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INFLATION IN CENTRAL SULAWESI: MONETARY PHENOMENON OR FISCAL PHENOMENON?

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ABSTRACT

The study aims to analyse inflation inCentral Sulawesi province by proving two inflation theories as inflation as a monetary phenomenon or fiscal phenomenon and in response to fiscal policy conducted by the central government through a fiscal variable in suppressing the inflation rate in Central Sulawesiprovince, Indonesia. The approach is to look at comparative levels of significance from fiscal variables and monetary variables in influencing inflation through *non-nested*tests.The results obtained from estimates made to fiscal variables and monetary variables indicate that the monetary variable has a better and more significant influence on the consumer price Index (CPI) variable than the fiscal variable, so it can be concluded that inflation occurring in central Sulawesi province is a monetary phenomenon.

Key words: monetary (JUB), fiscal (Government), inflation (CPI)

1. Introduction

Inflation is an economic phenomenon that is one of the indicators noted in the economy of a country to cover the region of the country. However, there is a fairly striking and often contentious distinction that states inflation is a fiscal phenomenon or a monetary phenomenon. At the beginning of its development, inflation is only seen as a phenomenon of Mo Neter, it is seen through the statement of the Monetari of Milton Friedman stating that "inflation is always and everywhere a monetary phenomenon". The central Bank'S role in controlling inflation in the economy is crucial. Through monetary instruments the central bank can control inflation through the policy of the amount of money supply or the price in an economy.

The analysis approach to inflation continues until the theory that states inflation is not only and is not necessarily a monetary phenomenon, but in some cases it shows that inflation is a fiscal phenomenon, resulting in the theory of FTPL *(fiscal theory of The Price Level).* A few

years after Milton Friedman stated that inflation has always been a monetary phenomenon, Heller stated that fiscal policy in some countries has a different response to inflation in accordance with the process of inflation. For higher levels of inflation, there is an accelerated response to the use of government expenditure.

Leeper, DKK (2016) conducts research on inflation in conjunction with fiscal policy and monetary policy. According to Leeper and Leith, government policy on taxation also affects inflation through its impact on marginal costs, government expenditure on aggregate demand, and monetary discretion affects real interest rates to affect the size of the tax base.

The development of research on inflation as a monetary phenomenon or a fiscal phenomenon until now is still a debate. The various research results on inflation show different results based on the research place and time, so it is still an interesting discussion in determining whether stronger monetary variable or fiscal variable is the cause and the inflation controller in both the short and long term.

Shirakawa (2014) conducted a study to prove the statement from Friedman stating *"Is inflation (or Deflation) ' Always and Everywhere ' a Monetary Phenomenon?"*, Shirakawa tried to compare the statement to the conditions in his country that is Japan, whether in Japan also applies that inflation is a monetary phenomenon. From the research results can be taken some conclusions as follows. (a) The central Bank plays an important role in achieving price stability and must fulfill its responsibilities. (b) Price stability is a medium to long term concept, not a short term concept, and sustainability towards price stability is key. (c) In achieving continuous price stability, cooperation among various policies is a must. (d) International cooperation is very important. (e) The dynamics of inflation may vary across countries and various times. It should not ignore the uniqueness or character factor of each country, including the real factor. (f) A way to describe the problem of price stability and policy is quite important and needs proper consideration of the policy aspects required in monetary policy communications and policy framework design. Monetary policy is therefore required to control inflation in Japan.

Another research that supports inflation is a monetary phenomenon conducted by Sabade (2014) stating that inflation will and is always a monetary phenomenon is true. This theory is applicable in countries that have reached *full employment levels,* but in developing countries and poor countries there is still the possibility to not always be right. Developed countries

faced some recession and tried to control inflation by increasing the circulation of money, and other developed countries managed to reduce inflation through the reduction in money offerings.

Empirical studies in Indonesia that emphasize inflation as a monetary phenomenon or a fiscal phenomenon has also been undertaken, results obtained vary, some say that inflation is a monetary phenomenon and some also declare inflation as a fiscal phenomenon.

Trisdian, DKK (2015) analyzes the volatility of regional inflation in Indonesia by comparing monetary and fiscal policy to the inflation of some regions in Indonesia and showing the results that regional inflation is still a monetary phenomenon. The difference in inflation as a fiscal phenomenon or monetary phenomenon requires further research on whether the statement that inflation will be and is always a monetary phenomenon or inflation is a fiscal phenomenon as found in the *fiscal Theory of The Price Level.*

The research that will be done is inflation in the province of central Sulawesi. The background of inflation analysis in central Sulawesi province is the inflation rate of central Sulawesi province which has always been above the national inflation level. It can be seen on the following 1.1 chart.

