Fiscal Decentralization of the Government of the City of Surabaya
Indonesia

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Abstract
Surabaya City Government is part of the regional government system in Indonesia which adopts a decentralized system. In line with these various regulations, regional fiscal or financial management consists of three main components, namely Regional Revenue, Regional Expenditure, and Regional Financing. This study aims to calculate the fiscal potential of the City of Surabaya for the 2017-2021 period. Furthermore, to obtain and complete optimal results, research uses a quantitative approach. The results showed that the economic growth of Syria showed good performance. However, in terms of inflation, the numbers also continue to increase. It is recommended to the Surabaya City Government that inflation control must be carried out through various policies that can increase economic growth that can improve people's welfare.

Keywords: government, economic, growth, potential, fiscal

1. Introduction
Surabaya City is the capital of East Java Province, Indonesia as well as the largest metropolitan city in the province. Surabaya is also the second largest city in Indonesia after Jakarta. Surabaya has an area of approximately ± 326.81 km², and 3,158,943 residents in 2019. (Note 1)

Surabaya City Government is part of the regional government administration system in Indonesia, which adopts a decentralized system in regulating and managing government affairs by itself.
The Surabaya City Government is led by a democratically elected Mayor. Meanwhile, as an autonomous region, the Government of the City of Surabaya must be able to provide regional finance consisting of three main components, namely Regional Revenue, Regional Expenditure, and Regional Financing. In this context, the fundamental question is the extent to which the fiscal capacity of the Surabaya City Government, whose mayor is Tri Sri Rismaharini (Risma) for the 2017-2021 period.

Research Purposes
This study aims to calculate the fiscal potential of the Surabaya City Government for the 2017-2021 period.

Problem
1. Is the effectiveness and efficiency of fiscal decentralization in the City Government of Surabaya?
2. Is fiscal decentralization in the City Government of Surabaya able to improve the welfare of the people?

2. Literature Review
2.1 Fiscal Decentralization
Fiscal decentralization in Indonesia is still often debated, especially in terms of its effectiveness and efficiency when compared to previous policies or with a centralized system. In this connection, Martinez-Vazquez and McNab (2001) suggest that some of the fundamental reasons that governments in developing countries choose to do fiscal decentralization are: (Note 2)
1. With fiscal decentralization, it is expected that government spending will be more efficient.
2. With fiscal centralization recognized as having experienced a failure.
3. The role of local governments will be greater and local governments will not be dictated by the central government.

In Indonesia, fiscal decentralization is based on Law of the Republic of Indonesia Number 33 of 2004 concerning Financial Balance between Central and Regional Government. (Note 3) This law describes decentralization as the transfer of authority of the Central Government to the Government to autonomous Regions to regulate and manage government affairs in the system.

Rodriguez-Pose dan Kroijer (2009) stated that fiscal decentralization is expected to improve people’s welfare. Thus, what deserves special attention in relation to fiscal decentralization policies in order to be successful is that this policy must be followed by clear and effective authority between the central government and regional governments. The policy must be fair and transparent, especially in terms of transfer of funds from the central government to local governments. (Note 4)

Tiebout's research (1956) found that one of the advantages of fiscal decentralization is that decentralization will increase the economic efficiency of local governments because the government will be better able to provide better services to its citizens. (Note 5)

According to Pranad Bardhan (2002), a study on fiscal decentralization states that many decentralization policies are not successful, especially in improving the welfare of the community. (Note 6)

Based on the Law of the Republic of Indonesia Number 33 of 2004, regional revenue in the implementation of decentralization consists of regional income and financing, (Note 7) and Other Legitimate Regional Revenue. (Note 8) Meanwhile, the financing comes from the excess of the regional budget calculation; receipt of regional loans, regional reserve funds; and proceeds from the sale of separated regional assets. (Note 9) The amount of this regional revenue will largely determine government spending.

2.2 Regional Original Income

Regional Original Income consists of regional taxes, regional levies, proceeds from the management of separated regional assets and other legal regional income.

2.3 Balancing Fund

Balancing funds consist of profit sharing funds, general allocation funds and special allocation funds. This balancing fund aims to reduce the fiscal gap between the government and local governments. This balancing fund consists of: Production Sharing Funds, General Allocation Funds, and Special Allocation Funds. The amount of the balance fund for each fiscal year is stipulated in the State Budget.

2.4 Local Government Expenditures

Regional government spending is inseparable from regional revenue, because theoretically, spending is a function of regional revenue. The higher the regional income, the higher the level of regional spending. For this reason, the regions try to increase their own local revenue with local governments trying to increase their own local revenue and the balance fund.

2.5 Investation

Investment is defined as the accumulated form of an asset with the hope of obtaining future benefits. Budi Supriyatno (2018) said that investment in the economy has a very important role, especially in moving the economy. According to Huang (2009) states that private investment has a positive impact on economic growth. (Note 10)

2.6 Economic Growth

Todaro and Smith (2006) stated that in this case there are three main factors or components that are important in the economic growth of a country or region. The first is what is the level of capital accumulation which includes all forms or types of new investment allocated in the economy. Second is how much the population growth rate will increase the number of labor force, and Third is the level of technological progress that will directly affect the production process and ultimately increase the quantity of production. (Note 11)

Similar to Todaro, Romer’s (2001) growth theory focuses on four variables, namely output (Y), capital (C), labor (L) and Knowledge or the effectiveness of labor (K) (Note 12).
Romer's growth model formulation is: (Note 13)

\[ Y_t = F(C_t, K_t, L_t) \]

\( t \) represents time

Economic growth can be seen from the demand side and the supply side. In this context, from the side of aggregate demand, an increase in domestic output can be identified by four components of the economy, namely:

- \( C \) = household consumption expenditures,
- \( I \) = investment spending by businesses and households,
- \( G \) = government spending on goods and services, and
- \( X-M \) = net export (X-M) by Dornbusch, Fischer and Startz, (2004). (Note 14)

This formula was adapted by McCann (2006) for a regional economy known as the Keynesian standard aggregate demand for the region which can be described as follows. (Note 15)

\[ Y_t = C_t + I_t + G_t + X_t - M_t \]

Where
- \( Y_t \) = Regional income
- \( C_t \) = Regional consumption
- \( I_t \) = Regional investment
- \( G_t \) = Local government expenditure
- \( X_t \) = Regional export
- \( M_t \) = Imports of the region.

