



## Fiscal Health in Local Government Based on Soft System

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### Abstract:

The purpose of this paper is to identify problems and construct a conceptual model related to the local fiscal health condition. The local fiscal health condition is highly dependent on many factors, indicating that local finance is a complex, systemic and unstructured process. The main emphasis in this research is that the researchers attempt to explore the problem situation with the interpretive and naturalistic approach toward the local fiscal health condition and to study, understand, and interpret the meaning of phenomenon. This study uses a soft system methodology (SSM) that is a systemic approach to describe unstructured issues with a structured approach. The successful conceptual model constructed in this research is the survival mechanism of revenues and expenditures model. The results of this study indicate that the main problem of fiscal health condition is from both revenues and expenditures. Revenues problem is indicated by the low local fiscal independence, while expenditures problem is by the high indirect personnel expenditures. The location taken as the unit of analysis was Bondowoso Regency, East Java, Indonesia with the consideration that Bondowoso Regency is one of the four underdeveloped regencies in East Java Province.

**Keywords:** fiscal health, conditions, revenues, expenditures, soft system

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## INTRODUCTION

Fiscal health for local government plays an important role as it indicates the ability of the region to fulfill its financial obligations and public service delivery (Huang & Ho, 2013) and also can have an impact on the stability of overall government finance (Raju, 2011). Fiscal decentralization applied in Indonesia aims to improve efficiency in services and to reduce information and transaction costs associated with the provision of public services in the region (Elhiraika, 2007). On the other hand, fiscal decentralization has limited public services according to Elhiraika (2007) when regions have limited fund sources resulting in budget bias and deficits. Another problem is that although the regions have limited fund sources, the expenditures keep increasing (RI, 2014). What is happening can be caused by 'tax revenue decentralization is associated with a smaller public sector, while expenditure decentralization is associated with a larger public sector' (Fiva, 2006).

This research was conducted in Bondowoso Regency, East Java Province. The reason of selecting location is because this district is one of the 4 underdeveloped regencies in East Java with the ranking of Human Development Index to 31 of 35 districts/cities in East Java. While, much research has shown that there is a link between HDI and local financial management. The ability of regions in providing services to the society is very dependent on the financial condition. The better regional finance, the better region in providing services to the public (public services).

Some empirical facts in the research location indicated that the level of local fiscal independence is very low. In the period of

2013-2016, local own revenues only contributed 8 percent for the budget structure. This situation indicates that regions are heavily dependent on transfer funds from the central government. Region is faced with the limitations of the original income and reliance on the central transfer fund, while outcome is still increase. Another problem is the high level of indirect employee expenditures. These expenditures are related to employees' salaries and honorariums and are not directly related to government service programs. This situation is certainly very influential on the fiscal conditions of the region. A study conducted by Bahera and Dash (2017) in states of India shows that the lack of budget for health services is caused by the low fiscal capacity, so some recommendations are built that the government should pay more attention to health by allocating more budget resources; and second, the government should emphasize fiscal capacity by increasing revenues, which will generate more funds into health sector (Behera & Dash, 2017). A study conducted by Ugoh and Wilfred (2009) in Nigeria shows that the improvements of local government services have not been matched by their capacity of acceptability so it is still highly dependent with the central government (Ugoh & Ukpere, 2009). Similarly with a study conducted by Gideon and Alouis (2013) in Zimbabwe, it shows that in the context of fiscal decentralization local government in Zimbabwe still has a high dependence on the central government. It needs a paradigm changing and accepting strategy and also financing the local authorities especially from the tax sector (Gideon & Alouis, 2013).

The emergence of the status of developed and underdeveloped regions is a response from the central government to

continue providing stimulus for sustainable development. The alignment of the central government to the underdeveloped regions continues to be undertaken, but sometimes the result is not in accordance with the effort. World Bank (2011) research results show that public services have improved statistically after decentralization, but some of the underdeveloped regions in Eastern Indonesia (Papua and West Papua Provinces) are consistently in the lowest position in the public service despite having sufficient fiscal resources (Bank, 2011) Further, the findings of the World Bank (2011: 49) indicate that the allocation of central-to-local balancing funds does not have a consistent effect on public services. Therefore, it can be said that changes in public services are generally influenced by other factors beyond the allocation of funds.

Local fiscal health may not be a key measure for local government success, but without sound financial conditions, the level and quality of public services suffer (Huang & Ho, 2013). What exactly affects the fiscal health conditions? Huang & Ho (2013) describes that general factors affecting fiscal health are: economic performance, demographic factors, natural disasters, and central and local electoral factors; while specific factors affecting local fiscal health are: local administrative efficiency and effective checks and balances of local legislatures. The financial shape their local government is hanging on myriad of factors (Honadle, Cigler, & Costa, 2003), its meaning that the local financial condition depends on many factors. The number of factors affecting the local fiscal health shows that the local fiscal health condition is a complex problem situation. Several previous research results have identified the factors that affect

the local fiscal health but have not identified the systematic pattern of the existing problems. Some research on fiscal health has been done among others by Huang Ju and Huang & Ho (2013) who explored the fiscal health conditions quantitatively and created a fiscal health index formulation based on an extended matter-element evaluation (Chen, Liu, Wu, & Sun, 2012). Both researches used quantitative instruments and were linear in examining the fiscal health conditions, causing the identified factors did not show the existing problem situation patterns. Therefore, the main emphasis in this research is the researchers attempt to explore the problem situation with the interpretive and naturalistic approach to the local fiscal health condition and seeks to study, understand, and interpret the meaning of phenomenon (Denzian, 2009). This research seeks to understand the complexity and dynamics of local fiscal conditions by system thinking. The define of system thinking as "a way of thinking about and describing the dynamic relationship that influences the behavior of systems" (Maani & Cavana, 2000). There are two approaches in system thinking that are the hard and soft system. Hard systems face a clearly structured problem, while soft systems face a less well-defined problem situation (Checkland, Scholes, & Checkland, 1990). This research uses Soft System Methodology (SSM) approach to structuralize previously unstructured problem.

