

Mapping of budget stress in Indonesia: Consequence on budget implementation

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ABSTRACT

The phenomenon of a budget deficit in local governments at the provincial, regency, and city levels shows that there is budget stress. Budget stress is a regional fiscal condition reflected in the lower revenue budget, while regional expenditure is getting higher. The consequence of budget stress is low budget implementation, and it reduces the quality of services to the public. This study aims to map the regions experiencing budget stress at the local government levels. Furthermore, this study examines and analyzes the consequences of budgetary stress on budget implementation. The research sample used local governments at the provincial, regency, city levels throughout Indonesia during 2016-2020. This study uses Ordinary Least Square (OLS) to test the research hypothesis. This study groups the five regions with the highest budget stress during 2016-2020. The results of this study can contribute to the theory, methodology, and implementation related to the budget. The theory's contribution is that the political budget cycle can maintain government performance through various efforts to reduce budget stress. This study also finds that budget stress can reduce budget implementation. Therefore, the government needs to pay attention to indicators of budget stress.

KEYWORDS:

Budget stress; budget implementation; decentralization; APBD

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INTRODUCTION

Law Number 23 of 2014 concerning Local Government states that regional autonomy is the right, authority, and obligation of the autonomous region to regulate and manage government affairs and the interests of the local public within the system of the Unitary State of the Republic of Indonesia. This condition shows that local governments are given the authority and responsibility to manage their regions to improve the public's welfare. Siregar (2015) explains that the administration of government affairs in the regions is carried out based on the principles of decentralization, concentration, and assisting duties.

The principle of decentralization is the transfer of government affairs by the central government to autonomous regions based on autonomy. The principle of autonomy is the basic principle of implementing a local government based on regional autonomy. Furthermore, the principle of deconcentration is the delegation of a portion of government affairs under the jurisdiction of the central government to governors as representatives of the central government, to vertical agencies in certain areas, and/or to governors and regents/mayors as the person in charge of general government affairs. Finally, the third principle is assisting duty as an assignment from the Central Government to autonomous regions. The duty is to carry out a portion of government affairs under the central government's authority or from the provincial government to regencies/cities.

The implementation of regional autonomy in Indonesia reduces the local governments' dependencies on the central government because they are given the authority and responsibility to manage their regions more optimally. However, the implementation of regional autonomy has positive and negative consequences for local governments. The

positive consequence is that the authority given is more like "residual power" or "open arrangement" because all powers are given to the regions except for matters handled by the central government, such as national fiscal and monetary, defense and security, foreign affairs, also judiciary and religion (Namlis, 2018). Furthermore, Namlis (2018) explains that the approach to strengthening the province goes so far by attracting matters that have been managed by the regencies/cities (mining, forestry, maritime affairs, and fisheries) into the affairs of the provincial government. The negative consequence of implementing autonomy for local governments with limited potential is experiencing difficulties in increasing regional revenues in financing regional expenditures. Badrudin and Siregar (2015) use the term expenditures to describe capital expenditures and evaluate the role of regional autonomy to improve public welfare by using capital expenditures and economic growth as mediating variables. Huda (2015) explains that the implementation of regional autonomy, on the one hand, can provide broad authority to local governments, but on the other hand gives greater responsibility to local governments to improve public welfare.

Local governments with higher potential resources are among the fortunate regions when regional autonomy is implemented. The regional potential is the initial capital to achieve regional revenue. When managed optimally, the regions can overcome fiscal difficulties in contrast to local governments with limited potential resources available. They have the opportunity to experience fiscal difficulties in financing regional expenditure needs. Therefore, these regions depend on fiscal balance transfers from the central government to local governments in financing regional expenditure needs. Siregar (2015) explains that fiscal balance transfers from the central government are allocated in the State Revenue and Expenditure Budget

(Anggaran Pendapatan dan Belanja Negara, APBN) in financing regional needs due to decentralization, which consists of general transfer funds and special transfers. General transfer funds are funds allocated in the APBN for regions to be used under regional authorities to finance regional needs in implementing decentralization. On the contrary, special transfer funds are allocated in the APBN for regions to help finance special activities, both physical and non-physical, which are regarded as regional affairs.

An important implication of the limited availability coupled with sub-optimal management of regional resource potential is the emergence of fiscal or budget stress. Arnett (2011) explains that budget stress is the fiscal situation of local governments when regional revenue sources are low, while regional expenditures are getting higher in financing public needs. The deficit as a form of budget stress that the media have widely covered is also experienced by the Jambi Provincial Government. The Jambi Province shows a budget deficit of up to Rp158.8 billion in the Draft of Local Government Budget (Rancangan Anggaran Pendapatan dan Belanja Daerah, RAPBD) of 2021. Its planned expenditure is significantly higher than its projected revenue. In 2021, the regional expenditure for this Province reaches Rp4.2 trillion and consists of operational expenditure of around Rp3.3 trillion, capital expenditure of around Rp185.2 billion, unexpected expenditure of around Rp20 billion, and transfer expenditure of around Rp734.7 billion. Based on the regional revenue target compared to the projected regional expenditure needs, Jambi provincial government experienced a deficit of Rp158.8 billion. The shortage will be covered by regional financing of around Rp176.8 billion and capital injected by Bank Jambi of around Rp18 billion. The decline in the target of Local Own-source Revenue (Pendapatan Asli Daerah, PAD) in 2021 affects this deficit condition.

