

THE IMPACT OF FISCAL DECENTRALIZATION ON THE EFFICIENCY OF HEALTH EXPENDITURE AND WELFARE: CASE STUDY OF SOUTH SULAWESI PROVINCE

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ABSTRACT

The objective of this study is to analyze: (i) the efficiency level of health function expenditure in the region; (ii) the impact of fiscal decentralization on the efficiency of health function expenditure in the region; and (iii) the implications of health function expenditure efficiency at the level of people welfare in the region. The study used quantitative approaches with Data Envelopment Analysis (DEA) and Dinamic Generalized Method of Moment (DGMM) analysis techniques. The results showed that the realization and utilization of expenditure in most districts/cities in South Sulawesi Province ran less efficient. From the results of DGMM, it was found that Regional Own-source Revenue has a negative and significant impact on the efficiency of health function expenditure, while Balance Funds also have a negative but insignificant effect. Increased efficiency of health function expenditure will be followed by improvements in people's well-being. Meanwhile, fiscal decentralization policies both in the form of Regional Own-source Revenue and Balance Funds, also have a positive effect on welfare, but are limited (insignificant).

Keywords: decentralization, efficiency, DEA, DGMM, welfare

INTRODUCTION

Fiscal decentralization is one form of delegation of fiscal independence from the central government to the local government in the framework of the implementation of more efficient distribution of public sector services (Mehmood et al., 2010). The rationale for fiscal decentralization implementation is derived from the decentralization theory mentioned by Tiebout (1956) and public finance theory initiated by Musgrave (1959). In his mind, Tiebout (1956) argued that decentralization could guarantee better accountability. Musgrave (1959) said that the role of government in the context of decentralization was carried out with policies of resource allocation, distribution and stabilization. The idea of decentralization is born out of the problem that the government is difficult to meet all public needs efficiently (Cahyaningsih and Fitriady, 2019).

In more than two decades, Indonesia has implemented the concept of fiscal decentralization, since the issuance of Law No. 22 of 1999 on Local Government and Law No. 25 of 1999 on Financial Balance between Central and Regional Governments. In the framework of fiscal decentralization, regional autonomy should be able to drive improved efficiency of public services. According to Tiebout (1956), Oates (1972), Tressch (1981), Weingast (1995), Breton (1996), Kopańska (2018), Arends (2020), and Christl, Köppl-Turyna and Kucsera (2020), an efficient public services should be organized by regions with geographical control. In addition to the local government is very lively and responsive to the needs of its people, local governments are also seen as more aware of the characteristics of their respective regions, so that regional expenditure will be more effective and efficient in encouraging the economic growth and

welfare (Widodo, 2019). With this argument, according to Martinez-Vazquez and McNab (1997) and Martínez-Vázquez, Lago-Peñas, and Sacchi (2017), fiscal decentralization is an alternative solution that is believed to be an effective tool in increasing the efficiency of public expenditure.

In its development, fiscal decentralization then developed into the core of the implementation of regional autonomy itself. Even through a process of responsible fiscal decentralization, local governments will be able to increase economic growth and welfare of their people (Oates, 1993; Ganaie et al., 2018; Sasana, 2019; De Siano and D'uva, 2017; Aslim and Neyapti, 2017; Korotun, et al., 2020). The concept of decentralization is also expected to be better able to succeed development goals through the provision of control rights to people who have information and incentives to make decisions that are in accordance with their

needs so that they are expected to improve the quality and efficiency of public services, in order to fulfill sectoral services and obligations to the community (Hirawan, 2007; Bardhan and Christopher, 1999; Hanif, Wallace, and Gago-de-Santos, 2020). One form of fulfilling sectoral obligations in the region as a government affair that has been delegated from the Central Government to the Local Government in accordance with the mandate of article 10 paragraph (1) and (3) of Law No. 32 of 2004 and Government Regulation No. 38 of 2007 on The Division of Government Affairs is health services. The health services are obligations that must be carried out by the Local Government to its people according to the Law (Fajar and Indrawati, 2020; Muliza et. al., 2017; Bandiyono, 2018).

Although it has many advantages and is considered a good concept, the implementation of fiscal decentralization in Indonesia also has many weaknesses

and problems. Darmayasa (2017) mentioned that in its implementation, the relationship of administrative and financial authority between the provincial government and the district/city government is not yet clear, causing confusion in the provision of budget. In addition, the implementation of fiscal decentralization causes the gap between rich and poor areas to widen, hampering economic stabilization due to indications of inefficient regional spending, providing opportunities for corruption and illegal levies that can disrupt the investment climate, the quality of regional spending that tends to be low and less effective because it is dominated by bureaucratic spending, the existence of a number of areas that have not been able to meet mandatory spending in basic community services such as health, education and infrastructure (Kementerian Keuangan, 2018; Kementerian Keuangan, 2019; Haryanto, 2018).