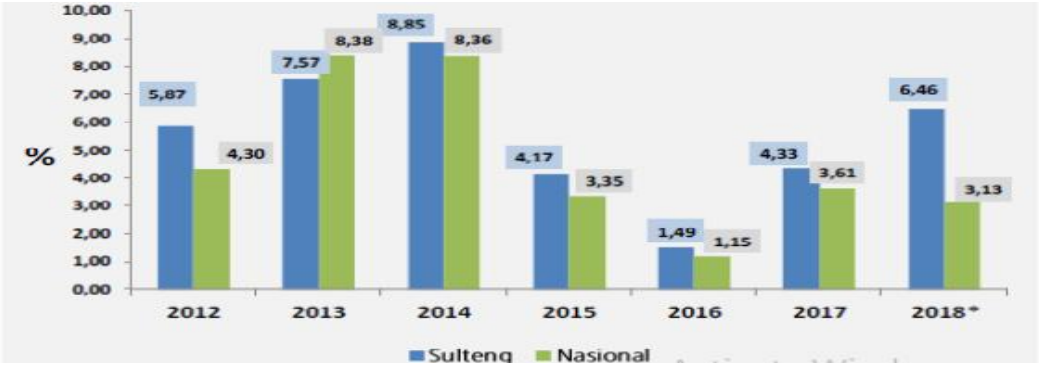


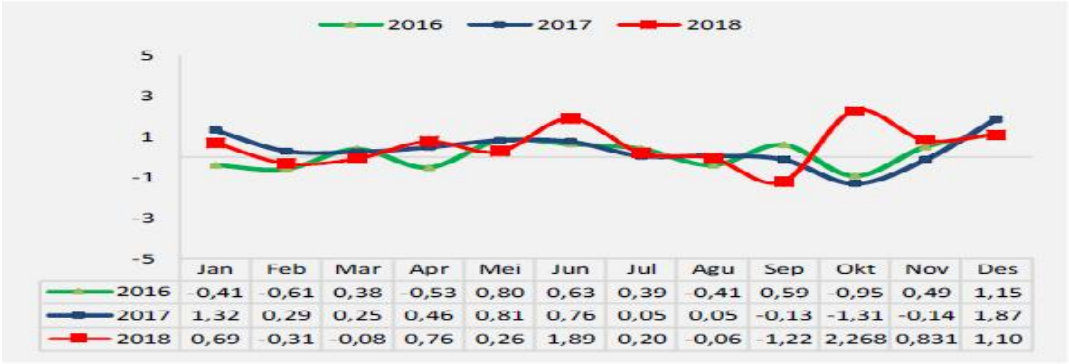
Fig. 1. Chart Of Sulteng-National Inflation

Source: BPS Province of Central Sulawesi, processed by Bank Indonesia.

On the 1.1 chart, it is the inflation of the year 2012-2018 which shows that within the last 7 years inflation in central Sulawesi province has always been above the national rate of inflation, which has a linear relationship when the national inflation rate is falling then the inflation of central Sulawesi province is also down even though its infested level is always above the national inflation level.

In the inflation data contained in the 1.1 chart in 2018 showed a very high increase in inflation, this is because the city of Palu as the capital of central Sulawesi province continues to experience high inflation. Palu City inflation Data throughout the year 2016 quite variative but not very extreme. Inflation during 2017 in *steady state* was deflation but at the end of the year experienced a sharp increase during the months of november to December 2017. The monthly inflation data (MTM) of Palu City throughout the year 2018 seemed very volatile compared to the previous 2 years. Inflation in June of 2018 was a high rate of inflation and then underwent a fairly low deflation in September, but in October there was a very high surge in inflation. As it has been known that by the end of September (September 28, 2018), there have been disasters, tsunamis, and liquiaction in the areas of Palu, Sigi, and Donggala. The disaster has a very significant impact on infrastructure in the city, causing interference and barriers to distribution or supply of goods especially in consumption sector, and some other sectors.

The *shock* (shaking) of the economy in the city of Palu, the economic center in Central Sulawesi, led to a sharp rise in inflation which also affected the inflation rate of Central Sulawesi province. Inflation in October is inflation due to factors outside the economic factor, the natural disaster factor. The Palu city inflation description can be shown on the following Fig. 2 chart.



	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Agu	Sep	Okt	Nov	Des
2016	0,41	0,61	0,38	0,53	0,80	0,63	0,39	0,41	0,59	0,95	0,49	1,15
2017	1,32	0,29	0,25	0,46	0,81	0,76	0,05	0,05	-0,13	-1,31	-0,14	1,87
2018	0,69	0,31	0,08	0,76	0,26	1,89	0,20	0,06	1,22	2,268	0,831	1,10

Fig. 2. Chart Of Palu City Inflation

Source: BPS Province of Central Sulawesi, processed by Bank Indonesia.