The Jambi Province PAD target in the 2021 RAPBD is only around Rp4 trillion, and its provincial revenue decreased by 14.19% compared to the 2020 Local Government Budget (Anggaran Pendapatan dan Belanja Daerah, APBD) of around Rp4.7 trillion. The decrease in the regional revenue target was due to a decrease in the PAD target and a decrease in central government transfer revenue, which could not be targeted optimally given the economic recovery situation resulting from the Covid-19 pandemic (Saragih, 2020).

At the city government level, the Tangerang city government has a budget deficit in 2020, reaching Rp581 billion. The Tangerang City 2020 APBD has been approved in the amount of Rp5.162 trillion but has a deficit due to an imbalance between regional expenditures and revenues. The 2020 APBD is used for the indirect expenditure of Rp1.651 trillion and direct expenditure of Rp3,510 trillion. Meanwhile, the allotted regional revenue is Rp4.580 trillion. Therefore, there was a budget deficit of Rp581 billion. The Tangerang city government will use the budget covered from their Unspent funds at the end of the 2019 fiscal year (Sisa Lebih Penggunaan Anggaran, SILPA) to cover this deficit. In addition, several options are in place to cover this deficit, such as establishing cooperation in infrastructure development with third parties, in order for the development to run in the next three years until 2022 and payment to be executed in the following year. Another option is a financing plan that involves regional banks (Fauzi, 2019).

At the regency level, Jember Regency experienced a budget deficit in 2019, which reached Rp351 billion. This deficit is permitted by existing regulations and does not exceed the allowable limit. In the 2019 APBD, approved revenues were recorded at Rp3.622 trillion, while total expenditures

reached Rp3.973 trillion, resulting in a deficit of Rp351 billion. According to the Jember Regency Government, this deficit is natural in budgeting dynamics because the 2019 Revised local government budget will still receive additional funds. The Jember Regency Government said that Regional Apparatus Organizations (Organisasi Perangkat Daerah, OPD) and their work programs must be ready since the approval of the APBD and maximizes budget absorption (Kusbiantoro, 2018).

Budget implementation is an important part of the budgeting process with the availability of regional revenues to finance local government administration. Local governments that have low revenue potential and high regional expenditures have the opportunity of budget stress. Local governments that are experiencing budget stress have caused uncertainty on the APBN formulation. As a result, the government has tried to find solutions to shift regional revenue and expenditure components. Budget stress that arises in the budget posture encourages local governments to increase regional revenues by seeking potential revenue through local taxes or retribution. This is important to meet the increasingly complex regional expenditure needs. In addition, local governments experiencing budgetary stress need to pay attention to the structure of their regional expenditures and determine priority programs.

Lhutfi, Ritchi, and Yudianto (2020) explain that one way to detect the local governments' financial capacity to reduce dependencies on the central government is through the composition of regional revenues in question. The higher regional revenue composition indicates that local governments have the ability to implement regional autonomy more independently. Thus they reduce their dependency on the central government. On the other hand, lower regional revenue composition indicates that local governments

have a higher dependency on the central government. This condition shows that it is pertinent to study the regional budget stress in implementing regional autonomy to evaluate the performance of local governments in carrying out public service needs. Local governments must continue to increase regional revenue through potential new revenue sources to cover the regional budgets that increase every year.

Based on the description mentioned before, this study aims to map the regions in Indonesia, both at the provincial and regency/city government levels, which experience high budget stress due to a lack of regional revenue in financing the implementation of regional expenditure. Another objective is to examine and analyze the consequences of budget stress on local government budget implementation.

LITERATURE REVIEW

Budget Implementation and Budget Stress

Rakhman (2019) elucidates that budget implementation is an important mechanism in the budgeting process. The budget implementation process is divided into two crucial parts: implementing the revenue and expenditure budgets. Furthermore, Siregar (2015) divided the implementation of the revenue budget into two processes: receiving revenue and making a revenue accountability report. In comparison, implementing expenditure consists of preparing budget implementation documents, setting up a cash budget, issuing a letter of provision of funds, submitting a payment request letter, issuing pay orders, issuing funds disbursement orders, and issuing accountability reports. The budget implementation is important due to government expenditure which accounts for most regional economic activities (Rakhman, 2019). Oliewo (2015) explains that budget

implementation among local government agencies is an important central government concern.

Boukari and Veiga (2018) measure budget stress by comparing the difference between the revenue and expenditure budgets against the revenue budget, which shows the local government's fiscal situation when the budget is being prepared and approved. When the fiscal condition of the local government deteriorates, which is indicated by a negative budget stress ratio, thus the local government is experiencing a budget deficit. Thus, the budget deficit experienced by local governments indicates regional autonomy that is not supported by the harnessing of regional potentials. In addition, sub-optimal management of regional resources has resulted in budget stress for these local governments.