The above problems are also coupled with the fact that although the region has received a significant allocation of transfer funds, the condition of public services and the level of community welfare in some regions, especially in the eastern Indonesia, is relatively still lagging when compared to other regions in the western Indonesia. Indicators of Human Development Index (HDI) and per capita income in eastern regions such as Papua and West Papua Provinces each year are always below the average HDI and per capita income nationally, while the poverty rate is above the national poverty average (Widodo, 2019). In addition, there is also inequality, both in the level of welfare and public services between cities in the region, as indicated by the high number of Gini ratios, and the magnitude of differences in the achievement of indicators of educational performance, health, public infrastructure, and public

services (Widodo, 2019; Siburian, 2020; Liu, Martinez-Vazquez, and Wu, 2017; Kyriacou, Muinelo-Gallo, and Roca-Sagalés, 2017; Nguyen, et al., 2020; Di Novi et al., 2019; Gavriluță, Onofrei, and Cigu, 2020). These conditions raise very basic questions: why is such a large allocation of transfer funds not necessarily followed by an increase in the performance of effective and efficient public services that have implications for improving the welfare of people in the region? This question, of course, requires an in-depth study to answer it.

Analysis of the impact of fiscal decentralization on the efficiency of public service delivery has been conducted, among others, by Sole and Esteller (2005) on the Spanish state; Adam et. al. (2014) in OECD countries; Sow and Razafimahefa (2015) in the field of education and health; Wu, Huang, Zhao and Pu (2017) against the transfer payment structure and fiscal efficiency of

the Local Government, as well as Thanh and Canh (2019). In studying the relationship between fiscal decentralization and Public Expenditure Efficiency (PSE), Adam et. al. (2014) used the Data Envelopment Analysis (DEA) method to measure efficiency in 21 OECD countries for the period of 1970–2000, and used that efficiency value to measure the impact of fiscal decentralization, with the model of:

$$p_{it} = \alpha_0 + \beta_k Z_{it} + \mu_{it}$$

where the p_{it} is the government efficiency estimate derived from the DEA, while Z_{it} is the set of explanatory variables (i.e. government performance indicators). Meanwhile, μ_{it} is a set of control variables, and a stochastic error term. One of these explanatory variables is the square function of decentralized variables that are expected to be able to show an inverse U-shaped relationship between efficiency and decentralization (Widodo, 2019).

Adam et. al., (2014) concluded that the greater degree of fiscal decentralization, the more beneficial the efficiency of the public sector in the provision of education and health services. The results of this study are reinforced by the results of research of Sow and Razafimahefa (2015), which concluded among others that in developed countries, fiscal decentralization has a positive impact on the efficiency of public service provision, while in developing and disadvantaged countries, fiscal decentralization actually negatively affects the efficiency.

Thanh and Canh (2019) found that local governments should enhance interregional collaboration in fiscal management to limit duplicate public and inefficient expenditure and promote regional sustainable development. In the case of Indonesia, a review of the impact of fiscal decentralization on public service outcomes, especially in the field of education and health has been conducted

before, among others by Simatupang (2009); Ahmad (2010); Doriza, et. al. (2012); Directorate General of Financial Balance (*Direktorat Jenderal Perimbangan Keuangan*, DJPK) (2018), and Widodo (2019). However, these studies are still in the national scope, not in the regional or regional scope.

Meanwhile, a study on the impact of efficiency and effectiveness of decentralization funds on development and welfare has been conducted previously by DJPK (2018) for Papua Province with Propensity Score Matching (PSM) and Double Difference (DD) methods, and Wicaksono (2018) with the same method. For Special Autonomy (*Otonomi Khusus, Otsus*) Aceh, the study of the influence of Otsus funds and additional Revenue Sharing Fund or *Dana Bagi Hasil (DBH) Migas* in the framework of decentralization, has been conducted among others by Hartati, et. al. (2016) on capital expenditure and its

impact on community welfare as measured by the Human Development Index (HDI) in districts/cities in Aceh using path analysis.

The results of the DJPK study (2018) among others concluded that access and quality of health services in Papua Province is very limited, causing a relatively low life expectancy. Meanwhile, the results of Hartati et. al. (2016) concluded: (i) Otsus funds and additional DBH Migas positively affect district/city capital expenditure in Aceh; (ii) The receipt of Otsus funds, additional DBH Migas and capital expenditures have a positive effect on district/city HDI in Aceh. Meanwhile, in Widodo's research (2019), it was found that efficiency in all types of public service expenditure such as health, education, infrastructure and others had a positive impact on the growth rate of GDP per capita at the provincial level. Meanwhile, at the district/city level, the efficiency of

education, health, and public infrastructure expenditure has a positive impact on the growth of GDP per capita, except the efficiency of public service expenditure and other public services that negatively affect the growth of GDP per capita.

