ECONOMIC OUTPUT OPTIMIZATION DURING PANDEMIC COVID-19: THE INPUT-OUTPUT TABLE UTILIZATION ON REGIONAL BUDGET REALOCATION PLANNING

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Abstrak

The COVID-19 has changed the way people interact. Efforts to overcome the impact of the pandemic, in the end, still hamper the development process. The aim of this study is to track the impact of budget reallocation in 2020 and examine changes in each sector by The Input-Output (I-O) Table structure advantage. Output multiplayer and labor multiplier make possible to investigate how variations in final demand affect the output and labor use of each sector in economy. This study is expected to explain how the attainment of Output and employment can be optimized. The financial data of Mamuju Regency Budget realization on 2019 and 2020 is used for the case studies. The impacts of treatment are composed by utilizing simulation process. The study finds that I-O table usage on budget reallocation strategy gives better performance than Regional Budgetary Plan (RAPBD) scheme result for 2020 realization. The manufacturing sector contribute the most in supporting output multiplier and high income. The agricultural sector and manufacturing are the most significant on supporting to yield a high employment multiplier. In conclusion, this study has shown the potential of the I-O-table to be used as budget reallocation planning strategy during the pandemic.

KataKunci: Input-output, covid-19, economic recovery.

1. INTRODUCTION

The COVID-19 pandemic has established a new pattern in social relations. The changes, called the new normal, have penetrated various aspects of life. Its influence can be felt in aspects of culture, education, economy, and religiosity, which are almost unshakable by social changes due to the impact of information technology.

All countries must adapt to the current conditions in order to continue running their government optimally, which is not easy. Indonesia, which declares itself to be an adherent of an open ideology, cannot fortify itself from the impact of COVID-19 with ease. The government's anxiety is felt from the dynamics of policy changes that are so fast.

The economic sector is one of the most problematic issues for decision-makers. The government has to take the right strategy to run the economy at conditional health and humanitarian issues. Efforts to overcome the impact of the pandemic, in the end, remain at risk of slowing development progress.

Each leader at every level in a country sets a strategy in relocating the budget to keep implementing the national priority agenda. The central government stipulates that the government's performance priorities will focus on handling COVID-19 and the National Economic Recovery (Pemulihan Ekonomi Nasional) and development priorities in 2021. The local governments also design their strategy to overcome the economic situation.

The government certainly cannot make policies carelessly, because it may become a new problem in the future due to ineffectiveness and inefficiency of using the budget. Good references are therefore needed in policymaking to attain an optimal solution.

Many scientific journals on the impact of the pandemic have been published in the last two years. Several recent studies related to COVID-19 and the economy that can be found include Widiastuti (2021), stating that Indonesia's economic recovery must start from Java Island as the most significant contributor to the Indonesian economy. Government policy efforts that can be carried out are revitalizing manufacture, increasing access and capital for micro, small, and medium enterprises (MSMEs), and optimizing village funds in alternative development innovations during the pandemic with labor-intensive development, BUMDes (district-own company) development, or any potential development of tourist villages. Yamali and Putri (2020) wrote that the impact of the pandemic on the economic sectors in Indonesia included layoffs, Purcasing Managers' Index (PMI) Manufacturing Indonesia, decrease imports, increase prices (inflation), and decrease occupancy in the tourism sector. Wicaksono and Rinaldi (2021) suggest that the economic determinants of accelerating economic growth are natural resources, investment, Foreign Direct Investment (FDI), and population growth. However, in the COVID-19 situation, non-economic factors such as the quality of health and the public health system, community support for the government, and credible leaders who can handle the

COVID-19 pandemic, are more critical. Laksana (2021) proposes a more general discourse on the focus of post-pandemic socio-economic management with the statement that the government should consider the orientation of the new development style in three aspects: 1) education, 2) infrastructure and 3) bureaucratic reform.

However, the above studies are generally still in the form of descriptive exploration. Therefore, the conclusion is considered very weak because it is based on the pattern of associations between general conceptions.

This research, hence, proposes another study alternative, where the input-output table (I-O table) structure approach is analyzed to explore opportunities for optimizing economic growth through the reallocation of government revenue and expenditure budgets. The research is conducted with a case study on the budget realization of Mamuju Regency.