Aldag, Kim, and Warner (2019) also Kim (2017) explain that fluctuating budget stress puts tremendous stress on local governments in increasing revenue through expanding the tax base to increase development. Shi and Varuzzo (2020) reveal that local governments which have succeeded in overcoming gaps and budget stress change local tax policies, development incentives, and higher quality of services. The research result shows that cities with a high level of urbanization have a high level of fiscal stress, a shortage of undeveloped land, and stress on regional development (Shi & Varuzzo, 2020). Existing budget stress and high population growth rates create stress for regional economic development to generate funding for regional service expansion and investment. Hevesi (2006) explains that budget stress assesses regional financial conditions, which in general shows local governments experiencing difficulties in operational financing and other budget-related problems. This condition has negative consequences for budget implementation due to limited revenues to finance regional expenditure.

Budget Stress in Local Government

The local government in Indonesia consists of provinces, regency and city governments. The province's governments are 34 provinces, and a governor leads each province. Furthermore, there are more than 500 city and regency governments in Indonesia. The city government is led by a mayor, while at the regency government level, it is led by a regent. Rakhman (2019) explains that every local government must go through a budgeting process every year. For example, the budgeting process in the 2017 fiscal year began to be compiled in March-September 2016 and ratified in October-December 2016. Subsequently, budget implementation began January 1-December 31, and supervision began March 2016-June 2018. In comparison, budget accountability lasted from January 2016 to January-June 2018 (Siregar, 2015).

The main reason for the failure of local governments to improve the quality of services to the community is caused by budget stress. Budget stress shows that regional expenditure needs are increasingly complex but are not supported by a high regional revenue structure. Based on the report published by the Advisory Commission on Intergovernmental Relations (ACIR) in 1973, which is one of the initial studies on the fiscal health of city governments, states explicitly that there are six indicators of fiscal or budget stress. Those indicators are the imbalance of operational funds; current period expenditure patterns that consistently exceed current earnings over several years; excess current operating liabilities over current assets; short-term operating loans payable at the end of the fiscal year, or cash loans from restructured funds; high and increasing level of delinquency in property taxes; and a substantial reduction in property values (ACIR, 1973).

Some of these factors have triggered the emergence of budget stress experienced by local governments. Armawaddin, Syarif, and Bungin (2020) explained that budget stress would reduce local government capital expenditures because the existing regional revenues were insufficient to meet regional expenditures. However, Anggraeni and Kiswanto (2018) show that the existence of financial stress due to regional autonomy requiring regions to increase regional revenue has not improved regional financial performance. This condition is due to the local government's efforts in increasing regional revenue by exploring new revenues in the form of existing regional potentials that have not been able to cover the APBD, which continues to increase continuously every year. As a result, the dependence of local governments on the central government is still high.

Hariani and Febriyastuti (2020) explain that the implementation of regional autonomy aims to reduce the dependence of local governments on the central government. However, the negative consequence is fiscal or budget stress. Budget stress represents the financial condition of local governments. Gorina, Maher, and Joffe (2016) explain that budget stress is the financial condition of local governments when local governments cannot provide services to the community and meet their operational needs. When budget stress is high, it provides opportunities for local governments to explore potential tax revenues. Local government efforts through tax potential are one of the efforts of local governments to explore the regional potential to increase regional revenue so that local governments can reduce dependence on balancing funds sourced from the central government (Hariani & Febriyastuti, 2020).

Therefore, mapping needs to be done to the local government, namely provincial, regency, and city governments, to detect budget stress. Budget stress mapping is important

as a form of evaluating the performance of local governments and as material for preparing various strategies or efforts to balance revenue and expenditure so that they do not threaten the quality of service to the public.

Consequences of Budget Stress on Budget Implementation

Mahmudi (2019) explains that the planning stage is crucial in the regional financial management cycle because the output of the planning stage is the RAPBD, which will be processed into the APBD. APBD is the backbone or blueprint for regional development for local governments that have an important function in distributing, allocating, and strengthening regional finances. In short, the direction and orientation of regional development policies can be reflected in the APBD. Siregar (2015) explains that the process of preparing the RAPBD has five main processes, namely the preparation of the general budget policies (Kebijakan Umum Anggaran, KUA), the preparation of temporary provisional budget priorities (Plafon dan Prioritas Anggaran Sementara, PPAS), the preparation of circulars for the budget and work plan of a local government agency (Rencana Kerja dan Anggaran Satuan Kerja Perangkat Daerah, RKA SKPD), the preparation of the RKA SKPD, and the preparation of the RAPBD which will be discussed and ratified into the APBD.

The preparation of the RAPBD includes the revenue, expenditure, and financing budgets that local governments will use in financing the administration of their government. This condition shows that local governments with the potential of regional resources can increase regional revenue and manage to spend more effectively to support service needs to the community. The quality of service to the society is the local government's motivation to use their budgets and a political tool to improve local government perfor-

mance and gain political support from the community. Bruck and Stephan (2006) explain that the political budget cycle theory regarding revenue and expenditure budget estimates serves as a political tool to manage public expectations of government performance as a whole, especially when elections are approaching. Heinemann (2006) explains that to increase popularity and gain political support, leaders use financial planning as an instrument to describe a better fiscal future. A leader who influences revenue and expenditure budget estimates has the potential to manage revenue and expenditure budgets and expand his public services in the hope of increasing his chances of being re-elected in the next term. Ratmono and Sholihin (2017) explain that one of the government's main goals is to improve the welfare of the public so that the government seeks to achieve a fiscal balance by maintaining regional financial capacity that comes from tax revenues other sources to meet the interests of the public. One of the essential features in realizing this balance is the ongoing political process to harmonize the various interests in society.