This research will examine the impact of fiscal decentralization on the level of expenditure efficiency and community welfare, especially at the regional level, namely in districts/cities in eastern Indonesia, represented by South Sulawesi Province. This study chose South Sulawesi Province as a case study for several reasons, namely: (1) has a relatively high level of income inequality or gini index in eastern Indonesia where the gap greatly affects the quality of public services in the region; (2) adequate availability of data related to research models and analyses; (3) has a relatively higher economic dynamics compared to

other provinces in the eastern Indonesia (Iskandar, 2021).

In contrast to previous studies that emphasize the aspect of performance (output and/or outcome) of public services, the object of the study in this study is more focused on the aspect of efficiency over public service delivery (efficiency of public service delivery), not on public service performance. Evaluation in this study is carried out by further sharpening the analysis through two scientific approaches, namely: (i) the use of DEA methods and (ii) dynamic panel data analysis. The focus of the study is explicitly more emphasized on aspects of the efficiency of public service delivery, primarily aimed at helping analyze the processes, ways, or strategies of utilizing expenditure inputs from the receipt of regional transfer funds in generating public service output, and their effect on the well-being of society.

Therefore, this study was conducted with the aim of:

1. Analyze the level of efficiency of health function expenditure in the region;
2. Analyze the impact of fiscal decentralization, in the form of the Balance Fund and Regional Own-source Revenue, on the efficiency of health function expenditure in the region; and
3. Analyze the implications of efficiency of health function expenditure at the level of community welfare in the region.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Fiscal Decentralization and Regional Autonomy

Decentralization is a form of transferring responsibility, authority and resources, both personnel, funding, and several other things from the Central Government to Regional Governments (Khusaini, 2006). Decentralization can

also be interpreted as the delegation of authority in the field of budget or financial receipts, both in administration and utilization (Adi, 2009). Therefore, one of the meanings of fiscal decentralization in the format of handing over autonomy in the financial sector to the regions is a process of intensifying the role and empowerment of regions in development (Oates, 1972; 2011). Meanwhile, the implementation of regional autonomy policies is basically a response to various regional aspirations in Indonesia, which have long wanted to increase their role and independence in managing their authorities and responsibilities for community services and regional development.

The implementation of fiscal decentralization is based on the goal of achieving regional independence, especially in supporting the implementation of regional development and growth as well as excellent service to

the community (Agustina, 2013; Haryanto, 2019; Azimi, 2020). By achieving this aspect of independence, regions will be able to develop their potential in an optimal capacity (Litvack and Seddon, 1999). This regional independence will have a positive impact on reducing the burden of dependence on the State Revenue and Expenditure Budget (APBN), especially through the Transfer to Regions and Village Fund (TKDD) components. Regions are expected to be able to allocate these sources of funds to productive sectors so that they can encourage increased investment in the regions and also in sectors that have an impact on improving public services and can increase public contributions to Regional Original Income (PAD) (Urip and Indahyani, 2017).

The concept of decentralization in this regulation is also expected to be able to make development goals more successful through granting control rights

to people who have information and incentives to make decisions according to their needs so that it is expected to improve the quality and efficiency of public services in order to fulfill sectoral services and obligations to the community (Hirawan, 2007; Bardhan and Christopher, 1999). One form of fulfillment of sectoral obligations in the regions as government affairs that have been delegated from the central government to regional governments in accordance with the mandate of Article 10 paragraphs (1) and (3) of Law Number 32 of 2004 and Government Regulation Number 38 of 2007 concerning the Division of Government Affairs, is health services. Health services are an obligation that must be carried out by local governments to their people according to the law.

Hypothesis Development

Theoretically, fiscal decentralization should be able to drive improved

efficiency of public services. An efficient public services should be able to be organized by regions that have good geographical control as in regional autonomy. With regional autonomy, local governments are expected to be responsive to the needs of their communities because they are seen as more aware of the characteristics of their respective regions so that regional expenditure will be more effective in encouraging economic growth and community welfare. With various arguments mentioned, fiscal decentralization is an alternative solution that believed able to be an effective tool in increasing the efficiency of public expenditure, economic growth and the welfare of its people through the fulfillment of sectoral services and obligations to the community, one of which is in the form of health services.

Therefore, in this study, three main hypotheses will be tested through

the results of model development, namely as follows:

- H₁ : Health function expenditure in the region has a good level of efficiency;
- H₂ : Implementation of fiscal decentralization in the form of Balance Fund transfer is expected to increase the efficiency of health function expenditure in the region;
- H₃ : Implementation of fiscal decentralization in the form of Regional Own-source Revenue is expected to increase the efficiency of health function expenditure in the region;
- H₄ : The efficiency of health function expenditure in the region is suspected to improve the welfare of people in the region.

