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International **Journal of Innovation, Creativity and Change**. [www.ijicc.net](http://www.ijicc.net) Volume 12, Issue 5, 2020 643 The Role of Inflation and Interest Rates **on Economic Growth in a Special Autonomy Province, Indonesia (1989-2018)** Asnawi a\*, Naufal Bachri b, Aiyub Yahya c, a Department of Economics, Universitas Malikussaleh, b,c Department of Management Science, Universitas Malikussaleh, Email: a\* [asnawi.fe@unimal.ac.id](mailto:asnawi.fe@unimal.ac.id) This study aims to investigate the relationship between inflation, interest rates, and economic growth in Aceh Province, Indonesia.

The method of data analysis is the Vector Error Correction Model (VECM) using the corpus Time Series from 1989 to 2018. Inflation has a negative impact on short -term and long-term economic growth. While the interest rates show impact, it is positively significant **in the short term**. Besides, there is no Granger relationship **in the long run in Aceh Province, Indonesia**. However, interest rate s only affect **economic growth in the long run**. Key words: Inflation, interest rate, economic growth, Indonesia. Introduction Inflationary pressures do not only have an impact on consumption but can also affect increased investment and decreased economic development.

The development of interest rates will reduce inflation because of the small **amount of money in circulation** (Yodiatmaja, 2012). Conversely, increasing interest rates can reduce investment because capital costs from investors are greater so that they are unable to expand their business. The development of interest rates in 2016 to 5.98% (Bank Indonesia, 2016), with inflation in Aceh Province amounted to 5.21% of the economic growth of 4.31% (Aceh i n number, 2016). Furthermore, the interest rate in 2017 was 4.75% (Bank Indonesia, 2017), with inflation de veloping at 4.25% **and economic growth in Aceh Province** reaching 4.19% (Aceh i n number, 2017). This situation has an impact on reducing investment, reducing economic activity, decreasing consumption, and

limiting employment opportunities.

International *Journal of Innovation, Creativity and Change*. [www.ijicc.net](http://www.ijicc.net) Volume 12, Issue 5, 2020 644 Inflation tends to decline more in 2018 than in 2017, at a rate of 3.55% and an interest rate of 6% (Bank Indonesia, 2018). This encourages an increase in investment that can create jobs and increase the real sector so that it impacts on the economic growth rate of 4.49% in Aceh Province. However, in the last 10 years, there has been a phenomenon of rising interest rates, followed by rising inflation and decreasing investment that has had an impact on economic growth.

Several studies on inflation have been conducted, such as Ismail et al. (2010) on inflation significantly, which positively affects economic growth in general. However, inflation negatively affects economic growth in the short term. In the long run, inflation also negatively affects economic growth. Mallik and Chowdhury (2001) state that the low inflation has a positive correlation with economic growth in some countries; Gylfason (1999) explains that inflation can reduce GDP growth, and Lim (2004) indicates that inflation can achieve short-term stabilisation. Furthermore, interest rates correlate with economic growth. In most monetary policy regimes, interest rates are used as policy instruments to achieve low inflation rates and stabilise the economy (Obansa et al., 2013).

Sans (2006) states that low rates of savings and investment can influence the growth of the economy. Low interest rates would promote investment spending and developing economies (Odhiambo, 2008). Indriyani (2016) states that economic growth in Indonesia can be influenced by inflation and interest rates simultaneously. Some of the studies mentioned above confirm that there is a strong relationship between economic growth, inflation, and interest rates.

The objective of this paper is to examine the role of inflation and interest rates on the growth of the economy in the special autonomy province in Indonesia by using time-series data from 1989-2018. Literature Review Economic Growth The success indicators of the economic development of a country can be seen from economic growth. Adam Smith from the Classical School of Economics argues that economic growth is caused by the influence of population growth, where the population increases, and the value of output increases (Sukirno, 1999).

Schumpeter (1999) argues that economic growth occurs due to the influence of innovation in production or economic activity. Horrod- Domar argues that economic growth is caused by (1) achieving full capacity of capital goods, (2) increasing national savings, and (3) increasing a constant value of the capital -output ratio (Sukirno, 2008).

International Journal of Innovation, Creativity and Change. www.ijicc.net Volume 12, Issue 5, 2020 645 Robert M. Solow (1970) from the United States and T.W.

Swan from Australia (1956) put forward the theory of neo-classical economic growth, which is mentioned by the Solow-Swan model, in that economic growth occurs when there is capital accumulation, technological progress, and the magnitude of the interaction of output. Arsyad (2010) states that the factors that can affect economic growth consist of; (1) capital accumulation, where economic growth occurs with increased investment; (2) population growth that can increase the number of workers; and (3) technological advances that can increase labour mobility and skills, as well as production factors in increasing output.

