

DETERMINANTS OF *FISCAL STRESS* ON LOCAL GOVERNMENT FINANCES IN EAST JAVA

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ABSTRACT

The growing demands for public services have an impact on the availability of funds to meet these demands. This condition caused budgetary pressure on the government which was later called *fiscal stress*. This study aims to determine the factors that cause *fiscal stress* as seen from the financial statements of local governments in East Java. The analysis method used in this study is the Data Regression Panel, which is a combination of *cross-section* and *time series* data. The population and samples used are regencies/cities in East Java. This research resulted in the discovery that Regional Original Income (PAD), Equalization Fund (DP), Employee Expenditure (BP), Goods and Services Expenditure (BBJ), and *Surplus/Deficit* (PM) had a significant effect on *Fiscal Stress*. This result can be used as a consideration for the regency/city government in East Java to carry out good management of the performance activities of the District/city government by taking into account internal factors, namely Regional Original Income, Balance Fund, Expenditure, *surplus/deficit*, and budget absorption so that the regency/city government can avoid *fiscal stress*.

Keywords: *Fiscal stress, Local Revenue (PAD), Equalization Fund (DP), Employee Expenditure (BP), Goods and Services Expenditure (BBJ), Surplus/Defisit (PM)*

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INTRODUCTION

Fiscal stress is a budgetary (fiscal) pressure that occurs as a result of limited regional revenues that can have a considerable influence on the implementation of public services (Arnett, 2011). According to Richard Rose and Edward Page of the Centre for the Study of Public Policy (*Fiscal Stress in Cities*, 1982, *Cambridge University Press*), fiscal pressure is a symptom that indicates something is wrong, that there are more demands on public services than the availability of money to meet those claims. According to Rose & Page (1982), the issue of fiscal pressure is not just about cutting public spending or about the need to maintain local services. But about striking a balance between costs and benefits for the government.

These conditions position the government to face difficulties to meet its budgetary needs (Ahmed & Rogers, 1995). Improving the economy of a region can increase regional revenue sources and reduce dependence on transfers from the central government, which so far amounts to far more than Regional Original Income (PAD) which is a component that shows the independence of a region (Astuti et al., 2019).

The district/city government must have the ability to take care of government affairs and manage its own local finances, including finding and increasing potential regional revenues to finance local government control (Laswad et al., 2005). The regulation of regional autonomy in Law No.32 of 2004 mentions various regional authorities. One of the authorities in question is the authority in terms of regional financial management.

As a form of embodiment of the relationship and attention of the central government and local governments, Law No. 33 of 2004 concerning the Balance between Central Government

and Regional Government Finances was established. The regulation stipulates that the central government provides a General Allocation Fund (DAU) and a Special Allocation Fund (DAK) to cover the lack of local government original revenues derived from the potential that exists in one's own regions. However, even though it is supported by the allocation of funds from the central government, it does not guarantee that local governments do not experience financial difficulties (Mowery & Langlois, 1996).

If the local government has difficulty financing activities in its government, the local government can issue regional loans to third parties in accordance with Government Regulation Number 54 of 2005 concerning Regional Loans. Local governments can apply for local loans if the relevant local government can meet the requirements set forth in Government Regulation Number 54 of 2005. If they cannot meet the requirements in the Government Regulation, then the local government is not allowed to make loans to third parties because the local government is worried about having difficulty in returning the principal and interest on the loan (Chen et al., 2008). The financial condition of the local government is what is said to be a fiscal *stress* condition in the local government (Justice & Scorsone, 2012).

This study aims to see how local revenues, regional expenditures, and central government transfer funds affect budget pressure (*fiscal stress*) on the local finances of district/city governments in East Java Province, as well as being useful information for practitioners in estimating and responding to financial conditions in local governments that show symptoms that trigger a level of budget pressure (*fiscal stress*).