RESEARCH METHOD

Based on its objectives, this research is classified as explanatory research that aims to explain the relationship between two or more variables or research that is based on the theory that will be used to test a phenomenon that occurs (Creswell, 2015; .Hamdi.and.Ismaryati, 2019). This study will explain how the impact of fiscal decentralization, in the form.of.the Balance.Fund.and Regional Own-source Revenue, on the efficiency of health function expenditure in the region; and the impact of efficiency of health function expenditure on the level of community welfare in the.region. When viewed from the approach side, this research is classified as a type of quantitative research that has different characteristics with qualitative research that emphasizes the depth of data. Quantitative research is research that emphasizes the analysis of numerical figures to be processed using

statistical methods (Creswell, 2015; Hamdi and Ismaryati, 2019).

The population in this study is all districts/cities in South Sulawesi Province. While the selection of samples from the population is done by purposive sampling technique, which is the selection of samples based on certain criteria. The criteria used are as follows: (1) registered in the report of institutions related to the Central Statistics Agency (*Badan Pusat Statistik, BPS*) and the Directorate General of Financial Balance (*Direktorat Jenderal Perimbangan Keuangan, DJPK*), the Ministry of Finance, which contains data/information related to research from the period of 2015 to 2019; (2) districts/cities have been established before fiscal decentralization or regional autonomy implementation and is not a district/city resulting from expansion. Based on the sample selection criteria above, the districts/cities that meet the

criteria and are sampled in this study amount to 24 districts/cities.

The year of 2015 election was based on the consideration that the five-year period since the beginning of the implementation of fiscal decentralization in the reform era in 2010 was considered as sufficient time for districts/cities to implement the concept of decentralization better, mature and effectively. Thus, there are 24 districts/cities that will be analyzed. To explain the performance conditions and efficiency of expenditure in each of these regions, the data will be plotted in a scatter plot diagram. The data used in this study is secondary data, namely from the Regional Financial Information System (*Sistem Informasi Keuangan Daerah, SIKD*) database, DJPK, the Ministry of Finance and the publication of the Central Statistics Agency (BPS) of South Sulawesi Province.

Measurement of the impact of fiscal decentralization on the efficiency of public services in the health field and welfare in this study, conducted through four stages: (i) analyzing the performance or realization of expenditure on health function of region against its budget with descriptive statistical techniques; (ii) measure the efficiency of public service delivery with Data Envelopment Analysis (DEA); (iii) examine the impact of regional fiscal decentralization on the efficiency of public service delivery in the health sector; and (iv) estimate the impact of the efficiency of public services in the field of health on the welfare of the community. Stages (iii) and (iv) are performed using the Dinamic Generalized Method of Moment (DGMM) analysis technique.

Testing of Health Function Expenditure Efficiency with the DEA

DEA is a nonparametric method for measuring efficiency and/or evaluating the productivity of a work unit

or Decision Making Units (DMU) responsible for using a number of inputs to obtain a targeted output (Purwantoro, et. al., 2006). The use of the DEA method in this study, based on consideration: (i) it provides a tool for estimating the "relative" efficiency of selected entities in specific groups of units and criteria (Widodo, 2019); (ii) technical efficiency measurement with DEA requires only input and output data (Vincova, 2005); (iii) the DEA method can handle many inputs and outputs, and does not require the assumption of a functional relationship between input and output variables, which is one of the advantages of DEA (Dewiyani, 2007).

Vincova (2005) developed the DEA in the form of a linear divisive programming model, with the following specifications:

$$\text{Maximize } \frac{\sum_i u_i y_{iq}}{\sum_j v_j y_{ja}} \quad 1)$$

$$\text{Subject to } \frac{\sum_i u_i y_{ik}}{\sum_j v_j y_{jk}} \leq 1 \quad k = 1, 2, \dots, n \quad 2)$$

$$u_i \geq \epsilon, i = 1, 2, \dots, s; v_j \geq \epsilon, j = 1, 2, \dots, m$$

where an economy has as much as n population of productive units with each unit of production able to produce as much s output by using as many as m inputs. The equation above is the comparison between the i output weight multiplied by the output matrix y against the j input weight multiplied by the input matrix x , so $\sum u_i y_{iq}$ is the weighted amount of output, $\sum v_j x_{jq}$ is the number of inputs weighted, u_i is the weight set for output to i , v_j is the weight set for input to j , y is output, x is input, while k denotes the productive units of decision makers (DMU), n is the amount of DMU, s is the amount of output, and m is the amount of inputs.

In this study, the input (x) used in efficiency measurements was ratio of regional expenditure on health function per total regional expenditure, while the output variable (y) focused on the performance of public service delivery in the health sector (Table 1).

