

Fiscal Decentralization Analysis on Stunting in Banten Province

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Abstract. Stunting is a condition of failure to thrive in children under five due to chronic malnutrition. Stunting is one of the targets of the Sustainable Development Goals (SDGs) which is included in the 2nd sustainable development goal. Also the target set by the Indonesian government, which aims to reduce the stunting rate to 40 percent by 2025 (Ministry of Health, 2018). This study aims to find out what are the factors that influence the stunting prevalence rate and also how big the role of the government through the Special Allocation Fund for health is budgeted to overcome stunting problems in the Regency and City of Banten Province. The method used is panel data analysis, covering all districts and cities in Banten province from 2016 to 2020. The analysis model in this study uses the Fixed Effect Model (FEM). Based on the regression results, it shows that the special allocation funds and poverty have a significant negative effect on stunting. In this study, it was found that when the special allocation fund increased, stunting decreased. Meanwhile, per capita income and the number of health facilities, in this case puskesmas, did not have a significant effect on stunting. This is because the number of health facilities or puskesmas is not only insufficient to handle stunting cases, but the stunting prevention programs and interventions are not running effectively due to limited facilities and infrastructure.

Keywords: Stunting, DAK, Per capita Income, Poverty, Health Facilities.

1 Introduction

Economy and health are interrelated. The degree of health of a country affects the economic growth and well-being of its people. On the other hand, economic growth can be a means to increase the allocation of health budgets needed for research and development of domestic health technologies, improving the quality of health services, and others [1]. Indonesia guarantees the fulfillment of the health rights of its people through a health service system that focuses on disease treatment and prevention. The health system is contained in Presidential Regulation (Perpres) No. 72 of 2012 concerning the National Health System (SKN). SKN has several subsystems consisting of health initiatives, health research and development, health funding, health workers, medicines, medical devices and food, management, health information and regulations, and community empowerment. WHO 2018 explained that health

economics is the use of economics to qualify these resources intended to achieve health development goals and to measure the impact of preventive, curative, and rehabilitative efforts on individual productivity and productivity nationally. Health economics is an application of economics in the field of health. In general the health economy concentrates on the health industry. Health economics is also consensual in terms of applying economic theories, concepts and techniques in the health sector.

Stunting is one of the targets of the Sustainable Development Goals (SDGs) which is included in the 2nd Sustainable Development Goal which contains the elimination of hunger and all forms of malnutrition by 2030 and achieving food security. The target set by the Indonesian government is to reduce the stunting rate by 40 percent by 2025 [2]. The problem of high stunting is a problem that is not only faced by Indonesia but also the world, the Indonesian state which has a serious impact on the quality of Human Resources (HR). Stunting is a chronic nutritional problem caused by insufficient food intake. This is generally due to food intake that does not meet nutritional needs and leads to stunting in children. That is, the child is smaller or shorter (shorter) than the standard age. Therefore, stunting can lead to an increased risk of morbidity and mortality, suboptimal brain development, and stunted intellectual growth. Indonesia continues to face nutritional challenges that have a serious impact on the quality of its talents, especially the high prevalence of underdeveloped children. The emergence of young babies or what is commonly referred to as stunting is one of the nutritional problems faced by babies around the world. According to WHO, if the prevalence of stunting exceeds 20 percent, public health problems can be considered chronic. This means that the problem of slowing growth in Indonesia nationally is classified as chronic.

On the other hand, Law No. 36 of 2009 mandates the focus of larger budget plans on the health sector to be able to further optimize health development and more importantly improve the quality of health for all communities. In fact, all Indonesians are entitled to health insurance. Health development plays a very important role in developing quality human resources. One of the factors that greatly affects the level of health is the size of the health sector financing budget. The level of health care costs is actively associated with the achievement of the state of public health. The higher the government's spending on health, the better the achievement of public health degrees [3]. Local governments are the main parties in the provision of health facilities today. Because local governments have the authority to regulate the regional budget as an implementation of decentralization, therefore the health budget also depends on local governments as the main governing body. The provision of appropriate public services such as medical care is expected to improve the degree of public health, this is expected to have an impact on improving people's welfare.