The results of the BAPPENAS RI (2005), show that although the local government's Local Revenue (PAD) has increased, dependence on the General Allocation Fund (DAU) remains high, while spending has increased. Even the Monitoring Committee for the Implementation of Regional Autonomy delivered surprising research results. The institute said that as many as 276 districts and cities in Indonesia are in danger of bankruptcy because they only depend on the central budget. The 276 districts are in danger of bankruptcy mainly because 75% of the regional budget (APBD) is used for bureaucratic salary expenditure. Meanwhile, the original regional income (PAD) of these areas is very low. KPPOD data stated that 381 regions have a ratio of PAD to APBD of less than 10 percent. Local governments included in the group mentioned above include Lumajang, Klaten, Pemalang, Kulon Progo, Bantul, and Sragen Regencies (BAPPEDA Jatim;2011).

Previous research has been conducted by Balitbang (2011) and Muda (2012). The results of these two previous researchers concluded that simultaneously the growth of local income, growth in capital expenditure, and economic growth had a significant effect on *fiscal stress*. But partially only local revenue growth has a significant effect on fiscal stress, while capital expenditure growth and economic growth have no significant effect on *fiscal stress*. Furthermore, (Wulandari et al., 2018) still related to *fiscal stress* by conducting a study entitled Analysis of Local Government Financial Statements Its Effect on *Financial Distress* with the aim of proving empirically whether the analysis of local government financial statements has an influence related to pressure conditions on local government finances in Indonesia based on Government Regulation No. 30/2011 concerning Regional Loans.

According to Sobel (2011) that the occurrence of the financial crisis was caused by insufficient receipts or income in meeting spending needs. Because the variables of the occurrence of pressure on local government finances are part of the main information contained

in the Local Government Financial Statements, research on the prediction of fiscal pressures needs to be carried out so that *stakeholders* related to budget determination can also predict the financial condition of whether revenues or revenues can meet the budget for expenditures in related local governments.

Other research conducted by Altman (1968) and Beaver (1966), has sought to see the interrelationship of relevant values (*value relevant*) of accounting attributes in order to deepen the analysis of financial statements. The *value-relevant* attribute is thought to be able to predict the number of resources generated on an ongoing basis and the associated risks. In Altman's research (1968), data from the company's balance sheet and income statement were used as predictors of failure while Beaver (1966), conducted *univariate* testing in order to develop a model for predicting bankruptcy. Both studies resulted in proof that variable financial statement information can be used to predict bankruptcy.

METHOD

Research Design or Design

This research uses quantitative research methods which are research methods used to examine a certain population or sample, with quantitative/statistical data collection and analysis instruments, to test predetermined hypotheses (Sugiyono, 2013a).

Data Types and Sources

According to Sugiyono (2013b), a data source is a data source that directly provides data to data collectors. According to the background of the problem, the data source used in this study is secondary data. Secondary data or second-hand data are data obtained from research subjects. Secondary data can be in the form of documentation, books, or official archives. Secondary data sources are obtained through books and official websites or forms of records related to the APBD and local government financial statements.

The data used is in the form of secondary data derived from the official and local government financial reports. The type of data that is the subject of the study is panel data, which is a combination of *cross-section* and *time series* data.

Population and Sample

The population is the entire individual or object under study that has some characteristics in common. According to Sugiyono (2017:80), the population is defined as "Population is a generalized area consisting of objects/subjects that have certain qualities and characteristics that are determined by the researcher to be studied and then drawn conclusions".

The population in this study is the name of the regency/city in the East Java Province, in addition to data from the East Java Provincial Government. As for, the population in the study can be seen in the table below:

Table 1. Regencies and Cities in East Java Province

No.	City/County Name
1	Bangkalan upaten district
2	Banyuwangi Regency
3	Blitar District
4	Bojonegoro Regency
5	Bondowoso County