Table 1
Health Service Input and Output Indicators

No.	Service	Input (x)	Output (y)
		Ratio of regional expenditure on health function per total regional expenditure	Life Expectancy (year)

Furthermore, if from the results of this DEA, the value of the efficiency coefficient of an area below 1, then the area is declared to be in the frontier or said to be inefficient, conversely if the value of the efficiency coefficient is equal to 1, then the area is on the frontier or can be said to be efficient. The results of this public service delivery efficiency test are then used as variables tied to the analysis of the impact of fiscal decentralization on the efficiency of healthcare delivery in areas with the DGMM estimation model.

Testing of Impact of Fiscal Decentralization on Expenditure Efficiency

The use of the DGMM model in this study is based on considerations: (i) dynamic models are very suitable to be applied to analyze a policy, because the impact of a policy set by decision makers is often only seen in the next few periods (Syawal, 2011); (ii) this model can overcome endogeneity problems related to the use of dependent variable lag; (iii) the DGMM approach is appropriately used for dataset panels with short time series dimensions, but has a large cross section (Mileva, 2007); (iv) the potential that can cause bias in the estimator can be eliminated by negating μ_i ; and (v) the use of instrument variables can produce a consistent estimator despite the measurement error variables and endogenous variables in the estimated model (Oliveira, et. al., 2005).

Testing the impact of fiscal decentralization on the efficiency of

health function expenditure is dynamically formulated in the following model specifications:

$$PSE_{it} = \beta_0 + \beta_1 ROS_{i(t-1)} + \beta_2 BF_{i(t-1)} + \beta_3 PSE_{i(t-1)} + \beta_6 PSE_{i(t-2)} + \varepsilon_{it} \quad (3)$$

where, PSE_{it} is the value of the efficiency of expenditure on the health function of the district/city i in the year t ; $ROS_{(t-1)}$ is the Regional Own-source Revenue of the district/city i region in the previous year; $BF_{i(t-1)}$ was the Balance Fund of district/city in the previous year; $PSE_{i(t-1)}$ is the efficiency value of district/city i in the previous year; while $PSE_{i(t-2)}$ is the efficiency value of district/city i in the previous two years. In this case, the instrument variable is the lag of the endogenous variable, i.e. the efficiency value of the expenditure, while the exogenous variable is the free variable in the equation (3).

Testing of Impact of Health Function Expenditure Efficiency on Public Welfare

Estimation of the impact of health function expenditure efficiency on public welfare can be formulated as follows:

$$\text{HDI}_{it} = \beta_0 + \beta_1 \text{PSE}_{i(t-1)} + \beta_2 \text{ROS}_{i(t-1)} + \beta_3 \text{BF}_{i(t-1)} + \beta_4 \text{HDI}_{i(t-1)} + \beta_5 \text{HDI}_{i(t-2)} + \varepsilon_{it} \quad (4)$$

where, HDI_{it} is the Human Development Index as a proxy for the welfare of society; $\text{PSE}_{i(t-1)}$ is the efficiency of district/city education expenditure in the previous year; $\text{ROS}_{(t-1)}$ is the Regional Own-source Revenue of the district/city i region in the previous year; $\text{BF}_{i(t-1)}$ was the district/city Balance Fund in the previous year; $\text{HDI}_{i(t-1)}$ is the level of community welfare projected by the district/city Human Development Index in the previous year; and $\text{HDI}_{i(t-2)}$ is the level of community welfare that is projected by district/city i in the previous two years. In this case, the instrument variable is the lag of the endogenous variable, i.e. the well-being of society, while the exogenous

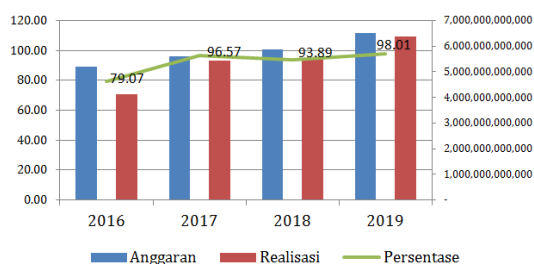
variable is the free variable in the equation (4). The determination of optimal lag in DGMM estimates is done following the rule of thumb, taking into account the number of observations and correlations, and paying attention to the best level of signification after the estimate is made (post estimation).

In this study, the maximum amount of lag used is as much as two lags, with consideration: (i) the number of observations in districts/cities are adequate to be estimated with unbiased results; and (ii) the use of two lags provides the best estimation results compared to the use of only one lag or more than two lags (Widodo, 2019).

RESULTS AD DISCUSSION

From the results of the evaluation of the management and realization of health function expenditures, it was found that during period of 2016-2019, the realization for the health sector in aggregate in South Sulawesi Province

averaged only 91.8 percent. The highest realization rate was achieved in 2019 amounting to Rp 6,379,270,204,995.13 or 98.01 percent of its budget (Graphic 1). The implementation of decentralization policies has significant implications for fiscal and/or regional financial conditions in South Sulawesi Province, where the realization ratio of health function expenditure tends to continue to increase from year to year.