Having said that, the research objective is to study and analyze changes in the realization of budget allocations in 2019 and 2020 on output formation in Mamuju Regency. The year 2019 represents the pre-pandemic situation, while the 2020 represents the situation during the pandemic condition.

This exploration is expected to explain the impact of the optimal output creation based on the allocated budget. The study focuses on how Government Expenditure allocation on sectors with significant multiplier effects and outstanding contributions affects the achievement of socio-economic development.

The discussion of regional budget on development allocations to the economic impact is interesting since it is a part of something novel.Tthe results can also show a shift in patterns due to the refocusing of policies on handling COVID-19 in the economy.

2. RESEARCH METHODS

The data used is obtained from a statistical survey of regency/municipality government finances. The parameter used is the realization of regional spending in 2018-2020. Data Processing and analysis were done by Microsoft Excel software.

This research is quantitatively conducted with a descriptive and input-output (I-O) analysis approach. Descriptive analysis is used to elaborate the realization of the Regional Budget of Mamuju Regency from 2018 to 2020. While, the I-O analysis examines the role and interrelationships among sectors in the economy. The I-O Table can be used for forecasting activities regarding changes in economic conditions or economic policies (Fatmawati & Iskandar, 2018). By conducting an I-O analysis, the impact of regional budget allocations on Output, income, use of labor, and gross added value can also be determined by calculating the Leontief inverse matrix. Meanwhile, to find out the role of each sector, it can be studied based on multiplier analysis and linkage analysis.

The I-O Table used in the research is the 2016 West Sulawesi Province I-O table. Table I-O used is published by Statistics of Sulawesi Barat and the Regional Development Planning Agency of Sulawesi Barat Province (2018). I-O table comes with 56 sectors classification. However, to simplify the analysis in this discussion, these sectors are aggregated into 16 sectors. The matrix used is the total transaction matrix at producer prices.

Formulation of the Input-Output Table is presented as follows:

$$\begin{aligned} X_1 &= z_{11} + z_{12} + \ldots + z_{1n} + Y_1 \\ X_2 &= z_{21} + z_{22} + \ldots + z_{1n} + Y_1 \\ &\ldots \\ &\ldots \\ X_n &= z_{n1} + z_{n2} + \ldots + z_{nn} + Y_n \end{aligned} \quad 1)$$

Then, in general, it can be written as:

$$\sum_{j=1}^{n} z_{ij} + Y_i = X_i \quad 2)$$

$i=1,2,3,\ldots,n, j=1,2,3,\ldots,n$

Z_i is the total amount of sector i output used as sector j input and Y_i is the final demand for sector i where X_i is the total Output of sector i. If the technical coefficient matrix is given as:

$$a_{ij} = z_{ij} / X_j \quad or \quad z_{ij} = a_{ij} X_j \quad 3)$$

Then (3) substituted to (2)

$$\begin{aligned} X_1 &= a_{11}X_1 + a_{12}X_2 + \ldots + a_{1n}X_n \\ X_2 &= a_{21}X_1 + a_{22}X_2 + \ldots + a_{2n}X_n \\ &\ldots \\ &\ldots \\ X_n &= a_{n1}X_1 + a_{n2}X_2 + \ldots + a_{nn}X_n \end{aligned} \quad 4)$$

In the matrix form, it would be:

$$\begin{pmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \cdots & a_{nn} \end{pmatrix} \begin{pmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{pmatrix} + \begin{pmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_n \end{pmatrix} = \begin{pmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{pmatrix}$$

Or in the simple form:

$$\mathbf{AX + Y = X} \; or \; \mathbf{(I - A)X = Y}$$

$$then$$

$$\mathbf{X = (I - A)^{-1} Y} \quad 5)$$

Where:

$\boldsymbol{I}$: Identity matrix
$\mathbf{Y}$: Final demand
$\mathbf{X}$: Total Output
$(\mathbf{I} - \mathbf{A})$: Open Leontief Matrix
$(\mathbf{I} - \mathbf{A})^{-1}$: Leontief Inverse Matrix

The Leontief inverse matrix is also used to calculate the multiplier effect. The multiplier analysis further describes changes in the activity of a sector that increase the activity of that sector and other sectors by the multiplier value. Multiplier analysis tries to explain changes in certain endogenous variables when there is a change in exogenous variables. In this case, the exogenous variable used is final demand. The multipliers measured in this study are the output multiplier and the labor multiplier.