6	Gresik County
7	Jember Regency
8	Jombang Regency
9	Kediri Regency
10	Lamongan District
11	Lumajang County
12	Madiun District
13	Magetan Regency
14	Malang Regency
15	Mojokerto County
16	Nganjuk District
17	Ngawi District
18	Pacitan District
19	Pamekasan District
20	Pasuruan District
21	Ponorogo County
22	Probolinggo Regency
23	Sampang Regency
24	Sidoarjo Regency
25	Situbondo County
26	Sumenep Regency
27	Trenggalek District
28	Tuban County
29	Tulungagung Regency
30	Batu City
31	Blitar City
32	Kediri City
33	Madiun City
34	Malang City
35	Mojokerto City
36	Pasuruan City
37	Probolinggo City
38	Surabaya City

Source: bpk.go.id

Sampling in this study used a saturated sample technique because the entire population was sampled in the study, namely a total of 38 local governments in East Java Province.

Data Analysis Techniques

The data analysis method is a step used to answer the formulation of problems in research. The goal is to get conclusions from the results of the study (Albers, 2017). The technical data analysis used in this study is a quantitative correlation, where correlation research aims to find the presence or absence of a relationship or influence between two or more variables. The

analysis technique in this study is panel data regression that combines *cross section* and *time series data*. Here is the conceptual framework used in this study:

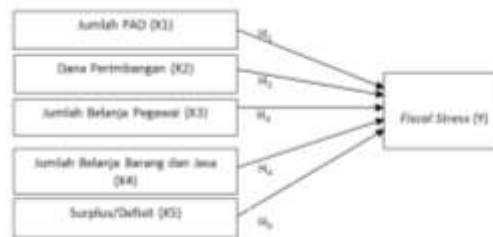


Figure 1. Conceptual Framework
Source: Researcher (2023)

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive variable statistics include explanations related to the mean, minimum or lowest value (*min*), maximum or highest value (*max*), and standard deviation in observations on each independent and dependent variable.

Table 2. Variable Descriptive Statistical Results

Date: 12/01/22 Time: 09:01
Sample: 2010 2020

	FS	PAD	DP	BP	BBJ	PM
Mean	-1.349834	0.406026	1.126231	0.808744	0.429977	0.027731
Median	-1.332500	0.197000	1.087500	0.752000	0.305000	0.020000
Maximum	0.308000	5.382000	3.815000	2.559000	3.748000	1.012000
Minimum	-3.781000	0.018000	0.034000	0.193000	0.039000	-0.258000
Std. Dev.	0.751510	0.733292	0.515772	0.398927	0.495151	0.102372
Skewness	-0.341567	4.567521	1.407605	1.503246	4.321301	6.079506
Kurtosis	3.049584	26.08048	7.734700	6.946414	25.71626	57.35464
Jarque-Bera	6.020500	7907.354	389.3992	315.8691	7580.947	39812.44
Probability	0.049279	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	-415.7490	125.0560	346.8790	249.0930	132.4330	8.541000
Sum Sq. Dev.	173.3833	165.0793	81.66825	48.85690	75.26865	3.217385
Observations	308	308	308	308	308	308

Source: Stata13, Data Processed

Chow Test

The Chow test serves to select a more suitable panel data regression estimation model suitability, between the Common Effect Model (H0) or *the Fixed Effect Model* (H1). The chow test is carried out on the basis of the following hypothesis (Widarjono, 2009: 361): if the probability value is less than 0.05 or < 5% then H0 is rejected. Whereas if it is more than 0.05 or > 5% then H0 is accepted. Table 3 shows the results of the chow test with a probability of 0.00 which means that H0 is rejected, so the *Fixed Effect Model* (FEM) is chosen as the appropriate estimation model.

Table 3. Chow Test Results

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.725458	(27,275)	0.0000
Cross-section Chi-square	96.009770	27	0.0000

Source: Stata13, Data Processed

Hausman Test

The Hausman test aims to choose a more appropriate approach between *the fixed effect* model (H1) or *the random effect model* (H0). Similar to the chow test, the Hausman test is also based on the assumption that if the probability value is less than 0.05 or < 5% then H0 is rejected. Whereas if it is more than 0.05 or > 5% then H0 is accepted. However, table 4 shows the results of the Hausman test have a probability value of 0.1354, this value indicates that the null hypothesis cannot be rejected (Stata, 2019) so that H0 is accepted and the *Random Effect Model* (REM) is chosen as the most appropriate model to use.