The natural disaster shock factor has made inflation in central Sulawesi province increasing. Post-disaster, based on the last data in March 2019 the city of Palu again experienced a deflation of 0.45. The occurrence of a post-disaster inflation decline indicates

that the inflation condition in central Sulawesi gradually began to recover. The volatility of inflation rates in central Sulawesi attracted the attention of researchers for further analysis.

The inflation volatility will be examined through a study that will prove whether inflation is a monetary phenomenon or a fiscal phenomenon, and if it has been obtained that the inflation is one of the two phenomena, it can be carried out the influence of monetary variables or fiscal variables in the short and long term in controlling inflation in central Sulawesi province, and is expected to be a referral policy to control the inflation that occurred in a region especially central Sulawesi province.

1.1 TheAuthenticity Of Research

The studies listed in table 1.1 are previous studies related to the research to be conducted. These studies have a discussion related to inflation and policies undertaken to reduce inflation, especially fiscal policies used to control inflation, as well as several theories that reveal that inflation is not only a monetary phenomenon but also a fiscal phenomenon.

1.2 Research Issues

Inflation is often regarded as a monetary phenomenon and a lot of research proves Milton Friedman's statement that *inflation is always and everywhere a monetary phenomenon*. Various studies are conducted with a variety of methods and samples that use comparisons between monetary variables and fiscal variables in their influence on inflation.

Some of the previous research results show results that support the statement from Friedman, even some that do not conform to Friedman's statement that suggests that inflation is not only a monetary phenomenon but rather a fiscal phenomenon.

Some of the studies that have been done have some disadvantages, some of which are only incriminated on monetary variables and some are incriminated in fiscal variables, and also some see them from both sides. There is an imbalance in the research done by using variables and methods that are more focused on one of the variables makes the researcher want to do their own proof of inflation with research in Indonesia, with a narrower sample of inflation in central Sulawesi province.

The problem of inflation in Central Sulawesi Province is quite interesting, there are significant differences in the volatility of the inflation rate from year to year (YoY) and from

month to month (mtm), as well as the attention of the government and central bank with their fiscal and monetary policies to control inflation in the regions, researchers find a problem, whether the statement that inflation will and always is a monetary phenomenon does not apply to regions in Indonesia because the government through its fiscal policy (other than monetary policy) plays a role as an inflation controller. Therefore, researchers try to prove by looking at the comparison between fiscal variables and monetary variables in their effects on regional inflation.

2. Theoritical Review

2.1 Inflation Concept

Inflation is the overall price increase (Mankiw, 2016:32). Inflation is divided into two types, namely *demand pull inflation* is inflation caused by the shock of aggregate demand, and the *cost of push* inflation which is the inflation caused by the shock of aggregate offerings. (Mankiw, 2016:409).

The indicators used to see an economic condition used in this research are as follows.

1. *Money Supply (M2) adjusted for inflation,* because money offers correlated to total expenditure, the more money in circulation will increase the expenditure which means the higher the production rate and the level of workers.
2. *Index of consumer expectation. The* increasing optimism to the economic conditions in the future on the consumer increases the demand for goods and services, this will increase the production side to expand the production and labor so that it will increase the demand.
3. *New Orders for consumer goods and materials, adjusted for inflation.* This indicator is a direct calculation of the demand for the company, so that it will consume all the equipment of the company, this will lead to the improvement of the producers in the future.
4. *The Consumer Price Index (CPI) is* used to calculate price levels, the Bureau of Labor Statistics calculates the price index specifically on the price of goods, such as food, household supplies, and energy. (Mankiw, 2016:279)

2. 2. Inflation theory

A. Monetary approach

The initial points on the quantity theory of money emphasized that the motives of people holding money to buy goods and services, the more money is needed for the transaction then the more money is held. Therefore the theory of the quantity of money in the economy is influenced by the amount of money contained in the transaction. The relationship between transactions and money is referred to as the quantity model.

Money x Velocity = Price xTransactions

MxV =Px T

The type of equation is very useful because it shows that if one of the variables changes, one or more other variables must also change to adjust the balance. For example if the quantity of money increases and the speed of circulation of the money remains, then the price or transaction amount will change. (Mankiw, 2016:107).