The purpose of this study is to analyze the problem situation and develop a conceptual model in handling fiscal health problem more specifically and in detail according to the needs of local government (especially the region having low local revenues) in Indonesia.

Understanding fiscal health conditions is a challenge faced by local governments as a result of improving public services (McDonald III, 2017). Local fiscal health can be identified through local capabilities in the fulfillment of financial and public services (Huang & Ho, 2013), although the ability of regions to obtain fund sources is very limited. Fiscal health analysis is generally done through a quantitative approach (Huang & Ho, 2013; Chen, Liu 2012). There are several opinions on the definition of fiscal health, such as Frances Stokes Berry (1994) in Honadle (2004) who states that fiscal health is an "extent to which its financial resources exceed its expenditures obligations." Helen Ladd and John Yinger's (1989) in Honadle (2004) states fiscal health is "the ability of a city to deliver public services to its residents" denoting a city underlying or structural ability to deliver public services to its residents, independent of the budgetary decisions made by city officials ". In simple terms, the financial condition is the ability of the government to balance its financial capabilities with the availability of revenues (as quoted from McDonald III paper, (2017)).

Fiscal health for local government plays an important role as it indicates the ability of the region to fulfill its financial obligations and public service delivery (Huang & Ho, 2013). Fiscal health is absolutely necessary so that the regions can optimally perform the role of government and public service, Ma (2002) states that:

*In many countries, sub-national (local hereafter) governments are charged with the responsibility for the delivery of most public services. The fiscal health of local governments is thus essential to the*

*stability and efficiency of the country's entire public finance system. However, the central governments often have limited information on local public finance for the purpose of assessing local fiscal risks and planning for fiscal emergencies (Ma, 2002).*

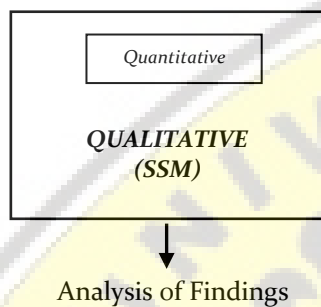
Based on the above opinion, it can be concluded that in many countries, local governments are charged with the responsibility to provide the majority of public services. The fiscal health of local governments is crucial to the stability and financial efficiency of the whole country, but the central government often has limited information regarding local public finances which then becomes the basis for assessing local fiscal risks and fiscal planning for fiscal emergencies.

Several experts have developed a series of instruments on fiscal health such as Brown (1993) with the ratio calculation formula, Chen (2012) with fiscal health index, Honadle (2004) and Huang & Ho (2013) with local fiscal health factors and McDonald III (2017) with historical analyzes on fiscal health. This research attempts to develop some existing explorations with the concept of a survival strategy. Honadle (2004) has offered eight strategies comprise a balanced approach to fiscal health, but this paper uses problem situation's point of view (with system thinking).

## RESEARCH METHODS

The main emphasis of this research is to identify the situation of local fiscal health problems with the qualitative design, but using quantitative design as well to measure the local fiscal health condition. Thus, this research uses mixed method design through

quantitative and qualitative approach (Creswell, 2010). The quantitative approach is applied to measure each ratio of the local fiscal health condition, while the qualitative approach through the soft system methodology (SSM) is used to describe the quantitative results by exploring the problems and factors affecting the local fiscal health as illustrated in Figure 1.



**Figure 1.** Concurrent Embedded Strategy  
Source: Creswell, 2013:315

The instruments used in measuring the quantitative level of fiscal health were: 1) ten point test ratio (Brown, 1993) and modification formula from Directorate General of Fiscal Balance (DJPK (*Direktorat Jenderal Perimbangan Keuangan*), The Ministry of Finance of Republic of Indonesia 2014).

System thinking approach in this research used soft system methodology (qualitative) analysis tool. Processes and problems in finance as well as in local budgeting are systemic, complex and multidimensional problems. The soft system approach is one part of system thinking. System thinking is a discipline that seeks to understand complexity and dynamics. This research attempts to describe unstructured issues with a structured approach as proposed by Checkland and Scholes (1990) that the soft system methodology (SSM) will help managers to structure and organize ill-defined/non-structured problems, or in

other words, SSM is a structured method for solving unstructured problems.

The location taken as the unit of analysis was Bondowoso Regency, East Java, Indonesia with the consideration that Bondowoso Regency is one of the four underdeveloped regencies in East Java Province (Situbondo Regency, Lumajang Regency, and Probolinggo Regency). Three cities as the comparisons (Brown, 1993) were Situbondo Regency, Lumajang Regency and Probolinggo Regency in consideration of 1) almost equal population Brown (1993); 2) similar territory called the "horseshoe" area, and 3) low local fund revenues of under 12%.

Data in this research were primary data and secondary data. The data were obtained through document research and interview with key informants. In-depth interviews were conducted with selected key informants based on their involvement in budget formulation, knowledge of technical budgets and understanding of local financial management. Data collection was also conducted through discussions with related parties.

The instruments used in measuring the fiscal health level are the 10-point test of financial condition (Brown, 1993) and modification formula from Directorate General of Fiscal Balance (DJPK), The Ministry of Finance of Republic of Indonesia 2014. Among these ratios, there was no data on local debt, because all of the areas under the studies (four regencies) had no transactions related to the debt during the research period. Some of the steps taken in measuring the local fiscal health (referring to Brown, 1993), among others: 1) **calculation of ratios** i.e. by using 10 indicators for each city. 2) **city comparisons**, on a population basis (Brown, 1993).

This research took place in Bondowoso, Situbondo, Lumajang and Probolinggo regencies with the consideration of population less than 1.486.150 in 2013. 3) **grading city condition**, which is to make a quartile scale with four scales: Quartile 1 (0-25 percentile) with a score of -1, quartile 2 (25-50) with a score of 0, quartile 3 (50-75 percentile) with a score of +1 and quartile 4 (75-100) with a score of +2.

