

## ORIGINAL ARTICLES

### The Impact of Fiscal Policy on the Regional Economy: Evidence from South Sulawesi, Indonesia

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#### ABSTRACT

Following financial and economic crisis in 1997, Indonesia transformed its economy from centralized economy into the decentralized economy. As a result, the regional economies become more and more attractive and dynamics. This study aimed to analyse the impact of fiscal policy on the regional economy of the South Sulawesi Province, the most advance province in the eastern part of Indonesia. We employ the simultaneous equations model to analyse the panel data from 2004 to 2009 of 23 regencies and cities in the province. The result showed that the fiscal policies of local government, particularly, for the capital spending, both in agriculture or other non-agricultural sectors could stimulate the private investment. Furthermore, the private investment could stimulate the increasing of regional gross domestic product and decreasing unemployment and inflation rate. Furthermore, in the same time the poverty could be reduced when the gross regional domestic product increases. The simulation results showed that the reallocation of budget policy by decreasing both expenditures for goods and services and other expenditures into capital spending result in a better impact in compare to the policy simulations of increasing or decreasing original regional income.

**Key words:** fiscal policy, autonomous region, economic performance

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#### Introduction

Following the financial-economic crisis and political turbulence after the collapse of the centralized regime Soeharto, Indonesian took a mythical gigantic step to implement the political and fiscal decentralization. The Government and Parliament (DPR) responded the serious request of decentralization by legalizing two statutes in April 1999, and appointing the January 1<sup>st</sup>, 2001 as a beginning of the implementation of decentralization in Indonesia. In 2001, Indonesia launched a new phase of acting government by implementing the legitimation of regional autonomy statute. Some new government rules were established, such as the statute Number 22 of 1999 (revised by the statute of number 32 of the year 2004 on Regional Government and the statute of number 25 of the year 1999 (revised by the statute of the number 33 of the year 2004) about Fiscal and Financial Balance between Central and Regional Government.

World Bank noted the decentralization program in Indonesia as an enormous program called the big bang decentralization. With the regional autonomy, regional governments practically have a full authority over the use of their fiscal resources. A regional government and Regional Representatives Council (DPRD) exercise control over the expenditures of all sources of revenues. Provincial and regencies/cities administrations were currently managing approximately 36 percent of total public expenditures compared to the conditions in the mid-1990s, which amounted to only about 24 percent (World Bank, 2007).

Researches on fiscal policy have been widely conducted, among others, Guimaraes (2010) studied the impacts of fiscal policy on the Indian economy, while Nurudeen and Usman (2010) explored impact of the government spending on economic growth in Nigeria. Seok, *et al* (2010) examined fiscal policy and crowding out using panel data of 24 countries in Asia, Hong (2010) analyzed fiscal policy in South Korea after crisis using time series data 1961-2008. All of them noted that fiscal policy could play an effective role in the economy. On the other hand, Forni (2009) studied fiscal policy in European countries; Ramos (2007) examined the long-term fiscal policy in the UK. They found that personnel expenditure and goods and services expenditure had an insignificant effect on consumption, while the government spending in form of transfers to households had a greater and permanent impact.

Motlaleng (2011) analyzed effectiveness of fiscal policy in the context of crowding out or crowding in Namibia. He found that there was a positive long-term correlation between private investment and gross domestic product. In contrast, there was a negative correlation between private investment and lending rates. Moreover, he also found that there was a crowding out of private investment when the government spending was increased.

Concerning Indonesian data, Abimayu (2005) studied the effectiveness of fiscal policy and fiscal stimulus in Indonesia by using the data of 1969/1970 – 2002. He found that the fiscal stimulus could provide positive and significant impact on the national economy of Indonesia. Pakasi (2005), Panjaitan (2006), and the Sasana (2009) showed that a policy of fiscal decentralization efforts had an impact on the increasing of taxes and regional retribution. However, those increasing had a negative impact on the economy, namely the decline in investment and economic performance. Furthermore, Akhmad *et al* (2012) noted that local government fiscal policy, especially capital spending in agricultural sector, can stimulate the development of regional gross domestic product of agricultural sector.

Due to those mixed results, it could be argued that the impacts of fiscal policy were varied among countries. Therefore, it is interesting to further investigate the impacts of fiscal policy in Indonesia, especially after Indonesia imposed the decentralization policy of the economy. This study aimed to determine the impact of fiscal policy on the economy of the regencies/cities in South Sulawesi, the most advanced and important province in the eastern part of Indonesia.

#### Data and Methodology:

In this study, we use panel data consist of the 23 regencies ranged from 2004 to 2009. This period was chosen concerning the implementation of decentralization and the economic recovery from the crisis. The data covers fiscal data macroeconomic variables, such as Gross Regional Domestic Product (GDP), work force, unemployment, poverty, and inflation. All the fiscal data were compiled from the Ministry of Finance of the Republic of Indonesia, whereas macroeconomic variables were compiled from the Central Bureau of Statistics (BPS).

This study employs econometric approach based on simultaneous equation system. The model consisted of 27 structural equations and 8 identity equations. It was divided into four blocks, namely (1) fiscal block, (2) aggregate demand block, (3) output and employment block and (4) economic performance block. The econometric model with a simultaneous equation system is:

#### I. Fiscal block:

##### Regional Revenue:

$$\begin{aligned} &\text{Original regional income} \\ \text{PAD}_{it} &= \text{PAJD}_{it} + \text{RETD}_{it} + \text{BUMD}_{it} + \text{PADL}_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} &\text{Regional tax} \\ \text{PAJD}_{it} &= a_0 + a_1 \text{TPGPD}_{it} + a_2 \text{MTR}_{it} + a_3 \text{JKHL}_{it} + a_4 \text{LPAJD}_{it} + u_1 \end{aligned} \quad (2)$$

$$\begin{aligned} &\text{Expected parameter estimates: } a_1, a_2, a_3, a_4 > 0 \\ &\text{Regional Retribution} \\ \text{RETD}_{it} &= b_0 + b_1 \text{PDRB}_{it} + b_2 \text{TPGPD}_{it} + b_3 \text{POP}_{it} + b_4 \text{LRETD}_{it} + u_2 \end{aligned} \quad (3)$$

$$\begin{aligned} &\text{Expected parameter estimates: } b_1, b_2, b_3, b_4 > 0 \\ &\text{General allocation funds} \\ \text{DAU}_{it} &= c_0 + c_1 \text{PAD}_{it} + c_2 \text{LDK}_{it} + c_3 \text{MISK}_{it} + c_4 \text{POP}_{it} + c_5 \text{PNS}_{it} + u_3 \end{aligned} \quad (4)$$

$$\begin{aligned} &\text{Expected parameter estimates: } c_1, < 0 ; c_2, c_3, c_4, c_5 > 0 \\ &\text{Revenue-sharing} \\ \text{DBH}_{it} &= d_0 + d_1 \text{PDRB}_{it} + d_2 \text{TREN}_{it} + d_3 \text{LDBH}_{it} + u_4 \end{aligned} \quad (5)$$

$$\begin{aligned} &\text{Expected parameter estimates: } d_1, d_2, d_3 > 0 \\ &\text{Total regional acceptance} \\ \text{TPD}_{it} &= \text{PAD}_{it} + \text{DAU}_{it} + \text{DBH}_{it} + \text{DAK}_{it} + \text{PLD}_{it} \end{aligned} \quad (6)$$

$$\begin{aligned} &\text{Personnel expenditure} \\ \text{BPGW}_{it} &= e_0 + e_1 \text{PNS}_{it} + e_2 \text{PAD}_{it} + e_3 \text{DAU}_{it} + e_4 \text{LBPGW}_{it} + u_5 \end{aligned} \quad (7)$$

$$\begin{aligned} &\text{Expected parameter estimates: } e_1, e_2, e_3, e_4 > 0 \\ &\text{Expenditures for goods and services} \\ \text{BBJ}_{it} &= f_0 + f_1 \text{PAD}_{it} + f_2 \text{DAU}_{it} + f_3 \text{DBH}_{it} + f_4 \text{LBBJ}_{it} + u_6 \end{aligned} \quad (8)$$

$$\begin{aligned} &\text{Expected parameter estimates: } f_1, f_2, f_3, f_4 > 0 \\ &\text{Capital expenditure} \\ \text{BMD}_{it} &= \text{BMDSP}_{it} + \text{BMDSL}_{it} \end{aligned} \quad (9)$$

Capital spending for agricultural sector  
 $BMDSP_{it} = g_0 + g_1 DAK_{it} + g_2 DAU_{it} + g_3 PDRBSP_{it} + g_4 LBMDSP_{it} + u_7$  ..... (10)

Expected parameter estimates:  $g_1, g_2, g_3, g_4 > 0$

Capital spending for other sectors  
 $BMDSL_{it} = h_0 + h_1 DBH_{it} + h_2 DAK_{it} + h_3 LBMDSL_{it} + u_8$  ..... (11)

Expected parameter estimates:  $h_1, h_2, h_3 > 0$

Government's miscellaneous expenditures  
 $BLL_{it} = i_0 + i_1 DAU_{it} + i_2 DBH_{it} + i_3 PAD_{it} + i_4 LBLL_{it} + u_9$  ..... (12)

Expected parameter estimates:  $i_1, i_2, i_3, i_4 > 0$

Total regional government expenditure  
 $TPGPD_{it} = BPGW_{it} + BBJ_{it} + BMD_{it} + BLL_{it}$  ..... (13)

*Block of the Regional Aggregate Demand:*

Private consumption  
 $KONS_{it} = j_0 + j_1 PDRB_{it} + j_2 BBJ_{it} + j_3 BPGW_{it} + j_4 INFL_{it} + j_5 LKONS_{it} + u_{10}$  ..... (14)

Expected parameter estimates:  $j_1, j_2, j_3, j_5 > 0; j_4 < 0$

Private investment  
 $INVS_{it} = k_0 + k_1 BMD_{it} + k_2 PAD_{it} + k_3 KONS_{it} + k_4 LINVSW_{it} + u_{11}$  ..... (15)

Expected parameter estimates:  $k_2 < 0$ ; dan  $k_1, k_3, k_4 > 0$

Total government expenditure  
 $TPGP_{it} = TPGPD_{it} + DDTBL_{it}$  ..... (16)

Regional export  
 $EXPD_{it} = l_0 + l_1 NTRP_{it} + l_2 PDRB_{it} + l_3 INFL_{it} + l_4 LEXPD_{it} + u_{12}$  ..... (17)

Expected parameter estimates:  $l_1, l_3 < 0$  dan  $l_2, l_4 > 0$

Regional import  
 $IMPD_{it} = m_0 + m_1 PDRB_{it} + m_2 KONS_{it} + m_3 TREN_{it} + m_4 LIMPD_{it} + u_{13}$  ..... (18)

Expected parameter estimates:  $m_1, m_2, m_3, m_4 > 0$

Net export  
 $NEXP = EXPD_{it} - IMPD_{it}$  ..... (19)

*Block Output and Employment:*

GDP from agriculture sector  
 $PDRBSP_{it} = n_0 + n_1 PTKSP_{it} + n_2 BMDSP_{it} + n_3 INVS_{it} + n_4 DDTDL_{it} + n_5 LPDRBSP_{it} + u_{14}$  ..... (20)

Expected parameter estimates:  $n_1, n_2, n_3, n_4, n_5 > 0$

GDP from mining sector  
 $PDRBTB_{it} = o_0 + o_1 PTKNP_{it} + o_2 PAJD_{it} + o_3 INVS_{it} + o_4 DDTDL_{it} + o_5 LPDRBTB_{it} + u_{15}$  ..... (21)

