*Jurnal Ekonomi & Studi Pembangunan*
*Volume 19, Nomor 2, Oktober 2018, hlm. 157-166*
*DOI: 10.18196/jesp.19.2.5007*

# THE DETERMINANT OF INFLATION IN INDONESIA: PARTIAL ADJUSTMENT MODEL APPROACH

**Yosefina Don Sama Lelo, Rini Dwi Astuti, Sri Suharsih**

Universitas Pembangunan Nasional Veteran Yogyakarta
Jl. SWK 104, Condongcatur, Depok, Sleman, Daerah Istimewa Yogyakarta 55283

Correspondence E-mail: rinidwiastuti@upnyk.ac.id

*Received: August 2018; Accepted: October 2018*

***Abstract:*** *Inflation is one of the economic issues that always being targeted by the government, particularly central bank because it could adversely influence the economy. For the past view years, the inflation targeting framework as the part of monetary policy has been successfully implemented where the interest rate is the operational target. In view of past investigations, there are fundamental factors that affect inflation, for example, interest rate, exchange rate, and money supply. This study aims to evaluate the impact of those factors on inflation both in the short and long run. The estimation uses monthly data from January 2013 to November 2017, which was obtained from Indonesian Banking Statistics. The use of Partial Adjustment Model illustrates how interest rates, exchange rate, and money supply negatively and significantly affect inflation on both short and long run. This regression result is consistent with the finding of previous studies which strengthen the evidence that the government should maintain the inflation rate through those variables.*
***Keywords:*** *Inflation, Monetary Policy, PAM*
***JEL Classification:*** *E31, E52, C22*

## INTRODUCTION

Inflation is an economic problem which could affect the negative impact on a country economic. Thus, inflation is often target in government policy. High inflation will affect negatively the economy because it leads to such unrest condition, high unemployment, and slow economic growth. All in all, those will result in low economic growth. (Suparmoko, 1992). Theoretically, inflation is a condition in which the increasing price of goods and services continuously in a certain period. If the process doesn't occur at the same time but with the same percentage, it doesn't call as inflation (Nopirin, 1987).

Monetary authority published the monetary policy to anticipate the high inflation rate or to decide the macro policy. Monetary policy can be done by interest rate, open market policy, cash ratio, or foreign exchange policy (Mizaroh, 2014).

**Table 1. Inflation Rate in Indonesia from 2008-2016**

| Year | Inflation Target | Realization |
|---|---|---|
| 2013 | 4.5% | 8.38% |
| 2014 | 4.5% | 8.36% |
| 2015 | 4.0% | 3.35% |
| 2016 | 4.0% | 3.02% |
| 2017 | 4.0% | 3.30% |

Source: Bureau Labour of Statistics, 2013

Based on table 1, the growth of the inflation rate can be seen to reach the highest rate in 2013 with 8,38%, much below the government target at 4.5%. The main reason was that the fuel price which increased to Rp6.500/litre for premium and Rp5.500/litre for solar. It affects the inflation for 1,17%. The increasing price of subsidized fuel affects to the other prices such as transportation within cities. The transportation gives 1,75%, red onion 0,38%, electricity 0,38%, red pepper 1,31%, fish 0,3%, rice 0,2%, cigarettes 0,19%, airfare 0,19%, workers 0,16%, home assistant wage 0,1% (LPI, 2014).

In 2014, the inflation rate is 8,38%. This was because of the pressure of the price from the previous year. In 2015 onward the inflation rate can be handled below the government target.

Central Bank of Indonesia as the monetary authority that holds the monetary policy to handle the national economy is the one that decides money flow with interest rate. Interest rate affects the individual decision on deciding either to spend or to save money in deposit (Suhaedi, 2000).