Graphic 1
Comparison of Budget and Realization of Health Function Expenditure of South Sulawesi Province in the Period of 2016-2019

Source: DJPK, Kementerian Keuangan (Kemenkeu) (data processed)

While at the district/city level, in general almost all districts/cities in South Sulawesi Province have the realization of health function expenditure close to 100 percent. In particular, the districts of

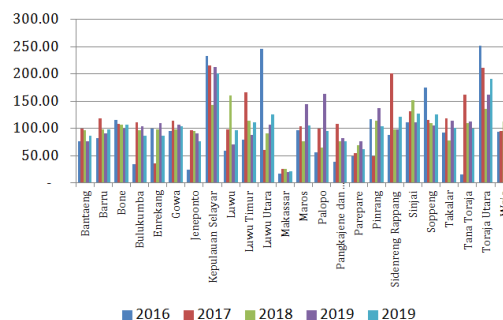
Selayar Islands, Toraja Utara, Sinjai, Soppeng, Luwu Utara, Sidenreng Rappang, East Luwu, Bone, Maros, Pinrang, Gowa, Takalar and Wajo achieved realization rates above 100 percent during the period 2016-2019 (Graph 2). Interesting things in Kepulauan Selayar District which even almost every year reached the realization rate of health expenditure above 200 percent, namely 233.19 percent in 2016, 215.59 percent in 2017, 142.85 percent in 2017, and 212.82 percent in 2019. Meanwhile, some districts/cities actually showed not too good shopping performance.

Makassar City occupies the lowest position in the level of expenditure realization. During the period of 2016-2019, the realization rate of makassar city health function expenditure never even reached 50 percent of the existing budget (average 21.65 percent). Similarly, the city of Pare-pare, the average achievement rate of expenditure

realization was only 62.11 percent during the period 2016-2019. This is interesting considering that both are large cities in South Sulawesi Province that get relatively greater decentralization funds than other districts/cities.

Although in general (average) the realization rate of district/city expenditure in South Sulawesi Province is fairly good, but the expenditure is still more allocated to public service expenditure and others, especially for government bureaucratic expenditure (employee, and goods/services expenditure). Budget and expenditure management conditions like this will certainly have implications on the performance of regional expenditure efficiency in the provision of public services that are less effective. This pattern of expenditure realization shows that the obligation to the fulfillment of the budget as mandated in various provisions of mandatory expenditure is not fully

adhered to by the district/city government in South Sulawesi Province.



Graphic 2
Percentage of Re-realization to Health Function Expenditure Budget of Districts/Cities in South Sulawesi Province in the Period of 2016-2019
 Source: DJPK, Kemenkeu (data processed)

Furthermore, based on the results of efficiency testing with the DEA method on health function expenditure at the district/city level in South Sulawesi Province in the period of 2015-2019, it was found that most districts/cities in South Sulawesi Province were relatively less efficient in managing health function expenditure with an average aggregate efficiency rate of only 0.398 (Table 2). With these findings, the research hypothesis (H₁) stating that health function expenditure in the region has a good level of efficiency is not proven.

Table 2
District/City Expenditure Efficiency Test
Results for the Period of 2015-2019

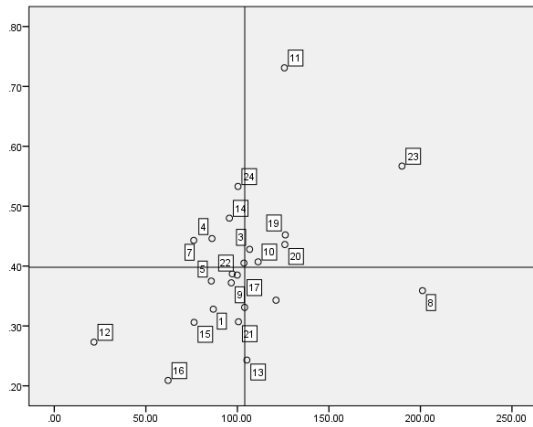
No.	District/City	Year					Avg
		2015	2016	2017	2018	2019	
1	Bantaeng	0.181	0.291	0.352	0.218	0.595	0.328
2	Barru	0.300	0.266	0.407	0.303	0.658	0.387
3	Bone	0.570	0.323	0.388	0.268	0.588	0.428
4	Bulukumba	0.341	0.715	0.358	0.251	0.563	0.446
5	Enrekang	0.181	0.300	0.433	0.302	0.660	0.375
6	Gowa	0.355	0.294	0.414	0.288	0.674	0.405
7	Jeneponto	0.185	1.000	0.276	0.255	0.499	0.443
8	Kepulauan Selayar	0.275	0.398	0.286	0.142	0.695	0.359
9	Luwu	0.201	0.195	0.514	0.410	0.542	0.372
10	Luwu Timur	0.194	0.591	0.298	0.289	0.662	0.407
11	Luwu Utara	0.291	0.478	1.000	1.000	0.886	0.731
12	Makassar	0.089	0.279	0.220	0.177	0.598	0.273
13	Maros	0.051	0.247	0.321	0.210	0.387	0.243
14	Palopo	0.408	0.294	0.678	0.285	0.733	0.480
15	Pangkajene Kepulauan	0.145	0.246	0.364	0.243	0.535	0.306
16	Pare-Pare	0.172	0.145	0.240	0.147	0.340	0.209
17	Pinrang	0.267	0.238	0.260	0.274	0.617	0.331
18	Sidenreng Rappang	0.149	0.248	0.419	0.253	0.643	0.343
19	Sinjai	1.000	0.235	0.320	0.232	0.475	0.452
20	Soppeng	0.238	0.709	0.383	0.273	0.574	0.436
21	Takalar	0.171	0.257	0.353	0.212	0.540	0.307
22	Tana Toraja	0.185	0.259	0.488	0.317	0.675	0.385
23	Toraja Utara	0.430	0.507	0.539	0.358	1.000	0.567
24	Wajo	0.628	0.578	0.428	0.312	0.720	0.533
	Average	0.292	0.379	0.406	0.292	0.619	0.398