In analyzing fiscal health problems, the researchers used qualitative analysis with soft system method. Data analysis in this research was done by referring to seven stages in the soft system. Figure 2 illustrates the seven stages according to Checkland and Scholes, (1990). This first stage is a problem situation considered problematic to recognize the problem situation. At this stage, the researchers collect information related to problems based on the structure and processes that occur in various activities according to the phenomena under the study. The second is a problem situation expressed, at this stage, the researchers conduct the problem structure based on the data, information related to the process. Thus the problems collected in the first stage

can be classified. The third, is root definitions of relevant purposeful activity systems This stage aims to reflect the collected problem situation with solutions or problem-solving needed to be done. This stage also includes the identification of solutions to the problem that is how the problem is addressed, who solve the problems and how the inter-agency linkage exists. Checkland (1990) formulates the linkage as CATWOE (Customers, Actors, Transformation process, Worldview, Owners, and Environmental Constraints). In SSM, human activity is measured logically. However, there can still be inconsistencies, for which a performance test is required in the modeling process. There are three criteria for measuring modeling performance according to Checkland and Scholes (1990) namely: 1) efficacy means to test the activities undertaken to achieve results 2) efficiency means to test whether the use of resources is utilized as well as possible (at least) to achieve the expected results, 3) effectiveness means to test this transformation process is scored at a higher level because it contributes to long-term goals.

The fourth is Conceptual models. That

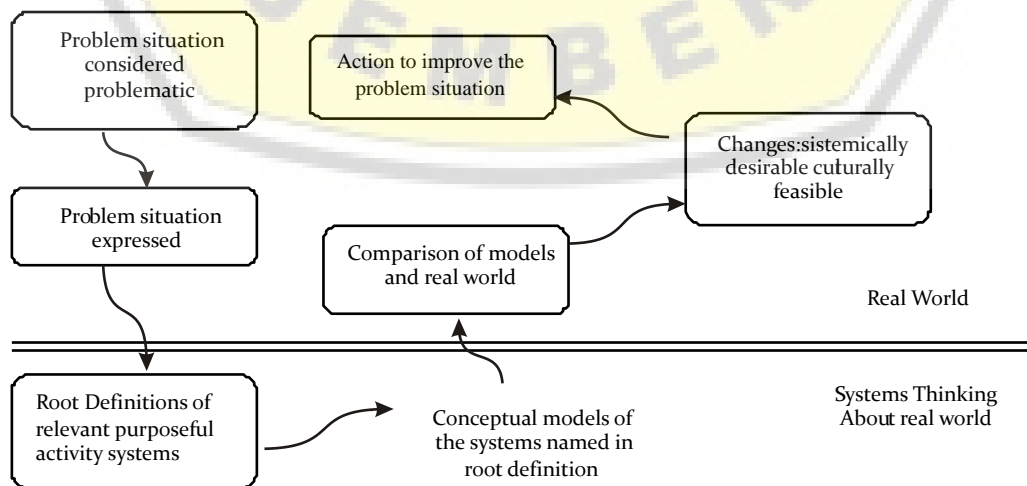


Figure 2. The Conventional Seven-Stage Model of SSM (Checkland and Scholes, 1990:27)

are the transformation process from root definition. Checkland, 1999 (as quoted by (Supriyono, 2007)) suggests that this conceptual model is constructed using the formal system concept for the problems and using system thinking for the problem-solving attempts. *Comparison of models and real world* is done to analyze the existing in the real world with the system thinking to provide the solution to the present problems. *Changes: systematically desirable culturally feasible*. At this stage, the researchers design the preferred model changes and try to make the preferred model changes based on the comparison between the real world and system thinking. At this stage, the researchers design the model in accordance with the expectations of various parties (desirable) and can be acted upon as action (feasible). *Action to improve the problem situation*, this stage is not completed in this study because it can be accomplished if the recommended model has been applied. Surely, this will take a long time.

## RESULTS AND DISCUSSION

### Local Fiscal Health Calculation Results

#### *Calculation of city ratios and city comparison*

In calculating city ratios, this study used realization of APBD (Local Budget, *Anggaran*

*Pendapatan Belanja Daerah*) data year 2016. There was no data on the debt ratio because in 2016 the four regencies under study had no debt-related activities. Table 1 presents the calculation results of city ratios with two formulas.

#### *Grading city condition*

After calculating the city ratio, the next step is to create a quartile categorization. There are four quartile categories namely quartile 1 with the acquisition of 0-25% with a score of -1, quartile 2 with the acquisition of 25-50% with a score of 0, quartile 3 with the acquisition of 50-75% with a score of 1, and quartile 4 with the acquisition of 75-100% with a score of 2.

If the categorization is made, then the score of 2 is an excellent / very good category, the score of 1 is a good category, the score of 0 is a poor category, and the score of -1 is a very poor category. Table 2 presents the results of the fiscal health calculations based on the quartile. The next step is to combine the two formulas (Table 1 and Table 2) by choosing the same or different indicators and divide them into three dimensions: revenues, expenditures and operating positions. Table 3 and 4 present the results of the two formulas combination.

**Table 1.** Calculation of City Ratio Based on the 10-Point Test Formula (Brown) and Calculation of City Ratio Based on the DJPK Modification Formula 10-Point Test Ratio

10-Point Test Ratio					DJPK Modification Formula						
No	Indicators	B	S	L	P	No	Indicators	B	S	L	P
1	Total Revenues/ population	2.448	2.351	1.656	1.730	1	Local revenues per capita	2.448	2.351	1.656	1.730
2	Local own revenues/Total Revenues	9.5	11.1	11.6	11.2	2	Local financial independence	9.5	11.1	11.6	11.2
3	Other revenues/total revenues	90.5	88.9	88.	88.8	3	Local fiscal space	1.863	1.583	1.820	1.973
4	Personnel expenditures/ total expenditures	43.0	45.0	41.7	39.8	4	Local tax revenue	24.846	30.082	43.810	44.177
5	Total revenues/total expenditures	0.975	0.953	0.868	0.968	5	Expenditure fund ability	106.26	106.84	100.00	106.78
6	Fund Balance/total revenues	0.696	0.704	0.724	0.669	6	Capital expenditures	21.78	25.32	39.01	14.21
7	Total general fund cash/ total liabilities					7	Indirect personnel expenditures	41.32	41.08	36.88	39.80
8	Total liabilities/total revenues					8	The use of SiLPA (Time Over Use of Budget, <i>Sisa Lebih Penggunaan Anggaran</i> )	180.318	191.177	312.815	258.206
9	Long-term debt / population					9	Ability to pay principal debt				
10	Debt service / total revenues										