Externally, when rupiah appreciates toward USD can be caused by the government external debt or private external debt. In result, the exported goods become much cheaper. The cheap price effects the increasing volume of goods. It is related to the demand law when the price is low, the demand will increase. The increasing output can reduce the inflation rate and decrease the price. Hendrawan (2016) and Perlambang (2012) state that exchange rate shows the balance between supply and demand toward foreign exchange rate. Rupiah appreciation reflects the society demand on rupiah and the increasing demand on forex as an international currency. Rupiah depreciation makes imported goods become much more expensive and exported goods become much cheaper. This condition needs to look at because it leads to inflation.

Generally, inflation gives some social price bear by society. First, the income distribution will get affected. A low class society with fixed income will bear the condition with their low purchasing power. On the other hand, upper-middle-class society will protect their saving and deposit so their purchasing power still stays the same. Both inflations give a negative impact on the economy.

High inflation effects the instability of economic, high unemployment, slow economic growth on the country. On this research, we would explain the 3-month-deposit effect on the conventional bank, exchange rate, and money supply toward inflation in Indonesia from January 2013-November 2017.

## RESEARCH METHOD

**Type and Data Source**

The type of data used in this research is secondary monthly data period January 2013 – November 2017, including:

1. Inflation period January 2013 – November 2017 taken from Indonesia Bureau of Statistics on percentage.
2. Interest rate represented by 3-month-deposit in conventional bank period January 2013 – November 2017 from Statistic of Indonesian Banking on percentage.
3. Rupiah exchange rate on USD from January 2013 – November 2017 in Rupiah.
4. Money supply from January 2013 – November 2017 taken from Indonesian Financial Statistic (SEKI).

**Statistical Test**

**Significance Test**

The hypothesis that will be tested in this research is related to the significance of independent variables (deposit interest rate, exchange rate, and money supply) toward the dependent variable (inflation) partially or simultaneously.

**1. F Test**

F Test aims to know whether all independent variables tested significantly affected the dependent variable. The test is done through ANOVA test with 95% degree, with the requirements:

a. If F test < F table, Ho is not rejected
b. If F test >>F table, Ho is rejected

**2. t Test**

Partial hypothesis test aims to know the affect and significance of each independent variable to the dependent variable. This done through t-test with 95% degree, with the requirement:

a. $H_0$ : if p-value > 0,05, Ho is not rejected
b. $H_0$ : if p-value <0,05, Ho is rejected

**Adjusted R Square**

The closer it gets to 0, the less impact of independent variables might give to the dependent variable. However, if it closer to 1, the higher impact of independent variables might give to the dependent variable.

**Autocorrelation Test**

The test aims whether there is a disturbing correlation on the multiple linear regressions model on t period with previous t period. If there is a problem, we called it autocorrelation. We can go through Durbin Watson (DW Test).

**Heteroskedasticity Test**

This classic test aims to see whether on regression model exist the inconsistence variances from one residue to the other. If there is a problem then we call it as heteroskedasticity. A good model should never be having heteroskedasticity. We can see from scatterplot from the expected value of Y with residue value where the predictions are scattered. Another way is to do a Part test by comparing t-test and t table. If t-test < t-table then there will be no heteroskedasticity.

**Multicollinearity Test**

This aims to know whether there is a correlation among independent variables. A good model should never correlate among each other (Ghozali, 2009). We can go through a variance factor (VIF) test. The prevalent cut off value is used to show multicollinearity is tolerance value with ≤ 0.10 or the same with VIF ≥ 10 (Ghozali, 2009)

**Analysis Method**

In analyzing interest rate, exchange rate, and money supply toward inflation in Indonesia, we will use Partial Adjustment Model estimation. It is one of the simple models used to estimate the relationship between the independent and dependent variable with lag (Gujarati, 1995).