The quantity theory of money has three bases in the similarities of (1) Production factors and production functions that determine the Y output level, (2) The M money supply is determined by the central bank in determining the nominal value of the PY output. This corresponds to the equation of quantity and the assumption that the speed of circulation of money is fixed, (3) P price level which is the ratio of the nominal value of the output PY to the level of output Y.

The quantity theory of money explains what happens when the central bank changes the money supply. Due to the acceleration of the circulation V money fixed and there is a change in the money supply will change the nominal value of the PY outputs proportionally. As production factors and production functions have determined the output Y, the par value of the PY output can adjust if only the price level of P changes. Therefore, the money quantity theory implies that the price level is proportional to the money supply. As the inflation rate is a percentage of price-level changes, the price-level theory is also a theory of the inflation rate.

The quantity theory of money states that the central banks controlling money offerings have very strong control over the inflation rate. If the central bank still maintains the stability of the money supply, eating the price level will be stable. However, if the central bank raises the money supply quickly then the price level will increase rapidly. (Mankiw, 2016:110).

B. Fiscal approaches

Callum, DKK (2006) states that FTPL *(Fiscal Theory of the Price Level)* should be marked as a theory that forms a balance of price levels dominated by the behavior of government bonds by generating a completely different price level behavior with the nominal behavior of the amount of money (monetary). Supporters of fiscal theory prefer to define a different theory of monetary to cover the case where the amount of money is circulating and the price moving together. In particular the example emphasized in many FTPL literature is when the central bank stabilizes the nominal interest rate and that is done showing only a weak response to inflation.

FTPL results and *cashless-economy* rules have formed a deeper analysis of the old analyses. FTPL is a theory that is not standard because it generates a different explanation of inflation than the quantity theory of money. The money-Quantity theory explains the process of inflation adjusted to increase the amount of money circulating relating to the demand for money to balance inflation. FTPL differently provides the reason that money demand occurs endogenous although there is no change in the money offering.

Leeper, DKK (2016) states there are several assumptions that contradict the assumption in the perspective of Wicksellian Monetharis, namely:

1. Fiscal policy will adapt government revenues and government expenditures necessary to finance and stabilize government debts. This indicates that the fiscal action will be ' self-correcting ' and does not require the attention of monetary policy authorities.
2. The impact of monetary policy on fiscal policy choices is small enough to be ignored in monetary decisions in freeing central banks to focus on a narrow objective.

On the model structure of nominal government debt, tax, expenditure, and *transfer payment* There are four key balance that may arise, that is.

1. There is an important role in the nominal revaluation of government debt that stabilizes debt through *shock* inflation changes and bond prices.
2. Enabling a mixture of monetary – fiscal policies to obtain government debt expansion or interest rate hikes on monetary policy instruments to improve welfare, aggregate demand, and price levels.

3. Fiscal policy expectations are also important for monetary policy in determining price levels, and sometimes determining the quantity of money.
4. A debt policy management issue against a dynamic balance contributes as an additional tool to the standard macroeconomic policy.

The implementation of the above analysis is referred to as *the fiscal theory of the price level.* Fiscal theory to the price level is a complement not as a substitute for price level determination. It arises by filling the side of the fiscal model and expanding the rules that refer to monetary and fiscal authorities. Thus, the fiscal theory opens assumptions about the necessary fiscal behavior against the view of conventional monetaris. (Leeper, DKK. 2016)

2. 3. Empirical study

The fiscal policy in response to inflation developed by Heller (1980) states that fiscal policy responses in some countries vary according to the inflation process that occurs. In the process of movement for a higher rate of inflation, there seems to be an accelerated response to expenditure and a response to *lagged* revenue against inflation.

Heller's Research (1980) also states that once the inflation rate is stable at higher levels, the coefficient of expenditure adjustment and revenue tends to be at a lower level in a low rate of inflation. Results from the study also suggested that spending is adjusting faster than revenue in anticipation of inflation; But the opposite results will arise in connection with the occurrence of unexpected inflation. The results of this study also confirmed the main statement that the impact of inflation on the fiscal net position of the public sector is not a predicted virtue. The response of total government expenditure and income changes in a price level will be formed by the discretionary response of the budget decision maker because it is limited by the income and expenditure structures of a particular country.

Past, present, and future inflation characters will also influence decisions on the determination of a budget. In other words, while one of the outcomes can make a conclusion about the trend of adjusting inflation that tends to be inherent in a country with a certain fiscal structure, the main response of policy to inflation does not mean it occurs automatically or mechanistic. Decision-makers in this case are the government has discretion in responding to inflation against government budgets. If inflation is experiencing a higher deficit then this is not completely unplanned.