Table 4. Hausman Test Results

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.403086	5	0.1354

Source: Stata13, Data Processed

Test Lagrange Multiplier

The *Lagrange multiplier* test aims to choose a more appropriate approach between the *random effect model* (H0) or *the common effect model* (H1). The *Lagrange multiplier* test is also based on the assumption that if the probability value is less than 0.05 or < 5% then H0 is rejected. Whereas if it is more than 0.05 or > 5% then H0 is rejected. However, table 5 shows the *Lagrange multiplier* test results have a probability value of 0.00 less than 0.05 which means that H0 is rejected. So the *Random Effect Model* was chosen as the most appropriate model to use

Table 5 Lagrange Multiplier Test Results

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	44.95872 (0.0000)	20.78985 (0.0000)	65.74857 (0.0000)

Source: Stata13, Data Processed

Panel Data Regression Analysis

Based on the results of the chow test, Hausman test, and lagrange multiplier test, the *Random Effect Model* (REM) was selected as the best panel data regression estimation model to determine the effect of *district fiscal stress* in East Java during the period 2010 - 2020. Table 4.7 shows the results of the regression analysis of panel data with the REM model, which includes information on the magnitude of the coefficient, the standard value of *error*, *z*-statistics, probability (partial and simultaneous), the number of observations, and the value of the *r-square*. The *z*-statistical value in the REM regression model can be assumed to be the *t*-statistical value on the CEM or OLS and FEM regression models since basically, the REM

model does not have a t-statistical value but rather a z-statistic. Therefore, it can be said that the z-statistical value is equal to the t- statistical value.

Table 6 Panel Data Regression Analysis Results
(Random Effect Model)

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Dependent Variable: FS
Method: Panel EGLS (Cross Section Random Effect)
Date: 12/1/22 Time: 09:05
Sample: 2010 2020
Periods included: 11
Cross-sections included: 28
Total panel (balanced) observations: 308
Swamy and Arora estimator of component variances
-----+-----+-----+-----+-----+
Variable      Coefficient    Std. Error    t-Statistic    Prob
-----+-----+-----+-----+-----+
C              0.244946      0.076462      3.203520      0.0015
PAD           -0.412864      0.065745     -6.279744     0.0000
DP             0.660252      0.065367     10.10063     0.0000
BP             0.977140      0.119688      8.164086     0.0000
BBJ           0.558928      0.085028      6.573449     0.0000
PM           -0.424230      0.187868     -2.258130     0.0247
-----+-----+-----+-----+-----+
Effects Specification
-----+-----+-----+-----+-----+
Cross-section random      0.162718      0.1988
Idiosyncratic random     0.326677      0.8012
-----+-----+-----+-----+-----+
Weighted Statistics
-----+-----+-----+-----+-----+
R-squared                0.715382      Mean dependent var -0.698999
Adjusted R-squared       0.710669      S.D. dependent var 0.610738
S.E. of regression       0.328512      Sum-squared resid 32.59288
F-statistic              151.8340      Durbin-Watson stat 1.117408
Prob (F-statistic)       0.000000
-----+-----+-----+-----+-----+
Unweighted Statistics
-----+-----+-----+-----+-----+
R-squared                0.765769      Mean dependent var -1.349834
Sum squared resid       40.61169      Durbin-Watson stat 0.896750
    