This model assumes the expected dependent variable in t period ($Y_t^*$) depends on actual independent variables. Written as below:

INF = f (SB, NT, JUB) …… 3.1

The short-term PAM estimation:

$INF_t = b0 + b1SB_t + b2NT_t + b3JUB_t + b4Y_{t-1} + e$…..……...….3.2

The long-term PAM estimation:

Constant = b0/ (1-b4)
Coefficient SB = b1/ (1-b4)
Coefficient NT = b2/ (1-b4)
Coefficient JUB = b3/ (1-b4)

Notes:

INF = Inflation (%)
SB = Interest rate (%)
NT = Rupiah Exchange Rate (on Natural Log)
JUB = Money Supply M1 (on Natural Log)
e = Disturbance Variable

## RESULT AND DISCUSSION

Interest rate fluctuation in Indonesia can be caused by a number of factors, thus it is hard to control inflation. The government should be aware of the initial factors that can form inflation. In Indonesia, inflation is not only a short-term inflation, as said on Keynes's theory, but also it is a long-term condition (Baasir, 2003). Inflation rate can be reduced or even can be prevented. To reach the inflation rate below government target, all parties need to work all together either from the Central Bank or the private sector.

Monetary policy is one of the policies can be done by the government. It aims to balance the internal balance and external balance. Internal balance can be shown by high economic growth, price stability, and equality development. While external balance can be shown by the balance of payment, high employment rate, and balance of international payment (Insukindro, 1993).

Central Bank of Indonesia using Monetary policy to control Rupiah value as the repre-

sentative of the stable inflation rate. The main instrument used is BI rate to influence the economic activities with the goal of the inflation rate. To reach one certain inflation rate, the interest rate policy should go through the long transmission.

Based on graphic 1, we can see that target inflation can be reached only 3 times. The inflation trend fluctuates because several inflation rates show bad economic activity. The inflation realization can be seen in Figure 1.

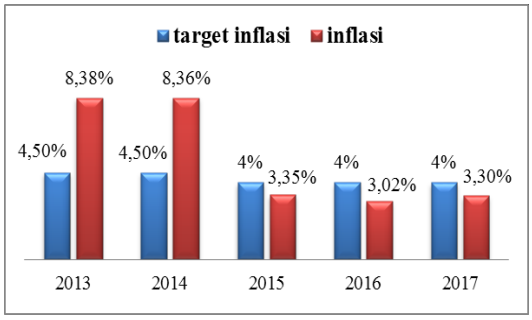



**Figure 1. Inflation Target and Realization**

Source: Indonesia Banking Statistics 2013-2017

The result from Partial Adjustment Model can be seen at table 2.

**Table 2. The result of Regression Analysis**

| Variabel | Coefficient | t-statistic | Probabilities |
|---|---|---|---|
| **C** | 4.956845 | 2.302072 | 0.0253 |
| **SB** | -0.214892 | -2.398663 | 0.0200 |
| **NT** | -0.801375 | -2.547670 | 0.0138 |
| **JUB** | -0.712997 | -2.580804 | 0.0127 |
| **Y(t-1)** | 0.969124 | 19.01613 | 0.0000 |
| ***Adjusted-Squared*** | | | 0.869362 |
| **F-statistic** | | | 95.82999 |
| **Probabilities (F-statistic)** | | | 0.000000 |

Source: Attachment 1

Based on table 2, the short term PAM model equation is at the below:

Y= 4.9568- 0.2148SB – 0.8013NT – 0.7129JUB + 0.9691Y(t-1)

Thus, the long term equation is :

Y= 16.475 – 6.9614SB – 25.9320NT – 23.0711JUB

**Statistic Test**

**t-Test and F-Test**

t-test aims to know whether independent variables partially has significant impat to dependent variable. T-test by using α=5%, df=n-k= 59-4 = 55 is 1.671. If t-statistic < t-table Ho is accepted, and ig t-statistic > t-table Ho is rejected.

F-test aims to know whether generally the model can be trusted with certain degree. F-test is used to simultaneously know the affect of interest rate, exchange rate and money supply on inflation. Because F-test is (95.82999)>F-table (2.76) and significancy value 0.000000<0.05, thus Ho is rejected and Ha is accepted, so all variables are affected inflation.