The above formula implies that economic growth in the regions is highly dependent on the four components above. This means that economic growth will increase if consumption, investment, government spending, and net exports also increase or the total value of the four components is positive.

3. Research Methods

The data used in this study are secondary data obtained from various sources. This study uses data series for the 2017-2021 period.

The analysis used can be grouped into two, namely descriptive and quantitative analysis.

The quantitative approach used is to use a simultaneous equation model. The structured simultaneous equation model is divided into five blocks consisting of 33 equations, of which 19 equations are structural equations and 14 equations are identity equations. The complete equation can be described as follows:

3.1 Fiscal Block Regional Revenue

\[ a. \text{Locally-Generated Revenue} \]

\[
\begin{align*}
T_t &= a_0 + a_1 \text{GRDP}_t + a_2 \text{BL}_t + a_3 \text{TP}_t + a_4 \text{T}_{t-1} + \eta_{1t} \\
\text{RET}_t &= b_0 + b_1 \text{GRDP}_t + b_2 \text{TP}_t + b_3 \text{RET}_{t-1} + \eta_{2t} \\
\text{LGR}_t &= T_t + \text{RET}_t + \text{RGWM}_t + \text{LGR}_{t-1} \\
\text{The estimated values and marks of the expected parameters: } &a_1, b_1, \\
a_2, b_2, a_3, b_3 : 0; b_4, a_4 < 0; \text{ dan } \eta < b_4, a_5 < 1. \\
\text{Information:} \\
T &= \text{Tax} \\
\text{GRDP} &= \text{Gross Regional Domestic Product} \\
\text{BL} &= \text{Business License} \\
\text{TP} &= \text{Total Population} \\
\text{LGR} &= \text{Locally-Generated Revenue} \\
\text{RET} &= \text{Regional Retribution} \\
\text{RGWM} &= \text{Results of Regional Wealth Management} \\
\text{LGR} &= \text{Lag. Locally-Generated Revenue}
\end{align*}
\]
b. Balancing Fund

\[
\begin{align*}
TPS_t &= \varepsilon_0 + \varepsilon_1 PCC_t + \varepsilon_2 NV_t + \varepsilon_3 TPS_{t-1} + u_{t1} \\
NTPSE_t &= d_0 + d_1 GRDP_t + d_2 TP_t + d_3 NTPSE_{t-1} + u_{t2} \\
GAF_t &= \varepsilon_0 + \varepsilon_1 GRDPC_t + \varepsilon_2 FC_t + \varepsilon_3 GAF_{t-1} + u_{t3} \\
PSF_t &= TPS_t + NTPSE_t \\
MF_t &= GAF_t + SAF_t + PSF_t \\
FC_t &= LGR_t + PSF_t \\
TR_t &= LGR_t + MF_t + LI_t + F_t \\
\end{align*}
\]

The estimated values and marks of the expected parameters: \( \varepsilon_1, d_1, \varepsilon_1, c, d_2 > 0; \)
\( \varepsilon_2, c, d_1, e_3 < 0; \) and \( 0 < c_4, d_4, c_5 < 1. \)
Information:
NTPSE = Non-Tax Profit Sharing Equation
TPS = Tax Profit Sharing
PCC = Per Capita Consumption
NV = Number of Vehicles
GRDPC = Gross Regional Domestic Product Per Capita (IDR)
GRDP = Gross Regional Domestic Product
MF = Maintenance Fund
PSF = Profit Sharing Fund
FC = Fiscal Capacity
TR = Total Revenue PDRE
LI = Lag. Income
F = Financing
GAF = General Allocation Fund
SAF = Special Allocation Fund

\[
FC_t = TE_t \cdot FC_t
\]

3.2 Regional Expenditure Fiscal Block

\[
\begin{align*}
ES_t &= f_0 + f_1 FC_t + f_2 NE_t + f_3 ES_{t-1} + u \delta_{t1} \\
SG_t &= \varepsilon_0 + \varepsilon_1 FC_t + \varepsilon_2 SG_{t-1} + u \gamma_{t2} \\
TE_t &= ES_t + SG_t + OS_{t-1} \\
HGRDP_t &= GRDPC_t \times 100 / CPI_{t-1} \\
EG_t &= HGRDP_t / HGRDP_{t-1} \times 100 \\
\end{align*}
\]