Expected parameter estimates:  $o_1, o_3, o_4, o_5 > 0; o_2 < 0$

GDP from industrial sector  
 $PDRBID_{it} = p_0 + p_1 PTKNP_{it} + p_2 INVS_{it} + p_3 DDTDL_{it} + p_4 UMP_{it} + p_4 INFL_{it} + u_{16}$  ..... (22)

Expected parameter estimates:  $p_1, p_2, p_3 > 0; p_4, p_5 < 0$

GDP from gas electricity and water sector  
 $PDRBLGA_{it} = q_0 + q_1 PTKNP_{it} + q_2 INVS_{it} + q_3 DDTBL_{it} + q_4 LPDRBLGA_{it} + u_{17}$  ..... (23)

Expected parameter estimates:  $q_1, q_2, q_3, q_4 > 0$

GDP from construction sector  
 $PDRBBG_{it} = r_0 + r_1 PTKNP_{it} + r_2 INVS_{it} + r_3 DDTBL_{it} + r_4 INFL_{it} + u_{18}$  ..... (24)

Expected parameter estimates:  $r_1, r_2, r_3 > 0; r_4 < 0$ .

*GDP from trade sector:*

$PDRBDG_{it} = s_0 + s_1 PTKNP_{it} + s_2 DDTBL_{it} + s_3 INVS_{it} + s_4 INFL_{it} + u_{19}$  ..... (25)

Expected parameter estimates:  $s_1, s_2, s_3 > 0$  dan  $s_4 < 0$ .

GDP from transport sector  
 $PDRBTR_{it} = t_0 + t_1 PTKNP_{it} + t_2 INVS_{it} + t_3 DDTBL_{it} + t_4 INFL_{it} + u_{20}$  ..... (26)

Expected parameter estimates:  $t_1, t_2, t_3 > 0$  dan  $t_4 < 0$

GDP from financial sector  
 $PDRBKU_{it} = u_0 + u_1 PTKNP_{it} + u_2 INVS_{it} + u_3 DDTBL_{it} + u_4 INFL_{it} + u_{21}$  ..... (27)

Expected parameter estimates:  $u_1, u_2, u_3 > 0$  dan  $u_4 < 0$   
 GDP from services sector  

$$PDRBJS_{it} = v_0 + v_1 PTKNP_{it} + v_2 TPGPD_{it} + v_3 DDTBL_{it} + v_4 INVS_{it} + v_5 UMP_{it} + v_6 INFL_{it} + u_{22}$$
 (28)

Expected parameter estimates:  $v_1, v_2, v_3, v_4 > 0$ ;  $v_5, v_6 < 0$   
 11. Regional gross domestic product  

$$PDRB_{it} = PDRBSP_{it} + PDRBTB_{it} + PDRBID_{it} + PDRBLGA_{it} + PDRBBG_{it} + PDRBDG_{it} + PDRBTR_{it} + PDRBKU_{it} + PDRBJS_{it}$$
 (29)

Agricultural employment  

$$PTKSP_{it} = w_0 + w_1 AKK_{it} + w_2 INVS_{it} + w_3 LPTKSP_{it} + u_{23}$$
 (30)

Expected parameter estimates:  $w_1, w_2, w_3 > 0$   
 Non-agricultural employment  

$$PTKNP_{it} = x_0 + x_1 INVS_{it} + x_2 AKK_{it} + x_3 LPTKNP_{it} + u_{24}$$
 (31)

Expected parameter estimates:  $x_1, x_2, x_3 > 0$   
 Employment  

$$PTK_{it} = PTKSP_{it} + PTKNP_{it}$$
 (32)

#### *Block Economic Performance:*

Unemployment  

$$UNEP_{it} = y_0 + y_1 INVS_{it} + y_2 PTK_{it} + y_3 UMP_{it} + y_4 AKK_{it} + u_{25}$$
 (33)

Expected parameter estimates:  $y_1, y_2 < 0$ ;  $y_3, y_4 > 0$   
 Number of the poor  

$$MISK_{it} = z_0 + z_1 PDRB_{it} + z_2 POP_{it} + z_3 UNEP_{it} + z_4 LMISK_{it} + u_{26}$$
 (34)

Expected parameter estimates:  $z_2, z_3, z_4 > 0$ ;  $z_1 < 0$   
 Regional inflation  

$$INFL_{it} = aa_0 + aa_1 KONS + aa_2 INVS_{it} + aa_3 SBI_{it} + aa_4 INFLK + u_{27}$$
 (35)

Expected parameter estimates:  $aa_1, aa_4 > 0$ ;  $aa_2, aa_3 < 0$   
 The interrelationships among the variables in the model can be seen in Appendix 1.

## **Results and Discussions**

Our simulation suggests that we use 2SLS (two Stage Least Square) methods and the estimation results is presented in Appendix 3 – Appendix 6. Summary of the results can be presented as follows:

#### *Fiscal Policy:*

Based on the results of the model estimations on regional fiscal revenues (see Appendix 3 for details) showed that: (1) Regional taxes were significantly and positively influenced by the number of hotel rooms and the regional taxes of the previous year. Meanwhile, the number of vehicles and the total government spending had a positive sign, but they did not significantly affect. (2) Regional Retribution were positively and significantly influenced by the total regional government expenditure and the Regional Retribution of the previous year, while GDP and the population number had a positive sign but no significant effect. (3) General Allocation Fund (DAU) was significantly and positively affected by the number of civil servants, the size of regency werea, and the number of poor people/poverty. (4) Sharing revenue Fund (DBH) was significantly and positively influenced by GDP and the sharing revenue from the previous year.