Disparities or differences in health services between regions are things that cannot be prevented as long as there are still development disparities. therefore, the government carries out fiscal decentralization to make it easier for regions to regulate the conditions of their respective regions. The problem of stunting in Indonesia is a serious threat where it requires proper treatment. Based on data from the Indonesian Toddler Nutritional Status Survey (SSGBI) in 2019, the prevalence of stunting in Indonesia reached 27.7 percent. This means that about one in four children under five (more than eight million children) in Indonesia are stunted.

The following is the average prevalence of stunting at the regency/city level of Banten Province in 2016-2020. Especially for 2020, the data is not accurate due to the disruption of the data collection process caused by the Covid-19 pandemic, but the data listed are estimates from each of the respective Regency/City Governments.

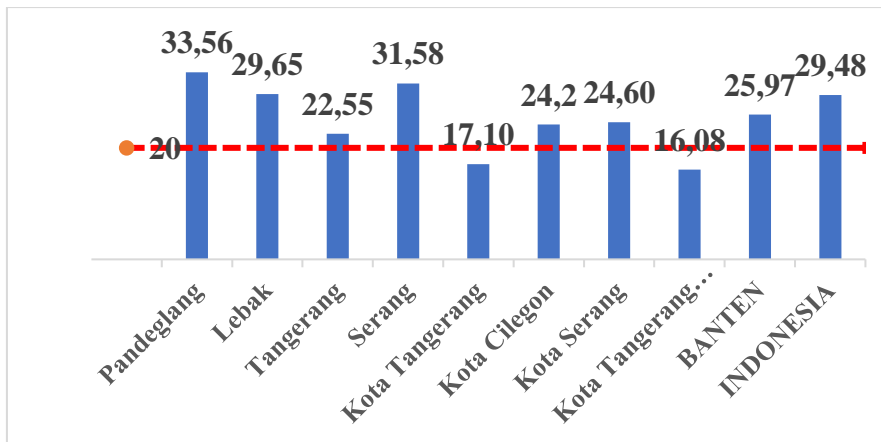


Fig. 1. Percentage of Average Prevalence of Stunting in Districts/Cities Banten Province in 2016-2020 (Percent)
Source: Ministry of Health

Based on figure 1. of the average stunting prevalence of Banten Province Regencies/Cities, only Tangerang City and South Tangerang City have a stunting prevalence percentage below the threshold mentioned by the World Health Organization or WHO. This is due to differences in South Banten and North Banten which cause a low understanding of nutrition as well as parenting patterns for children and health services in Banten Province. In addition, Banten is also a new province on the island of Java. This disparity in health access in Banten Province occurs because there is still an unevenness in the field of facilities and infrastructure between North Banten and South Banten. Regional or regional inequality is a natural condition that occurs. According to (Sjafrizal, 2012), there are several factors that affect regional inequality, one of which is the allocation of development funds between regions, both government and private.