Inflation There has been a debate between classical economics, neo-classical, Keynesian and monetarists about the factors that influence the causes of inflation in an economy, which consist of: (1) Demand Pull -Inflation is inflation caused more by an increase in demand, which cannot be followed by an increase in supply; (2) Cost push-inflation is inflation caused by an increase in production costs; (3) inflation caused by imports (Nopirin, 1992, Susanti et al, 1990, Denburg, 1994, Zakaria, 2009, Sukirno, 2013).

Monetarists argue that the cause of inflation is predominantly caused by excess demand from the public, while neo-Keynesians who support the monetarists say that the expansion of money supply and excess aggregate demand causes inflation (Nopirin, 1987; Susanti et al., 1990). Furthermore, the classification of inflation from pressure, according to Boediono (1995), is (1) mild inflation below 10% per year; (2) moderate inflation between 10- 30% a year; (3) severe inflation between 30-100% a year and (4) hyper-inflation above 100% a year.

Inflation also affects the rate of economic growth, where an increase in inflation impacts; (1) unequal income distribution; (2) the source of funds for investment decreases in line with the lack of state coffers; (3) deficit the trade balance and (4) the occurrence of political instability (Zakaria, 2009). Interest Rate Interest rates can play a role in increasing economic growth, whereby if interest rates decline it can reduce inflation and increase capital accumulation (investment), thereby encouraging economic growth.

Sukirno (1994) explains that low-interest rates can stimulate the business world because it can expand investment. Furthermore, Sunariyah (2004) states that the function of interest rates consists of: (1) encouraging or stimulating savers to invest their funds; (2) controlling the money supply; (3) controlling and regulating the running of the money supply. International Journal of Innovation, Creativity and Change. www.ijicc.net Volume 12, Issue 5, 2020 646 Methodology To examine the effect of inflation and interest rates

on economic growth in Aceh Province, this study uses secondary data in the form of time-series data from 1989 to 2018.

The data regarding inflation and economic growth was obtained from Aceh Dalam Angka, 1989-2018, while the interest rate data was obtained from Bank Indonesia. Johansen's co-integration technique is used to find the relationships between the variables. The estimation model is below:  $E a 1F + \beta IR +$  Where: EG seigrowth  $I Ni n f l i R i$  he n tres at ai consant  $\beta \beta$  is the regression coefficient, and  $e$  is a disturbance. Unit Root Test The unit root test uses the Augmented Dickey-Fuller (ADF) test (Dickey and Fuller, 1981). The ADF test is used statistically to determine the unit root test from time-series data; the unit root test equation is:  $\Delta Y_t = \alpha + \beta Y_{t-1} + \sum_{i=1}^m \gamma_i \Delta Y_{t-i} + e_t$   $Y_t$  is the first derivative of  $Y_t$  time-series data ( $Y_t - Y_{t-1}$ ).  $\beta$  is the regression coefficient,  $e_t$  the error term and  $m$  is the lag length.

Counteraction Test The counteraction test uses the Johansen and Juselius (1990) method, which is based on the maximum likelihood estimation and likelihood ratio statistical tests through the maximum Eigen test value or trace test. The two statistical values are the Statistic Trace Test: Maximum Eigen Test Value Statistics: International Journal of Innovation, Creativity and Change. www.ijicc.net Volume 12, Issue 5, 2020 647  $\lambda_{\max}(r)$  is a trace statistic test and  $\lambda_1(r)$  is a statistical test of the maximum eigenvalue,  $r$  is the rank of counteraction vector,  $T$  is the number of samples, and  $\lambda_i$  is the eigenvalue with a mri VECM Model The VECM model assumes that short-term imbalances in a certain time series can be corrected in the next time series. Therefore, the VECM will measure the extent of the system that comes out of short-term balance.

The VECM model is deviated from the VAR (Autoregressive Vector) model, as follows: Where;  $Y_t =$  in the form of vector  $n \times 1$   $A_t$  and  $\Delta$  = estimated parameter = derivative operator  $V_t =$  cause and effect vector that explains the unexpected movements in  $Y_t$  and  $T$ . Therefore, VECM can measure a system, whether it gets out of short-term balance or not. Results and Implications The results of the study consist of the unit root test, counteraction test, and the vector error correction model test and their implications are: Unit Root Test The unit root test is used to avoid false regression from time-series data from 1989 to 2018.