Based the results of model estimations on regional fiscal expenditure, (Appendix 2) showed that: (1) civil servants' expenditures were significantly and positively influenced by the number of civil servants, regional revenues and expenditures of the previous year; (2) expenditures for goods and services were positively and significantly affected by the regional revenue and expenditures for goods and services of the previous year, while sharing revenue and General Allocation Fund had a positive sign, but they did not significantly affect; (3) the capital spending of agricultural sector was significantly influenced by the agricultural GDP and the capital expenditure of agricultural sector of the previous year, while general allocation fund and special allocation fund did not have a significant impact; (4) the capital spending of other sectors was significantly and positively influenced by the special allocation of funds, sharing revenue and capital expenditures in other sectors of the previous year; and (5) other expenditures of regional government was only affected significantly by other spending of the previous year, while the general allocation, sharing revenue, and revenue had a positive sign but did not significantly affect.

*Aggregate Demand:*

Based on the results of the estimation model of aggregate demand (Appendix 4), showed that: (1) Consumption was significantly influenced by the regional gross domestic product (GDP) and public consumption of the previous year. It means that if GDP and public consumption increase in the previous year, the consumption will also increase in the current year; (2) Private investment was significantly and positively influenced by public consumption and investment of the previous year, but on the other hand the private investment was significantly and negatively influenced by GDP. Thus, if in the previous year the consumption and investment increased, the current year's investment will also increase, whereas if PAD increases, the private investment will decline. This indicated that the taxes and Regional Retribution as the main source of revenues collected by the regional governments were high cost economy; (3) Regional exports were not only significantly and positively affected by GDP and the exports of the previous year, but also by the exchange rate of rupiah. So if GDP and the exports of the previous year increase, the current year's exports will also increase. Conversely, when the exchange rate increases, the region exports will decrease; (4) Regional import was significantly affected by the import of the previous year, while other variables such as GDP, consumption, and trend did not significantly affect the regional import.

*Regional Output:*

In this study the regional output were divided into 9 sectors, namely, agriculture, mining, industry, electricity, gas and water, construction, trade, transport and communications, finance and service sector (Appendix 5).

The results of model estimations indicated that private investment and deconcentration funds and assisting duty were the determinant factors in driving the output. This also indicated that private investment and deconcentration funds and assisting duty affected all of the sectors positively and affected 7 sectors significantly. This suggested that private investment and deconcentration funds played an important role in the GDP growth.

*Economic Performance:*

Economic performance of the regencies and cities of South Sulawesi province was not only viewed from the sectors as described above, but also evaluated in terms of employment, unemployment, poverty and inflation rate (Appendix 6).

The result of estimation model in agricultural sector as well as non-agricultural employment sectors indicated that the agricultural sector employment was positively and significantly influenced by the total labor force, private investment and employment of agricultural and non agricultural sector of the previous year. Therefore, the private investment played an important role in the labor absorption both in agricultural and non agricultural sectors.

The results of the estimation model on unemployment showed that unemployment was significantly and positively influenced by the number of labor force, while the labor absorption had a significant impact on the unemployment rate. This showed that the bigger of the labor force, the unemployment rate would be greater. On the contrary, if the labor absorption increased, the unemployment would decrease. Both variables were very responsive to unemployment; that is why, the government should pay more attention to the efforts of reducing unemployment.

The results of estimation model to the poverty showed that poverty was positively and significantly influenced by the number of poor people from the previous year, while GDP had a negative influenced even though it was not concrete to the poverty. So, the GDP growth of the regencies and cities in South Sulawesi province could not reduce the number of poor people.

While the inflation in the regencies and cities of South Sulawesi province was significantly and positively influenced by the inflation in Kendari city, on the other hand, the Bank Indonesian' rate influenced the inflation negatively and significantly. This case showed that the inflation in South Sulawesi province was vulnerable to the inflation of the cities around them. Therefore, with the instrument of the interest rate of Bank Indonesia was quite effective in controlling inflation.

*The Policy Simulation:*

The policy simulations carried out in this study were categorized into three groups: (1) policy simulation aimed to increase the original regional income variables, (2) policy simulation aimed to encourage the private investment by reducing regional revenues from taxes and Regional Retribution, and (3) policy simulation aimed to reallocate the government spending by means to increase the capital spending.

**Table 1:** Simulation of the impact of fiscal policies on the regional economy of the regencies in South Sulawesi.

Variable name	Basic values	S1	S2	S3	S4	S5	S6	S7	S8
		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
		%	%	%	%	%	%	%	%
Private consumption	986481	0,00	0,01	-0,02	0,00	0,01	0,03	0,02	0,04
Private investment	333398	0,85	1,36	0,59	0,64	1,13	0,79	0,79	1,31
Regional export	804792	0,05	0,10	-0,09	0,06	0,09	0,15	0,15	0,25
Regional import	602673	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
GDP from agriculture sector	535528	0,02	0,02	0,00	0,00	0,00	0,08	0,08	0,13
GDP from mining sector	163142	0,14	0,01	-0,14	0,00	-0,14	0,00	0,00	0,01
GDP from industrial sector	204450	0,46	0,73	0,32	0,34	0,61	0,42	0,43	0,71
GDP from gas electricity and water sector	17485.1	0,23	0,37	0,16	0,17	0,31	0,21	0,21	0,36
GDP from construction sector	92227.8	0,63	1,01	0,44	0,47	0,84	0,58	0,59	0,97
GDP from trade sector	274663	0,63	1,01	0,44	0,47	0,84	0,59	0,59	0,98
GDP from Transport sector	135433	0,70	1,13	0,49	0,53	0,94	0,65	0,65	1,09
GDP from financial sector	110336	0,53	0,86	0,37	0,40	0,71	0,50	0,50	0,83
GDP from services sector	201023	0,91	0,87	-3,86	-0,26	-0,53	1,73	1,54	2,75
Agricultural employment	67197.9	0,03	0,04	-0,02	-0,02	-0,04	-0,03	-0,03	-0,04
Non-agricultural employment	59984.6	0,08	0,13	0,06	0,06	0,11	0,08	0,08	0,13
Unemployment	13928.4	0,22	0,35	-0,15	-0,16	-0,29	-0,20	-0,20	-0,34
Number of the poor	45121.1	0,00	0,01	0,00	0,00	-0,01	-0,01	-0,01	-0,02
Regional inflation	7.723	0,05	0,09	-0,04	-0,04	-0,06	-0,04	-0,04	-0,08
Total regional revenue	197729	0,32	0,47	-0,17	-0,18	-0,32	0,02	0,02	0,03
Total regional government expenditure	202642	1,64	1,75	-5,96	-0,60	-1,17	2,31	2,04	3,66
Total government expenditure	265088	1,25	1,34	-4,55	-0,46	-0,90	1,77	1,56	2,80
Net exports	202119	0,18	0,41	-0,36	0,22	0,36	0,61	0,59	1,00
Regional gross domestic product	1734289	0,15	0,34	-0,27	0,18	0,30	0,48	0,46	0,79
Employment	127183	0,02	0,04	0,02	0,02	0,03	0,02	0,02	0,04
Income per capita	47.220	0,18	0,43	-0,65	0,04	0,01	0,69	0,69	1,17
Average income of farmers	89.788	0,07	0,04	0,17	0,38	0,46	0,45	0,45	0,58