Ratmono and Sholihin (2017) explain that the budget has an essential role in government financial accounting and reporting. This is because a budget is a public policy statement of a fiscal target that describes the desired balance between expenditure, revenue, and financing. Local governments that have high regional potential and are well managed will utilize their budget to finance their expenditure needs to prevent local governments from experiencing any budget deficit. On the other hand, for local governments whose resources are limited and whose budget management is less than optimal, the potential for a budget deficit will arise. The budget deficit indicates that the local government is experiencing budget stress problems.

Boukari and Veiga (2018) explain that budget stress shows the fiscal situation of local governments when drafting the budgets while regional revenues are unable to cover higher regional expenditure. Fluctuating budget stress puts tremendous stress on local governments to increase revenue by expanding the tax base to increase development (Aldag et al., 2019; Kim, 2017). Local governments can address budget stress, change their local tax policies, increase regional development, and increase service quality (Shi & Varuzzo, 2020).

Several previous studies have shown that fiscal stress or budget stress has a negative effect on local government performance. Research by Hanif and Suparno (2017) shows that budget stress can reduce the absorption of local government budgets. In contrast to Hanif and Suparno (2017), Sari, Diana, and Junaidi (2021) research show that budget stress positively affects economic growth. However, Hariani and Febriyastuti's research (2020) demonstrates that budget stress has no significant effect on the efficiency ratio of government independence performance. The efficiency ratio is measured by comparing the costs incurred by local governments to obtain PAD to realize PAD revenues. Therefore the smaller this ratio, the more efficient the performance of local governments is in collecting PAD (Mahmudi, 2019). Some of the results of these studies indicate inconsistencies in research findings regarding the effect of budget stress on local government performance. However, this study focuses more on the negative consequences of budget stress in reducing budget implementation, thus supporting the research of Hanif and Suparno (2017). Its importance is that local governments are experiencing budget stress as indicated by their low revenue budgets, while increasing regional expenditures have resulted in local governments experiencing difficulties implementing the expenditure

budgets. Based on this description, the hypothesis author proposed that budget stress constitutes a negative effect on budget implementation.

RESEARCH METHOD

The source of this research data was obtained through the website www.djpk.go.id. The sample used is the local government budget consisting of 34 provinces, 93 cities, and 415 regencies for five years from 2016 to 2020. So the total subject of observation is 2,710, with details of 170 provincial governments, 465 city governments, and 2,075 regency governments.

The research framework prepared by the author is presented in Figure 1. This study uses the definition and measurement of variables to explain the research variables more specifically. Hartono (2013) states that defining the concept means operationally explaining the object's characteristics into observable elements so that the concept can be measured and operationalized in the research. The result is a concept definition of each variable used by researchers in the study. The definitions and measurements of the varia-

bles used by authors in this study are shown in Table 1.

The test method used by the author in this study is the OLS (Ordinary Least Square) method. Therefore, the author needs to carry out some classical assumption tests as a condition for using OLS. The aim is to minimize residuals in order to reduce bias in conclusions. In other words, the classical assumption test aims to obtain BLUE (Best Linear Unbiased Estimator) research results. The classic assumption test used is the heteroscedasticity, multicollinearity, and autocorrelation test. The author does not use the normality test because the number of sample observations in this study has met the minimum sample size in accordance with the central limit theory (Cooper & Schindler, 2013). Furthermore, the multicollinearity test using the rule of thumb $VIF < 10$ showed no correlation between the independent variables in the research model. The heteroscedasticity test uses Huber-white-Hinkley consistent variance and standard error to correct the parameter values obtained by the ordinary least square method. The author can directly use the output as the final result of the test (Ghozali & Ratmono, 2017). The autocorrelation test uses the rule of thumb with a DW

