly, we are anxious to investigate the impacts of human development index (HDI) and capital expenditure on economic growth in regencies/cities in North Sulawesi from 2012-2021.

2. Research methodology

The research areas were regencies/cities of North Sulawesi, namely Kotamobagu, Bolaang Mongondow, Bolaang Mongondow Utara, Bolaang Mongondow Selatan, and Bolaang Mongondow Timur. The research period was March-April 2022. Secondary data resources were used and embraced 10-year data. A double linear regression with EViews was applied as a data analysis technique.

3. Results

3.1. Characteristics of Research Variables

Table 1 Exhibits variable descriptions.

Table 1 Characteristics of Research Variables

	PE?	IPM?	LOG (BM?)
Maximum	7.890000	73.47000	26.15954
Minimum	0.180000	61.48000	25.15242
Mean	5.575400	66.28400	25.68857
Std. Dev.	1.990466	3.131152	0.282384
Observations	50	50	50
Cross sections	5	5	5

Source: Data Processing Using EViews 9, 2022

We could decipher descriptive statistics of the respective variables based on Table 1 as follows.

3.1.1. Economic Growth

The minimum economic growth of 0.18% in Bolaang Mongondow Timur in 2020 featured a decrease in gross regional domestic products due to the COVID-19 pandemic. The maximum economic growth of 7.89% was achieved by Bolaang Mongondow in 2019. The mean economic growth of regencies/cities as research objects was higher than the standard deviation. As such, data on economic growth could be justified by the mean economic growth.

3.1.2. Human Development Index (HDI)

The minimum human development index (HDI) was 61.48% attained by Bolaang Mongondow Selatan. The maximum human development index (HDI) of 73.47% was achieved by Kotamobagu. The mean human development index (HDI) of regencies/cities as research objects was higher than the standard deviation. Hence, data on human development index (HDI) could be justified by the mean human development index (HDI).

3.1.3. Capital Expenditure

The minimum capital expenditure of LN 25.15 or IDR83, 360, 407, 844.00 was attained by Bolaang Mongondow. The maximum capital expenditure of LN 26.15 or IDR229, 586, 038, 018 was achieved by Kotamobagu. The mean capital expenditure of regencies/cities as research objects was higher than the standard deviation. As such, data on capital expenditure could be justified by the mean capital expenditure.

3.2. Interpretation of the Regression Model

Table 2 indicates the results of the panel data regression using EViews 9.

Table 2 Regression Analysis Model

Dependent Variable: PE?				
Method: Pooled Least Squares				
Date: 08/28/22 Time: 11:33				
Sample: 1 10				
Included observations: 10				
Cross-sections included: 5				
Total pool (balanced) observations: 50				
White cross-section standard errors & covariance (no d.f. correction)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.438507	0.983526	3.496101	0.0011
IPM?	2.636691	0.858218	3.072285	0.0037
BM?	0.013644	0.006391	2.134987	0.0385
Fixed Effects (Cross)				
_KOTAMOBAGU--C	0.529143			
_BOLMONG--C	0.145704			
_BOLTIM--C	-0.718968			
_BOLMUT--C	-0.104219			
_BOLSEL--C	0.148340			
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.537293	Mean dependent var	5.575400	
Adjusted R-squared	0.472730	S.D. dependent var	1.990466	
S.E. of regression	1.445345	Akaike info criterion	3.703750	
Sum squared resid	89.82794	Schwarz criterion	3.971433	
Log likelihood	-85.59375	Hannan-Quinn criter.	3.805685	
F-statistic	8.321909	Durbin-Watson stat	1.441431	
Prob(F-statistic)	0.000005			

Source: Data Processing Using EViews 9, 2022

Using EViews 9, we acquired the following regression model.

$$\hat{Y} = 3.438 + 2.636 IPM_{it} + 0.013 BM_{it} + e$$

3.3. Interpretation of the Coefficient of Determination

The coefficient of determination was taken from Adjusted R Square as the independent variables are two. Table 3 demonstrates the test result of the coefficient of determination of the variables.

Table 3 Coefficient of Determination

R Square (R2)	Adjusted R Square (Adj. R2)	The Ability of X to Explain Y	Other Variables
0.537293	0.472730	0.472730 x 100%= 47.27%	52.73%

Source: Data Processing Using EViews 9, 2022

Table 3 exhibits that 47.27% of economic growth in regencies/cities of North Sulawesi from 2012/2021 could be laid out by human development index (HDI) and capital expenditure in regencies/cities of North Sulawesi. Other variables could spell out economic growth by 52.73% (100% - 47.27%). Other variables affecting economic growth were natural resources, human resources, accumulated capital, managerial labor and production organization, science, technology, government political and administrative factors, and socio-cultural aspects.