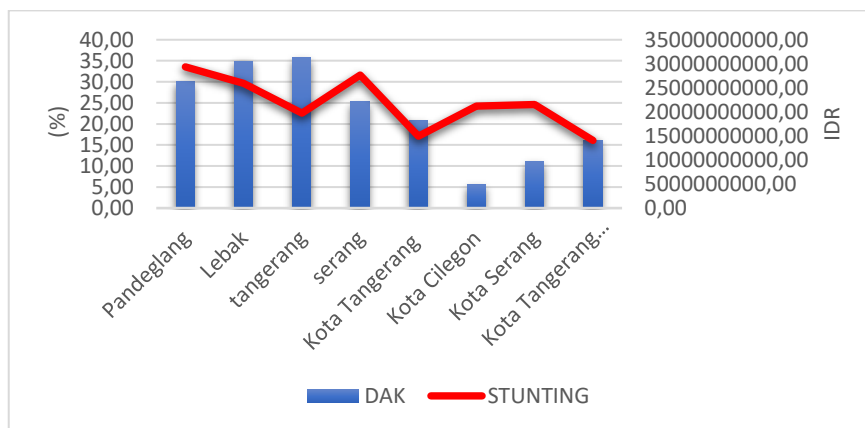


Fig. 2. Average Non-Physical Special Allocation Fund (DAK) and Stunting Banten Province in 2016-2020
Source: DJPK Ministry of Finance

The government mobilizes funds through the Special Allocation Fund (DAK) to support the implementation of the stunting prevention acceleration program. Physical DAK and non-physical DAK are also based on PMK No. 61 / PMK.07 / 2019 concerning guidelines for the relocation of regional and village funds (TKDD) to support the implementation of stunting prevention interventions. Based on the Vice President's Secretariat, physical DAK and non-physical DAK will be allocated to certain regions in the state budget to help fund physical-specific activities that are regional health problems and are in line with national priorities. Related to handling stunting, this health sector DAK is a subfield assignment for strengthening stunting interventions which is directed at the implementation and provision of Therapeutic Feeding Centers (TFC), the provision of nutritious supplementary food for pregnant women and thin toddlers, the provision of anthropometric tools, and also the provision of nutritional drugs.

Therefore, from the description of the background above about health problems in this case, the high prevalence of stunting is based on related factors. It is hoped that this research will be able to help to find out how much role fiscal decentralization plays on health, especially for the high prevalence of stunting. This really requires the attention of local and central governments to ensure equitable distribution of funds from the central to the regional level. Where fiscal decentralization is an indicator that can reduce inequality in each region.

2 Methods

The main focus of the study was the prevalence of stunting in Banten Province from 2016 to 2020. Associated with several variables that are the main focus of the study, namely the fiscal decentralization variable where this fiscal decentralization has a DAK in the health sector as a component, then the variables of GRDP per capita, poverty and the number of health facilities, namely Puskesmas. Where the scope of this study is 8 Regencies / Cities of Banten Province where the stunting prevalence rate is still very high, there are only 2 areas, namely Tangerang City and South Tangerang City, which have stunting prevalence below 20 percent of the limit stated by WHO.

The type of data used in this study is quantitative data in the form of panel data, which is a combination of time series data from 2016-2020 and cross-section data for 8 districts and cities in Banten province. The data was sourced from the Central Statistics Agency (BPS), the Ministry of Health, and the Directorate General of Financial Balance of the Ministry of Finance (DJPk KemenKeu). This research uses a regression analysis panel method. The equation model in this study is as follows:

$$Stunting_{it} = \beta_0 + \beta_1 LnDAK_{it} + \beta_2 LnPP_{it} + \beta_3 LnPOV_{it} + \beta_4 LnFASKES_{it} + \epsilon_{it}$$

Information

Stunting	: Prevalence of Stunting
LnDAK	: Special Allocation Fund for Health Sector
LnPP	: GRDP Per capita
LnPOV	: Poverty
LnFASKES	: Number of Health Facilities (Puskesmas)

3 Result

Table 1. Normality Test

Jarque-Bera	Prob.
1.401985	0.496093

Based on the picture above, it can be seen that the Jarque-fallow value is 1.401985 when compared to Chi-square 0.496093 then Jarque-fallow (1.40185) > (0.496093) Chi-square means that the data is normally distributed so that the study can proceed to the next test.