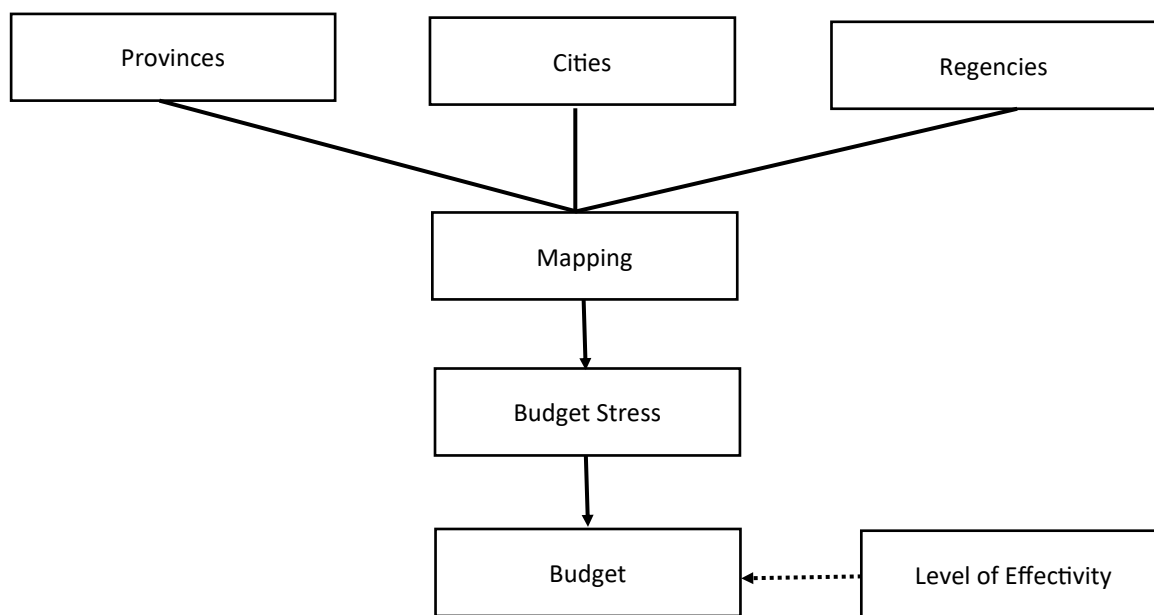


Figure 1. Research Framework

Table 1. Definition and Measurement of Variables

Variable Definitions	Measurement	Scale
<p>Budget Implementation The condition of the local government which shows the amount of the total expenditure realization against the total regional expenditure budget (Rakhman, 2019)</p>	$\text{Budget Implementation} = \frac{\text{Actual Expenditure}}{\text{Budget Expenditure}} \times 100\%$ <p>(Rakhman, 2019)</p>	Ratio
<p>Budget Stress Regional fiscal conditions when local government revenues are low, while regional expenditure is getting higher (Chapman, 2003)</p>	$\text{Budget Stress} = \frac{\text{Revenue} - \text{Expenditure}}{\text{Revenue}} \times 100\%$ <p>(Boukari & Veiga, 2018)</p>	Ratio
<p>Level of Effectivity Conditions that indicate the level of local government output against local government revenue targets (Mahsun, 2013)</p>	$\text{Level of effectivity} = \frac{\text{Actual Revenue}}{\text{Budget Revenue}} \times 100\%$ <p>(Mahsun, 2013)</p>	Ratio

value range of 1.54-2.46, which shows that the research model does not have autocorrelation problems (Winarno, 2015).

RESULT AND DISCUSSION

This study aims to map regions that experience high budget stress on local governments in Indonesia at the provinces, city, and regency levels. In addition, this study also examines the consequences of budget stress on budget implementation. An increasingly negative ratio of budget stress indicates that local governments are experiencing increased budget stress. The author formulated the categories of local governments experiencing high budget stress by calculating the budget stress ratio for the last five years, from 2016 to 2020. Subsequently, the author calculates the budget stress ratio by doing a cross-section and compares it with the mean budget stress ratio of the research sample. The rule of thumb for local governments that experience high budget stress occurs when the budget stress ratio > mean budget stress ratio. The mean sample budget stress ratios over the past five years are presented in Table 2.

Table 2 shows that there are 27-31 provinces that experience budget stress, while out of 93 city governments, there are 80-84 city and 342-462 regency of 415 regency governments experiencing budget stress between 2016 and 2020. The mean value of budget stress on provinces, city, and regency governments shows the highest value in 2016 and the lowest in 2019. This condition showed that in 2016 the average local government in Indonesia experienced an increase in higher expenditure than the total revenue. Furthermore, the authors classify local governments with high budget stress (greater than the average budget stress) into five groups according to the fiscal year, as shown in Appendix 1.

At the provincial government level, North Kalimantan Province has experienced budget stress for the past five years. Therefore, it is included in the category of the top five provinces in terms of budget stress. Furthermore, Riau, Bangka Belitung, and Bengkulu Province experienced budget stress for three years. As a result, they were included in the category of the top five provinces in terms of budget stress. The provincial governments of North Kalimantan and Aceh are among

Table 2. Mean of Local Government Budget Stress 2016-2020

Local Government	N	Year	Mean
Provinces	29	2016	-7,931
	27	2017	-5,800
	31	2018	-6,546
	28	2019	-4,610
	30	2020	-6,804
Cities	84	2016	-9,260
	82	2017	-6,977
	82	2018	-7,438
	80	2019	-6,843
	84	2020	-7,987
Regencies	362	2016	-6,212
	351	2017	-5,900
	359	2018	-5,827
	342	2019	-4,619
	353	2020	-5,645

the two provinces with budget stress during the last two years (2019-2020). Therefore, these two provincial governments need to give substantial attention to the regional potential to increase regional revenue sources in minimizing budget stress for the following year. In 2020, Southeast Sulawesi, North Maluku, and Jambi provincial governments were included in the top five provinces with high budget stress, but during 2016-2019 were not included in the top five categories of high budget stress.