Source: DJPK, Kemenkeu (data processed)

Luwu Utara District is one of the districts that are relatively most efficient in managing health expenditure compared to other districts/cities, then sequentially followed by Toraja Utara, Wajo, Palopo, and Sinjai districts. Meanwhile, the

districts/cities of Pare-pare, Maros, Makassar, Pangkajene Kepulauan and Takalar became the districts/cities that are relatively inefficient in managing their health expenditure.

If we look at the results of data processing in Graphs 1 and 2, it is interesting fact that some districts/cities that have a good level of expenditure realization also tend to have a high level of efficiency in their expenditure management, such as Toraja Utara, Sinjai, Luwu Utara, and Wajo. Conversely, some districts/cities that have low levels of expenditure realization also tend to have low levels of efficiency in their expenditure management, such as Pare-pare, Makassar, and Pangkajene Kepulauan (Graph 3). Although this fact cannot be used as a general conclusion, but this interesting fact should be of concern to the relevant parties.



Graphic 3
Scatter Plot of Relationship between
Realization of Expenditure and Efficiency
Level

Source: DJPK, Kemenkeu (data processed)

Furthermore, from the results of dynamic panel data testing (DGMM) on the impact of fiscal decentralization on the efficiency of public expenditure in the health sector (Table 3), it was obtained that fiscal decentralization in the form of Regional Own-source Revenue has a negative and significant impact on the efficiency of health function expenditure. While the policy of fiscal decentralization in the form of Balance Funds, also has a negative but insignificant effect. In addition, the level of expenditure efficiency in the previous year (t-1 and t-2) also had a negative and significant impact on the efficiency of health

function expenditure in the current year. This results in line with research of Sow and Razafimahefa (2015) that concluded that fiscal decentralization negatively affects the efficiency in developing country like Indonesia.

Table 3
DGMM Estimation Results of the Impact
of Fiscal Decentralization on Expenditure
Efficiency

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PSE(-1)	-2.896	0.347	-8.328	0.000*
PSE(-2)	-0.673	0.164	-4.086	0.000*
BF(-1)	-2.040	2.401	-0.849	0.400
ROS(-1)	-1.140	6.451	-1.760	0.085**

*Significance at the 0.05 level;

**Significance at the 0.1 level

Source: data processed

The results of these tests show that the implementation of fiscal decentralization policies especially in the form of Regional Own-source Revenue tends to reduce the level of efficiency of regional expenditure. With these findings, the research hypothesis (H₂ and H₃) stating that fiscal decentralization can improve the efficiency of public service delivery is not proven.

Thus, the receipt of balance funds in the framework of decentralization

implementation obtained by districts/cities has not been able to encourage increased efficiency of health expenditure in district/city in South Sulawesi Province. This finding is in line with the results of Widodo's research (2019) which found that the management of decentralized funds in the form of *Otsus*, has not been implemented consequently and obediently, in addition to providing implications on the lack of optimal performance and efficiency of public service delivery, also has an impact on the pace of regional economic growth. *Otsus* revenue on provincial, district and municipal revenues in all three *Otsus* regions negatively affects the efficiency of all types of public expenditure, except on the efficiency of public service expenditure and other public services, which have a positive impact at the provincial level, but negatively affect limited at the district/city level.