Note:

S1 = Increasing local taxes and regional retribution 10 percent, and increased capital spending of 5 percent

S2 = Increasing original regional income 10 percent and increasing capital spending 5 percent.

S3 = Decreasing the local tax of 10 percent, and reducing other spending 5 percent.

S4 = Decreasing Regional Retribution 10 percent, and reducing other spending 5 percent.

S5 = Decreasing local taxes and regional Regional Retribution 10 per cent respectively, and reducing spending other 10 percent.

S6 = Decreasing other expenditures 20 percent and increasing capital spending in other sectors and agriculture sectors 15 percent.

S7 = Decreasing spending 15 percent of goods and services and increasing capital spending in other sectors and agriculture sectors 15 percent.

S8 = Decreasing Other expenditures 20 percent, and I decreasing spending on goods and services 10 percent, then increasing capital spending in other sectors and agriculture sectors 25 percent.

The results of policies simulations aimed to increase original regional revenue variables (Simulations 1 and 2) were not worth considering in policy making, because they could cause a high cost economy, indicated by a declining in private investment that had an impact on the declining in GDP, rising unemployment and increasing poverty.

Fiscal policy simulations were intended to encourage private investment by reducing regional revenues from taxes and regional Retribution (Simulation 3, 4 and 5). Nevertheless, the impact on economic growth, unemployment reduction, and poverty were relatively very small.

Fiscal policy simulations intended to reallocate the government spending in order to increase the capital spending in both agricultural and non agricultural sectors, by reducing spending on other goods and services (Simulation 6.7 and 8) were considered more effective in promoting economic growth, reducing unemployment and poverty in the regencies and cities of South Sulawesi Province.

#### Conclusions:

The result of this study found that fiscal policy implemented by regional governments, particularly capital spending, both on agriculture and other sectors could encourage private investment in the regencies/cities of South Sulawesi. Furthermore, private investment would encourage increasing the regional gross domestic product in all sectors such as agriculture, mining, industry, electricity gas and water, construction, trade, transportation and communications, finance, and services, which in turn would increase the per capita income. Beside that, the private investment could also reduce the rates of unemployment and inflation. Meanwhile, poverty might be reduced in line with the increasing in the gross regional domestic product. Similarly, the deconcentration fund, tasks, operational, etc. gave a positive impact on gross regional domestic product, mainly in electricity, gas and water sector, construction, trade, transportitiom and communications, finance, and services.

On the other hand, the fiscal policy to increase the original regional income could reduce private investment. These noted that; if the regional governments must explore the potential of regional taxes and charges, it could lead to high cost economy that impact on the declining of the private investment and in turn the decrease of the regional gross domestic product. Finally, the rates of unemployment and inflation would be high, worsening the poverty rate.

Private investment is a key factor in promoting the economic growth and reducing unemployment and poverty. Therefore, regional governments were necessary to take policies that can encourage the growth of private investment in the region, including the increasing of capital expenditures as an effort to build and improve the infrastructure in their regencies and cities.

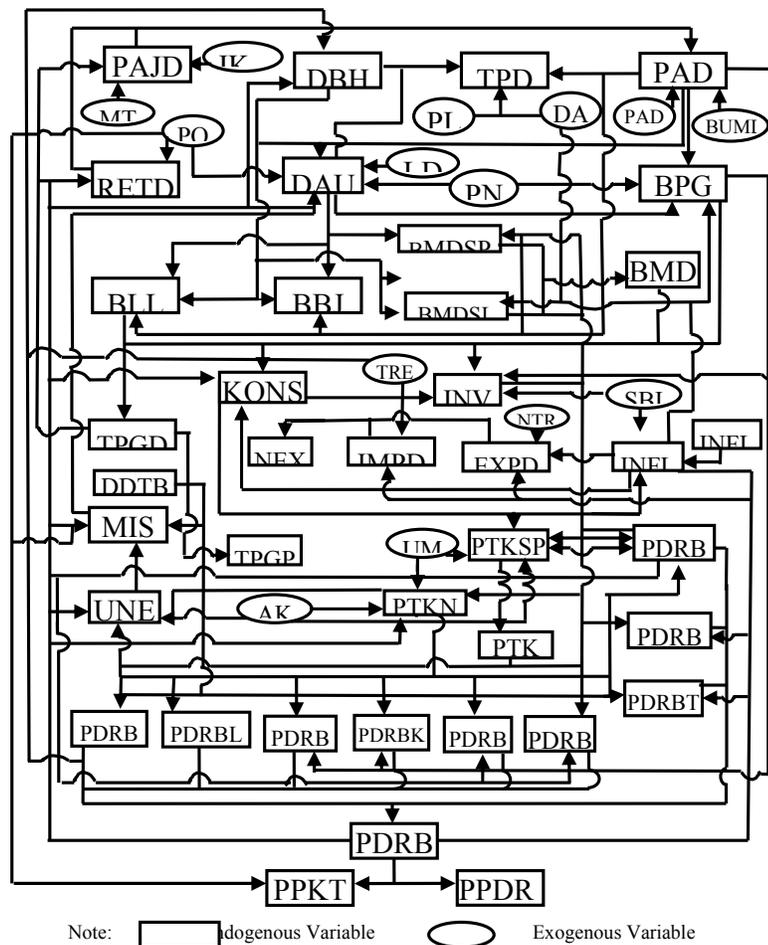
**Appendix 1:** Variable Name, Symbol, and Unit