At the city government level, Cimahi City is included in five cities with the largest budget stress for four years (2016-2019). However, in 2020, the Cimahi City Government managed to get out of the provinces with the highest budget stress. Likewise, Depok City was previously included in five cities with the largest budget stress for three years (2016, 2017, and 2019). Meanwhile, the Bukit Tinggi City Government, including the municipal government, experienced above-average budget stress in 2017, and 2018-2019 was not among those experiencing the highest

budget stress. However, interestingly, in 2020, the Bukit Tinggi City Government again experienced quite a high budget stress. This condition shows that local governments need to be consistent and optimal in managing regional potential to cover the increase in regional expenditures and mitigate budget stress.

On average, the regency government only entered the highest budget stress once during 2016-2020. This condition indicates an opportunity for budget stress to occur in all regency governments in Indonesia if they do not manage regional potential and meet regional expenditure needs. In 2020, four regencies just entered the five categories of regency governments with the highest budget stress: Bojonegoro, Sigi, Donggala, and Kapuas.

Based on the mapping exercise of budget stress of the local government, be it provinces, city, and regency governments, this study provides a positive signal to regions with high budget stress to keep trying to reduce

budget stress by expanding the base of local tax or retribution revenues (Aldag et al. 2019; Kim, 2017). This condition is also explained by Shi and Varuzzo (2020) that local governments that have succeeded in overcoming budgetary gaps and pressures have expanded local tax policies, development incentives, and improved service quality as alternative efforts.

Furthermore, this study presents information about the magnitude of the three research variables used, namely budget stress, budget implementation, and level of effectiveness, in Table 3. Table 3 shows that the total sample observations of the combined sample of local governments, namely, province, city, and regency governments amount to 2,710 observations. Budget implementation conditions that occur in all research samples reached an average of 57.18%. This condition shows that the actual expenditure on the expenditure budget is only able to be absorbed by 57.18%. In the same condition, the local government experiences budget stress of 4.97%, which shows that the availa-

bility of regional potential to meet regional expenditure needs is still minimal, so a strategy is needed to increase regional potential. Finally, the level of effectiveness of local governments reaching 67.77% is still far from optimal, namely 100%. The level of effectiveness indicates that the budgeted revenue target can only achieve a revenue realization of 67.77%.

In the context of the provincial government, the average budget realization that occurred in the provincial government reached 57.16%. This condition shows that the actual expenditure on the expenditure budget is only able to be absorbed by 57.16%. Under the same conditions, the provincial government experienced average budget stress of 4.95%. This condition shows that the availability of regional potential to meet regional expenditure needs remains minimum because the level of effectiveness of local government only reached 66.77%, far from optimal. Therefore a strategy is needed to increase and maximize regional potential.

Table 3. Descriptive Statistics of each Variable

Variables	N	Mean	Std.Dev
All Sample			
Budget Implementation	2.710	57,183	33,044
Budget Stress	2.710	-4,976	6,763
Level of Effectivity	2.710	67,771	28,840
Provinces			
Budget Implementation	170	57,168	31,774
Budget Stress	170	-4,952	7,765
Level of Effectivity	170	66,775	29,297
Cities			
Budget Implementation	465	56,745	31,239
Budget Stress	465	-6,596	7,730
Level of Effectivity	465	67,853	27,893
Regencies			
Budget Implementation	2.075	57,282	33,549
Budget Stress	2.075	-4,615	6,383
Level of Effectivity	2.075	67,834	29,023

City governments in Indonesia with a total sample of 465 observations can only absorb 56.74% of the budget and are still below the absorption of the provincial government budget. This condition shows that the expenditure budget absorbed is only 56,74%. In the same condition, the city government experienced budget stress of 6.59%. This condition shows that the availability of regional potential to meet regional expenditure needs is still minimal, thus, a strategy is needed to increase regional potential. The level of effectiveness of the local government is still far from optimal, although it is still higher than the provincial government, which is 67.85%. This means that the realization of revenue only reached 67.85% of the set target. From the 2075 observation samples at the regency level, the regency government could only absorb a budget of 57.28% with budget stress of -4.61% on average. This condition shows that the availability of regional potential to meet regional expenditure needs is still low compared to city and provincial governments. At the same time, the

level of effectiveness of the regency government reached 67.83%.

Table 4 shows the correlation test results on all research samples, both provincial, city and regency governments. The highest correlation occurs between the level of effectiveness with implementing the budget in a positive direction. This condition shows that local governments that can achieve the revenue budget target will use their budget optimally to finance their expenditure needs. When viewed from the three levels of local government, it can be seen that the city government has the highest correlation between the level of effectiveness and budget implementation, which is 0.975 compared to the regency and provincial governments. This condition shows that a higher level of effectiveness is achieved at the city government level and is positively related to budget implementation than at the regency and provincial government levels.