The unit root test results use the Augmented Dickey-Fuller (ADF) method, and the results are in the following table: Table 1: ADF - Unit Root Estimation Variables Unit Root Test ADF Test Critical Value Information Statistics 5% EG Level I (0) -2.916500 -2.967767 Not stationer First Different I(I) -6.634789 -2.971853 Stationer INF Level I (0) -5.179833 -2.967767 Stationer First Different I(I) -6.537146 -2.976263 Stationer IR Level I(0) -3.064824 -2.967767 Stationer First Different I (I) -8.436134 -2.971853 Stationer International Journal of Innovation, Creativity and Change. www.ijicc.net Volume 12,

Issue 5, 2020 648 Mark<sup>\*\*</sup>(<sup>\*\*\*</sup>) rejects H<sub>0</sub> and shows significant stationary variables at 5% and 1% Table 1 shows that EG, INF, and IR are not stationary at level I (0) because the critical value > ADF test value is significant at 5% and 1% levels.

Therefore, it needs to be done on **the first difference I** (I). The stationary test of EG, INF, and IR on **the first difference I** (1) shows the ADF value > of the critical value at the levels of 5% and 1%. So, the three variables are stationary. Cointegration Test The Cointegration Test serves to show **the long-term relationship** (balance). **The Johansen cointegration test** uses the Trace statistical test (Trace) and the Max statistical test (Max), and both of the statistical test values are compared with **the critical value of** Oswald-Lenum (1992) at the 5% significance level.

Table 2: Cointegration Test Results (Model 2) Hypothesised ?? Table 3: The Results of Long-Term Relationship of VECM Model Variables Coefficient t - statistic C - 12.57091 INF(-1) - 3.643530 - 6.95896<sup>\*\*\*</sup> IR(-1) 3.874767 6.80655<sup>\*\*\*</sup> <sup>\*\*\*</sup> Significant at 1%. The results based on Table 3 show that inflation has a significant negative **effect on economic growth in the long run** due to an increase in the cost of transporting capital goods and some **International Journal of Innovation, Creativity and Change**. **www.ijicc.net Volume** 12, Issue 5, 2020 649 raw materials imported from North Sumatra.

This **shows that in the** long-run inflation can reduce investment in the real sector, where the production costs of the real sector increase, namely the **increase in the prices of raw materials and** capital goods that have an impact on output decline. Furthermore, the results of research in Aceh province in Table 3 show that in the long-run interest rates have significantly positive effects on economic growth, where an inverse effect occurs, namely **an increase in interest rates** followed by an increase in inflation. This means interest rates go up, and the money supply also increases.

This has caused an inability to increase investment in the real sector, where an increase in production costs and capital costs and investors are also stimulated to deposit their capital. Table 4: The Results of Long-Term Relationship of VECM Model Variable Coefficient t - statistic ECTt - 1 - 0.071528 - 1.54188 D(INF(-1)) - 0.218323 - 2.67583<sup>\*\*</sup> D(SB(-1)) 0.206057 1.29750 <sup>\*\*</sup> Significant at 5%. The value of ECTt -1 based on the results of the study in Table 4 is not significant, where all the independent variables do not occur speed of adjustment or do not bear the burden of lagging long-term balance adjustment or the intangible Granger relationship.

Furthermore, the results of the study in Table 4 show that inflation has a significant negative **effect on economic growth in the short term** in Aceh province. **This means that an increase in** inflation has an impact on rising prices for consumer goods and

decreasing public consumption. This means that an increase in inflation has an impact on rising prices for consumer goods and decreasing public consumption. In the short term, there is a shock, and an increase in inflation can swallow an increase in economic growth.

This means that an increase in economic growth occurred but has not been able to improve the welfare of the community as a result of rising inflation in Aceh province. Conclusion This paper empirically investigates the role of inflation and interest rates on economic growth in a special autonomy province in Indonesia by using the Johansen Counteraction Technique in 1989-2018. The empirical results reveal that inflation influences negatively on economic growth in the long run. This is caused by an increase in the cost of transporting capital goods and raw materials from the province of North Sumatra.

The increase in the price of capital goods and raw materials has an impact on the decline in output. Inflation can reduce investment in the real sector and increase production costs. Besides, interest rates have a positive effect on economic growth and an increase in inflation, and it can cause an increase in the amount of money in circulation. Investment cannot increase in the real sector due to an International Journal of Innovation, Creativity and Change. www.ijicc.net Volume 12, Issue 5, 2020 650 increase in production costs and capital costs.

This condition can stimulate investors to deposit their capital. International Journal of Innovation, Creativity and Change. www.ijicc.net Volume 12, Issue 5, 2020 651

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