Source: data processed from LKPJ Kabupaten Bondowoso 2016

**Table 2.** Quartile Score of Each City with Ten Point Test Ratio Formula and DJPK Modification Formula Ten Point Test ratio

10- Point Test ratio					DJPK Modification Formula						
No	Indicators	B	S	L	P	No	Indicators	B	S	L	P
1	Total Revenues/population	2	2	-1	-1	1	Local revenues per capita	2	2	-1	-1
2	Local own revenues/Total Revenues	-1	1	2	1	2	Local financial independence	-1	1	2	1
3	Other revenues/total revenues	-1	2	2	1	3	Local fiscal space	1	-1	1	2
4	Personnel expenditures/ total expenditures	0	2	1	2	4	Local tax revenue	-1	0	2	2
5	Total revenues/total expenditures	2	2	-1	2	5	Expenditure fund ability	2	2	-1	2
6	Fund Balance/total revenues	1	0	-1	2	6	Capital expenditures	0	0	2	-1
7	Total general fund cash/total liabilities					7	Indirect personnel expenditures	-1	-1	2	0
8	Total liabilities/total revenues					8	The use of SiLPA (Time Over Use of Budget, <i>Sisa Lebih Penggunaan Anggaran</i> )	2	2	-1	0
9	Long-term debt / population					9	Ability to pay principal debt				
10	Debt service / total revenues										

Source: data processed



**Table 3.** Fiscal Health Scores Based on Three Dimensions

Revenue					Expenditure					Operating Position				
Indicators	Score				Indicators	Score				Indicators	Score			
	B	S	L	P		B	S	L	P		B	S	L	P
Local revenues per capita	2	2	-1	-1	Personnel expenditures ratio to total expenditures	0	2	1	2	Total revenues ratio to total expenditures	2	2	-1	2
Local financial independence	-1	1	2	1	Expenditure fund ability	2	2	-1	2	Fund balance ratio to total revenues	1	0	-1	2
Other revenues ratio to total revenues	-1	2	2	2	Capital expenditures	0	0	2	-1	Total SiLPA	2	2	-1	0
Local fiscal space	1	-1	1	2	Indirect personnel expenditures	-1	-1	2	0					
Local tax revenues	-1	0	2	2										
Total	0	4	6	6	Total	1	3	4	3	Total	5	4	-3	4

Note: B=Bondowoso, S=Situbondo, L=Lumajang, P=Probolinggo

**Table 4.** Rank Positions

Order	Regency	Total Score
1	Probolinggo Regency	13
2	Situbondo Regency	11
3	Lumajang Regency	7
4	Bondowoso Regency	6

Source: data processed

if we make a classification based on four ranks, then the calculation is as follows:

The score of 6-7 is categorized as very poor

The score of 8-9 is categorized as poor

The score of 10-11 is categorized as good

The score of 12-14 is categorized as very good

Bondowoso Regency as this research analysis unit is on the fourth or last position with the score of 6, categorized as very poor. The first rank is Probolinggo Regency with the score of 13 (very good category), the second rank is Situbondo Regency with the score of 11 (good category), the third rank is Lumajang Regency with the score of 7 (poor category).

**Analysis of Local Fiscal Health in the Perspective of the Soft System**

The analysis to investigate the problem situation of the fiscal health condition was conducted by using SSM instrument with data and information from fiscal health calculation results. There are six stages in the Soft Sytem Methodology (SSM), described in the following sections.

*Problem Situation Considered Problematic*

The issue of local finance is a complex issue. According to INDEF's Report (2006: 80) in Indonesia, the level of local fiscal dependence on transfers from the central government is still high. FITRA research result shows that the average contribution of local revenue is 22.26 percent nationally. This situation indicates that the local

financial independence in Indonesia is still quite low, while central government transfers to the regions continue to increase ((INDEF), 2016).

Bondowoso Regency is one of the underdeveloped regency in East Java province. The regency has an average local own revenues contribution from 2013-2016 of 8.40 percent. Based on the research results, the problems situation (real world) in Bondowoso Regency is presented in Figure 3.

Based on Figure 3, the problem situation (real world) is very complex and systemic. If we specify, we can start from any problem situations. The problem situation is interconnected with each other to form a system. The various problems occurring empirically are a complexity of problems that must be described or structured. Conceptually, the local fiscal health condition can be seen from four dimensions (Honadle et al., 2003) i.e. revenues, expenditures, operating position, and debt structure. Empirically, the result of calculation of fiscal health condition of Bondowoso Regency was examined from three dimensions, namely revenues,

expenditures, and operating position. The researchers did not utilize the debt structure dimension to investigate the fiscal health condition because all 4 cities had no debt activities. Table 5 presents the fiscal health condition in Bondowoso Regency.

Based on fiscal health calculations in four regencies, Bondowoso Regency ranked fourth from four calculated regencies. In the process of analyzing the problem situation, the three main concerns are revenues, expenditures, and operating position.

*Problem Situation Expressed*

At this stage, the researchers conduct the problem structure based on the data and information. The problem structure is based on three dimensions of revenues, expenditures, and operating position.

*Revenues Dimension*

From the revenues dimension, the total score of Bondowoso Regency is 0 (zero), categorized as poor. Table 6 presents the comparison of the revenues dimension results from the four regencies.