Table 4. The Correlation Test Results

Variables	Budget Implementation	Budget Stress	Level of Effectivity
All Sample			
Budget Implementation	1,000		
Budget Stress	0,054	1,000	
Level of Effectivity	0,973	-0,026	1,000
Provinces			
Budget Implementation	1,000		
Budget Stress	0,147	1,000	
Level of Effectivity	0,970	0,062	1,000
Cities			
Budget Implementation	1,000		
Budget Stress	0,103	1,000	
Level of Effectivity	0,975	0,012	1,000
Regencies			
Budget Implementation	1,000		
Budget Stress	0,032	1,000	
Level of Effectivity	0,973	-0,045	1,000

The proposed hypothesis is that budget stress has a negative effect on budget implementation. Based on the results of hypothesis testing in Appendix 2, for all samples, the effect of budget stress on budget implementation has a coefficient value of 0.388 and a t-statistic of 10.093 at a significance level of 1%. While at the provincial level, the effect of budget stress on budget implementation has a coefficient value of 0.354, t-statistic of 4.707, at the city level coefficient value of 0.369, t-statistics of 4.354, and the regency level the coefficient value of 0.405, t-statistics of 8.591 at the level of 1% significance. Thus the hypothesis is accepted, budget stress has a negative and significant effect on budget execution. Appendix 2 also shows that city governments have an Adjusted R² value of 96% and higher than regency and provincial governments. This condition indicates that the effect of budget stress on budget execution is higher in city governments throughout Indonesia. After testing the hypothesis, the author also conducted a sensitivity test, the results of which were presented in Appendix 3. The sensitivity test shows results that are in accordance with the main test results: budget stress has a negative and significant effect on budget implementation. In addition, according to the main test results, the effect of budget stress on budget implementation is higher for city governments than for regency and provincial governments.

Budget stress is a condition of limited regional revenue that can affect public administration in financing regional expenditure needs (Arnett, 2011). Chapman (2003) explains that budget stress is a condition of local government when regional revenue is low while regional expenditure is high. One of the essential effects of budgetary pressure is the budget deficit. This study provides information that local governments experience budget stress due to the realization of revenue targets that are not achieved (can be seen

from the average level of effectiveness that is not optimal). They experience a budget shortage to finance their regional expenditures. On the other hand, the average budget implementation of local governments is also not optimal, even below the value of the level of effectiveness. It is necessary to study further the process of preparing local government budgets, whether regional expenditures have been affected by local government needs. In addition, the determination of regional revenue targets must also be more precise.

Furthermore, the results of this study can be said to be in line with the research of Armawadin et al. (2020), which states that budget stress has a significant negative effect on expenditure, especially capital expenditure. Also, Hanif and Suparno (2017) state that budget stress affects budget absorption. In addition, as stated by Muryawan and Sukarsa (2016), budget stress has become common since the emergence of regional autonomy, which gives local governments the authority to manage their finances but requires regions to be more independent. Therefore, the ability of local governments to be more intensive in exploring regional potential is an important element in the success of regional responses to budget stress problems.

CONCLUSION

The results of this study can contribute to the theory, methodology, and implementation related to the budget. The theory's contribution is that the political budget cycle can be used to maintain government performance through various efforts to reduce budget stress. The more optimal management of regional resource potential is the government's effort to increase popularity to get political support from the community so that the budget is used as a political instrument. Furthermore, the methodological contribution of this research is the mapping of budgetary

pressures on local governments at the provincial, city, and district levels, which provides a new method framework for detecting the direction and policies of local governments in dealing with regional fiscal conditions.

This study also found that budget stress can reduce budget implementation. Therefore, the government needs to pay attention to indicators of budget stress, as requested by ACIR (1973), and make various efforts to increase regional revenue to meet the implementation of regional expenditures due to increasingly complex regional needs. Local government can utilize the untapped potential for regional revenue and the potential benefits of investment to attract potential investors as a strategy. Mahmudi (2019) explains that the analysis of regional potential is carried out to determine the types of taxes and retribution of a specific area, whether they are included as potential, prime, developing, or underdeveloped areas. If local taxes and retribution are classified into potential and developing categories, tax and retribution intensification and retribution will be carried out. Furthermore, the prime category needs to be intensified, and the underdeveloped category needs to be reviewed or even removed.

Finally, the limitation of this study is the measurement of budget stress which only focuses on the research of Boukari and Veiga (2018). This study provides opportunities for further researchers to map budget stress using other relevant measurement methods or specifically conduct a case study in a local government experiencing budget stress. Case study research can fill in the gaps in empirical research and directly provide solutions to the causes and budget stress on the research object.