The estimated values and marks of the expected parameters:
\( f_1, g_1, f_2 > 0; \) \( g_2, f_3 < 0; \) dan \( 0 < g_3, f_4 < 1. \)
Information:
ES = Employee Spending
FC = Fiscal Capacity
NE = Number of Employees
TE = Total Expenses
SG = Shopping for Goods
OS = Other Shopping
3.3 Block GRDP

\[ C_t = h_0 + h_1 (GRDP_{t-1} - T) + h_2 ES_t + h_3 TP_t + h_4 C_{t-1} + u_{8t1} \]
\[ PCC_t = C_t / TP_{t-1} \]
\[ I_t = i_0 + i_1 GRDP_t + i_2 IR_t + i_3 CS_t + i_4 I_{t-1} + u_{9t} \]
\[ GE_t = j_0 + j_1 TI_t + u_{10t} \]
\[ E_t = k_0 + k_1 GRDP_t + k_2 ERAD_t + k_3 E_{t-1} + u_{11t} \]
\[ I_t = I_0 + L GRDP_t + L_1 ERAD_t + u_{12t0} \]
\[ GRDP_t = C_t + I_t + GE_t + E_t - L_t \]

The estimated values and marks of the expected parameters: \( h_1, i_1, j_1, k_1, h_2, \)
\( k_2, h_3, i_3 > 0; i_2, j_2, l_2, k_3, h_4, i_4 < 0; \) dan \( 0 < k_4, h_5, i_5 < 1. \)

Information:
C = Consumption
LGR = Locally-Generated Revenue
TOTREV = Total Revenue PDEB,
EG = Economic Growth
T = Tax
I = Investment
IR = Interest Rate (Percent)
CS = Community Savings
GE = Government Expenditure
E = Export
ERAD = The Exchange Rate of Rupiah against Dollars
I = Import

3.4 Block Inflation and Exchange Rates

\[ CPI_t = m_0 + m_1 MS_t + m_2 ERAD_t + m_3 RPFO_t + m_4 BET_t + m_{50} CPI_{t-1} + u_{13t1} \]
\[ INF_t = (CPI_t - CPI_{t-1}) / CPI_{t-1} \times 100 \]
\[ ERAD_t = u_0 + n_1 FER_t + n_2 INF_t + n_3 ERAD_{t-1} + u_{14t} \]
\[ MS_t = o_0 + o_1 AGRDP_t + o_2 BIC_t + u_{15t} \]

The estimated values and marks of the expected parameters: \( m_1, o_1, m_2, n_2, m_3, m_4 > 0; \)
\( n_1, o_2, o_3, m_5 < 0; \) dan \( 0 < n_3, m_{50} < 1. \)

Information:
CPI = Consumer Price Index
MS = Money Supply (Million Rupiah)
RPFO = Retail Price of Fuel Oil
BET = Basic Electricity Tariff
FER = Foreign exchange reserves
INF = Inflation
AGRDP = Average Gross Regional Domestic Product
BIC = Bank Indonesia Certificate

3.5 Block HDI, Poverty, and Labor

\[ HDI_t = p_0 + p_1 ASE_t + p_2 PMW_{t-1} \]
\[ NPP_t = q_0 + q_1 GRDP_{t-1} + q_2 INF_{t-1} + q_3 NPP_{t-1} + u_{17t2} \]
\[ PW_t = NPP_t / TP_t \times 100 \]
\[ ASE_t = r_0 + r_1 GRDP_{t-1} + r_2 ASE_{t-1} + u_{18t} \]
\[ L_t = s_0 + s_1 GRDP_{t-1} + s_2 L_{t-1} + u_{19t} \]

The estimated values and marks of the expected parameters: \( p_1, r_1, s_1, p_2, q_2, q_3 > 0; q_1, r_2, \)
\( s_2 < 0; \) \( r_3 < 0; \) \( s_3, q_4 < u_{16t} \)

Information:
HDI = Human Development Index
ASE = Average School Entry
PMW = Provincial Minimum Wages
NPP = Number of Poor Population
PW = Poor Workforce
L = Labor
Identification of Estimation Models and Methods

According to Koutsoyionis (1978), an econometric approach using a system of simultaneous equations requires that the number of equations be equal to the number of endogenous variables. This requires a complete model identification. (Note 16)

According to Gujarati (1995) the conditions that must be met in the identification process are the order condition of identification, namely that the number of endogenous and exogenous variables that are not included in the equation but are included in other equations in the simultaneous equation system must be equal to or greater than the number of endogenous variables in the equation in the model minus one. (Note 17) The description can be formulated as follows:

\[(K - M) \leq (G - 1)\]

Information:

\(K = \) number of variables in the model (endogenous and predetermined variables)
\(M = \) the number of endogenous and exogenous variables contained in the identified equation,
\(G = \) the number of equations in the model which is equal to the number of endogenous variables in Model.

1. Based on the order conditions:
2. If \((K - M) > (G - M)\) = then the equation is said to be said to be overidentified.
3. If \((K - M) = (G - M)\) then the equation is said to be exactly / exactly identified.
4. If \((K - M) < (G - M)\) then the equation is said to be unidentified (unidentified).

4. Results of Discussion

Surabaya City Government Financial Performance

The estimation results from the model that have been compiled are then tested based on economic, statistical and econometric criteria. From the results of the six blocks under study, the following are discussed in detail as follows:

a. Based on economic criteria, the parameter estimation results of each structural equation in the model compiled are as expected. This is indicated by the sign and the value of the parameter estimation to describe the relationship between endogenous variables and their explanatory variables. Based on this explanation, then statistical criteria are used to test the equations that have been compiled. The estimation results of the model also showed quite good results. The coefficient of determination (R2) for each structural equation is between 0.73 and 0.99, except for the Non-Tax Profit Sharing Equation and the general allocation fund, which are 0.41 and 0 respectively. 61. This shows that in general the explanatory variables used in this study are able to explain between 73 percent and 99 percent of the diversity of the endogenous variables.

b. The value of the F-test statistic that is generated to test whether the explanatory variables used have a significant effect on the endogenous variables are all less than 0.01. This means that the explanatory variables used in the model together have a significant effect on the endogenous variables. Statistical results of t-test to test whether an individual explanatory variable affects the endogenous variable or not. With an error rate of (a) up to 20 percent, it indicates that most individual explanatory variables have a significant effect on the endogenous variables. However, there are several explanatory variables in the model that do not statistically affect the endogenous variables. Based on the results of testing these parameter estimates, the model used in this study is quite good in explaining the behavior of economic variables on the finance and economy of the Surabaya City Government.