Variable Name	SYMBOL	UNIT
Labor force	AKK	People
Expenditures for goods and services	BBJ	Million rupiah
Government's miscellaneous expenditures	BLL	Million rupiah
Capital expenditure	BMD	Million rupiah
Capital spending for other sectors	BMDSL	Million rupiah
Capital spending for agricultural sector	BMDSP	Million rupiah
Personnel expenditure	BPGW	Million rupiah
Regional government-owned enterprises	BUMD	Million rupiah
Special allocation funds	DAK	Million rupiah
General allocation funds	DAU	Million rupiah
Revenue-sharing	DBH	Million rupiah
Deconcentration, assissting task, etc.	DDTBL	Million rupiah
Regional export	EXPD	Million rupiah
Regional import	IMPD	Million rupiah
Regional inflation	INFL	Persen
Inflation Kendari City	INFLK	Persen
Private investment	INVS	Million rupiah
Number of hotel rooms	JMKH	Unit
Private consumption	KONS	Million rupiah
Eexpenditures for goods and services in the previous year	LBBJ	Million rupiah
Government's miscellaneous expenditures in the previous year	LBLL	Million rupiah
Capital expenditure for agricultural sector	LBMDSP	Million rupiah
Capital expenditure for other sectors in the previous year	LBMDSL	Million rupiah
Personnel expenditure in the previous year	LBPGW	Million rupiah
The werea of the regency/city	LDK	Km <sup>2</sup>
Revenue-sharing in previous year	LDBH	Million rupiah
Regional Export in the previous year	LEXPD	Million rupiah
Regional Import in the previous year	LIMPD	Million rupiah
Private investment in the previous year	LINVS	Million rupiah
Private consumption in the previous year	LKONS	Million rupiah
Number of the poor in the previous year	LMISK	People
Regional texes in the previous year	LPAJD	Million rupiah
GDP in the previous year	LPDRB	Million rupiah
GDP from construction sector in the previous year	LPDRBBG	Million rupiah
GDP from trade sector the previous year	LPDRBDG	Million rupiah
GDP from industrial sector in the previous year	LPDRBID	Million rupiah
GDP from services sector in the previous year	LPDRBJS	Million rupiah
GDP from the previous year's financial sector	LPDRBKU	Million rupiah
GDP from electricity, gas, and water the previous year	LPDRBLGA	Million rupiah
GDP from agricultural sector in the previous year	LPDRBSP	Million rupiah
GDP from mining sector in the previous year	LPDRBTB	Million rupiah
GDP from transport sector in the previous year	LPDRBTR	Million rupiah
Per capita income in the previous year	LPPKT	Rupiah
Non-agricultural employment in the previous year	LPTKNP	People
Agricultural employment in the previous year	LPTKSP	People
Income from Regional Retribution in previous year	LRETD	Million rupiah
Unemployment in the previous year	LUNEP	People
Iinflation in the previous year	LINFL	Percent
Number of the poor	MISK	People
Number of motor vehicles	MTR	Unit
Rupiah exchange rate	NTRP	Rupiah
Net exports	NEXP	Million rupiah
Original regional income	PAD	Million rupiah
Other regional revenues	PADL	Million rupiah
Regional tax	PAJD	Million rupiah
Regional gross domestic product	PDRB	Million rupiah

Appendix 1: continue....

Variable Name	SYMBOL	UNIT
GDP from construction sector	PDRBBG	Million rupiah
GDP from trade sector	PDRBDG	Million rupiah
GDP from industrial sector	PDRBID	Million rupiah
GDP from services sector	PDRBJS	Million rupiah
GDP from financial sector	PDRBKU	Million rupiah
GDP from gas electricity and water sector	PDRBLGA	Million rupiah
GDP from agriculture sector	PDRBSP	Million rupiah
GDP from mining sector	PDRBTB	Million rupiah
GDP from Transport sector	PDRBTR	Million rupiah
Other regional revenues	PLD	Million rupiah
Number of civil servants	PNS	People
Number of population	POP	People
Income per capita	PPKT	rupiah
Employment	PTK	People
Non-agricultural employment	PTKNP	People
Agricultural employment	PTKSP	People
Regional Retribution	RETD	Million rupiah
Interest rate of Bank Indonesia	SBI	Percent
Total regional revenue	TPD	Million rupiah
Total government expenditure	TPGP	Million rupiah
Total regional government expenditure	TPGPD	Million rupiah
Trend (years 1,2,3, ... n)	TREN	1,2,3,...n
Provincial minimum wage	UMP	Rupiah
Unemployment	UNEP	People