**Test on Adjusted $R^2$ Coefficient**

$R^2$ = 0.869362 or 86% means the fluctuation on inflation in Indonesia can be desctibed by interest rate, exchange rate, and money supply. The rest of 14% can be described by other factors not in the model.

**Classical Assumption Test**

Classical assumption test aims to know the problem of autocorrelation, heterokedasticity or multicollonearity in the model. Because if the model can't pass the test, f-test and t-test is invalid and the final result is rejected.

**Normality Test**

The test is done to know the residu from the estimation is normally distributed. Based on regression result, the Jarque_Bere probability value is 0.10 > probabilitas statistik (α = 5%), so it is normally distributed

**Table 3. Normality Test**

| | |
|---|---|
| Jarque_Bere Value | 4.485210 |
| Probability | 0.106182 |

Source: Attachment 2

**Autocorrelation Test**

Autocorrelation test is the comparison between the value of Obs*R-squared with the value of Chi Square table. If Obs*R-squared < value of Chi Square table, there is no autocorrelation existed and vice versa. According to the estimation result, *Obs*R-squared* 5.192133 < value of Chi Square table 7.815 so there is no autocorrelation. The result is on the table 4.

**Table 4. Langrange Multiplier Test (LM)**

| | |
|---|---|
| Obs*R-squared | 5.192133 |
| Probability | 0.0746 |

Source: Attachment 3

**Heteroskedastisity Test**

Table 5 shows the value of Obs*R-squared and White Heteroskedasticity is 0.782230 and Chi Square table df (k-1 = 4-1=3) with α=5% os 7.815. If *Obs*R-squared* is 0.884633 < value of *Chi Square tabel* 7,815 so there is no heteroskedasticity exist on the model. See the result on table 5.

**Table 5. White Heteroskedasticity Test**

| | |
|---|---|
| Obs*R-squared | 0.884633 |
| Probability | 0.9268 |

Source : Attachment 4

**Linearity Test**

Linearity test can be done to detect the empirical model whether a new variable applies is relevant with the empirical model. Based on the result $F_{test}$ is 2.07 < value of $F_{table}$ is 2.76. So the empirical model is a linear function.

$F_{-table}$ = (α= 0.05 : k-1; n - k)
= (α= 0.05 : 4-1; 59 - 4)
= (α= 0.05 : 3; 55) (2.76).

**Tabel 6. Linearity Test**

| | |
|---|---|
| F-Statistik | 2.073192 |
| Probability | 0.1363 |

Source : Attachment 5

**Multicollinearity Test**

The test result is on the below:

**Table 7. Multicollinearity Test**

| | |
|---|---|
| **$R^2$ INF** | 0,8785 |
| **$R1^2$ SB** | 0,0663 |
| **$R2^2$ NT** | 0,0616 |
| **$R3^2$ JUB** | 0,0183 |

Source: Attachment 6

Table 8 shows R-Squared from the PAM estimation> R-Squared value of interest rate, exchange rate and money supply so there is no multicollinearity exists.

Based on the hypothesis test, we can conclude that interest rate has negative affect on inflation. The regression coefficient in short term is 0.21. When interest rate increases by 1 %, inflation decreases by 0.21% in short term. In long term, regression coefficient is -6.95%. When interest increases by 1%, inflation decreases by 6.95%. This is linked with the hypothesis because during January 2013 – November 2017, the interest rate is one of the main reasons why people save or deposit their money in bank. This is in tune with the result from the previous research by Rahmawati (2011).

Exchange rate has negative affect on inflation. The regression coefficient is -0.80. It means, if exchange rate increases by 1%, inflation will decrease to 0.80% in short term. While in long term, the regression coefficient is -25.93%. In other words, when exchange rate increases by 1%, the inflation rate will decrease by 25.93%. On January 2013-November 2017, when rupiah depreciates in USD, so the imported goods become much more expensive and exported goods become much cheaper. It is in the contrary with the research from Nugroho, et.al (2012) states that exchange rate does not influence on inflation.

