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Relationship of Macroeconomic Policies with Stunting: The Role of The Health Budget, Applying Fiscal Autonomy and Reducing Poverty

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Abstract.
The prevalence of stunting over the past 10 years indicates no significant changes and this indicates that the stunting problem needs to be addressed immediately. The indirect cause of the problem of stunting is influenced by various factors including the health budget, fiscal autonomy, and the level of poverty. This study used a regression model using panel data or pooled data (pooling cross section-time series regression). The cross-section unit was 100 districts and cities in 33 provinces in Indonesia and the year of analysis in 2019. The analysis showed that, partially, the level of poverty influences the incidence of stunting, the health budget influences the incidence of stunting, and fiscal autonomy influences the incidence of stunting. Simultaneously the health budget, fiscal autonomy, and poverty level influence stunting. Our study recommends that the Indonesian government increase health budget, reduce the inter-regional fiscal gap, improve the social welfare of the Indonesian people, and reduce revenue inequality.

Keywords: stunting, fiscal budget, health, poverty, macroeconomic.

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1. Introduction

The problem of nutrition is less widely found in communities in some developing countries, especially Indonesia. One of the less nutritional problems that should get attention is stunting. Stunting is a chronic lack of nutrition caused by insufficient nutritional intake in a long time due to food delivery that does not fit the nutritional needs. Currently, Indonesia is one of the countries with a stunting prevalence that is quite high compared to other middle income countries. Toddlers/Baduta (infants under two years of age) who are stunted will have an unmaximal level of intelligence, making children more vulnerable to illness and in the future can be at risk in declining levels of productivity. Stunting is still a challenge in Indonesia, basic health research data shows that the

prevalence of Stunting infants in 2018 reaches 30.8 percent higher than the previous year by only 27.5%. Stunting in toddlers affects the level of intelligence, vulnerability to disease, lowers productivity and then inhibits economic growth, increases poverty and inequality [1]. The evidence shows the loss of 11% GDP and reduces the income of adult workers by 20%. Stunting also causes inequality and raises poverty between generations [2]. There is a country's phenomenon that is lower than that of Indonesia, but the stunting event is lower, such as Myanmar stunrate 35%, and Vietnam 23% [3]. Based on the opinion that the economy affects the quality of health [4], because it is necessary to further research any economic variables that can decrease the occurrence of stunting. At this time a reduced stunting intervention examines more than just health sciences such as Research [5], [6], [7], [2], [8] [9]. Therefore, the analysis is needed through economic factors, especially the macro economy that has been programmed by the Government, including stunting handling through health budget, the application of fiscal autonomy and poverty reduction.

International experience and evidence shows that stunting can impede economic growth and lower job market productivity, resulting in a loss of 11% GDP (Gross Domestic Products) as well as reducing adult labour income by up to 20%. In addition, stunting can also contribute to the spread of gaps/inequality, reducing 10% of total lifetime income and also causing intergenerational poverty [10]. Indonesia has been making efforts to reduce stunting among others by increasing health budgets, fiscal autonomy, and the public income. The government's effort to encourage fiscal decentralization has not shown a significant development of regional dependence on the budget allocation of the center is still quite high. This is demonstrated by the size of the allocation of transfer to the District and village funds (TKDD) that each year has increased. Even if it sees the development of its allocator from 2014, TKDD's growth increased by 32.09 percent or from RP 573,7 trillion in 2014 to 757.8 trillion at 2018. Indonesia ranks 158 in the lowest viewed from the Health budget table or only about 2.5% of Gross Domestic Product. So with poverty, Indonesia as a country consisting of islands and uneven development causes the disparity of income distribution and the level of poverty. Based on previous research that has not analyzed how to prevent stunting through health budget, applying fiscal autonomy and decreasing poverty, this research needs to be done.

2. RESEARCH METHODS

This research is in census with secondary data in the form of time series from 2014 to 2018, and cross section data consisting of 100 Regency/city in Indonesia as a priority

for Stunting, so it is a pooled the data that is combined between data time series (year 2015-2019 / 5 year) with Data cross section 100 Regency/City. The analysis case meets the requirements of the model used. Data collection is done through secondary data obtained from the central Statistic Agency and the Ministry of Health Republic of Indonesia.