4.1 Fiscal Block Regional Revenue Original Regional Revenue

Original regional income comes from local taxes, levies, separated regional assets management, and other legitimate local revenue.

a. Local Tax

The results of the estimation of the regional tax revenue equation parameters are presented in Table 1 No. 1. It can be seen that local tax revenue in the Surabaya City Government is significantly influenced by the Gross Regional Domestic Product (GRDP).

The estimated parameter of GRDP is 0.007324 and has a positive relationship, which indicates that the increase in GRDP is Rp. 357 million has the potential to increase tax revenue for the Surabaya City Government by Rp. 7.33 million. This shows that the greater the economic capacity of a region, the greater the revenue received by the government in that area. This is reinforced by the business factor of the Surabaya City Government which has
become a business center and business center.

Table 1. Parameters of estimated results of regional tax revenue, regional original income, for taxes, for non-tax results, general allocation funds, employee expenditure, and household consumption, surabaya government 2017-2021

| NO | Variable               | Estimate Parameter | Prob > t | Information                                                                 |
|----|------------------------|--------------------|----------|----------------------------------------------------------------------------|
| 1  | Intercept              | -3233481           | 0.4537   | Estimation Results Parameters of the Equation of Local Tax Revenue Original Local Income. |
|    | GRDP                   | 0.007324           | 0.0053   | GRDP = Gross Regional Domestic Product                                      |
|    | BL                     | 60.28327           | 0.2892   | Amount of BL=Business License                                               |
|    | TP                     | 281.5803           | 0.5817   | TP = Total Population (000 people)                                          |
|    | LT                     | 0.318601           | 0.1936   | Lag. T= Tax                                                                 |
|    |                        |                    |          | Adj-R² = 0.96832; F-Stat = 146,52; Pr > F = < 0.0001; DW = 1.970146         |
| 2  | Intercept              | -210423            | 0.7159   | Estimation Results of Estimated Parameters of the Equation of Original Local Income. |
|    | GRDP                   | 0.001034           | 0.2225   | GRDP = Gross Regional Domestic Product (Million IDR)                        |
|    | TP                     | 34.81372           | 0.6170   | TP = Total Population (000 people)                                          |
|    | LRET                   | 0.559503           | 0.0194   | Lag. RET = Regional Retribution                                             |
|    |                        |                    |          | Adj-R² = 0.96832; F-Stat = 146,52; Pr > F = < 0.0001; DW = 1.66267          |
| 3  | Intercept              | -381604            | 0.3573   | Results of Estimation Parameters of the Tax Profit Sharing Equation.        |
|    | PCC                    | 4.976617           | 0.9487   | PCC = Per Capita Consumption (000 IDR)                                      |
|    | NV                     | 0.239028           | 0.2625   | Number Of Motorized Vehicles (unit)                                         |
|    | LTPS                   | 0.755666           | 0.0169   | Lag. TPS = Tax Profit Sharing                                               |
|    |                        |                    |          | Adj-R² = 0.96707; F-Stat = 181.25; Pr > F = < 0.0001; DW = 1.66267         |
| 4  | Intercept              | -14290.1           | 0.9599   | Estimation of Non-Tax Profit Sharing Equation Parameters                    |
|    | GRDP                   | 0.000052           | 0.3891   | GRDP = Gross Regional Domestic Product (Million IDR)                        |
|    | TP                     | 4.456293           | 0.8939   | TP = Total Population (000 people)                                          |
|    | LTPS                   | 0.517442           | 0.0231   | Lag. TPS = Tax Profit Sharing                                               |
|    |                        |                    |          | Adj-R² = 0.44813; F-Stat = 5,68; Pr > F = 0.0034; DW = 2.174885            |
| 5  | Intercept              | 87091.78           | 0.2496   | Estimation Results of the General Allocation Fund Equation Parameters.      |
|    | GRDPC                  | 9.706076           | 0.2798   | GRD per capita (000 IDR)                                                    |
|    | FC                     | -0.04239           | 0.2375   | Fiscal capacity (Million IDR)                                               |
|    | LGAF                   | 0.751911           | <0.0001  | Lag. GAF = General Allocation Fund                                          |
|    |                        |                    |          | Adj-R² = 0.64141; F-Stat = 11.28; Pr > F = < 0.0001; DW = 2.153374         |
| 6  | Intercept              | -1,034707          | 0.1997   | Estimation Results of Employee Expenditure Equation Parameters.             |
|    | FC                     | 0.246921           | 0.0326   | Fiscal Capacity (Million IDR)                                               |
|    | NE                     | 134996.2           | 0.2037   | Number of employees (000 people)                                            |
|    | LES                    | 0.356995           | 0.1647   | Lag Employee Spending                                                        |
|    |                        |                    |          | Adj-R² = 0.97853; F-Stat = 276,34; Pr > F = < 0.0001; DW = 2.130631        |
| 7  | Intercept              | -44174.1           | 0.6527   | Estimation Result Parameter Expenditure Equation.                           |
|    | FC                     | 0.064450           | 0.0880   | Fiscal Capacity (Million IDR)                                               |
|    | LSG                    | 0.966878           | <0.0001  | Lag Shopping for Goods                                                       |
|    |                        |                    |          | Adj-R² = 0.98963; F-Stat = 741,62; Pr > F = < 0.0001; DW = 2.838366        |
| 8  | Intercept              | -1,493706          | 0.6051   | Estimation Result of Household Consumption Equation Parameters.             |
|    | DISP                   | 0.411206           | <0.0001  | Disposable Income (Million IDR)                                             |
|    | (GRDP-T)               |                    |          | Adj-R² = 0.9990; F-Stat = 5099,77; Pr > F = < 0.0001; DW = 2.150053        |

*Note: F-Stat = The F-statistic; Adj-R² = Adjusted R-Square.