This matches with the research from Fadel (2013) proves that exchange rate influence inflation rate positively during 1981–2011. The depreciation of Rupiah makes inflation rate higher, and vice versa. This implicates the theory from parity purchasing power when domestic currency is related positively with the domestic inflation and foreign currency. So, the government should proactively make strategic decision to strengthen its currency to reduce inflation.

Money supply has negative relationship on inflation. The regression coefficient in short term is -0.71% .This shows when money supply increases by 1%, inflation will decrease by 0.71%. In long term, however, the regression coefficient is -23.07%. This is not what the hypothesis stated in first place. This can be caused money supply that hold by society is not only for consumptive buying but also for productive buying. The increasing money supply leads the real sector to produce goods and services exceeding the demand so can reduce the price. This is the same with the research by Nugroho, et al. (2012) where high money supply will not sufficient enough to influence inflation.

## CONCLUSION

Based on the analysis from the previous chapters, the effect of interest rate, exchange rate and money supply in Indonesia from 2013 – 2017 can be described below :

1. Interest rate in short and long term has negative affect on inflation. The high interest rate will be responded by the society by saving or depositing their money in bank.
2. Exchange rate in short and long term has negative affect on inflation. This is because the exchange rate depreciation cause high production cost.
3. Money supply in short and long term has negative affect on inflation. This is because people tend to buy on productive goods.

## REFERENCES


Baasir, F. (2003). *Pembangunan dan Crisis*. Jakarta: Pustaka Harapan.

Badan Pusat Statistik Indonesia. *Data Inflasi tahun 2008-2017*. (Online) website: bps.co.id.

Bank Indonesia. Laporan Bulanan 2008-2017. (Online) website: www.bi.go.id.

Fadel. (2013). Analisis Pengaruh PDB, Suku Bunga Deposito, dan Nilai Tukar Terhadap Inflasi di Indonesia Periode 1981-2011. *Thesis*. Unpublish.

Ghozali, I. (2009). *Aplikasi Analisis Multivariate Dengan Program SPSS*. Semarang: Badan Penerbit Universitas Diponegoro.

Gujarati. N.D. (2003). *Basic Econometric*, 4th Ed. USA: Mc. Graw Hill MacMillan Publisher.

Hendrawan, R. (2016). Makalah Mengenai Dampak Lemahnya Nilai Rupiah Terhadap Dollar Bagi Perekonomian Indonesia. (Online) https: //rizalhendrawankd.wordpress.com/ (Accessed: 18th November 2016)

Otoritas Jasa Keuangan. (2013). Statistik Perbankan Indonesia. *Volume 12 Nomor 01 Desember 2013.*

Otoritas Jasa Keuangan. (2014). Statistik Perbankan Indonesia. *Volume 13 Nomor 01 Desember 2014.*

Otoritas Jasa Keuangan. (2015). Statistik Perbankan Indonesia. *Volume 14 Nomor 01 Desember 2015.*

Otoritas Jasa Keuangan. (2016). Statistik Perbankan Indonesia. *Volume 15 Nomor 01 Desember 2016.*

Otoritas Jasa Keuangan. (2017). Statistik Perbankan Indonesia. *Volume 16 Nomor 01 Desember 2017.*

Insukindro. (1993). *Ekonomi Uang dan Bank.* Yogyakarta : BPFE.

Mizaroh. (2014). Pengaruh Pengeluaran Pemerintah dan Jumlah Uang Beredar

terhadap Inflasi. (Online) *Wordpress Ekonomi Pembangunan*.

http://mizaroh.wordpress.com/ekonomi-pembangunan/97-2014.

Nopirin. (1987). *Ekonomi Moneter*. 4th Ed. Yogyakarta: BPFE.