3.4. Simultaneous Test (F-Test)

Table 4 features the test results of the regression model (simultaneous test) using EViews 9.

Table 4 The Results of the Simultaneous Test

F-Count	Probability	F-Table	Determined Alpha	Description
8.321909	0.000005	3.252	0.05	Significant

Source: Data Processing Using EViews 9, 2022

Table 4 indicates that the F_{count} was 8.321. The F_{table} at a 5% significance level and $df_1 = 2$ and $df_2 = nt - n - k = 50 - 2 - 1 = 47$ was 3.195. In so doing, $F_{\text{count}} > F_{\text{table}}$ ($8.321 > 3.195$). The probability value (P-value) was smaller than the alpha value of 0.05 ($0.0051 < 0.05$). That being so, human development index (HDI) and capital expenditure simultaneously and significantly affected economic growth in regencies/cities of North Sulawesi from 2012-2021.

3.5. Partial Test (t-Test)

The partial test of each variable is manifested in Table 5.

Table 5 The Results of the Partial Test

Model	Coefficient (t-Count)	Significance	t-Table	Description
(Constant)	3.496101	0.0011		
Human development index (HDI)	3.072285	0.0037	2.012	Significant
Capital expenditure	2.134987	0.0385	2.012	Significant

Source: Data Processing Using EViews 9, 2022

The partial test results of the impact of each independent variable (human development index (HDI) and capital expenditure) on economic growth in regencies/cities of North Sulawesi from 2012-2021 are as follows:

3.5.1. The Impact of Human Development Index (HDI) on Economic Growth

Table 5 points out that the t_{count} of human development index (HDI) variable was 3.072, which was higher than the t_{table} of 2.012 ($3.072 > 2.012$). The probability value (P-value) of human development index (HDI) was smaller than the 0.05 probability value ($0.0037 < 0.05$). Therefore, human development index (HDI) positively and significantly inflected economic growth in regencies/cities in North Sulawesi from 2012-2021.

3.5.2. The Impact of Capital Expenditure on Economic Growth

As presented in Table 5, the t_{count} of the capital expenditure variable was 2.134, which was higher than the t_{table} of 2.012 ($2.134 > 2.012$). The probability value (P-value) of capital expenditure was smaller than the 0.05 probability value ($0.0385 < 0.05$). Thus, capital expenditure positively and significantly influenced economic growth in regencies/cities in North Sulawesi from 2012-2021.

4. Discussion

4.1. The Impact of Human Development Index (HDI) on Economic Growth

The results show that human development index (HDI) positively and significantly predisposed economic growth in regencies/cities of North Sulawesi from 2012-2021. A positive coefficient of regression showcased that human development index (HDI) had a monodirectional relationship with economic growth. In other words, the higher the human development index (HDI), the higher the economic growth in regencies/cities of North Sulawesi.

It accorded with Andriani (2021) that human development index (HDI) affected economic growth because human resource development was a long-run process in which a range of socio-economic factors contributed to it. Human resource development was a cross-sectoral component interaction taking place gradually from traditional, development, to modern eras. Accordingly, the increase in HDI in a certain era did not necessarily show off direct impacts on economic growth in the same era. The very possibility was that the economic condition in the era was still impacted by HDI achievements in previous eras.

It was also aligned with Alkhoiriyah & Sa'roni (2021) that HDI positively inflected economic growth. Economic growth signaled human maturity growth. Material progression at this juncture was inevitable and should be advocated by human maturity in terms of education and health independence. HDI decided the development rank or level of a region/country. Indonesia deemed HDI as strategic data employed by the government to measure performance to increase economic growth. HDI played two key roles in economic development, i.e., 1) as a tool to popularize human development as a new understanding of welfare and 2) as an alternate substitute for per capita GDP to measure development levels to compare countries and times.

4.2. The Impact of Capital Expenditure on Economic Growth

Infrastructure improvement in public services boosted regional economic growth and promoted regional capital expenditure. It allowed the government to carry out capital expenditure budgeting more efficiently. It was commensurate with the regression test results that capital expenditure positively and significantly influenced economic growth in regencies/cities of North Sulawesi from 2012-2021. A positive coefficient of regression signified that capital expenditure had a monodirectional relationship with economic growth. In other words, the higher the capital expenditure, the higher the facility and infrastructural development encouraging economic activities, scaling up economic growth in regencies/cities of North Sulawesi.