**Data source: Data processing by Researchers 17 August 2020
b. Regional Retribution

The results of the estimation of the parameters of the regional levy acceptance equation are presented in Table 1 No. 2. It can be seen that the local retribution receipts in the Surabaya City Government are below.

c. Balancing Fund

Apart from originating from local revenues, the Surabaya City Government also receives transfers of funds from the central government in the form of balance funds consisting of tax and non-tax revenue sharing and general allocation funds.

Non-Tax Profit

The results of the estimation of the non-tax profit sharing equation parameters are presented in Table 1 No. 4. It can be seen that the non-tax revenue sharing of the Surabaya City Government.

General Allocation Fund

The results of the estimation of the parameters of the general allocation funds equation are presented in Table 1 No. 5. It can be seen that the receipt of general allocation funds. Local capacities and needs usually will not change drastically over time. Apart from that, the relatively stable general allocation funds from time to time will also help the sustainability and certainty of development financing in a region. General Allocation Fund. See table 1 No. 5. Surabaya City Government Surabaya City Government 2017-2021.

4.2 Regional Expenditure Fiscal Block

The structure of regional government spending in this study blocks regional expenditures divided into personnel spending, goods and services expenditures and other expenditures.

a. Employee Spending

The results of the estimation of the employee expenditure equation parameters are presented in Table 1 No. 6. It can be seen that the expenditure for employees of the Surabaya City Government is significantly influenced by the fiscal capacity and the number of employees owned by the Surabaya City Government. The estimated parameter of fiscal capacity is 0.246921 and has a positive relationship, which means that the increase in the financial capacity of the Surabaya City Government has the potential to increase expenditure for employees. Meanwhile, the estimated number of employees is 134996.3 and has a positive relationship, which means that an increase in the number of employees in the Surabaya City Government will increase spending to pay employees. This is understandable because each new employee recruitment must be followed by a budget to pay the employees.

b. Shopping for goods and services

The results of the estimation of the parameters for the goods and services expenditure equation are presented in Table 1 No. 7. It can be seen that the expenditure of goods and services by the Surabaya City Government. The estimated parameter of fiscal capacity is 0.064452 and has a positive relationship, which means that an increase in the financial capacity of the Surabaya City Government has the potential to increase spending on goods and services.

4.3 Block GRDP

In the economy, gross regional domestic product (GRDP) is very important because this indicator can be used to measure the economic condition of a region. In addition, GRDP is also an indicator that can be used to measure the economic growth of a country, region or region. In macroeconomic theory, GRDP is the identity equation of household consumption, investment, government spending, exports and imports.

a. Household Consumption

The results of the estimation of the total household consumption equation parameters are presented in Table 1 No. 8. It can be seen that the total household consumption is significantly influenced by disposable income and consumption in the previous year.

The estimated disposable income parameter is 0.411206 and has a positive relationship, which means that an increase in disposable income has the potential to increase its consumption value. From the value of these parameters, it can also be seen that the average city of Surabaya only spends about 41 percent of their disposable income for consumption.
b. Investment

The results of the estimation of the investment equation parameters are presented in Table 2 No. 9. It can be seen that the investment value in the Surabaya City Government is significantly affected by the GRDP and the amount of public savings stored in banks. The estimated parameter of GRDP is 0.253026 and has a positive relationship, which means that an increase in GRDP has the potential to increase the value of the investment that occurs.

The estimation results of these parameters also indicate that the greater the economic capacity of a region, it will encourage investment in that area. One of the sources of funds for investment is from banks, while the credit provided by banks is very much influenced by the amount of public savings they save.

The estimated parameter of public savings is 0.329854 and has a positive relationship, which means that the greater the public savings funds deposited in banks have the potential to increase the value of investment that occurs.

c. Government Expenditure

Even though the value is relatively small, government spending has a very important role in turning the economy in the Surabaya City Government. This is due to the participation of the government as a regulator and controller of all economic activities that occur, as well as distributing the required aspects to all levels of society. See Table 2 No. 10. Estimation Results of the Surabaya City Government Government Expenditure Equation Parameters for 2017-2021.

Surabaya City Government expenditure is influenced by the total expenditure budgeted in the regional expenditure budget. The estimated parameter of total expenditure is 2.530813 and has a positive relationship, which means that an increase in government spending has the potential to increase the role of government spending in the economy.

d. Export of Goods and Services

The results of the estimation of the export equation parameters are presented in Table 2 No. 11. It can be seen that the export value of the Surabaya City Government is significantly influenced by GRDP, the rupiah exchange rate against the US dollar and the export value of the previous year.

The estimated parameter of GRD is 0.313411 and has a positive relationship, which means that an increase in GRD has the potential to increase the value of exports of goods and services. The results of the estimation of these parameters also indicate that the greater the economic capacity of a region, it will boost the region's exports.