Nugroho, P.W.B., and Maruto, U. (2012). Analisis Faktor-Faktor Yang Mempengaruhi Inflasi Di Indonesia Periode 2000–2011 *Jurnal of Accounting,* Universitas Diponegoro, *1*(1).

Perlambang, H. (2012). Analisis Pengaruh Jumlah Uang Beredar, Suku Bunga Sbi, Nilai Tukar Terhadap Tingkat Inflasi. *Media Ekonomi*, *19* (2)

Rahmawati. (2011). Pengaruh Jumlah Uang Beredar, Pengeluaran Pemerintah, dan Suku Bunga terhadap Tingkat Inflasi di Nanggroe Aceh Darussalam. *Jurnal Aplikasi Manajemen*. *9*(1).

Suhaedi, et al. (2000). Suku Bunga Sebagai Salah Satu Indikator Ekspetasi Inflasi. *Buletin Ekonomi Moneter dan Perbankan,* March 2000.

Suparmoko. (1992). *Ekonomi Pembangunan*. 5th Ed. Yogyakarta: BPFE UGM.

## ATTACHMENT

**Attachment 1**

**Partial Adjustment Model (PAM)**

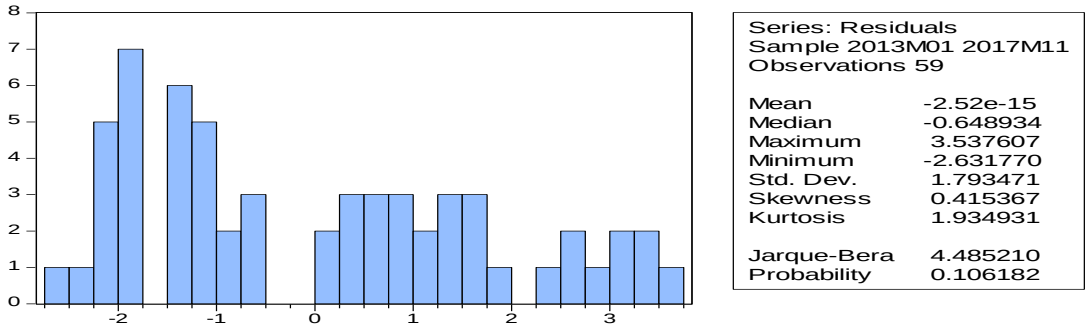
Dependent Variable: INF
Method: Least Squares
Date: 18/03/18 Time: 12:17
Sample (adjusted): 2013M02 2017M11
Included observations: 58 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 4.956845 | 2.153210 | 2.302072 | 0.0253 |
| SB | -0.214892 | 0.089588 | -2.398663 | 0.0200 |
| NT | -0.801375 | 0.314552 | -2.547670 | 0.0138 |
| JUB | -0.712997 | 0.276269 | -2.580804 | 0.0127 |
| INF(-1) | 0.969124 | 0.050963 | 19.01613 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.878530 | Mean dependent var | 5.464138 |
| Adjusted R-squared | 0.869362 | S.D. dependent var | 1.851307 |
| S.E. of regression | 0.669134 | Akaike info criterion | 2.116599 |
| Sum squared resid | 23.73026 | Schwarz criterion | 2.294223 |
| Log likelihood | -56.38136 | Hannan-Quinn criter. | 2.185787 |
| F-statistic | 95.82999 | Durbin-Watson stat | 1.456726 |
| Prob(F-statistic) | 0.000000 | | |

**Attachment 2**

**Normality Test**



**Attachment 3**

**Autocorrelation Test**

Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 2.507190 | Prob. F(2,51) | 0.0915 |
| Obs*R-squared | 5.192133 | Prob. Chi-Square(2) | 0.0746 |