Health budget variables are health budgets whose financing is sourced from government budgets, this data is obtained from the Ministry of Health. The fiscal autonomy variable was measured from the expense side following the research of Canterero and Pascual (2008) and Ahmad (2010). Fiscal autonomy is proxy with the realization of health function expenditure percentage on the total realization of shopping based on the realization of provincial government APBD and Regency/city government in a certain year. Poverty Data is proxy percentage of poor population in 100 districts/cities in Indonesia as a priority for Stunting (Dwarf children) in 2015 to 2019. The Data is obtained from the BPS (statistical central agency). Further stunting data obtained from the Ministry of Health RI.

This research uses data panel analysis as a data processing tool with supported by EViews program. The analysis using the data panel is a combination of time-series data viewed from 2014 to 2018 and a cross-section data that is seen from a large number of 100 cities/districts. The data panel method is a method used to perform empiric analysis with more dynamic Data behavior.

Given that the data panel is a combination of cross-section data and time-series data, then the model can be written as follows:

$Y = \beta 0 + \beta 1X1it + \beta 2\ X2it + \beta 3\ X3it + U...$

Caption

Y = dependent variable, i.e. stunting

B0, β1, β2, β3 = coefficient

X1 = Variable health budget

X2 = fiscal autonomy variable

X3 = poverty variable

i = district/city

t = Year

u = Term Error

After model selection, the hypothesis testing can be done with the selected model. The hypothesis testing was conducted using regression analysis. Regression analyses have a purpose to estimate the average population or the average value of a variable

bound by a known free variable. In addition, regression analysis also serves to measure the strength of the relationship between two variables as well as indicate the direction of the relationship. Hypothesis testing has indicators that can be used as reference, i.e. statistical test F and statistical test T.

3. RESULTS AND DISCUSSION

The number of stunting toddlers in 100 Priority Regencies / Cities exceeds the amount set by WHO, which is 20%. The prevalence of stunting for infants under five years old (Toddler) in East Nusa Tenggara (NTT) reaches 40.3%. This figure is the highest compared to other provinces and also above the national stunting prevalence of 29.6%. The prevalence of stunting in NTT consisted of infants with very short categories of 18% and short 22.3%. While the province with the lowest prevalence of stunting toddlers was Bali, which only reached 19.1%. This Figure 1 consists of toddlers with very short categories of 4.9% and 14.2% as follows:.

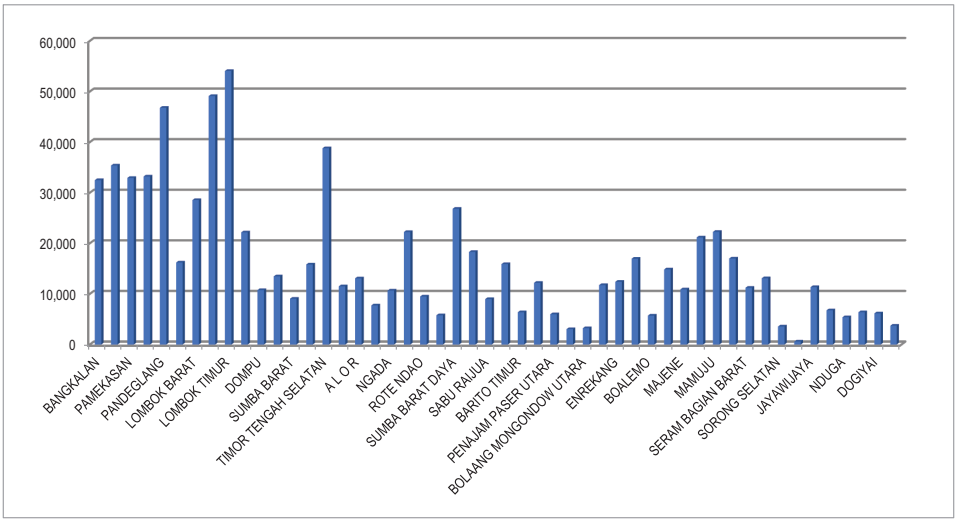

Figure 1: Number of Toddlers stunting at 100 Regency / City Priorities.