The estimated parameter of the rupiah exchange rate against the US dollar is 0.313411 and has a positive relationship, which means that the weakening of the rupiah exchange rate against the US dollar has the potential to increase the value of exports of goods and services. This occurs because the weakening of the rupiah against the dollar causes domestic goods to be cheaper than abroad, so producers tend to sell their goods abroad to get bigger profits.

e. Imports of Goods and Services

The results of the estimation of the import equation parameters are presented in Table 2. No. 12. In Table 12, the estimated GRD parameter is 0.56832 and has a positive relationship, which means that an increase in GRD has the potential to increase the value of imported goods and services. The estimation results of these parameters also indicate that the greater the economic capacity of a region, it will encourage imports of that region. This occurs because some products are highly dependent on imported goods, so that when demand increases, imports of raw materials will increase.

The estimated parameter of the rupiah exchange rate against the US dollar is 3249.55 and has a negative relationship, which means that the weakening of the rupiah exchange rate against the US dollar has the potential to reduce the value of imports of goods and services. This occurs because the weakening of the rupiah against the dollar causes domestic goods to be more expensive than abroad so that producers tend to sell their goods domestically to get bigger profits.

4.4 Block Inflation, Interest Rates and Exchange Rates

a. Consumer Price Index

The results of the estimation of the parameters of the Consumer Price Index (CPI) equation are presented in Table 2 No. 13. It can be seen that the CPI is significantly influenced by the money supply, the rupiah exchange rate against the United States dollar, and the retail price of fuel.

The estimated money supply parameter is \(9.99 \times 10^{-6}\) and has a positive relationship, which means that the increase in the money supply triggers an increase in the CPI and thus triggers inflation. Meanwhile, the estimated
parameter of the rupiah exchange rate against the US dollar is 0.001294 and has a positive relationship, which means that the weakening of the rupiah exchange rate against the US dollar can trigger inflation. This is because the weakening of the rupiah against the US dollar causes domestic prices to be more expensive than foreign goods, or in other words, domestic prices increase.

The estimation parameter for the retail price of Fuel oil is 0.002287 and has a positive relationship, which means that the increase in fuel prices can trigger an increase in the CPI and thus trigger inflation. This is because Fuel oil is one of the main energy sources for the business world, so that the increase in fuel prices will cause an increase in production costs.

As a result, the price of the product also tends to rise to cover production costs.

b. The Exchange Rate of Rupiah against United States Dollar

The results of the estimation of the parameter of the rupiah exchange rate equation against the US dollar are presented in Table 2 No. 14. In Table 14, the estimated inflation rate parameter is 51.78111 and has a positive relationship, which means that inflation can trigger a weakening of the rupiah exchange rate against the US dollar.

| NO | Variable                      | Estimate Parameter | Prob>| t | Information                                           |
|----|-------------------------------|--------------------|------|------------------------------------------------------|
| 9  | Intercept                     | -9066592           | 0.4545| Estimation Results of Government Investment Equation Parameters |
|    | GRD                           | 0.253026           | 0.0005| GRD (Million Rp)                                     |
|    | IR                            | -579773.4          | 0.9275| Interest Rate (Percent)                              |
|    | LI                            | 0.329854           | 0.0917| Public Savings (Million Rp)                          |
|    | LI                            | 0.128068           | 0.6133| Lag investment                                       |
|    | Adj-R2 = 0.9903; F-Stat = 480.35; Pr> F = <.0001; DW = 1,634143 |
| 10 | Intercept                     | -1008995           | 0.7477| Estimation Results of Expenditure Equation Parameters |
|    | TE Total Expenses             | 2,530813           | <0.0001| Total expenditure (Million IDR)                      |
|    | Adj-R2 = 0.81364; F-Stat = 58.63; Pr> F = <.0001; DW = 0.335896 |
| 11 | Intercept                     | -696127            | 0.8699| Results of the Estimated Parameters for Exports of Goods and Services |
|    | GRD                           | 0.313411           | 0.0006| GRD (Million Rp)                                     |
|    | ERAD                          | 2962,680           | 0.0043| ERAD = The Exchange Rate of Rupiah against Dollars $ |
|    | LE                            | 0.385694           | 0.0305| Lag Export                                           |
|    | Adj-R2 = 0.99574; F-Stat = 1380.45; Pr> F = <.0001; DW = 1,741443 |
| 12 | Intercept                     | 6943440            | 0.2626| Estimation Results of the Parameter of the Import of Goods and Services Equation |
|    | GRD                           | 0.56830            | <.0001| GRD (Million Rp)                                     |
|    | ERAD                          | -3249,55           | 0.0208| ERAD = The Exchange Rate of IDR against Dollars $     |
|    | Adj-R2 = 0.99142; F-Stat = 909.14; Pr> F = <.0001; DW = 2,372878 |
| 13 | Intercept                     | 2,060536           | 0.0302| Estimation Results of the Consumer Price Index Equation Parameter. |
|    | MS                            | 9,99x10-06         | 0.0562| MS = Money Supply (Million Rupiah)                    |
|    | ERAD                          | 0.001294           | <0.0001| ERAD = The Exchange Rate of Rupiah against Dollars $ |
|    | RPFO                          | 0.002287           | 0.0002| RPFO = Retail Price of Fuel Oil (IDR0.               |
|    | BET                           | 0.003272           | 0.4654=3| BET = Basic Electricity Tariff                      |
|    | L CPI                         | 0.675463           | <0.0001| Lag CPI = Consumer Price Index                       |
|    | Adj-R2 = 0.9975; F-Stat = 2950.32; Pr > F = <.0001; DW = 1,700095 |
| 14 | Intercept                     | 20,30756           | 0.9605| Estimation Results of the Equation Parameter for the Rupiah Exchange Rate against the US Dollar. |
|    | FER                           | -0.00195           | 0.8612| FER = Foreign exchange reserves (Million US $).      |
|    | INF                           | 51.78110           | 0.0010| Inflation rate                                       |
|    | LERAD                         | 0.966386           | <0.0001| LagERAD = The Exchange Rate of Rupiah against Dollars |
|    | Adj-R2 = 0.92794; F-Stat = 116.88; Pr > F = <.0001; DW = 2.258540 |

*Note: F-Stat = The F-statistic; Adj-R2 = Adjusted R-Square.