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APPENDICES

Appendix 1. Mapping Budget Stress in Indonesia

Provinces Government				
Budget Stress > Mean of Budget Stress 2016	Budget Stress > Mean of Budget Stress 2017	Budget Stress > Mean of Budget Stress 2018	Budget Stress > Mean of Budget Stress 2019	Budget Stress > Mean of Budget Stress 2020
Riau Province	North Kalimantan Province	North Kalimantan Province	North Kalimantan Province	South East Sulawesi Province
North Kalimantan Province	Riau Province	Bangka Belitung Province	Aceh Province	North Maluku Province
West Sulawesi Province	Bangka Belitung Province	Bengkulu Province	North Sulawesi Province	Aceh Province
Bangka Belitung Province	Bengkulu Province	Riau Province	DKI Jakarta Province	Jambi Province
West Papua Province	West Sulawesi Province	Bali Province	Bengkulu Province	North Kalimantan Province
Cities Government				
Budget Stress > Mean of Budget Stress 2016	Budget Stress > Mean of Budget Stress 2017	Budget Stress > Mean of Budget Stress 2018	Budget Stress > Mean of Budget Stress 2019	Budget Stress > Mean of Budget Stress 2020
Kediri City	South Tangerang City	Tanjung Balai City	Tanjung Balai City	Palu City
South Tangerang City	Cimahi City	Bima City	Gunung Sitoli City	Pasuruan City
Cimahi City	Padang Panjang City	Gunung Sitoli City	Cimahi City	Jambi City
Madiun City	Bukit Tinggi City	Manado City	Depok City	Bukit Tinggi City
Depok City	Depok City	Cimahi City	Bengkulu City	Madiun City
Regencies Government				
Budget Stress > Mean of Budget Stress 2016	Budget Stress > Mean of Budget Stress 2017	Budget Stress > Mean of Budget Stress 2018	Budget Stress > Mean of Budget Stress 2019	Budget Stress > Mean of Budget Stress 2020
Tana Tidung Regency	Tana Tidung Regency	Pidie Jaya Regency	Muna Barat Regency	Bojonegoro Regency
Tanah Laut Regency	Tanah Laut Regency	Teluk Bintuni Regency	Sintang Regency	Sigi Regency
Siak Regency	Penajam Paser Utara Regency	Maybrat Regency	Maybrat Regency	Donggala Regency
Pelawaran Regency	Kepulauan Mentawai Regency	Hulu Sungai Tengah Regency	Bombana Regency	Kapuas Regency
Malinau Regency	North Toraja Regency	Penajam Paser Utara Regency	Kepulauan Yape Regency	Tanah Laut Regency

Appendix 2. Hypothesis Test Result

Independent	Method: OLS Dependent: Budget Implementation All Sample		Method: OLS Dependent: Budget Implementation Provinces		Method: OLS Dependent: Budget Implementation Cities		Method: OLS Dependent: Budget Implementation Regencies	
	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Budget Stress	0,388	10,093***	0,354	4,707***	0,369	4,354***	0,405	8,591***
Level of Effectivity	1,117	199,229***	1,046	49,387***	1,091	98,460***	1,129	170,655***
Const.	-16,637	-39,121***	-10,942	-6,183***	-14,895	-16,402***	-17,462	-35,679***
F-Stat.	28141,28***		16457,322***		5669,867***		21405,03***	
R ²	0,954		0,948		0,960		0,953	
Adjusted R ²	0,954		0,948		0,960		0,953	
Durbin-Watson	1,589		1,606		1,869		1,561	
N	2.710		170		465		2.075	

Notes: The assumption of multicollinearity using VIF <10 indicates no multicollinearity problem. Budget stress and the level of effectiveness of the VIF are 1.021 <10 (All samples). Budget stress and VIF effectiveness level are 1.009 <10 (Provinces). Budget stress and the level of effectiveness of VIF are 1.008 <10 (Cities). Budget stress and the level of effectiveness of VIF are 1.034 <10 (Regencies). The heteroscedasticity assumption uses Huber-white-Hinkley (HC1) heteroscedasticity consistent standard errors and covariance to correct heteroscedasticity problems. The assumption of autocorrelation using the standard value of Durbin Watson (DW) with a range of 1.54-2.46 indicates that there is no autocorrelation problem (Winarno, 2015). A negative Budget stress ratio calculation shows that local governments are experiencing budget stress. Positive OLS regression coefficient shows that Budget stress has a negative effect on budget implementation. *** level of 1%

Appendix 3. Sensitivity Test Result

Independent	Method: OLS Dependent: Budget Implementation All Sample		Method: OLS Dependent: Budget Implementation Provinces		Method: OLS Dependent: Budget Implementation Cities		Method: OLS Dependent: Budget Implementation Regencies	
	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Budget Stress	-3,642	-7,850***	-3,433	-2,316**	-4,019	-3,734***	-3,583	-6,663***
Level of Effectivity	1,116	188,522***	1,052	47,503***	1,094	88,599***	1,126	162,621***
Const.	-15,361	-28,306***	-10,163	-4,998***	-13,916	-10,730***	-16,092	-25,981***
25320,72***	1375,700***		19407,39***		5669,867***		21405,03***	
0,949	0,942		0,949		0,960		0,953	
0,949	0,942		0,949		0,960		0,953	
1,621	1,651		1,586		1,869		1,561	
2,710	170		2,075		465		2,075	

Notes: Multicollinearity assumption using VIF <10 indicates no multicollinearity problem. Budget stress and VIF effectiveness level are 1.025 <10 (All samples). Budget stress and VIF effectiveness level are 1.007 <10 (Provinces). Budget stress and the level of effectiveness of VIF are 1,000 <10 (Cities). Budget stress and the level of effectiveness of VIF are 1.036 <10 (Regencies). The heteroscedasticity assumption uses Huber-white-Hinkley (HC1) heteroscedasticity consistent standard errors and covariance to correct heteroscedasticity problems. The assumption of autocorrelation using the standard value of Durbin Watson (DW) with a range of 1.54-2.46 indicates that there is no autocorrelation problem (Winarno, 2015). The measurement of Budget stress uses a dummy variable with a value of 1 for local governments with a negative value calculation for the budget stress ratio, and vice versa with a value of 0 for local governments with a positive value for the budget stress ratio calculation. Negative OLS regression coefficient indicates that budget stress has a negative effect on budget implementation. ***, ** level of 1%, 5%.