Leeper, DKK (2016) develops a price-level determination theory on models using *ad hoc* policy rules and by combining optimal monetary policy and fiscal policy as well as empirical issue discussions when attempting to identify a monetary-fiscal regime. This theory states that fiscal theory and the theory of quantity – or its current manifestation, Wecksellian's theory — are part of a general theory on price-level determinations in which monetary policy and fiscal policy always interact with private sector characters to obtain aggregate equilibrium levels at various prices. In a definite parameter to the monetary rules and fiscal rules, both appear to have different perspectives of regional differences in the policy parameter space, but there is not a thing that is sure to state which is the most correct and whichever is wrong.

Solimano (1990) discusses a concept of problems and its implications for the design of policies for stabilization, stating that a stabilization plan associated with reducing money growth and fiscal adjustments will result in short-term inflation reductions in temporary inflation sutuation. But for countries with long history of inflation, where the problem of credibility is a serious problem and the development of a good indexing mechanism, the restriction of monetary policy and fiscal policy may require more and slower costs in getting disinfated on the short and medium term.

The use of income policy-to supplement fiscal restrictions-can help to reduce inflation in the short term without forcing the economy to go through a period of prolonged recession in lowering the inflation target (although several factors are still needed). To reduce inflation permanently requires expenditure to grow compatibility level with price stability in the medium and long term. To achieve that, fiscal adjustment becomes a key component for achieving stabilization. The experience of stopping hyperinflation proves that it requires monetary and fiscal policy as well as exchange rate stabilization to achieve stabilization.

Masri (2010) through his research using- regional fiscal policy variables i.e. employee spending, operational expenditure, capital expenditure, and fiscal decentralization reform of inflation. The results of the calculations were obtained, employees ' expenditures and operational expenditures were positive and significant at $\alpha = 5\%$ against inflation, while the capital expenditure and dummy fiscal decentralized reforms had a positive and significant effect on $\alpha = 1\%$ of inflation.

Trisdian, DKK (2015) analyzes the volatility of regional inflation in Indonesia by comparing monetary and fiscal policy to regional inflation in Indonesia. This research further

emphasizes whether regional inflation in Indonesia is more influenced by monetary policy or fiscal policy. From the research conducted shows that regional inflation is still a monetary phenomenon demonstrated through the variable interest rate has a greater influence than the influence of local government debt.

Rizieq (2006) states that there is a positive correlation between gross Regional product (PDRB) and inflation, which has a correlation that is inflation and credits affect positively on gross Regional domestic product (PDRB), but the government expenditure has no impact on gross Regional domestic product (PDRB) conducted in West Kalimantan province. The next result is that economic growth has a significant impact on inflation.

There is a discrepancy in the outcome between the fiscal and monetary sides of inflation in research conducted by Hervino (2011) stating that in the short term there is an influence of fiscal and monetary policy on inflation but from the results of research gained that the effect of fiscal policy is greater than inflation than monetary policy.

There is a discrepancy between the research conducted by Hervino (2011) with those proposed by Trisdian, et al (2015) and Masri (2010) Who emphasize on regional inflation with a conclusion that states that for regions in Indonesia, the inflation rate is more influenced by the monetary policy factor than in fiscal policy. Therefore, inflation is still referred to as a monetary phenomenon.

Navida (2017) stated that the regional inflation of all provinces in Indonesia in 2004-2016 is a monetary phenomenon and fiscal phenomenon, both of which have a significant influence on inflation in the short term or long term but monetary variables have a more dominant influence on inflation than fiscal variables.

Haryono, DKK (2000) states that government expenditure as part of *total demand* cannot be directly influenced by monetary policy, but by policy on fiscal side. Furthermore, the *total demand* that is partially affected by this new monetary policy will lead to domestic inflation pressures when generating a positive *output gap* . That is, *total demand* is greater than the *total supply (potential output)*. Besides the main line of transmission mechanism through *output gap*, The exchange rate has an influence on the *passthrough effect*, which is through the increase in the price of imported goods.

Nurjannah, DKK (2017) proves that in general the uncertainty of inflation and inflation has a causal relationship. This indicates that the development of inflation does not stand alone as a

macroeconomic indicator. In addition, results obtained in four countries in ASEAN indicated that the uncertainty of inflation and the amount of money supply has significant effect on inflation uncertainty. However, interest rates do not significantly affect inflation. These results drove the *inflation targeting* by Bank Indonesia in a transparent and consistent manner.

Iskandar, DKK (2017) states that inflation control in the region is not enough only by the national monetary policy. The problem of inflation in many areas is non-monetary or need good coordination with the local government related to its control. Therefore, in addition to relying on national economic policy, there is also a policy of local governments in regional inflation control, so that the role and function of the regional inflation Control team (TPID) has been established to be very important and crucial in formulating policies and recommendations related to the handling of regional inflation.