Output Multiplier

The output multiplier aims to see the impact of changes in the final demand of a sector on all existing sectors per unit change in the type of multiplier. For example, an increase in final demand in sector j, not only will increase the production output of sector j but also increase the Output of other sectors of the economy. The increase in the Output of other sectors is created due to the direct and indirect effects of the increase in final demand for sector j. (Miller and Blair, 1985)

Thus, the formula for the simple output (production) multiplier is:

$$O_{ij} = \sum_{i}^{n} \propto_{ij} \qquad 6)$$

Where:
O_{ij} = Output multiplier sector j
$\propto_{ij}$ = Leontief Inverse Matrix Element
i = Line $1,2,3, \dots, n$

It is also determined as type I multiplier Output. This kind of multiplier is obtained from the open I-O Table.

Employment Multiplier

Employment multiplier shows the total effect of changes in employment due to a change in one unit of money on final demand in a particular sector. Labor multiplier analysis shows the role of a sector in increasing the number of workers absorbed in the economy. If the value of the labor multiplier in a sector is greater than one, the absorption of labor in that sector is quite high. The formula for the value of the labor multiplier is as follows:

Supposing that

$$w_j = \frac{L_j}{X_j} \quad then \quad l_j = \sum W_j \left(I - A\right)^{-1} \qquad 7)$$

Where:
W_j = Employment coefficient
L_j = Total Labor (person) of sector j
X_j = Total output sector j
l_j = Employment multiplier

Furthermore, to determine the impact of sharpening the allocation of APBD (the government budget) expenditure in Mamuju Regency, a simulation is carried out on the APBD expenditure allocation composition. This simulation is carried out in the 2020 budget.

The simulation is carried by reducing the expenditure allocation for the government administration, defense, and mandatory social security sectors by 5 percent and 15 percent per year. The difference is transferred to the sector expenditure allocation with the most significant multiplier effects in both Output and employment, i.e. industry of manufacture. The simulation is carried out on the condition that simulated APBD expenditure remains the same as the actual total APBD expenditure in that fiscal year. The formula used in analyzing the impact is as follows (Miller and Blair, 1985):

Impact on output formation

$$\Delta X = (I - A)^{-1} \Delta Y \qquad 8)$$

Impact on employment

$$\Delta L = w_j (I - A)^{-1} \Delta Y \qquad 9)$$

Where:
ΔX = Impact on Output Formation
ΔL = Impact on employment absorption
ΔY = APBD expenditure
$(\mathbf{I} - \mathbf{A})^{-1}$ = Leontief inverse Matrix
w_j = Employment Coefficient

3. RESULTS AND DISCUSSION

APBD overview of Mamuju Regency

During 2018 to 2020 fiscal year period, the realization of the Mamuju Regency Regional Budget grew by an average of 2.54 percent. The highest growth occurred in 2019 of 15.10 percent. Then, in 2020, the realization of the Mamuju Regency APBD fell by 8.05 percent. Meanwhile, the realization of the Mamuju Regency APBD expenditure in the same period experienced a decrease on average compared to the realization of its APBD revenue, which was minus 1.07 percent. This condition happens due to the declining realization of expenditure in 2020 by minus 8.83 percent (see Table 1).

Tabel 1. Regional Budget Realization of Mamuju Regency on 2018-2020 Fiscal Year

Fiscal Year	Income		Expenditure	
	Realization (Billion Rp)	Growth (%)	Realization (Billion Rp)	Growth (%)
(1)	(2)	(3)	(4)	(5)
2018	977,98	0,58	1.096,53	2,81
2019	1.125,65	15,10	1.127,45	2,82
2020	1.035,06	(8,05)	1.027,89	(8,83)

Source: Regency/Municipality Government Financial Statistics Survey

By comparing the years, it appears that in 2020 there was a decline in the revenue of the Mamuju Regency APBD in all sources of income.

Mamuju Regency's regional income during 2018 to 2020 mostly came from balancing funds, followed by other legitimate regional revenues and Regional Original Income (PAD). Based on these pieces of information, it can be concluded that finance development in this regency is still very dependent on the central government's contribution (Table 2).