3.1 Test of Classical Assumptions

Table 2. Multicholnearity test table

	LnDAK	LnPERKAPITA	LnPOV	LnFASKES
LnDAK	1.000000	-0.555213	0.609330	0.717806
LnPERKAPITA	-0.555213	1.000000	-0.505888	-0.769596
LnPOV	0.609330	-0.505888	1.000000	0.731461
LnFASKES	0.717806	-0.769596	0.731461	1.000000

Source: Data Processing Results Through the Eviews 10 Application

Based on the table above, it can be seen that the correlation coefficient between variables is smaller than 0.8. with the provision of the correlation matrix <0.80, H0 is rejected, meaning that among the independent variables, namely the special allocation fund (DAK), pdrb per capita (PP), poverty (POV) and the number of puskesmas health facilities (FASKES) there is no multicholnearity.

Table 3. Heteroskedasticity Test Result Table

Total data (n)	R-squared	Total variable (k)	Chi-square hitung (n x R-squared)	Chi-square Tabel	Result
40	0.683362	5	27.33448	49.80184	No Heteroskedasticity

Source: Data Processing Results Through the Eviews 10 Application

Based on Table 4.8 shows that the R-Squared value at the data regression output of the FEM panel by using the $\alpha = 5\%$ (0.05).

3.2 Autocorrelation Test Results

Panel FEM
dU Value Dw value

4-dU value	Estimation	result				
Cross-section weight autocorrelation	1.7859	1.930081	2.2141	1.7859	<1.9308	<2.2141 No

Based on Autocorrelation Test Results to find out whether the study was exposed to autocorrelation was to use the Durbin-Watson method (DW test) with the dU test criteria $DW \leq 4-dU$, first look at the dU value (upper limit) in the Durbin-Watson table with the number of observations n which is 40 and the number of variables as many as 5 variables, then the dU value of 1.7859 is obtained. on the panel method with the best model Fixed Effect Model autocorrelation test estimation results $1.7859 < 1.930081 < 2.2141$, then it means that H_0 is rejected, it can be concluded that the autocorrelation problem can be overcome.

3.3 Selection of the Best Model

In the analysis of panel data models, three types of methods can be used, namely the ordinary/pooled least squares method, the fixed effect approach, and the fixed effect approach, the random effect approach. The Chow test to determine whether to use the smallest squared composite method or a fixed effect to perform panel data regression and the second uses the Hausman test to determine whether to use the fixed effect method or a random effect to perform panel data regression.

The following is a table of Hausman's test results in the study:

Tabel 4. Chow Test

<i>Effect Test</i>	<i>Statistics</i>	<i>d.f</i>	<i>Prob.</i>
<i>Cross-section F</i>	3.959171	(7,28)	0.0040
<i>Cross-section Chi-Square</i>	27.521220	7	0.0003

Source: Data Processing Results Through the Eviews 10 Application

Based on the results of the Chow test above, it shows that with a significance level of alpha (0.05) it can be seen that the probability value of 0.0003 means that it can be concluded that the best model is the Fixed Effect Model (FEM), because the probability value of 0.0003 is less than the alpha significance level of 0.05 ($0.05 > 0.0003$).

Table 5. Hausman Test

<i>Test Summary</i>	<i>Chi-Sq. Statistic</i>	<i>d.f</i>	<i>Prob.</i>
<i>Cross-section random</i>	13.520216	4	0.0090

Source: Data Processing Results Through the Eviews 10 Application

Based on the results of the Hausman test above, it shows that with a significance level of alpha (0.05) it can be seen that the probability value is 0.0090, which means it can be concluded that the best model is the Fixed Effect Model (FEM), because the probability value of 0.0090 is less than the alpha significance level of 0.005 (0.05 > 0.0090).