Tang, DKK (2017) states that there is an indirect relationship to the *money supply* (M2) against the price in aggregate. The results of the study indicated that inflation is not always a monetary phenomenon in Malaysia. Therefore, monetary policy is not an effective instrument in controlling inflation in Malaysia.

2.4. Research Model

This research aims to see the inflation occurring in central Sulawesi province as a fiscal phenomenon or a monetary phenomenon so that the research approach of two models is the monetary model and the fiscal model in estimating the impact of each model against inflation, as both models are estimated as follows.

Model A: INF = f{G} (1.1)
Model B: INF = f{M} (1.2)

Description:
INF = inflation
f {G} = function of fiscal model (local government expenditure)
f {M} = function of the monetary model (amount of money supply)

2.5 Hypothesesis

This research hypothesis contains a brief statement that is concluded based on the foundation of Theory, review of the literature, and temporary answers to the issues studied,

based on the research method used i.e. *non-nested test*, the hypothesis of the research based on this is as follows.

Table 1.Hypothesis

	Hypothesis: 0	
Hypothesis: 0	**Accepted**	**Rejected**
Accepted	Models A and B accepted	Model B accepted, and model A was rejected
Rejected	Model A rejected and model B accepted	Model A and model B rejected

Description: Non-nested hypothesis (Gujarati and Porter, 2013:489)

The hypotheses contained in the 2.1 table are the description of models (3.7) and model 3.8). Model A is a fiscal model described further in the equation (3.2) and the model B is the monetary model further outlined in the equation (3.3). Equations (3.2) and equations (3.3) are found in the next chapter on the research method.

According to table 2.1, the hypothesis is obtained.

Logic 1

- $H_1$0: There is a strong influence on the monetary model (the fiscal model has no influence) on inflation
- H_1A: No strong influence of monetary model (there is influence on fiscal model) to inflation

Logic 2

- $H_2$0: No influence of both models (fiscal model and monetary model) against inflation
- H_2A: There is an equally strong influence of both models (fiscal model and monetary model) against inflation.

3. Research Methods

In analyzing the factors that affect inflation in Indonesia, researchers use data sequential time *(period series)* Quarterly from 2013 until the year 2018. The data used in this study is secondary data obtained from several sources.

The model of function used to determine inflation in Papua province which is the endogenous variable is as follows:

$$INF = f\{Gr\} \quad \text{and} \quad INF = f\{M\} \tag{7.1}$$

So the shape of the similarities is as follows:

$$\pi_t = \alpha_0 + \gamma_1 G_t + \varepsilon_t \tag{7.2}$$

$$\pi_t = \alpha_0 + \sigma_1 JUB_t + \varepsilon_t \tag{7.3}$$

Description:
Πis inflation
GIS Local Government expenditure
JUB is amount of money supply (money out from Bank Indonesia to Papua)
T is*time series*
α_0 is a constant
Γis a fiscal variable coefficient
Σis the monetary variable coefficient
Eis *Error Term*

In this study used *non Nested Test* to know the formal comparison of different free variables, on different function forms, and the interaction between these two functions (the Pesaran and deaton, 1978).

Equations (7.2) and (7.3) are equations with different free variables against the same bound variables. To determine how to determine the two models that are dominant effect on the bound variables then the *Non Nested* test is done. Equations (3.2) can be described as follows:

$$\pi_t = \alpha_0 + \sum_{i=0}^{n}(\gamma_1 G_{t-i}) + \varepsilon_{it} \tag{7.4}$$

$$\pi_t = \alpha_0 + \sum_{i=0}^{n}(\sigma_1 JUB_{t-i}) + \varepsilon_{it} \tag{7.5}$$

Both models above (model 3.4 and model 3.5) are models of *non nested test*. Based on Harvey There are two approaches to testing *non nested hypotheses*: (1) *Discrimination approach, and* (2) *Discerning approach*. (Gujarati and Porter, 2013:488)

The first analysis step is to use the *discrimantion approach*, by selecting between the two models through the same criteria, such as R^2 and *adjusted* r^2 or using other criteria such as see *Akaike's information criterion (AIC), the airport's information criterion (SIC),* and *MALLOWC's C_p criterion.* From predefined criteria, the most influential model selection of dependent variables can be determined through the highest *adjusted* R^2 models , or the lowest AIC or SIC values.