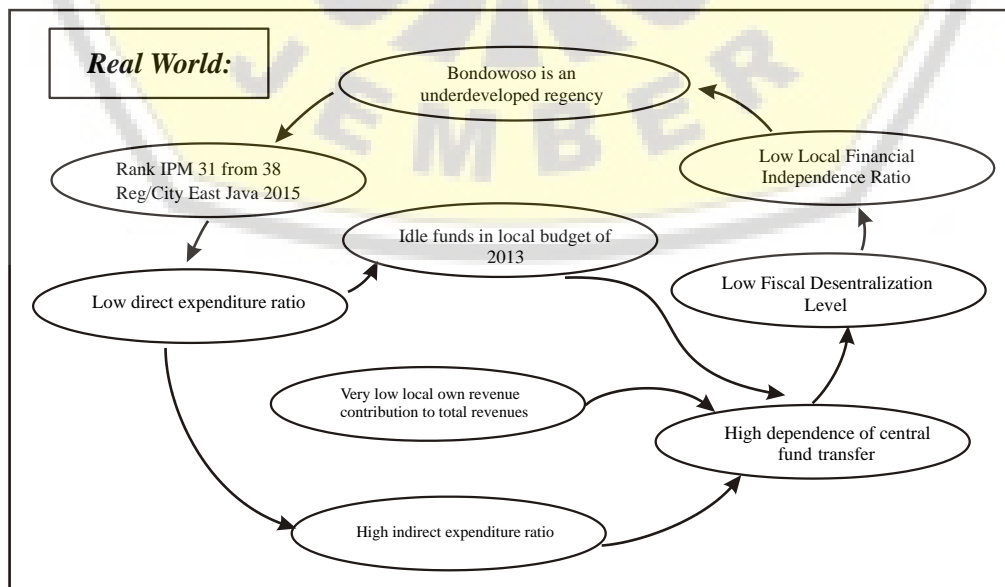


Figure 3. Real World of Local Finance in Bondowoso Regency

**Table 5.** Fiscal Health Condition of Bondowoso Regency

Revenue		Expenditure		Operating Position	
Indicators	Score	Indicators	Score	Indicators	Score
Local revenues per capita	2	Personnel expenditures ratio to total expenditures	0	Total revenues ratio to total expenditures	2
Local financial independence	-1	Expenditure fund ability	2	Fund balance ratio to total revenues	1
Other revenues ratio to total revenues	-1	Capital expenditures	0	Total SiLPA	2
Local fiscal space	1	Indirect personnel expenditures	-1		
Local tax revenues	-1				
Total=6					
Source: data processed					

**Table 6.** Score of Revenue Dimension

Indicators	Score			
	Bondowoso	Situbondo	Lumajang	Probolinggo
Local revenues per capita	2	2	-1	-1
Local financial independence	-1	1	2	1
Other revenues ratio to total revenues	-1	2	2	2
Local fiscal space	1	-1	1	2
Local tax revenues	-1	0	2	2
<b>Total</b>	<b>0</b>	<b>4</b>	<b>6</b>	<b>6</b>

Source: data processed

The formulation of problem structures based on the revenues dimension can be specified as follows from local revenues per capita, Bondowoso Regency has a high score of 2 with very good criteria. Other cities have a lower score and larger population. It means that the larger the population is, the greater the local government' responsibility is in providing public services. From local financial independence, Bondowoso Regency has the lowest score among the three other regencies with the score of -1, categorized as very poor. The score of -1 with the very poor category means that the region is very dependent on other sources of revenue outside the local own revenues, or in other words, local own revenues are not enough to finance the governmental implementation and public services. For other revenues ratio

to total revenues indicator, Bondowoso Regency has the lowest score than the other three regencies with the score of -1, categorized as very poor. This shows that the revenues portion outside the local own revenues is very large, or in other words, the region makes other revenues outside local own revenues as a expenditures center, of fiscal space for Bondowoso Regency is 1 with the good category. This situation means that there is still fiscal flexibility for the region to allocate money for capital expenditures as well as to reduce poverty and improve the public welfare. Tax revenue of Bondowoso Regency also has the lowest score (-1) with the very poor category. Thus, one of the reasons for the low level of local financial independence is because the source of income from the local tax sector is low

*Expenditures Dimension*

The results of the calculation of expenditures dimension in the four regencies are presented in Table 7.

From the expenditures dimension, Bondowoso Regency ranked the lowest among the three other regencies. The structure and process of problem structural formulation based on the expenditures dimension can be specified as follows the score for the personnel expenditures ratio to total expenditures indicator is zero (0) with the poor category, the lowest among the three other regencies. Bondowoso Regency has the score of 2 with the very good category in expenditure fund ability indicator. It means that Bondowoso Regency has the ability to fund all expenditures from all local revenues. For capital expenditures indicator, Bondowoso Regency has the score of 0 (zero) with the poor category. Capital expenditure is a quite 'expensive' investment

decision for local government (Vogt, 2007). Capital expenditure greatly affects long-term economic vitality and fiscal health. community invest capital facilities and infrastructure in order to support the delivery of current services, maintain and develop their tax base, and encourage private investment and economic development (Gianakis & McCue, 1999). The score of Bondowoso Regency for indirect personnel expenditures indicator is -1 with the very poor category. Table 8 presents the comparison of the population with the number of civil servants.

Bondowoso Regency has less population than Lumajang Regency, but it has more civil servants than Lumajang Regency. Very poor category of personnel expenditures indicators in Bondowoso Regency is due to a very heavy burden of the region's expenditures. Increase in personnel expenditures portion over time lead to the decrease in the development expenditures portion and the public services delivery (Harjowiryo, 2012).

**Table 7.** Expenditures Dimension Score

Indicators	Score			
	Bondowoso	Situbondo	Lumajang	Probolinggo
Personnel expenditures ratio to total expenditures	0	2	1	2
Expenditure fund ability	2	2	-1	2
Capital expenditures	0	0	2	-1
Indirect personnel expenditures	-1	-1	2	0
<b>Total</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>3</b>

Source: data processed

**Table 8.** Ratio of Population and Number of Civil Servants in Bondowoso, Regency and Lumajang Regency Year 2016

Regency	Population	Number of civil servants	The ratio of civil servants (%)
Bondowoso	761,205	10,045	1.32
Lumajang	1,099,263	9,446	0.85

Source: data from government of Bondowoso and Lumajang Regency

*Operating Position Dimension*

The third dimension in analyzing the fiscal health is the operating position as shown in Table 9.