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 18/03/18 Time: 12:20
Sample: 2013M02 2017M11
Included observations: 58
Presample missing value lagged residuals set to zero.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.914678 | 2.190552 | 0.417556 | 0.6780 |
| SB | 0.015121 | 0.087624 | 0.172571 | 0.8637 |
| NT | 0.058795 | 0.307102 | 0.191451 | 0.8489 |
| JUB | -0.100064 | 0.279145 | -0.358467 | 0.7215 |
| INF(-1) | -0.036262 | 0.057155 | -0.634444 | 0.5286 |
| RESID(-1) | 0.329759 | 0.147626 | 2.233745 | 0.0299 |
| RESID(-2) | -0.060107 | 0.150858 | -0.398432 | 0.6920 |

| | | | |
|---|---|---|---|
| R-squared | 0.089520 | Mean dependent var | -7.12E-16 |
| Adjusted R-squared | -0.017596 | S.D. dependent var | 0.645229 |
| S.E. of regression | 0.650881 | Akaike info criterion | 2.091781 |
| Sum squared resid | 21.60593 | Schwarz criterion | 2.340456 |
| Log likelihood | -53.66166 | Hannan-Quinn criter. | 2.188645 |
| F-statistic | 0.835730 | Durbin-Watson stat | 2.011340 |
| Prob(F-statistic) | 0.548096 | | |

**Attachment 4**

**Heteroskedasticity Test**

Heteroskedasticity Test: White

| | | | |
|---|---|---|---|
| F-statistic | 0.205223 | Prob. F(4,53) | 0.9344 |
| Obs*R-squared | 0.884633 | Prob. Chi-Square(4) | 0.9268 |
| Scaled explained SS | 2.052931 | Prob. Chi-Square(4) | 0.7260 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 18/03/18 Time: 12:22
Sample: 2013M02 2017M11
Included observations: 58

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 1.614740 | 1.618741 | 0.997528 | 0.3230 |
| SB^2 | 0.001529 | 0.008276 | 0.184748 | 0.8541 |
| NT^2 | -0.026698 | 0.146754 | -0.181923 | 0.8563 |
| JUB^2 | -0.022800 | 0.027366 | -0.833149 | 0.4085 |
| INF(-1)^2 | -0.001028 | 0.006674 | -0.154065 | 0.8781 |

| | | | |
|---|---|---|---|
| R-squared | 0.015252 | Mean dependent var | 0.409142 |
| Adjusted R-squared | -0.059068 | S.D. dependent var | 0.973024 |
| S.E. of regression | 1.001350 | Akaike info criterion | 2.922837 |
| Sum squared resid | 53.14315 | Schwarz criterion | 3.100461 |
| Log likelihood | -79.76228 | Hannan-Quinn criter. | 2.992025 |
| F-statistic | 0.205223 | Durbin-Watson stat | 1.596788 |
| Prob(F-statistic) | 0.934408 | | |

**Attachment 5**

**Linearity Test**

Ramsey RESET Test:

| | | | |
|---|---|---|---|
| **F-statistic** | **2.073192** | **Prob. F(2,51)** | **0.1363** |
| Log likelihood ratio | 4.533602 | Prob. Chi-Square(2) | 0.1036 |

Test Equation:
Dependent Variable: INF
Method: Least Squares
Date: 25/05/18 Time: 11:46
Sample: 2013M02 2017M11
Included observations: 58

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -4.036025 | 6.791992 | -0.594233 | 0.5550 |
| SB | 0.361528 | 0.456854 | 0.791342 | 0.4324 |
| NT | 1.666435 | 1.869836 | 0.891220 | 0.3770 |
| JUB | 1.404019 | 1.586489 | 0.884985 | 0.3803 |
| INF(-1) | -2.008959 | 2.160715 | -0.929766 | 0.3569 |
| FITTED^2 | 0.590539 | 0.390656 | 1.511662 | 0.1368 |
| FITTED^3 | -0.035530 | 0.021838 | -1.626982 | 0.1099 |

| | | | |
|---|---|---|---|
| R-squared | 0.887663 | Mean dependent var | 5.464138 |
| Adjusted R-squared | 0.874447 | S.D. dependent var | 1.851307 |
| S.E. of regression | 0.655983 | Akaike info criterion | 2.107399 |
| Sum squared resid | 21.94601 | Schwarz criterion | 2.356073 |
| Log likelihood | -54.11456 | Hannan-Quinn criter. | 2.204262 |
| F-statistic | 67.16500 | Durbin-Watson stat | 1.272383 |
| Prob(F-statistic) | 0.000000 | | |