**Data source: Data processing by Researchers 17 August 2020
c. Money Supply
The results of the estimation of the money supply equation parameters are presented in Table 3 No. 15. It can be seen that the money supply in the Surabaya City Government in 2017-2021 is influenced by the real GRD of the City of Surabaya.

The estimated parameter of real GRDP is 0.0037106 and has a positive relationship, which means that an increase in real GRDP can trigger an increase in the money supply. This is due to the increase in GDP, which means that an increase in economic capacity will require more money, so that the money supply also increases.

5. HDI Block, Poverty, and Length of Schooling
a. Human Development Index
The results of the estimation of the parameters for the human development index (HDI) equation are presented in Table 3 No. 16. It can be seen that the HDI in Surabaya is influenced by the average length of schooling.

The estimated parameter of average length of schooling is 2.203457 and has a positive relationship, which means that an increase in the average length of schooling will increase the HDI. This is because the average length of schooling is one component of the HDI calculation.

b. Number of Poor Population
The results of the estimation of the parameter of the equation for the number of poor people are presented in Table 3 No 17. It can be seen that the number of poor people in the city of Surabaya is influenced by the inflation rate and the number of poor people in the previous year.

The estimated inflation rate parameter is 0.861547 and has a positive relationship, which means that inflation will trigger an increase in the number of poor people. This is because if there is inflation, the real income of the community will decrease, so that people who are slightly above the poverty line can fall into poverty.

c. Average Length of Schooling
The results of the estimation of the parameter equation for the average length of schooling are presented in Table 3 No. 18. It can be seen that the average length of schooling for residents of Surabaya City is 0.933656. This can happen as people's income improves, in addition to the tendency for parents to want their children to have a better education than them.

d. Labor Absorption
The results of the estimation of the parameter of the equation for the number of workers are presented in Table 3 No. 19. It can be seen that the number of workers in the Surabaya City Government is 0.933656. This is influenced by the real GRDP. The measurement standard with the estimated real GRDP parameter has a positive relationship with the amount of labor absorbed. Where an increasing economy will be followed by rapid workforce growth. This implies that an increase in real GDP will increase the amount of labor absorbed. This is because the increase in economic capacity will require more labor. This absorption is a positive aspect in itself when viewed from the standard measurement of the estimated GRDP parameters.
Table 3. Estimated results of the government of Surabaya City government estimated amount of money equation, human development index, number of poor populations, school average, and manpower absorption of Surabaya City government, 2017-2021

| NO | Variable          | Estimate Parameter | Prob > t | Information                                                      |
|----|-------------------|--------------------|----------|-----------------------------------------------------------------|
| 15 | Intercept         | -991728            | <0.0001  | Estimation Result of Parameter of Amount of Money Equation.      |
|    | AGRDP             | 0.0037106          | <0.0001  | Average Gross Regional Domestic Product                         |
|    | BIC               | -3691,86           | 0.4658   | BIC = Bank Indonesia Certificate Real GRDP (Million IDR)        |
|    |                   |                    |          | Adj-R² = 0.97658; F-Stat = 320.65; Pr > F = <.0001; DW = 0.166576 |
| 16 | Intercept         | 43,99171           | <0.0001  | Estimation Results of Human Development Index Equation Parameters |
|    | ASE               | 2.203457           | <0.0001  | ASE = Average School Entry (year)                               |
|    | PMW               | 0.006164           | 0.2326   | PMW = Provincial Minimum Wages (000 IDR)                        |
|    |                   |                    |          | Adj-R² = 0.72955; F-Stat = 32.01; Pr > F = <.0001; DW = 0.166576 |
| 17 | Intercept         | 133,8098           | 0.0173   | Results of Estimation Parameters for the Equation of the Number of Poor People |
|    | GRDPC             | -0.00011           | 0.6811   | Gross Regional Domestic Product Per Capita (000 IDR)            |
|    | INF               | 0.861547           | 0.1788   | Inflation rate (Percent)                                       |
|    | LNPP              | 0.625289           | 0.0003   | Lag NPP = Number of Poor Population                             |
|    |                   |                    |          | Adj-R² = 0.71214; F-Stat = 15.94; Pr > F = <.0001; DW = 1.696704 |
| 18 | Intercept         | 0.652145           | 0.2104   | Estimation Results of Parameters for the Equation of Average Years of Schooling. |
|    | GRDPC             | 3.54E-06           | 0.4706   | Gross Regional Domestic Product Per Capita (000 IDR)            |
|    | LASE              | 0.933656           | <0.0001  | Lag ASE = Average School Entry                                  |
|    |                   |                    |          | Adj-R² = 0.98482; F-Stat = 498.23; Pr > F = <.0001; DW = 2.944845 |
| 19 | Intercept         | 100.8531           | 0.4130   | Estimation Results of Labor Absorption Equation Parameters.     |
|    | AGRDP             | 781,521.2          | 0.0747   | GRDP = Gross Regional Domestic Product                          |
|    | LL                | 0.718245           | 0.0002   | Lag L = Labor                                                   |
|    |                   |                    |          | Adj-R² = 0.96269; F-Stat = 198.81; Pr > F = <.0001; DW = 2.6218  |

*Note: F-Stat = The F-statistic; Adj-R² = Adjusted R-Square.