In determining the Model 1 or Model 2 to be selected, can be estimated through the model below.

$$\pi = \alpha_0 + \gamma_1 G_{t-i} + \sigma_1 \text{JUB}_{t-i} + \varepsilon_{it} \quad (7.6)$$

Models above include models (7.4) and models (7.5) where models (7.4) do not include or *nest* in Models (7.5) and models (7.5) do not include or *nest* in Models (7.4), hence the model is a *non-nested model.* If the model (7.4) is true, where $\sigma_1 = 0$ whereas the model (7.5) is true, wherein. The test can be done by conducting a regular F test, or referred to as a $\gamma_1 = 0$*non nested test F.*

4. Results

4.1 *Root Unit Test*

This research emphasizes the influence of fiscal variables and monetary variables on inflation in central Sulawesi province. The selected central Sulawesi province as an object in this research was caused by the inflation rate of central Sulawesi province which has always been above the national inflation level.

Inflation that occurs in central Sulawesi is expected to be reduced by the role of fiscal policy conducted through fiscal variables, to see whether inflation in Papua is a fiscal phenomenon or a monetary phenomenon then researchers conduct tests on fiscal variables and monetary variables against inflation in Papua. Test done using *non nested test.*

The stage of variable testing carried out before a *non-nested* test is the test of the *root unit* because the data characteristic of the timing is stochastic (average, variant, and covariant-not the same), then before performing the model estimate, it is done testing the Stationeritas to the entire variable. Testing of this station is done by using the *unit root test* which the result was confirmed with an *Augmented Dickey of Fuller* 's the ADF. The result of the *root unit* testing is as follows.

Table 2. Test Root Unit

Variable	t-statistic	Prob*
Log(IHK) – I(0)	1.702700	0.0195
Log(JUB) – I(0)	-2.587778	0.1239
Log(JUB) – I(1)	-3.128148	0.0567
Log(GovExp) – I(0)	-0.361104	0.8848

Log(GovExp) – I(1)	-4.375655	0.0106

The results in Table 2 indicate that the data of the LOG variable (GOVEXP) is 0.8848 which means the data on the G variable (government expenditure) is not stationary because 0.8848 > 0.05, then for the data-testing conducted the first difference root unit test.

Test units are also performed on the CPI data as dependent variables. From the table above obtained value from the root test the condition of the level of the LOG (CPI) is stationary at 0.0195, then the RESULT for THE log (CPI) = I (0).

Test the root unit of the level condition on the LOG variable (JUB) of 0.1239 indicates that the monetary variable data is not stationary, then to the data-testing conducted the first difference root unit test. From the unit root test the condition level can be concluded that the LOG variable (CPI) is at the level state whereas for LOG (GOVEXP) and LOG (JUB) are not in the condition I (0).

Test root Unit *First difference* needs to be done because the DATA of the LOG VARIABLES (govexp) AND log (JUB) are not stationary on the root test unit condition level. According to the table 4.1 shows that after the test performed the root unit of *first difference* against the log variable (GOVEXP) and log (JUB) retrieved fiscal data on the log variable (GOVEXP) and log (JUB) is stationary on I (1).

After the log variable (JUB) and the Log variable (GovExp) and its data Log (CPI) are stationary, with the conclusions gained on the unit root test i.e. Log (JUB) and Log (CPI) with condition I (0) whereas Log (GovExp) in Condition I (1), then the next test is a diagnostic test consisting of Linearitas test, autocorrelation test, heteroskedastisity test, and normality test described in ARDL test (*Autoregressive Distributed Lag).*

4.2 ARDL Test *(Autoregressive Distributed Lag)*

The unit root test indicates that the Log (CPI) is I (0) and the Log variable (JUB) as well as the Log variable (GovExp) = I (1) then carried out the ARDL test (*Autoregressive Distributed Lag)* before conducting *non-nested* tests to determine the best model in influencing inflation. The Use OF ARDL *(autoregressive Distributed Lag)* tests is performed to see the influence of independent variables and dependent variables over time. "AR models are models that use one or more of the past data from the dependent variables between the explanatory variables.

The DL model is a regression model involving data in the present time and the time of the past (lagged) of the explanatory variables. " (Gujarati and Porter, 2013:269)

If the variables in the monetary model and the variables in the fiscal model can be through ARDL test *(Autoregressive Distributed Lag)* then the next test step is *non nested test*, However, if One Of the JUB variables and the GOVEXP variable cannot pass the ARDL *(autoregressive Distributed Lag)* test, then one variable is a variable that affects the CPI and no longer need to do *non-nested tests.*

The second variable cannot pass through this test then the two variables are not feasible to be tested in *non-nested* and cannot be used as variables THAT affect the CPI. It is possible that there is a shortage of data from the variables analyzed.