Table 6. FEM Regression Analysis

Variable	Coefficient	t-statistik	t-tabel	Prob.	Result
LnDAK	-6.266839	-3.346664	-2.030108	0.0023	Reject H ₀ , Significant
LnPP	-5.132927	-0.605702	-2.030108	0.5496	No Reject H ₀ , InSignificant
LnPOV	0.614800	0.514780	2.030108	0.0416	Reject H ₀ , Significant
LnFAS KES	45.71461	1.912040	2.030108	0.0662	No Reject H ₀ , InSignificant

Source: Data Processing Results Through the Eviews 10 Application

Based on the results of the analysis in the table above, the results of the regression equation are obtained as follows:

$$STUNTING_{it} = 91.32988 - 6.266839LnDAK_{it} - 5.132927LnPP_{it} + 0.614800LnPOV_{it} + 45.71461LnFASKES_{it} + \varepsilon_{it}$$

3.4 Information

- STUNTING : Prevalence of Stunting ,
 β -0. : Price Intercept Y When X = 0 (Constant Price) ,
 β -1 .- , β -4. : Regression coefficient and estimator of the parameter
 LnDAK : Special Allocation Fund
 LnPP : Natural Logarithm of Pdrb per capita
 LnPOV : The Number of Poor People
 LnFASKES : Number of health facilities (Puskesmas)
 i : Cross Section
 t : Time Series

The results of the estimated regression of the FEM Cross-section Weight panel data can be seen that each region has a different constant value, this shows that each region has different other factors that affect stunting in each region. Of course, the constant results of each region under study (Ci) are summed up with the results of the general constant (C) on the panel equation model with the Fixed Effect Model (FEM) Cross-section Weights method which produces the value of the contribution constant (Ci + C).

4 Discussion

4.1 The Effect of Special Allocation Funds on Stunting

The special allocation fund variable shows a significant influence on stunting in districts and cities in banten province in 2016 - 2020, these results are indicated by a t-statistical value of $-3.3346664 < -2.030108$ t-table, a t-statistical probability value of $0.0023 < 5\%=0.05$ and a coefficient value of -6.266839 . this means that if the special allocation fund increases by 1 percent, it will reduce the prevalence of stunting by 6.26 percent, which means that if the special allocation fund increases, it will have an impact on reducing the prevalence of stunting. Research by Evia Pablo, (2017) shows that Transfer Share (Special Allocation Fund) has a significant influence on stunting [4]. Where there is a reduction in the proportion of stunting when there is an increase in Transfer Share. Research made by Cavalieri & Ferrante (2016) states that Fiscal Decentralization using Government Transfer Funds to the regions shows positive and significant results on health [5].

4.2 The Effect of Per Capita GDRP on Stunting

The variable GDRP per capita shows that it has a weak influence on stunting in districts and cities of banten province in 2016 - 2020, these results are proven by a t-statistical value of $-0.605702 > -2.030108$ t-table, with a t-statistical probability value of $0.5496 > 5\%=0.05$ and a coefficient value of -5.132927 , meaning that if the pdrb per capita increases by 1 percent, it will reduce the prevalence of stunting by 5.13 percent. The weak effect of gdp per capita on the prevalence rate of stunting is due to the fact that high economic growth is not directly related to people's welfare. Because in reality, per capita pdrb is not the amount of income earned by each family or individual in a certain area. So there are still many in areas with high per capita gdp, but the people feel some of the unsupportion. so that the community cannot meet their basic needs such as providing healthy and nutritious food for families, especially children. this is evidenced by the disparity in pdrb per capita that occurs in banten province. of the 8 districts and cities in Cilegon City, it is too high with an average gdp per capita in the last five years of Rp. 15,711,240. where the other 6 city districts such as pandeglang, lebak, tangerang kota serang and kota tangerang selatan have an average gdp per capita in the last five years below 3.5 million rupiah. This study is in line with that conducted by khoirunurrofik 2022 where GDP per capita shows estimated results that do not affect the improvement of chronic malnutrition of children, and this confirms previous studies that found that the increase in public expenditure aimed at combating malnutrition was not predominantly aimed at meeting the needs of lower societies. The estimated GRDP per capita of districts/cities in this study shows that regardless of areas with low and high GRDP, the prevalence of stunting remains. This means that even though the districts or cities in Java Island have a large per capita GRDP, some children are still identified as having growth problems.