```

Source: Stata13, Data Processed

Furthermore, the panel data regression model equation can be rewritten into the following:
 $FS_{it} = 0.244946 - 0.412 PAD_{it} + 0.660 DP_{it} + 0.977 BP_{it} + 0.558 BBJ_{it} - 0.424 PM_{it} + e$

T-test

The T-test serves to show how far an independent variable affects an individual variable (Ghozali, 2011: 98). The hypothesis of the T-test or partial test of this study is as follows:

H0 = No significant influence between PAD, DP, BP, BBJ, PM on FS partially by district/city governments in East Java

H1 = There is a significant influence between PAD, DP, BP, BBJ, PM on FS partially by district/city governments in East Java.

H0 is accepted if the probability value (t-stat) < 0.05 (95% confidence level (Mankiw, 2014:379)) which indicates that partially the independent variable has a significant effect on the dependent variable.

Table 7. T Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob	Keterangan
C	0.244946	0.076462	3.203520	0.0015	
PAD	-0.412864	0.065745	-6.279744	0.0000	H0 ditolak
DP	0.660252	0.065367	10.10063	0.0000	H0 ditolak
BP	0.977140	0.119688	8.164086	0.0000	H0 ditolak
BBJ	0.558928	0.085028	6.573449	0.0000	H0 ditolak
PM	-0.424230	0.187868	-2.258130	0.0247	H0 ditolak

Tingkat Signifikansi 5%.

Source: Stata13, Data Processed

Test F

The F test is used to determine whether all selected and used independent variables affect the dependent variables together or simultaneously. The F-test is performed with the hypothesis:

H0 = No significant influence between PAD, DP, BP, BBJ, PM on FS simultaneously by district/city governments in East Java

H1 = There is a significant influence between PAD, DP, BP, BBJ, PM on FS simultaneously the district/city government in East Java

Based on the results of the F test in table 6, the F-stat value shows a value of 0.0000 which is less than $\alpha = 0.05$ with a confidence level of 95%. So that H0 is rejected which means that PAD, DP, BP, BBJ, PM against FS simultaneously the district/city government in East Java

R-Square

Based on table 6, the value of the coefficient of determination or *r-square* is 0.715 or 71.5% which shows that independent variables consisting of Regional Original Income (PAD), Equalization Fund (DP), Employee Expenditure (BP), Goods and Services Expenditure (BBJ), and *Surplus/deficit* (PM) explain their effect on the *dependent variable Fiscal Stress (FS)* PAD, DP, BP, BBJ, PM against FS simultaneously by district/city governments in East Java during the period 2010 to 2020 amounted to 71.5%. While the remaining 28.5% is explained by other variables outside the model.

CONCLUSION

Local Revenue (PAD) has a t-statistic of -6.279 with a significance of 0.0000 which is lower than 0.05, so PAD has a significant negative effect on Fiscal Stress (FS). The value of the PAD coefficient of -6.279 indicates that any increase in PAD by one unit will decrease the FS by 6.279. The Equalization Fund (DP) has a t-statistic of 10,100 with a significance of 0.000 which is less than 0.05 so DP has a significant positive effect on Fiscal Stress (FS) with a confidence level of 95% or very significant. The DP coefficient value of 10,100 indicates that each DP increase of one unit will increase Fiscal Stress (FS) by 10,100.

Employee Spending (BP) has a t-statistic of 8,164 with a significance of 0.000 which is lower than 0.05 (95% confidence level), so BP has a significant positive effect on Fiscal Stress (FS). The BP coefficient value of 8.164 indicates that every BP increase of one unit will increase Fiscal Stress (FS) by 8,164.

Goods and Services Shopping (BBJ) has a t-statistic of 6,573 with a significance of 0.000 which is less than 0.05 so that BBJ has a significant positive effect on Fiscal Stress (FS) at a 95% confidence level. The BBJ coefficient value of 6.573 indicates that every BBJ increase of one unit will increase Fiscal Stress (FS) by 6,573. Surplus/Deficit (PM) has a t-statistic of -2.258 with a significance of 0.0247 which is less than 0.05 so PM has a significant negative effect on Fiscal Stress (FS) at a 95% confidence level. The value of the PM coefficient of -2.258 indicates that any increase in GDPG by one unit will reduce PM by -2,258 PAD, DP, BP, BBJ, and PM can explain by 71.5% as a determinant of fiscal stress. Meanwhile, 23.5% is explained by other variables outside the study.

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