From the information gathered it can be seen that the space for increasing the effectiveness of interventions with APBD sources is still quite large. Indeed, the relative budget allocation for education affairs expenditure is already relatively large considering that this is indeed a mandate of the law, but the proportion of expenditure on health affairs in 100 districts / cities can still be increased. In addition to increasing the proportion of expenditure, what can also be done to increase the effectiveness of the budget is to ensure that interventions are directed and target regions and groups

of people in need. This book presents data and information that can be used as a reference and guide where interventions to reduce stunting should be given.

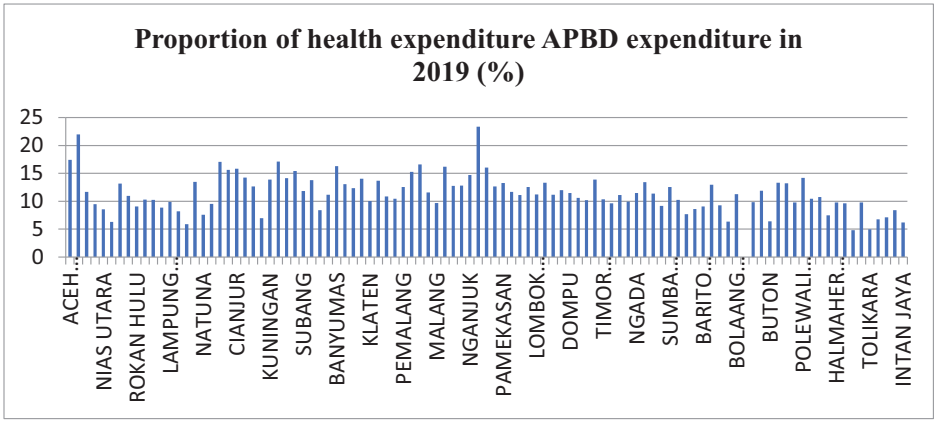

Figure 2: Proportion of health expenditure APBD expenditure in 2019.

Based on information on fiscal space and the degree of fiscal autonomy in 100 priority districts / cities that indicate the ability and space of regional governments in handling stunting using APBD sources. Regional Fiscal Space in general is the availability of space in the budget that shows the ability of the government to provide funds for specific purposes without creating problems in the sustainability of the government's financial position. While the degree of fiscal autonomy shows the availability of regional / local revenue sources outside of transfers from the central government that can be utilized for government spending including stunting handling

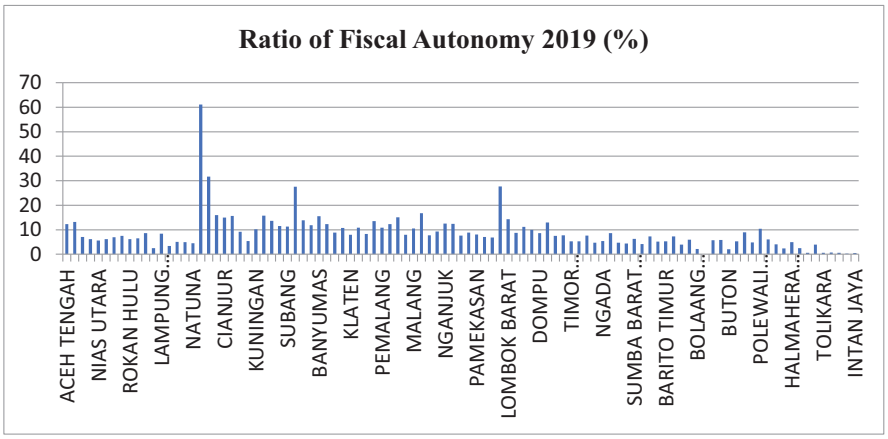

Figure 3: Ratio of Fiscal Autonomy 2019.

Based on the information it can be seen that the number of poor people (population with per capita expenditure per month under the Poverty Line) in Indonesia reaches 25.95 million people (9.82 percent), decreasing by 633.2 thousand people compared

to the condition in September 2017 which was 26, 58 million people (10.12 percent). The percentage of poor people in urban areas in September was 7.26 percent, down to 7.02 percent in March 2018. Meanwhile, the percentage of poor people in rural areas in September 2017 was 13.47 percent, down to 13.20 percent in March 2018. During the period September 2017-March 2018, the number of poor people in urban areas decreased by 128.2 thousand people (from 10.27 million people in September 2017 to 10.14 million in March 2018), while in rural areas decreased by 505 thousand people (from 16.31 million people in September 2017 to 15.81 million people in March 2019).