Tabel 2. Regional Income Realization of Mamuju Regency on 2018-2020 Fiscal Year

Fiscal Year	Original Local Government Income		Balance Funds		Other Legitimate Income	
	Realization (billion Rp	Growth (%)	Realization (billion Rp)	Growth (%)	Realization (billion Rp)	Growth (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2018	75,08	1,43	861,69	6,21	41,21	(52,63)
2019	80,12	6,71	860,70	(0,11)	184,82	348,49
2020	72,71	(9,26)	788,39	(8,40)	173,96	(5,88)

Source: Regency/city Government Financial Statistics Survey

The realization of direct spending in 2018 was IDR 602.26 billion, and in 2019 it fell to IDR 540.68 billion or decreased by around 10.23 percent. Meanwhile, in the same period, the realization of indirect spending grew by 18.72 percent. The decline in direct spending also fell significantly for about 25 percent in 2020. Meanwhile, indirect spending still increased by 6.3 percent (Table 3).

Tabel 3. Regional Expenditure Realization of Mamuju Regency on 2018-2020 Fiscal Year

Fiscal Year	Direct Spending		Indirect Spending	
	Realization (billion Rp)	Growth (%)	Realization (billion Rp)	Growth (%)
(1)	(2)	(3)	(4)	(5)
2018	602,26	2,87	494,27	2,74
2019	540,68	(10,23)	586,77	18,72
2020	404,16	(25,25)	623,73	6,30

Source: Regency/city Government Financial Statistics Survey

By looking the types of expenditure, during the 2018 to 2020 period, the realization of the Mamuju Regency APBD expenditure was still dominated by personnel expenditure. Even in 2020, personnel expenditure increased from 40.40 percent compared to 2019 to 43.33 percent. Usually, capital expenditures and expenditures for goods and services have a relatively large portion, but in 2020, the portion of the two components decreased. It could indicate the impact of the COVID-19 pandemic, therefore several projects in 2020 had to be stopped (See table 4)

Tabel 4. Regional Expenditure Realization of Mamuju Regency on 2018-2020 Fiscal Year by Type of Expenditure (billion IDR)

Fiscal Year	Personnel Expenditure	Grant Expenditure	Goods and Services Expenditure	Capital Expenditure	Other Expenditure	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2018	435,03	16,71	271,44	272,49	100,87	1.096,53
2019	455,50	45,75	240,43	234,41	151,36	1.127,45
2020	445,38	39,36	192,19	48,72	302,24	1.027,89

Source: Regency/city Government Financial Statistics Survey

Furthermore, according to its function, the realization of the Mamuju Regency APBD expenditure for the last three years is mainly for the function of public services, housing and public facilities, education and health. Interestingly, in 2020 the portion of the budget for public services function, housing and public facilities appear to be decreasing, while the budget for education and health is, on the contrary, increasing. This condition can be understood as the impact of the Coronavirus outbreak so that the focus on the use of local government budgets must also be adjusted (see Table 5).

Tabel 5. Regional Expenditure Realization of Mamuju Regency on 2018-2020 Fiscal Year by Function (billion IDR)

No	Function	2018	2019	2020
(1)	(2)	(3)	(4)	(5)
1	Public Services	383,59	442,64	355,08
2	Defense and Social Security	16,66	17,21	14,90
3	Economic	91,27	84,80	59,64
4	Environment	12,72	13,79	11,29
5	Housing and Public Facilities	225,96	147,87	105,49
6	Health	150,31	174,12	170,81
7	Tourism and Culture	7,98	12,79	5,80
8	Education	191,17	217,27	290,60
9	Social	16,87	16,95	14,29
	Total	1.096.53	1.127,45	1.027,89

Source: Regency/city Government Financial Statistics Survey

According to the economic sector, most of Mamuju Regency's APBD expenditure is allocated to the Government Administration, Defense, and Social Security Sector. During the 2018 to 2020 period, this sector expenditure allocation is consistently over 35 percent of the total APBD expenditure each year. On the other hand, the Agriculture, Forestry and Fisheries Sector, which is a key sector in the Mamuju economy, only gets an average expenditure allocation of around 4.48 percent of the total APBD expenditure each year during the 2018-2020 period (Table 6).