Source: data processed

From the operating position dimension, Bondowoso Regency has the score of 5, the best among the three others. The formulation of problem structure based on operating position dimension is described as follows from total revenues ratio to total expenditures indicator, Bondowoso Regency has the score of 2 with the very good category. However, if analyzed further on indirect personnel expenditures, then the pattern in table 10.

It is found that regions with good expenditures capability have low indirect expenditures scores. It means that the expenditures capability is the ability to fund indirect personnel expenditures or routine expenditures such as salaries of personnel.

This condition shows that the amount of indirect personnel expenditures affects the capital expenditures, in other words, the higher the indirect personnel expenditures are, then the lower the capital expenditures are, and the lower the indirect personnel expenditures are, the higher the capital expenditures are.

Fund balance ratio to total revenues of Bondowoso Regency has the score of 1 with the good category. This is because the amount of balance funds in Bondowoso Regency is less than Situbondo Regency and Lumajang Regency but more than Probolinggo Regency.

From the use of SiLPA indicator, Bondowoso Regency has the best score of 2 with the very good category. It means that from the nominal side, the amount of SiLPA and funds in the bank are not too much and able to utilize the existing fund to cover the budget deficit and capital investment.

**Table 9.** Score of Operating Position Dimension

Indicators	Score			
	Bondowoso	Situbondo	Lumajang	Probolinggo
Total revenues ratio to total expenditures	2	2	-1	2
Fund balance ratio to total revenues	1	0	-1	2
Total SiLPA	2	2	-1	0
<b>Total</b>	<b>5</b>	<b>4</b>	<b>-3</b>	<b>4</b>

**Table 10.** Comparison of Funding Capability, Indirect Personnel Expenditures and Capital Expenditures Scores

Regency	Funding Capability Score	Indirect Personnel Expenditures Score	Capital Expenditures Score
Bondowoso	2	-1	0
Situbondo	2	-1	0
Lumajang	-1	2	2
Probolinggo	2	0	-1

Source: data processed

*Root Definitions of Relevant Purposeful Activity Systems*

This stage aims to reflect the problem situation that has been explored with solutions or problem-solving needs to be done. Based on the explanation of the problem situation (in stage two), there are two main focuses in defining the problem: 1) the problem system definition of revenues problem that is low local fiscal independence and 2) the definition of expenditure system problem that is high indirect personnel expenditures.

The first problem is the low level of local fiscal independence. Before identifying the solution to the problem, the researchers mapped the problem definition based on CATWOE as described in Table 11.

If the region is faced with the low local financial independence problem then the Clients here are the disadvantaged. The disadvantaged party due to the low local revenues is mainly the society because the government does not have sufficient fiscal space for direct expenditures related to the

program/activity. The local finance independence is very important for the survival of government and public service. Some studies show that local financial independence has an effect on economic growth, human development index and poverty ((Amalia & Purbadharmaja, 2014; Anita, 2013; Nurhayati, 2015; Sholikhah, 2011; Suci, 2013)).

If fiscal independence becomes a problem, then Actors must make changes i.e. Local Financial Management Board especially revenues and innovations division and the creativity of related SKPD to increase local revenues. The desired transformation process is the improvement of local revenue management so that it is optimal and no deviation occurs. A worldview or deep understanding from various parties about the situation of this problem is a systematic and thorough planning process of local revenue sources. The head of municipality is Owners i.e. the parties who can stop this transformation. Environmental constraints that become obstacles in the revenues optimization are the human resources and the potential local revenues.

**Table 11.** Definition of System Problem of Low Fiscal Independence

No	Definition Components of System Problems	Result of System Problem Definition
1	Clients/beneficiaries or disadvantaged	Society, Local Government
2	Actors who will carry out the activities (changes)	Local Financial Management Board, SKPD (Local Government Work Unit, <i>Satuan Kerja Perangkat Daerah</i> )
3	The transformation process is the activity that converts the input into output.	Improvement of local revenues management to be optimal and no deviation occurs,
4	A worldview of a reality is how the various parties understand the present reality.	Thorough planning process of local revenue sources
5	Owners are those who could stop the transformation.	Head of municipality
6	Environmental Constraints i.e. barriers from outside elements (environment) that cannot be avoided.	Human resources and the potential local revenues

Source: data which were analyzed

The second definition of the problem system is the expenditures of the region, i.e. the high level of indirect personnel expenditures. Table 12 presents the definition of expenditure system problems.

If the local expenditures pattern is used more for indirect personnel expenditures then the Clients or the disadvantaged party is the society. Actors who are supposed to carry out activities to address this issue are related Local Financial Management Board, Provincial Development Planning Agency, and SKPD. The transformation that can be done is optimizing the use of revenue in accordance with mandatory expenditures and priorities of local development. A worldview or deep understanding related to this issue is consistent and integrated budget planning. Head of the municipality is Owners who can stop the transformation and environmental constraint is the emergence of political interests or groups in planning the expenditures.

*Conceptual Models of the System*

At this stage, the researchers constructed a conceptual model. In this soft

system approach, the problem situation is viewed as a 'holon' as noted by Checkland and Scholes (1990): "In the case of SSM, we have a cyclic methodology which is itself a systemic (we would better say, holonic) process"... Holons which are human activity systems were defined in such a way that they meet the characteristics of a whole as developed in system thinking". Soft system methodology is based on naturalistic research with reality or phenomenon approach that exists in the real world (real world problem situation) which is compared with relevant purpose activity model expressing the worldview (Checkland and Scholes (1990) and (Checkland, 2000)).

Focusing on the aims of this research, based on the stages of defining the problem, there are two main focuses in examining the situation of the local fiscal health condition, namely the low level of fiscal independence and the high level of indirect personnel expenditures. Consequently, local governments should undertake a survival strategy on their revenues and expenditures. Figure 4 illustrates the successfully constructed conceptual model.