Expenditure budget should be allocated for productive issues, e.g., development. The government revenue should be allocated for public service programs. That was, allocating capital expenditure budgeting for public interest was important. Infrastructures positively affecting farming and other businesses would augment the community growth and income. It would elevate per capita income, leading to economic growth.

It comported with Mardiasmo (2012) that decentralization significantly inflected regional economic growth. Additionally, investment expenditure shares were strongly connected with decentralization levels. The higher the capital investment level, the higher the quality of public services, enhancing public participation levels in development, reflected by escalated regional income and economic growth.

4.3. The Impact of Human Development Index (HDI) and Capital Expenditure on Economic Growth

The hypothesis 3 test suggested that human development index and capital expenditure simultaneously and significantly affected economic growth in regencies/cities of North Sulawesi from 2012-2021 at a coefficient of determination of 47.27%. Other variables, i.e., natural resources, human resources, accumulated capital, managerial labor and production organization, science, technology, government political and administrative factors, and socio-cultural aspects, could set forth economic growth by 52.73%.

It conformed with BPS in Arwanti & Hadianti (2013) that economic growth fostered the local government to manage available resources and partner with the community to create new job opportunities which could impact the regional economic development. A high and ever-increasing economic growth was a development goal. Economic development aimed to heighten economic capacity to create new job opportunities and impel the community wellbeing.

Gross regional domestic products from Kotamobagu, Bolaang Mongondow, Bolaang Mongondow Timur, Bolaang Mongondow Utara, and Bolaang Mongondow Selatan were dominated by agricultural products. Accordingly, the provincial and regency governments should constantly improve agricultural investments in infrastructures, supply, distribution, and market chains. They should continue inducing the improvement manifestation to increase crop productivity and embody more efficient agricultural investments. The solutions the governments could implement were capacity building for agricultural extension workers, technology use, capacity building for farmers, and agricultural regeneration by millennials to make agricultural innovations acceptable and implementable.

It was congruent with Todaro in Priana & Suryanto (2010:70) that economic growth in all states had three factors or components, namely accumulated capital encompassing all forms or types of new investments instilled in the land, physical equipment, and human capital or resources. Population growth in the ensuing years would increase the amount of accumulated capital and promote technological advancement. The sources of economic growth might be one or more than three factors, which were scaled up quantity and quality of labor (through population growth and education augmentation), capital increase, and technology. One of the tools to measure the development of the quality and quantity of labor was human development index (HDI) and, in terms of capital aspects, capital expenditure increase.

5. Conclusion

Based on the results and discussion, we could draw three following conclusions.

- Human development index (HDI) positively and significantly affected economic growth in regencies/cities in North Sulawesi from 2012-2021. A positive coefficient of regression was suggestive of the higher the human development index (HDI), the higher the economic growth in regencies/cities of North Sulawesi.
- Capital expenditure positively and significantly impacted economic growth in regencies/cities of North Sulawesi from 2012-2021. A positive coefficient of regression demonstrated that the higher the capital expenditure, the higher the facility and infrastructural development to motivate economic activities, prompting economic growth in regencies/cities of North Sulawesi.
- Human development index (HDI) and capital expenditure simultaneously and significantly inflected economic growth in regencies/cities of North Sulawesi from 2012-2021 at a coefficient of determination of 47.27%. Other variables, i.e., natural resources, human resources, accumulated capital, managerial labor and production organization, science, technology, government political and administrative factors, and socio-cultural aspects, could shed light on economic growth by 52.73%.

Suggestion

Building on the results and conclusions, we suggest that

- The regency/city governments of North Sulawesi should continue to develop health and educational programs oriented to better results or outcomes. They should collaborate with various institutions, including universities, to develop the areas and manifest an ideal human development. Educational and health budgets should be allocated to technical instead of administrative or other aspects which were inefficient if acquiring health and education-allocated budgets.
- The governments should allocate specific funds for activities inflecting community economic activities instead of only allocating funds for building facilities and infrastructures for government activity purposes not contributing to the community. They should build roads and bridges as access to driving forces of the community economy.
- Because gross regional domestic products in Kotamobogy, Bolaang Mongondow, Bolaang Mongondow Timur, Bolaang Mongondow Utara, and Bolaang Mongondow Selatan are dominated by agricultural products, the provincial and regency governments should elevate investments in agricultural sectors in terms of infrastructures, supply, distribution, and market chains. Modernized agriculture should be realized to enhance crop productivity and enable more efficient agricultural investments. The solutions the governments can apply are capacity building for agricultural extension workers, technology use, capacity building for farmers, and agricultural regeneration by millennials to make agricultural innovations more acceptable and implementable.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

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