Appendix 2: The Interrelationships among the variables in the model



**Appendix 3:** Parameter estimation results of local fiscal equation

Equation Regional Tax (PAJD)						
Peubah	Estimasi	Prob>[T]	Elastisitas	Nama Peubah	F-hitung	R <sup>2</sup>
Intercept	-8.932	0.1046	-	Intercept	832.08	0.9604
TPGPD	0.003587	0.2360	0.1854	Total regional government expenditure		
MTR	0.001002	0.7911	0.0144	Number of motor vehicles		
JMKH	1.698.052	0.0011	0.1730	Number of hotel rooms		
LPAJD	0.851928	<.0001	-	Regional taxes in the previous year		
Equation Regional Retribution (RETD)						
Intercept	-529.874	0.2007	-	Intercept	299.34	0.8970
PDRB	0.000031	0.7269	0.0113	Regional gross domestic product		
TPGPD	0.006841	0.0261	0.2784	Total regional government expenditure		
POP	-0.00001	0.9921	-0.0007	Number of population		
LRETD	0.831334	<.0001	-	Regional Retribution in previous year		
Equation General allocation funds (DAU)						
Intercept	53301.04	<.0001	-	Intercept	306.25	0.9176
PAD	-0.26724	0.1954	-0.0247	Original regional income		
LDK	0.416708	0.5126	0.0061	The werea of the regency/city		
MISK	0.123766	0.0611	0.0409	Number of the poor		
POP	0.066243	0.0003	0.1613	Number of population		
PNS	101.139	<.0001	0.0426	Number of civil sevants		
Equation Revenue-sharing (DBH)						
Intercept	2751.78	0.0152	-	Intercept	241.80	0.8406
PDRB	0.000693	0.0293	0.0697	Regional gross domestic product		
TREN	2.382.329	0.9150	0.0048	Tren (1.2.3. ....n)		
LDBH	0.814292	<.0001	-	Revenue-sharing in previous year		
Equation Personnel expenditure (BPGW)						
Intercept	6.976.466	0.9875	-	Intercept	588.73	0.9449
PNS	4.794.669	0.0047	0.2941	Number of civil sevants		
PAD	0.346037	0.0077	0.0465	Original regional income		
DAU	0.112003	0.1456	0.1631	General allocation funds		
LBPGW	0.54733	<.0001	-	Personnel expenditure in the previous year		
Equation Expenditures for goods and services (BBJ)						
Intercept	419.104	0.8592	-	Intercept	238.33	0.8739
PAD	0.252168	0.0139	0.1098	Original regional income		
DAU	0.039587	0.0504	0.1867	General allocation funds		
DBH	0.08758	0.2925	0.0530	Revenue-sharing		
LBBJ	0.722963	<.0001	-	Expenditures for goods and services in the previous year		
Equation Capital spending for agricultural sector (BMDSP)						
Intercept	3.195	<.0001	-	Intercept	17.18	0.3208
DAK	0.027129	0.3311	0.0596	Special allocation funds		
DAU	0.000273	0.9517	0.0049	General allocation funds		
PDRBSP	0.001196	0.0705	0.0849	GDP from agriculture sector		
LBMDSP	0.440628	<.0001	-	Capital spending for agricultural sector in the previous year		
Equation Capital spending for other sectors (BMDSL)						
Intercept	-8219.94	0.0623	-	Intercept	86.32	0.6514
DBH	0.624927	<.0001	0.2249	Revenue-sharing		
DAK	1.378.291	<.0001	0.4683	Special allocation funds		
LBMDSL	0.53431	<.0001	-	Capital spending for other sectors in the previous year		
Equation Government's miscellaneous expenditures (BLL)						
Intercept	1.659.611	0.5496	-	Intercept	34.35	0.4933
DAU	0.031692	0.1832	0.2280	General allocation funds		
DBH	0.137863	0.1521	0.1274	Revenue-sharing		
PAD	0.023321	0.8302	0.0155	Original regional income		
LBLL	0.518681	<.0001	-	Government's miscellaneous expenditures in the previous year		

**Appendix 4:** Parameter sstimation results of the regional aggregate demand fquation

Equation Private consumption (KONS)						
Peubah	Estimasi	Prob>[T]	Elastisitas	Nama Peubah	F-hitung	R <sup>2</sup>
Intercept	-56615.7	0.0416	-	Intercept	7501.50	0.9964
PDRB	0.033874	0.0583	0.0605	Regional gross domestic product		
BBJ	0.025844	0.9765	0.0008	Expenditures for goods and services		
BPGW	0.291662	0.3571	0.0291	Personnel expenditure		
INFL	3.305.732	0.1614	0.0260	Regional inflation		
Equation Government's miscellaneous expenditures (BLL)						

LKONS	0.994857	<.0001		Private consumption in the previous year		
Equation Private investment (INVS)						
Intercept	-56307.5	0.0163	-	Intercept	1586.87	0.9789
BMD	0.330747	0.3939	0.0558	Capital expenditure		
PAD	-433.688	0.0462	-0.1639	Original regional income		
KONS	0.16725	0.0001	0.4951	Private consumption		
LINVS	0.859409	<.0001	-	Private investment in the previous year		
Equation Regional export (EXPD)						
Intercept	883837.4	0.0084	-	Intercept	5260.71	0.9935
NTRP	-112.635	0.0051	-13.429	Rupiah exchange rate		
PDRB	0.152529	<.0001	0.3325	Regional gross domestic product		
INFL	9.658.923	0.2430	0.0920	Regional inflation		
LEXP	0.887933	<.0001	-	Regional export in the previous year		
Equation Regional import (IMPD)						
Intercept	-42958.5	0.2299	-	Intercept	5499.88	0.9938
PDRB	0.01618	0.5775	0.0452	Regional gross domestic product		
KONS	0.01548	0.8248	0.0242	Private consumption		
TREN	3.522.106	0.6376		Trend (1,2,3, ...,n)		
LIMPD	1,056896	<.0001	-	Regional import in the previous year		