**Table 12.** Definition of System Problem of High Indirect Personnel Expenditures

No	Definition Components of System Problems	Result of System Problem Definition
1	Clients/beneficiaries or disadvantaged	Society
2	Actors who will carry out the activities (changes)	Local Financial Management Board, Bappeda (Provincial Development Planning Agency, <i>Badan Perencanaan Pembangunan Daerah</i> , OPD (Local Government Work Unit, <i>Satuan Kerja Perangkat Daerah</i> )
3	The transformation process is the activity that converts the input into output.	Optimizing the use of revenues in accordance with mandatory expenditures and local development priorities
4	A worldview of a reality is how the various parties understand the present reality.	Consistent and integrated budget planning
5	Owners are those who could stop the transformation.	Head of municipality
6	Environmental Constraints i.e. barriers from outside elements (environment) that cannot be avoided.	Political interests/groups

Source: data which were analyzed

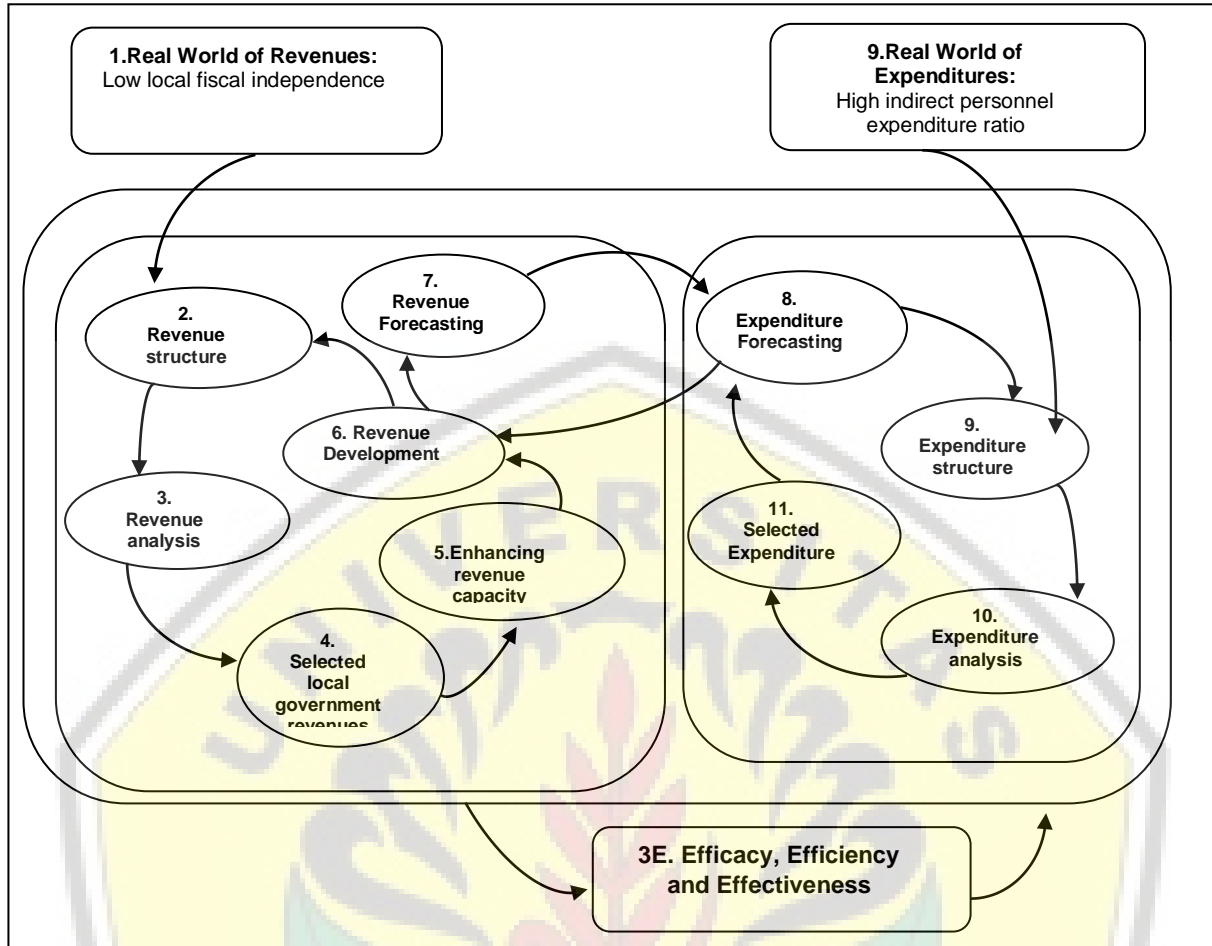


Figure 4. Survival Mechanism of Revenues and Expenditures Model of Local Government

Local governments face a low fiscal independence situation due to their low local revenues so that regions depend on transfer funds from the central government. On the other hand, there is an increase in expenditures which is one of the reasons is the high indirect personnel expenditures. The situation of this problem is examined from many components and interactions that are interconnected with each other and are systemic. In reading the model, we start from the real world in revenues and expenditures.

Real world revenue is the low level of local fiscal independence. The phenomenon of local government dependence on funding from the central government is a common phenomenon in many other countries as Fjeldstad & Heggstad (2012) summarized.

Some experts such as Bird (2010), Boadway and Shah (2009), Boex and Martinez Vazquez (2006) state local governments generally depend on transfers from the higher levels of government (Fjeldstad & Heggstad, 2012). However, the regions still have to provide public services with the existing funds. Revenues management and expenditures management should be done so that the regions can manage the limited revenues and can ensure qualified expenditures.