In the next analysis, based on the results of testing the impact of efficiency of health expenditure on the level of public welfare in districts/cities in South Sulawesi Province in 2016-2019 (Table 4), it was obtained that the increase in efficiency of health expenditure, will significantly be followed by improvements in public welfare. This is allegedly because the efficiency of health expenditure as measured using life expectancy is a measure of output that can generally describe the aggregate of all health services at both basic, medium and advanced levels.

Table 4
DGMM Estimation on the Impact of Health Expenditure Efficiency on People Welfare

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HDI(-1)	1.197	0.160	7.451	0.000*
HDI(-2)	-0.110	0.167	-0.656	0.514
PSE(-1)	28.981	15.193	1.907	0.063**
ROS(-1)	1.240	1.190	1.036	0.305
BF(-1)	3.051	1.871	1.629	0.110

*Significance at the 0.05 level;

**Significance at the 0.1 level

Source: data processed

Meanwhile, fiscal decentralization policies both in the form of District Own-source Revenue and Balance Funds, also

have a positive, but limited (insignificant) effect. With these findings, the research hypothesis (H3) which states that the efficiency of public service expenditure in the field of health is suspected to improve the well-being of people in the area, is acceptable.

The positive impact of expenditure efficiency on public welfare in district/city case study in South Sulawesi Province during the period of 2015-2019, has been in line with the expectations of the implementation of regional autonomy as said by Suwandi (2000) and Halim (2001) which states that the capacity of financial management of local government measured through independence, effectiveness and efficiency will determine the ability of local governments in conducting the public service function, development function and protective function. The results of this study are also in accordance with the theory as said by Simanjuntak

(2000) which states that local governments have an obligation to improve community welfare services in a democratic, fair, equitable and sustainable manner. That obligation can be fulfilled if the local government is able to manage its regional potential, namely natural resources, human resources and financial resource potential optimally (Swandewi, 2014).

CONCLUSION

Fiscal decentralization policies should be able to encourage improved efficiency of public services. Efficient public services within the framework of regional autonomy should be able to make regional expenditure more effective in encouraging community welfare. The research is intended to test and analyze how the implementation of fiscal decentralization in the area can improve the efficiency of public services and the well-being of the community. Based on the results of the analysis, it was found

that the realization and utilization of health function expenditure in aggregate in South Sulawesi Province was quite good, although the expenditure was still more allocated to government bureaucratic expenditure. The results of efficiency testing with the DEA method showed that in most districts/cities in South Sulawesi Province, the realization and utilization of such expenditures was relatively less efficient. From the results of dynamic panel data testing (DGMM) on the impact of fiscal decentralization on the efficiency of public service expenditure in the health sector, it was found that fiscal decentralization in the form of policies on Regional Own-source Revenue has a negative and significant impact on the efficiency of health function expenditure, while fiscal decentralization policies in the form of Balance Funds, also have a negative but insignificant effect. In the analysis of testing the impact of the efficiency of

managing public service expenditure on the level of public welfare, it was found that the increase in the efficiency of health expenditure, will be significantly followed by improvements in public welfare. Meanwhile, fiscal decentralization policies both in the form of Regional Own-source Revenue and Balance Funds, also have a positive, but limited (insignificant) effect.

Implications

This research contributes to the literature related to the impact of fiscal decentralization on health services in the region. When the existing literature mentions that fiscal decentralization has a positive impact on health services, the results of the study actually show different things, especially in the case of South Sulawesi Province. Low levels of coordination between central and local governments result in overlapping responsibilities and authorities. This leads to regional spending that tends to be less

effective and efficient (Cahyaningsih and Fitriady, 2019) and increases the occurrence of corruption and abuse (Nasution 2017; Asfaw et al., 2007).

Therefore, it is considered important to strengthen coordination relations between the central and regional governments, especially in the field of health services. Furthermore, the implementation of this fiscal decentralization policy must be followed by efforts to improve the capabilities of the apparatus through training programs that focus on specific subjects within the scope of decentralization (Alm et al., 2001). Likewise, a combination of policies and effective legal implementation is necessary to minimize the possibility of problems such as corruption, inefficient, and uncontrolled spending.

In addition, to improve the efficiency and quality of public services, the regional government in South

Sulawesi Province must meet the mandatory expenditure of health budgets in every formulating Regional Budget. In order to be effective, its implementation needs to be accompanied by the imposition of strict sanctions against the district/city government that violates, by not authorizing the “Ranperda APBD” at the time of evaluation by the higher level of government. Furthermore, in order to really achieve the goals and objectives optimally, the management of decentralization funds, especially balance funds, by the district/city government needs to be implemented based on the principles of cost-effectiveness, performance approach, value for money concept, and the principles of good public governance, and good financial governance. To improve the effectiveness of public services, it is necessary to take steps to refocusing the use of balance funds directly related to public services; and synchronization of the plan of use of

balance funds with sectoral activities carried out by ministries/institutions.

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