The shrinkage of the development budget occurred throughout the territory of Indonesia. In line with research by Gusnardi and Basri (2021), the shift in the budget from the planned RAPBD post to finance unexpected expenditures and social assistance causing problems in regional budget management. These changes resulted in a significant decline in economic Output. Nonetheless, strategic planning on budget reallocation can reduce the risk of that plunge

Tabel 6. Regional Expenditure Realization of Mamuju Regency on 2018-2020 Fiscal Year by Economic Sector (billion IDR)

No	Sector	2018	2019	2020
(1)	(2)	(3)	(4)	(5)
1	Agriculture, Forestry and Fisheries Sector	63,61	50,65	32,26
2	Mining and Quarrying	0,11	0,07	0,04
3	Manufacturing	0,19	0,38	0,03
4	Electricity and Gas, Water Supply; Sewerage, Waste Management, and Remediation Activities	12,72	13,79	10,57
5	Construction	214,01	133,65	105,67
6	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	9,86	7,84	3,96

7	Transportation and Storage	5,89	6,11	5,34
8	Accommodation and Food Service Activities	6,20	9,83	5,11
9	Information and Communication	8,33	6,52	4,53
10	Financial and Insurance Activities	7,86	8,69	7,16
11	Real Estate Activities	16,33	21,84	7,77
12	Business Activities	-	-	-
13	Public Administration and Defence; Compulsory Social Security	401,84	466,55	377,71
14	Education	186,78	202,12	287,35
15	Human Health and Social Work Activities	156,63	181,29	176,47
16	Other Services Activities	6,17	18,12	3,94
	Total	1.096.53	1.127,45	1.027,89

Source: Regency/city Government Financial Statistics Survey

Impact Analysis of Mamuju Regency APBD Expenditure Allocation

The total realization of the Mamuju Regency APBD in 2020 is lower than that in 2019. The decrease in the realization of the APBD is the effect of refocusing the budget to overcome COVID-19. The reduced number of budget realizations certainly has an impact on the creation of Output. Total Output decreased by IDR 122.09 billion, with the number of workers reduced by about 789 people. (Table 7).

Tabel 7. Comparison of the Impact of APBD Expenditures for the 2019-2020 Fiscal Year on Total Output and Employment

Impact	2019	2020	Difference
(1)	(2)	(3)	(4)
Output (million Rp)	1.410.671	1.288.584	-122.087
Labor (people)	12.580	11.792	-789

Source: Researchers' calculation

When the budget simulation is reallocated 5 percent of the government administration, defense, and social security spending allocations to the manufacturing sector, it increases Output of IDR 11.46 billion or 0.89 percent. Meanwhile, the reallocation of 15 percent can increase the Output of IDR 34.37 billion or 2.67 percent. This finding shows that the Output in the economy of Mamuju Regency can still be increased by sharpening the allocation of APBD expenditures in sectors with significant multiplier effects (Table 8).

Tabel 8. Comparison of the Impact of APBD Expenditures Realization and Simulation APBD for Fiscal Year 2020 on Total Output

Amount of Expenditure Simulation Allocation	Total Output (million IDR)		Tambahan	
	APBD Realization	APBD Simulation	Amount (million IDR)	Percentage (%)
(1)	(2)	(3)	(4)	(5)
5 percent	1.288.584	1.300.039	11.455	0,89
15 percent	1.288.584	1.322.950	34.366	2,67

Source: Researchers' calculation

From a sectoral perspective, changes in the composition of APBD expenditure allocations have also led to an increase in Output in several sectors, i.e., the Agriculture, Forestry and Fisheries Sector, Mining and Quarrying Manufacturing, and the Health Services and Social Activities Sector. In the 5 percent budget simulation, the Output of the Agriculture, Forestry, and Fisheries Sectors increases by IDR 10,812 million (20.05%), the Mining and Quarrying Sector by IDR 85 million (0.69%), Manufacturing Sector by 22,084 million (92.74%), and the health services and social activities sector by IDR 13 million (0.01%). With a 15 percent change scheme, the value is undoubtedly much higher (Table 9).