**Data source: Data processing by Researchers 17 August 2020.

FISCAL POTENTIAL PROJECTIONS

Based on the calculations and models described in the previous description, the results of the projected fiscal potential of the Surabaya City Government for 2017-2021 can be described as in the following table.
Table 4. Basic value of proposal variables of endogen the government of Surabaya city in 2017-2021

| No | Endogenous Information | 2017   | 2018   | 2019   | 2020   | 2021   |
|----|------------------------|--------|--------|--------|--------|--------|
| 1  | LGR = Locally-Generated Revenue (Billion IDR) | 15,709 | 16,712 | 17,193 | 18,732 | 19,213 |
| 2  | FC = Fiscal Capacity (Billion IDR) | 20,578 | 22,828 | 23,528 | 32,228 | 40,828 |
| 3  | TR = Total Revenue PDRB (Billion IDR) | 31,321 | 34,821 | 35,821 | 42,821 |
| 4  | Fiscal Gap = CelahFiskal (Billion IDR) | 6,875  | 7,921  | 8,213  | 8,652  | 9,134  |
| 5  | TE = Total Expenses (Billion IDR) | 30,293 | 34,372 | 35,723 | 40,213 | 43,672 |
| 6  | GRDP = Gross Regional Domestic Product (Billion IDR) | 954,714.48 | 1,187,333.1 | 1,413,241.2 | 1,735,423.2 | 1,462,352.2 |
| 7  | AGRDP = Average Gross Regional Domestic ProductReal (Billion IDR) | 781,521.2 | 98,324.5 | 1,016,123.1 | 1,217,212.2 | 1,391,821.1 |
| 8  | EG = Economic Growth (Percent) | 5.45   | 6.72   | 6.52   | 6.63   | 6.67   |
| 9  | INF = Inflation Rate (Percent) | 4.32   | 5.15   | 5.32   | 5.47   | 5.58   |

Source: Processed data by Researchers 20 August 2020.

The data in Table 4 is the result of economic projections without any policy intervention, either by the Central Government or the City Government of Surabaya. Thus it can be said that the economic condition is a non-policy condition or a Business As Usual condition.

The results of the analysis show that the economic conditions of the Surabaya City Government in 2017-2021 tend to improve. This can be seen from the development of several factors, including: Local Own Revenue, Fiscal Capacity, Total Revenue, GRDP, Economic Growth tends to increase, as described below:

1. Local Own Revenue tends to continue to increase. In 2017 the Surabaya City Government reached Rp. 15,709 trillion and in 2021 it will increase to Rp. 19,213 trillion. This shows that the City Government of Surabaya has quite good potential in managing its revenue.

2. The GRDP of Surabaya City reached Rp. 954,714.48 billion and in 2021 it will increase to Rp. 1,391 trillion. This indicates that the economic growth of Surabaya City continues to be sustainable. This means that the policies taken by the Surabaya Government must be pro-growth so that the economy remains in quality and is able to bring maximum benefits to the people of Surabaya.

3. The economic growth of Surabaya City for the 2017-2021 period shows quite good growth. Economic growth in 2017 is estimated to grow in the range of 5.45 percent, while in 2021 economic growth will reach 6.67 percent.

4. Inflation turns out that the Surabaya City Government continues to increase. In 2017 it was only 4.32 percent but in 2021 inflation is estimated to reach 5.58 percent. Of course, this requires holistic management so that inflation in the City of Surabaya can be managed properly so that the ever-increasing economic growth is not eroded by rising inflation.

5. In 2017 the Fiscal Capacity of Surabaya City only amounted to Rp. 20,578 trillion while the projection for 2021 increases to Rp. 40,828 trillion. This shows that the fiscal potential of the Surabaya City Government is very pro towards growth.

6. In 2017, the total revenue of Surabaya City amounted to Rp. 31,321 trillion while the projection for 2021 will increase to Rp. 42,821 trillion. This shows that the revenue management in the City Government of Surabaya is very smart in taking advantage of the moment of economic growth.

7. In 2017 the total expenditure of the City Government of Surabaya reached Rp. 30,293 trillion, while the projection for 2021 will increase to Rp. 43,672 trillion. Fiscal Gap in the City of Surabaya for the 2017-2021 period also shows an improved performance in 2017 Rp. 6,875 trillion and will increase in 2021 to Rp. 9,134 trillion because in 2021 the gap is projected to decrease when compared to 2020. This shows that the revenue performance earned by the Surabaya City Government has increased.
6. Conclusions and Suggestions

Conclusion
1. Fiscal decentralization in the City Government of Surabaya has been effective and efficient, this can be seen in the 2017-2021 economic growth.
2. Fiscal decentralization in the Surabaya City Government has been able to improve community welfare. This is indicated by the total revenue received by the Surabaya city government which continues to increase.

Suggestion
1. The economic growth of the Surabaya City Government in 2017-2021 shows a fairly good performance. However, in terms of inflation, it also continues to show improvement. For this reason, it is recommended that inflation control should be carried out through various policies.
2. In order for the fiscal capacity of Surabaya City to continue to grow well, it is suggested that the formulation of regional expenditure policies be directed at activities that can increase economic growth and improve the welfare of the community.

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