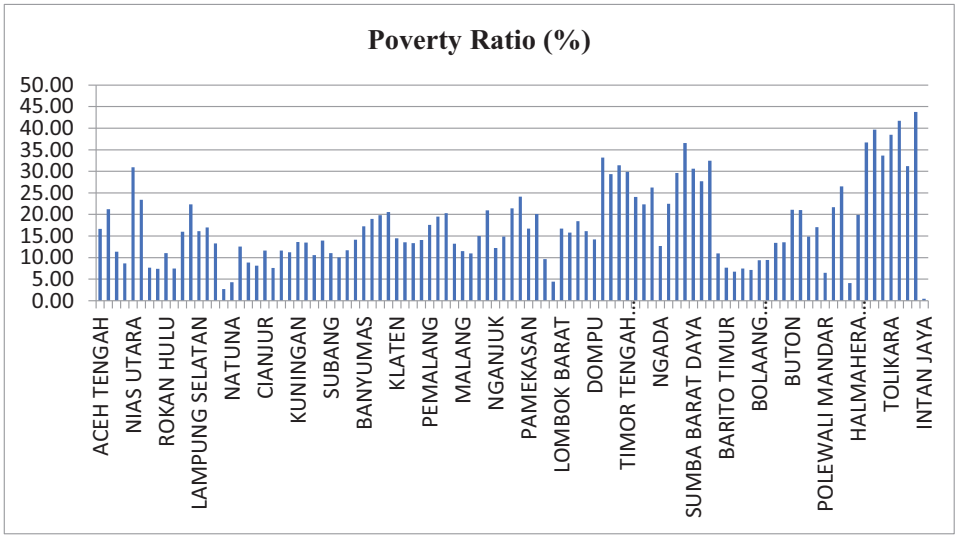

Figure 4: Poverty Ratio.

Based on the data above to the authors describe research results as follows:

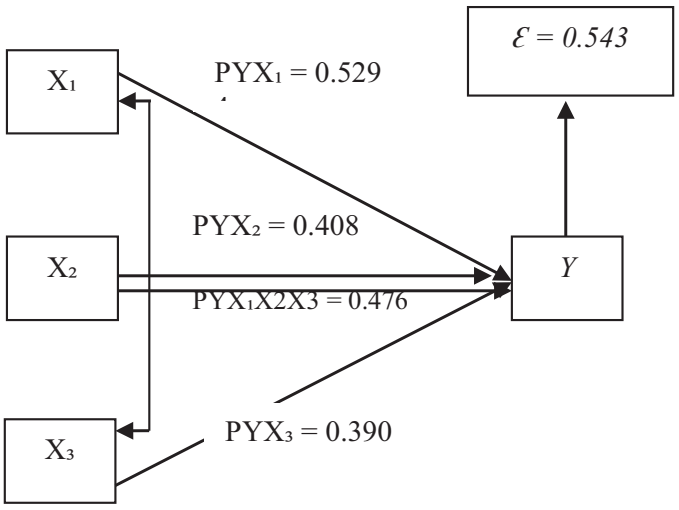

Figure 5

Table 1: Hypothesis test results.

variables	R	R Square	beta	t	F	Sig
X1 Y	0.529	0.279	0.529	5,283		0,000
X2 Y	0.408	0.166	0.408	4.420		0,000
X3 Y	.390	0.152	.390	4.194		0,001
X1 X2 X3 Y	0.676	.227	.326 0,299 0.267		9.382	0,000

Based on the research results can be structured matrix beta track of numbers as follows:

4. DISCUSSION

Based on the research results obtained that the poverty rate affects the incidence of stunting. The results of the study showed that the poverty rate is low with a high poverty rate with stunting under five the amount is almost the same. This shows that high and low poverty rates are equally at risk of stunting. This result is in line with the findings of [11], socio economic level related to family purchasing power [5]. The ability of families to purchase foodstuffs, among others, depends on the size of the family's income, the price of the food itself, and the level of management of land and yard resources. Families with limited income are likely to be unable to meet their food needs, especially to meet the nutritional needs of the child's body. Based on the theory of Asfufah, limited family income also determines the quality of food managed every day both in terms of quality and quantity of food. Poverty that lasts for a long time can result in households being unable to meet food needs which can lead to insufficient nutrition for children's growth [12].