Tabel 9. Comparison of the Impact of Realized APBD Expenditures and Simulation APBD on Output (million IDR) by Sector for Fiscal Year 2020

No	Sector	APBD Realization	Simulation APBD	
			5 percent	15 percent
(1)	(2)	(3)	(4)	(5)
1	Agriculture, Forestry and Fisheries Sector	53.915	64.727	86.351
2	Mining and Quarrying	12.409	12.494	12.664
3	Manufacturing	23.813	45.897	90.064
4	Electricity and Gas, Water Supply; Sewerage, Waste Management, and Remediation Activities	24.022	23.908	23.679
5	Construction	125.485	125.142	124.458
6	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	23.235	24.001	25.534
7	Transportation and Storage	22.034	21.750	21.182
8	Accommodation and Food Service Activities	9.604	9.426	9.071
9	Information and Communication	53.002	51.911	49.730
10	Financial and Insurance Activities	34.389	33.500	31.722
11	Real Estate Activities	20.354	20.287	20.152
12	Business Activities	1.347	1.335	1.311
13	Public Administration and Defence; Compulsory Social Security	392.568	373.485	335.320
14	Education	297.754	297.714	297.634
15	Human Health and Social Work Activities	184.944	184.957	184.982
16	Other Services Activities	9.709	9.505	9.096
Total		1,288,584	1.300.039	1.322.950

Source: Researchers' calculation

Furthermore, if it is related to employment, the composition changes on expenditure allocation by 5 percent resulted in an increase in the number of workers by 119 people or an increase in the number of workers by 1.01 percent. Meanwhile, in the spending reallocation of 15 percent, the increase in the number of workers achieved are 356 people or 3.02 percent. The optimization of labor uses in the economy of Mamuju Regency can still be done by sharpening the allocation of APBD expenditures. (Table 10).

Tabel 10. Comparison of the Impact of APBD Expenditures Realization and APBD Simulation on Employment Creation for 2020 Fiscal Year

Amount of Expenditure Simulation Allocation	Labor (person)		Difference	
	APBD Realization	APBD Simulation	Labor (person)	Percentage (%)
(1)	(2)	(3)	(4)	(5)
5 percent	11.792	11.910	119	1,01
15 percent	11.792	12.148	356	3,02

Source: Researchers' calculation

In more detail, the effect of changes in the composition of the APBD expenditure allocation on the addition of workers in each sector can be seen in Table 10. In the agricultural sector, there is an additional workforce of around 188 people, increasing 16.71 percent. Conditions in the processing industry are even higher; the increase reaches 270 people or 48.13 percent. The simulation has shown that changes or reallocation of the budget can change labor distribution in each sector. Therefore, such simulation was done in this study. It is essential to improve the opportunities for optimizing the use of labor as an adaptation to the new normal condition during and after the pandemic (Table 11).

This finding strengthens Hendranata et al. (2004), the use of I-O tables in budget allocation planning gives better results in increasing Output and employment absorption. The optimal feedback may vary in each region. It depends on the potential sectors owned by the area.

Tabel 11. Comparison of the Impact of APBD Expenditures Realization and APBD Simulation on Employment Creation (persons) by sector on 2020 Fiscal Year

No	Sector	APBD Realization	APBD Simulation	
			5 percent	15 percent
(1)	(2)	(3)	(4)	(5)
1	Agriculture, Forestry and Fisheries Sector	937	1.125	1.501
2	Mining and Quarrying	12	12	12
3	Manufacturing	97	187	367
4	Electricity and Gas, Water Supply; Sewerage, Waste Management, and Remediation Activities	134	133	132
5	Construction	906	903	898
6	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	342	353	376
7	Transportation and Storage	546	539	525
8	Accommodation and Food Service Activities	384	377	362
9	Information and Communication	25	24	23
10	Financial and Insurance Activities	111	108	102
11	Real Estate Activities	17	17	17
12	Business Activities	85	84	83
13	Public Administration and Defence; Compulsory Social Security	3.007	2.860	2.568
14	Education	4.043	4.042	4.041
15	Human Health and Social Work Activities	1.028	1.028	1.028
16	Other Services Activities	119	117	112
	Total	11.792	11.910	12.148

Source: Researchers' calculation

4. KESIMPULAN

The COVID-19 pandemic has affected the realization of the Mamuju Regency Budget. In aggregate, both revenue and regional expenditure decreased in 2020. However, the share of personnel expenditure inclined as the impact of decline on the capital expenditure and goods and services simultaneously. The simulation results of the APBD reallocation show an increase in both the Output and employment in Mamuju Regency. This study has proved that by using I-O table, sharpening the allocation of APBD expenditures in sectors which provide significant multiplier effects can optimize the economy and welfare of the people in Mamuju Regency.

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