**Attachment 6**

**Multicolleniarity Test**
**Multicolleniarity Test SB**

Dependent Variable: SB
Method: Least Squares
Date: 18/03/18 Time: 12:24
Sample (adjusted): 2013M02 2017M11
Included observations: 58 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 7.185508 | 3.121091 | 2.302243 | 0.0252 |
| NT | -0.406991 | 0.474577 | -0.857586 | 0.3949 |
| JUB | -0.071178 | 0.419535 | -0.169658 | 0.8659 |
| INF(-1) | 0.140837 | 0.075002 | 1.877771 | 0.0658 |

| | | | |
|---|---|---|---|
| R-squared | 0.066378 | Mean dependent var | 8.472931 |
| Adjusted R-squared | 0.014510 | S.D. dependent var | 1.023856 |
| S.E. of regression | 1.016401 | Akaike info criterion | 2.936884 |
| Sum squared resid | 55.78579 | Schwarz criterion | 3.078984 |
| Log likelihood | -81.16964 | Hannan-Quinn criter. | 2.992235 |
| F-statistic | 1.279749 | Durbin-Watson stat | 0.268492 |
| Prob(F-statistic) | 0.290611 | | |

**Multicolleniarity Test NT**

Dependent Variable: NT
Method: Least Squares
Date: 18/03/18 Time: 12:25
Sample (adjusted): 2013M02 2017M11
Included observations: 58 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1.717013 | 0.901750 | -1.904091 | 0.0622 |
| SB | -0.033014 | 0.038497 | -0.857586 | 0.3949 |
| JUB | -0.096614 | 0.118795 | -0.813281 | 0.4196 |
| INF(-1) | 0.033725 | 0.021565 | 1.563868 | 0.1237 |
| R-squared | 0.061676 | Mean dependent var | | -2.486724 |
| Adjusted R-squared | 0.009547 | S.D. dependent var | | 0.290875 |
| S.E. of regression | 0.289483 | Akaike info criterion | | 0.425034 |
| Sum squared resid | 4.525233 | Schwarz criterion | | 0.567134 |
| Log likelihood | -8.325992 | Hannan-Quinn criter. | | 0.480385 |
| F-statistic | 1.183143 | Durbin-Watson stat | | 1.790620 |
| Prob(F-statistic) | 0.324796 | | | |

**Multicolleniarity Test Money Supply**

Dependent Variable: JUB
Method: Least Squares
Date: 18/03/18 Time: 12:26
Sample (adjusted): 2013M02 2017M11
Included observations: 58 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 6.788260 | 0.521112 | 13.02648 | 0.0000 |
| SB | -0.007485 | 0.044117 | -0.169658 | 0.8659 |
| NT | -0.125245 | 0.154000 | -0.813281 | 0.4196 |
| INF(-1) | -0.009067 | 0.025073 | -0.361608 | 0.7191 |
| R-squared | 0.018316 | Mean dependent var | | 6.986552 |
| Adjusted R-squared | -0.036222 | S.D. dependent var | | 0.323785 |
| S.E. of regression | 0.329597 | Akaike info criterion | | 0.684583 |
| Sum squared resid | 5.866262 | Schwarz criterion | | 0.826682 |
| Log likelihood | -15.85290 | Hannan-Quinn criter. | | 0.739933 |
| F-statistic | 0.335831 | Durbin-Watson stat | | 2.076906 |
| Prob(F-statistic) | 0.799469 | | | |