The description of the ARDL *(Autoregressive Distributed Lag)* model as follows

Table 3. ARDL Log (JUB)

Variable	Coefficient	Std.Error	t-Statistic	Prob*
IHK(-1)	0.393432	0.275056	1.430368	0.1905
LOG_JUB	-0.143293	9.249462	-0.015492	0.9880
C	80.62566	64.72949	1.245578	0.2482

From the Table 3 It is found that the LOG variable (JUB) has no cointegration in the model against the CPI with a probability of 0.1905, of the estimated results indicating that the LOG variable (JUB) has a negative and insignificant impact on the CPI described in the ARDL model as follows.

$$\boldsymbol{IHK} = 80.62566 + 0.393432\boldsymbol{LIHK_{t-1}} - 0.143293\boldsymbol{LJUB_t} \textbf{(4.1)}$$

ARDL (*Autoregressive Distributed Lag)* is also performed on the fiscal model through the Log Variable (GOVEXP) that is described as follows.

Table 4. ARDL Log(GovExp)

Variable	Coefficient	Std.Error	t-Statistic	Prob*
IHK(-1)	-0.000972	0.002575	-0.377461	0.7156
LOG_GOVEXP(-1)	0.876894	0.062054	14.13106	0.0000
C	1.190872	0.509219	2.338624	0.0475

From Table 4 It is obtained that the LOG variable (GovExp) there is a cointegration against IHK with prob 0.0000. The acquired coefficient indicates that the LOG variable (GovExp) negatively affects the CPI and is spelled out in the following models.

$$\boldsymbol{IHK} = 1.190872 - 0.876894\boldsymbol{LGOVEXP_{t-1}} - 0.000972\boldsymbol{LIHK_{t-1}} \quad \textbf{(4.2)}$$

The unit root test is also carried out on residues from both the monetary and fiscal models to see whether they are stationary or not, the result of a test unit of the residual root model and fiscal model are outlined in Table 5 and Table 6 as follows.

Table 5. Test Unit for monetary Residual Root

		t- Statistic	Prob*
ADF test statistic		-2.587778	0.1239
Test critical values	1% level	-4.200056	
	5% level	-3.175352	
	10% level	-2.728985	

Table 5 shows the residual unstationary monetary model at I (0) with a probability of 0.1239 so that it can be concluded that the model is autocorrelation and there is heteroskedastisity. The residual unit root test is also carried out against the fiscal model outlined in the following table.

Table 6.Fiscal Residual Root Unit test

		t- Statistic	Prob*
ADF test statistic		-4.375655	0.0106
Test critical values	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

The 6 table shows that the root test of the fiscal model's residual unit is not stationary which means it is in the condition I (1) so that in the fiscal model there is no autocorrelation and heteroskedastisity, so this model deserves to be chosen as a variable affecting inflation.

In tables 5 and 6 indicates that the root test unit model of the residual monetary model is not stationary with a prob 0.1239 whereas the root test of the fiscal residual model unit is stationary with prob 0.0106, therefore, with the residue of the monetary model on condition I (1) and not stationary while the residual fiscal model on condition I (1) is stationary then can

be inferred FOR the best model in influencing the CPI is the fiscal model, the chosen fiscal model can be seen from the test OF the root unit Log Variable (JUB), logs (GOVEXP), and log (CPI) ON Table 4.1 and reinforced with ardl models that are defined in tables 4.4 and table 4.5 indicate that fiscal models are eligible TO be selected as models affecting the CPI rather than fiscal model and are not required for *non-nested* tests to be performed.

5. Conclusion and Research Implications

Based on the results of research and discussion that has been done, it can be concluded as follows.

1. Inflation in central Sulawesi province is not a monetary phenomenon but inflation in central Sulawesi province is a fiscal phenomenon.
2. When a monetary variable is added in the fiscal model as the main model affecting inflation, it will have a significant influence on inflation and long-term changes have a positive correlation. The fiscal model which is the best model in influencing inflation (CPI) would be better if there is a role of a monetary variable i.e. the money supply variable (JUB) to influence the CPI in both the short and long term.

Based on the results of the research, discussion, and conclusions obtained, the suggestions that can be given from this study are as follows.

1. For the government

The phenomenon of inflation in central Sulawesi is a fiscal phenomenon. However, monetary policy factors have also decreased in determining the inflation variation. Therefore, fiscal policy conducted through the central grants to the districts (such as General or special Autonomy Fund) must be allocated with caution. This remembers its impact on inflation.

2. For Bank Indonesia

Advice for Bank Indonesia as a monetary authority based on this research is Bank Indonesia can immediately absorb the amount of money in circulation in case of inflation volatility.

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