Based on the research results obtained that the health budget affects the incidence of stunting (sig = 0,000). Health funding is illustrated in the percentage of health financing per total expenditure and the percentage of health financing per total income. In addition to differences in capabilities in health financing, there is also a gap in health status between regions. Another opinion suggests that there are some problems if using the 15% approach of the regional budget. For poor areas with low PAD and limited central budget allocations, the 15% of the APBD will absorb enough local budget for health so that the allocation in other sectors is not enough.

Utilization of these funds is more instrumental in improving health status. In other words, health financing is necessary but insufficient in improving health status. Therefore, optimal utilization of health financing is important because when compared to

economic losses due to decreased productivity due to poor nutrition, early countermeasures such as the cost of giving PMT to toddlers are much smaller [13].

Based on the research results obtained that fiscal autonomy affects the incidence of stunting (sig = 0,000). Research in Indonesia that examines the impact of fiscal decentralization on outcomes (outcomes) in the health sector has been conducted by [14] which shows the results that there is an increase in the share of development spending in the realization of district / city APBD in West Sumatra after the implementation of fiscal decentralization and decentralization in health sector in 2001. This study also shows the results that fiscal decentralization in health, GRDP (Gross Regional Domestic Income) per capita and the number of medical personnel on infant mortality shows the result that only the GRDP variable has a statistically significant negative effect on mortality baby. While the fiscal decentralization variable in the health sector and the number of medical workers statistically did not significantly influence the infant mortality rate.

[14] states that a similar study conducted abroad by [15]. A theoretical framework is developed here to examine how decentralization may affect health outcomes. This theoretical framework shows that a well-designed and implemented decentralization policy can give decision makers up-to-date information about the preferences and problems of the local people and can help to create an effective channel for the people to express their needs and priorities. These help decision makers to respond to the local needs quickly and effectively and consequently to improve equity, efficiency, and coverage of health care services and thereby health outcomes. However, decentralization may pose 'significant risks and challenges' that may lead to a deterioration in the provision of health services and consequently to poor health outcome [2] and Canterero, the results of which are as follows: [4] in studying regarding fiscal decentralization to outcomes (outcomes) in the health sector, states that fiscal decentralization is consistently associated with lower infant mortality. [4] provide empirical evidence that fiscal decentralization plays a statistically significant role in reducing infant mortality in rural India. [16] state empirically that per capita income, fiscal decentralization and health resources have an important influence on infant mortality and life expectancy. The infant mortality rate and life expectancy are related to per capita income, decentralization of health services, and the number of general practitioners.

5. Limitation Research

The limitation of this research is that there is a Regency/city whose data is incomplete (because it does not report data to the center) nor is it valid so that this research

can not describe the district/city that is ' issued ' from the research as mentioned in the exclusion criteria. In addition, the overview of regional revenue, health financing and poor nutrition in this study can not describe the relationships that occur at the individual level. The health financing data available is only the total allocation and realization for the healthcare sector, while detailed data for each health program is only available in each district Health department/city and it is not possible to access it entirely. This research only correcates the total health financing with poor nutrition, rather than the special financing of nutritional programs with poor nutrition. The percentage/large financing for the nutritional program to total health financing and the sources of health financing is also unknown so that the percentage of the original revenue of the area allocated to health financing is not known. In fact, the data can see how big (District/city) Local governments prioritize the health sector. In addition, statistical analysis used is a correlation so as not to explain the presence of scaffolding variables (confounding) and modification effects

6. CONCLUSION

Partial levels of poverty affect the stunting event, the health budget has an effect on the stunting event, and fiscal autonomy affects the stunting event. Simultaneously, health budget, fiscal autonomy and poverty rate affect stunting. Our study recommends that the Indonesian government increase health budget, reduce the inter-regional fiscal gap, improve the social welfare of the Indonesian people, and reduce revenue inequality

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