4.3 The Effect of Poverty on Stunting

The Poverty Variable shows an influence on stunting in districts and cities of Banten province in 2016 - 2020, these results are proven by a t-statistical value of $0.514780 > 2.030108$, a t-statistical probability value of $0.0416 < 0.05$ and a coefficient value of 0.04160 , meaning that if poverty increases by 1 percent, it will increase stunting by 0.41 percent. Poverty is considered to be an important factor causing stunting in toddlers. Poor households cannot meet the nutritional intake for their children, so the child becomes stunted. With such conditions, children's growth and development are hampered, resulting in unqualified human resources. Unqualified human resources cannot meet economic needs so they are entangled in poverty. That's about the picture of stunting and the vortex of poverty. this is evidenced by the

value of the coefficient that can be interpreted when poverty increases, the prevalence rate of stunting will also increase. Research conducted by Karyati and Aan Julia (2019) Poverty has a positive and significant influence on the number of stunting, poverty is one of the dominant causes of stunting, economic limitations make people unable to meet balanced nutritional needs [6].

4.4 Effect of Health Facilities on Stunting

The health facility variable shows a weak influence on stunting in the districts and cities of Banten province in 2016 - 2020, these results are evidenced by a t-statistical value of 1.912040 < 2.030108 t-table, a t-statistical probability value of 0.0662 > 5% = 0.05 and a coefficient value of 45.71461, meaning that if health facilities increase by 1 unit it will have an impact on increasing the prevalence of stunting by 45.71 percent. The weak influence of health facilities in this study is possible by the ineffectiveness of the programs implemented by existing puskesmas, many programs planned for the prevention of stunting prevalence are not running. Program Development is a statement of activities or steps necessary to complete disposable planning The program is made as a strategic orientation by the Health Office in tackling stunting. therefore, it is necessary to create a stunting program to reduce stunting rates such as coaching in improving the nutritional status of the community, coaching in increasing community nutritional knowledge, Strengthening Nutritional Supplementation Interventions in Pregnant Women and Toddlers, Providing Supplementary Food for Pregnant Women With Chronic Lack of Energy, Provision of Supplementary Food for Malnourished Toddlers, Coaching in Improving Childbirth in Health Service Facilities. and the program must be implemented by puskesmas and assisted by posyandu and village apparatus. In addition to ineffective programs, the factor that the difficulty of most people accessing health facilities is the cause of ineffectiveness. Research conducted by [8], research conducted by [7] shows that health facilities in this case puskesmas have a negative influence on stunting variables.

5 Conclusion

This research proves that the special allocation fund in the health sector has an influence on the prevalence rate of stunting. With the large health budget in the health sector, it is possible that the proportion of funds used for stunting treatment has also increased. The budget is used to finance programs implemented by health institutions at the local level for prevention in order to reduce the prevalence rate of stunting. The high budget used to prevent the prevalence of stunting makes it possible to implement programs on a larger scale and cover remote areas, given the vast geographical conditions of the province and the unevenness of infrastructure, especially health facilities. The prevalence of stunting in the districts and cities of Banten province is still quite high, 6 out of 8 districts and cities in Banten province still have a stunting prevalence above the limit set by the World Health Organization or WHO. This is inseparable from the factor of the transfer of the central government to the regions that are not enough to be able to meet both facilities and infrastructure in health facilities and stunting prevalence handling programs to be more integrated. If by increasing the number of special allocation funds for the health sector that are more focused on handling stunting, it can reduce the prevalence rate of stunting, it is necessary to immediately do so that the prevalence of stunting in districts and cities of Banten province can immediately continue to be reduced. With the high prevalence rate of stunting in several regions, in the distribution of finances, the government is expected to be more proportional, democratic, transparent, and responsible for

funding the process of implementing a decentralized system by considering the situation and conditions of local government needs.

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