**Appendix 5:** Parameter estimation results of output equations

Equation GDP from agriculture sector (PDRBSP)						
Peubah	Estimasi	Prob>[T]	Elastisitas	Nama Peubah	F-hitung	R <sup>2</sup>
Intercept	-1119.74	0.8894	-	Intercept	6445.14	0.9958
PTKSP	0.010804	0.8799	0.0014	Agricultural employment		
BMDSP	0.361827	0.7530	0.0051	Capital spending for agricultural sector		
INVS	0.002537	0.6988	0.0016	Private investment		
DDTBL	-0.00984	0.6111	-0.001	Deconcentration, assissting task, etc		
LPDRBSP	1.034.334	<.0001		GDP from agriculture sector in the previous year		
Equation GDP from mining sector (PDRBTB)						
Intercept	4.466.026	0.4966	-	Intercept	7722.43	0.9965
PTKNP	-0.10527	0.5450	-0.03960	Non-agricultural employment		
PAJD	0.609004	0.7360	0.01428	Regional tax		
INVS	0.000922	0.9568	0.00193	Private investment		
DDTBL	0.009543	0.8684	0.00365	Deconcentration, assissting task, etc		
LPDRBTB	1.014.466	<.0001		GDP from mining sector in the previous year		
Equation GDP from industrial sector (PDRBID)						
Intercept	-16850.1	0.8784	-	Intercept	142.43	0.8377
PTKNP	1.459.383	0.1189	0.37133	Non-agricultural employment		
INVS	0.30500	0.0017	0.45777	Private investment		
DDTBL	0.801509	0.0008	0.21229	Deconcentration, assissting task, etc		
UMP	-0,02947	0.8583	-0,07953	Provincial minimum wage		
INFL	41,54402	0.5376	0,14413	Regional inflation		
Equation GDP from gas electricity and water sector (PDRBLGA)						
Intercept	-972.386	0.0204	-	Intercept	11662.0	0.9971
PTKNP	0,007317	0.5128	0,0251	Non-agricultural employment		
INVS	0,014042	<.0001	0,28773	Private investment		
DDTBL	0,012762	0.0037	0,04557	Deconcentration, assissting task, etc		
LPDRBLGA	0,770305	<.0001		GDP from electricity, gas, and water the previous year		
Equation GDP from construction sector (PDRBBG)						
Intercept	2.061.103	0.7488	-	Intercept	2204.14	0.9847
PTKNP	0.029994	0.7575	0.01950	Non-agricultural employment		
INVS	0.205995	<.0001	0.74487	Private investment		
DDTBL	0.18726	<.0001	0.12676	Deconcentration, assissting task, etc		
INFL	1.035.266	0.1383	0.0865	Regional inflation		
Equation GDP from trade sector (PDRBDG)						
Intercept	-21807.2	0.2222	-	Intercept	3610.30	0.9906
PTKNP	0.72703	0.0076	0.15873	Non-agricultural employment		
DDTBL	0.843879	<.0001	0.19179	Deconcentration, assissting task, etc		
INVS	0.599648	<.0001	0.72798	Private investment		
INFL	0.312662	0.9870	0.00096	Regional inflation		
Equation GDP from Transport sector (PDRBTR)						
Intercept	-33922.8	0.0017	-	Intercept	3217.66	0.9895
PTKNP	0.442119	0.0064	0.19575	Non-agricultural employment		
INVS	0.32903	<.0001	0.81008	Private investment		
DDTBL	0.484069	<.0001	0.22311	Deconcentration, assissting task, etc		

INFL	3,767876	0.7420	0,0214	Regional inflation		
Equation GDP from financial sector (PDRBKU)						
Intercept	-619204	0.2626	-	Intercept	4801.86	0.99292
PTKNP	0,537592	<.0001	0,29219	Non-agricultural employment		
INVS	0,199325	<.0001	0,60243	Private investment		
DDTBL	0,251012	<.0001	0,14202	Deconcentration, assissting task, etc		
INFL	2,786282	0.6403	0,0195	Regional inflation		
Equation GDP from services sector (PDRBJS)						
Intercept	-1288,24	0.9479	-	Intercept	894.50	0.9751
PTKNP	0,96853	<.0001	0,28894	Non-agricultural employment		
TPGPD	0,665208	<.0001	0,67045	Total regional government expenditure		
DDTBL	0,23775	<.0001	0,07383	Deconcentration, assissting task, etc		
INVS	0,116533	<.0001	0,1933	Private investment		
UMP	-0,05566	0.1342	-0,17612	Provincial minimum wage		
INFL	-11,4839	0.3480	-0,04404	Regional inflation		

**Appendix 6:** Parameter Estimation Results for Economic Performance Equation

Equation Agricultural employment (PTKSP)						
Peubah	Estimasi	Prob>[T]	Elastisitas	Nama Peubah	F-hitung	R <sup>2</sup>
Intercept	-1168,75	0.4106	-	Intercept	1358.39	0.9675
AKK	0,052484	0.0159	0,11023	Labor force		
INVS	-0,00653	0.0277	-0,03242	Private investment		
LPTKSP	0,948909	<.0001		Agricultural employment in the previous year		
Equation Non-agricultural employment (PTKNP)						
Intercept	-620,106	0.6696	-	Intercept	5205.31	0.9913
INVS	0,017177	<.0001	0,09552	Private investment		
AKK	0,050653	0.0011	0,11917	Labor force		
LPTKNP	0,843973	<.0001		Non-agricultural employment in the previous year		
Equation Unemployment (UNEP)						
Intercept	-219.575	0.0669	-	Intercept	101856	0.9997
INVS	-0.00006	0.3627	-0.00144	Private investment		
PTK	-100.319	<.0001	-9.1623	Employment		
UMP	0.000248	0.1557	0.01133	Provincial minimum wage		
AKK	1.003.309	<.0001	10.16.822	Labor force		
Equation Number of the poor (MISK)						
Intercept	674.67	0.4228	-	Intercept	1077.97	0.9692
PDRB	-0.00037	0.4550	-0.01447	Regional gross domestic product		
POP	0.002591	0.7393	0.01909	Number of population		
UNEP	0.035591	0.7465	0.01099	Unemployment		
LMISK	0.95056	<.0001		Number of the poor in the previous year		
Equation Regional inflation (INFL)						
Intercept	8.281.074	<.0001	-	Intercept	38.66	0.5237
KONS	0.000072	0.2830	0.09222	Private consumption		
INVS	-0.00014	0.2383	-0.06057	Private investment		
SBI	-0.62335	<.0001	-0.79499	Interest rate of Bank Indonesia		
INFLK	0.575102	<.0001	0.69107	Inflation Kendari City		

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