The important thing that needs to be done is revenue structures. Revenue structures are an activity to analyze the revenues structure in the budget (Gianakis & McCue, 1999). In the Indonesian context, this process involves 'mapping' activities on



revenues sources. This activity determines the position of the local revenue sources as well as how to calculate the 'range' of funds obtained from each source of revenues. Once this activity has been done, the government can further conduct the revenue analysis. Revenue analysis is an activity to analyze the important characteristics of revenues sources (Gianakis & McCue, 1999). Regions need to know the characteristics of revenues sources as well as the characteristics of local own revenues, the characteristics of transfer funds from the central government both block grants and specific grants, the total amount, the dynamics of the regulation, the timeliness of acceptance and the allocation.

Local revenue is the main indicator of local fiscal independence. Selected local government revenue becomes important to identify local own revenues sources (Gianakis & McCue, 1999). This activity involves selecting and examining the characteristics of each local own revenues sources. The purpose of this activity is to pay more attention to the main local own revenues sources as well as local taxes and levies. Once the local own revenues sources are known, enhancing revenue capacity activities can be performed. Enhancing revenue capacity is an effort to improve local own revenues sources and increase other sources. Local government should have main and supported local own revenues sources. This activity involves attempts to maintain the main local own revenues sources and develop supported local own revenues sources. Important efforts that need to be done related to the original income of the region that is diversification of income. The fiscal sustainability of local governments in the US is influenced by three main factors (Gorina, 2013): 1) pension liability funding which is very influential with the size of

government 2) debt burden is strongly related to the local economic base, and 3) the balance of the budget affected by local income diversification.

Revenue development is an activity that supports enhancing local government revenue activities. This stage is related to tariff analysis, pay capability, obstacles and other factors that can hinder the efforts to increase local revenues (Gianakis & McCue, 1999). Revenue forecasting is important because it can analyze errors or deficiencies in the past to be improved in the future (Schroeder, 2007). This activity also involves forecasting the impact of any policy changes established by the local government. Revenue forecasting is a potent remedy to overcome the real world of expenditure, which is the high indirect personnel expenditures ratio, as well as other expenditures issues. Expenditure forecasting is an expenditure estimation based on revenues estimation. This activity aims to provide expenditure clarity and revenues source. So far, the regions budget the deficit but the reality is a surplus because the regions have set the underestimation of revenue and overestimation of expenditure. Expenditure forecast involves the prediction for a certain cost is not to be spent but rather from the level of service achieved (Schroeder, 2007).

The important thing that needs to be done is expenditure structure, this component analyze the structure of expenditure in the budget. This process involves the 'mapping' activity of expenditures activities. This activity determines the position of local expenditures as well as how to calculate the 'range' of required funds for any expenditure. Once this activity has been done, the government can perform expenditures analysis.

To analyze the important characteristics of any expenditure can be done with expenditure analysis. This activity is an activity to create expenditures patterns. Local governments have mandatory spending and discretionary spending. If mandatory spending has been fulfilled, the fiscal space of local government can be achieved. Utilization of fiscal space optimally is very important. Fiscal space owned by the region can be utilized for capital expenditures and priority expenditures. Regions can design 'smart and quality' expenditures. Consequently, mandatory spending and discretionary spending can be met optimally.

Selected expenditure is about the decision of the expenditures priorities selection. The determination of expenditures priorities will not be separated from the planning process. The success of the local government in providing service and priority achievement is influenced by the ability in planning and budgeting, as in the paper of Valeta and Walton (2008) which states that:

*“The successful attainment of the foregoing service delivery priorities is highly dependent on the ability of each individual municipality to strategically plan, budget and co-operate with other municipalities, district councils, provinces and national government departments, institutions, and organs of the state, whose activities have a bearing on the municipality (Valeta & Walton, 2008)”.*

In the context of local government in Indonesia, the success of priority achievement and service delivery is highly dependent on the ability of the individual (personnel) in making strategic planning, budgeting and cooperation with other institutions (inter-OPD), provincial and

central whose activities have an influence on local government.

Some of the components, activities, and relationships described above are a systemic process. One component or one activity is affected by the components and other activities. Thus, a systemic process is needed in understanding the local fiscal health conditions.

#### *Comparison of Models and Real World*

The researchers consider that this stage is reinforcement from the offered model which is based on the existing real world. Survival mechanism model of revenues and expenditures is an expected design to solve the problems both in revenues and in expenditures. Through discussion with the user (financial bureaucrat), there is no difference between a real world and a constructed conceptual model.

#### *Changes: Systematically Desirable Culturally Feasible*

The design of the preferred model in this paper aims to answer the problems in the second stage (Problem Situation Expressed). In the fourth stage (Conceptual Models of the System), the researchers have designed a model that can solve the problems in the first, second and third stage. Thus, the preferred model is the survival mechanism of revenues and expenditures model in local government with the reinforcement that this model can be used as a reference for regions with limited local own revenues. It is hoped that the regions are able to manage limited revenues by conducting qualified expenditures.

## **CONCLUSION**

Fiscal health is a complex and systemic process. Understanding the unstructured

situation and structuralizing the disorganized problem is the main strength of this research. The situation of fiscal health problems is not only by calculating the ratios and indexes (as Brown formula 1999 and Chen 2012) and examining the factors affecting them (in Honadle et.al 2004 and Huang & Ho 2013) but also by investigating and describing the situation of existing problems based on realworld so problem-solving solution can be obtained. 'Survival mechanism of revenue and expenditure' is a conceptual model that has been successfully developed in this research. This conceptual model is constructed from the problem situation view (with system thinking) as well as from strengthening the key components and relationships among these components in making survival strategies. This is what distinguishes it from previous strategies such as the eight strategies comprise a balanced approach to fiscal health developed by Honadle (2004).

Empirically, the local fiscal health condition faces two main problems namely low fiscal independence and high indirect personnel expenditures. The government has limited revenues, but on the other hand, it experiences an increase in expenditures. Nevertheless, the local government must survive in this situation. Some components of fiscal health problem solving which are revenue structure, revenue analysis, selected local government revenue, enhancing revenue capacity, revenue development, revenue forecasting, expenditure forecasting, expenditure structure, expenditure analysis, and selected expenditure is extremely needed. These components are relational activities that can be done by the local government.

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