

The Correlation Of Unemployment Rate, Fuel Price And Money Supply Towards Inflation In Indonesia

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Abstract

Inflation is inevitable and prevalence because all countries, including Indonesia, have experienced inflation as part of their economic growth. The aim of the study is to find the correlation of unemployment rate, fuel prices, money supply to inflation in Indonesia. This study used descriptive method to analyze the data. Data were gathered from Badan Pusat Statistik, year 2010 to 2015. The result of the study shows that there is no significant correlation between unemployment rate and inflation; fuel price and inflation; money supply and inflation rate in Indonesia.

Keywords: inflation, unemployment rate, fuel price, money supply

I. Introduction

High and variable inflation is believed to be detrimental to economic growth; therefore, economic policy-maker will have to take the precaution measure to control the inflation. An extensive empirical research¹ indicates that the negative relationship between inflation and economic growth is influenced by² extreme values of outlying countries having exceptionally high inflation rates. (Leinve and Renelt, 1992; Levine and Zervos, 1993; Stanners, 1993; Bruno & Easterly, 1998; Easterly, 2003).

Researchers have made many researches to find out causality and magnitude relationship of inflation and its variables in order to control the inflation. Wu and Ni (2011) state that most studies done focused on how oil price affects the economy variables including inflation but their study shows that monetary policies has higher matter over the oil prices.

Compared to other developing countries, which the inflation rate was around 3 per cent to 5 per cent, Indonesia had an average of 8.5 per cent during 2005 to 2013. Indonesia also has volatile inflation rate, the large deviation had been found in the actual inflation as to annual inflation target of Bank Indonesia during 2001 to 2014. According to Malik and Chowdhury (2011), there is strong evidence that inflation uncertainty affect the inflation negatively as found in Australia, Japan, the USA and the UK. Moreover, they stated that one way to reduce the uncertainty on inflation is

by subsidizing or adjusting taxes on oil.

The study aims to find out the correlation among unemployment rate, fuel price and money supply towards inflation. Therefore, this study seeks to answer the following questions in the Indonesian context:

- Is there any significant correlation between unemployment rate and inflation?
- Is there any significant correlation between the fuel price and inflation?
- Is there any significant correlation between outstanding money and inflation?

I. Inflation

Mankiw (2012) defined inflation as an increase in the overall level of prices in the economy. While, Colander (2001, p. 704) stated “inflation is always and everywhere a monetary phenomenon.” Moreover, inflation is known as the rate at which the price level of goods and services are aggregate increasing that weaken the purchasing power. Cost-push inflation is the inflation caused by the increase of the production cost, in order to maintain the revenue the company pass the increase to the costumer by setting higher selling price on their goods and services. Business sector and government should be able to anticipate the movement of the production factors that might cause the increase of production cost leading to inflation.

II. Unemployment Rate Unemployment rate is based on the number of people who want and able to work but are not working. (Colander, 2001).

Dunaev (2011) states the increase of the wage rate as the compensation to inflation will lead to unemployment rate. The unemployment rate growth increases inflation and the continuous high inflation rate and unemployment rate from year to year will lead to stagflation.

Indonesia's unemployment rate was as high as 5.7 per cent in 2014. Based on Phillips Curve cited by Mankiw (2012) shows the increase of aggregate demand on labor (low unemployment rate) will increase the wages and eventually will increase the prices (inflation), however it might be different among countries because of certain conditions as according to Kochetkov (2012), there is a negative correlation between inflation and unemployment rate, as it is with Phillips curve, during 1996 to 2008 in Latvia but there was also positive correlation on certain years as the result of macroeconomic changes and development peculiarities in Latvia during that time. The study implied that Phillips Curve is situational; each country may experience peculiarities that lead to irregular policies and solutions.

III. Fuel Prices

According to Al-Roubaie (2010), energy is an important component of production cost that the increase will directly impacts economic productivity, unemployment, inflation and balance of payments equilibrium. Fuel prices in Indonesia depend on the government's subsidy.

According to Abdini and Adyawarman (2012) there have been changes in subsidy for about thirteen times from 1993 to 2011, nine times the prices increased and four times the prices decreased. From time to time Indonesia has faced many conflicts such as, protest, strike and etc. in relation to the rising fuel prices. Prasetyo (2015) stated that fuel price contributes 0.22 percent to inflation with the price change 5.68 percent.

According to Sukirno (2006), total production cost (short-term analysis) is the summation of total fixed cost and total variable cost. Short-term analysis means that the production factors cannot be changed. The implication is to compensate the increase of the cost the producer will supply less and will increase the price.

more by the income.

Government policy to reduce the subsidy of fuel by Rp.2.000,-/liter for premium gasoline and Rp.1.000,- liter for diesel in June 2013 has been predicted to increase the inflation rate. The main impact of the increase is the rise of transportation fare and production cost of industrial sector and later on will create inflation in all economic sectors. Experts predict the rise of fuel price in July will increase the inflation by 2.46% from the government target of 7.2%.

(Kompas, Wednesday June 19th 2013, p.19)

IV. Money Supply

Money is the stock of assets that can be readily used to make transactions. Mankiw (2012) said the quantity theory of money states that the central bank, which controls the money supply, has ultimate control over the rate of inflation. If the central bank keeps the money supply stable, the price level will be stable. If the central bank increases the money supply rapidly, the price level will rise rapidly.

According to Pagoso, Dinio, and Villasis (2008) the connection between money and prices in reality is quite complex because money does not directly affect the prices but through the influence on spending. However, the spending can still rise, in moderate amount, even though the money supply is constant as individuals and business firms economize on their idle cash into the circulation.

Milton Friedman has a very classical maxim: "Inflation is always a kind of monetary phenomenon in any place". Based on that, the study about inflation should never be separated from the research and analysis of money quantity. Carlstrom and Fruest (1999) state that low money supply will lead to inflation. Moreover, they found out that in the USA based from data from early 80's money supply and inflation are not related. Fitzgerald (1999) found out that there is, in short-run, no relation between currency growth rate and inflation rate in the USA.

Foresti and Napolitano (2014) found that the impact of inflation on money demand is significantly higher in less stable economies, while in more stable economies inflation is affected

V. Hypothesis

1. There is significant correlation between unemployment rate and inflation.
2. There is significant correlation between the fuel price and inflation.
3. There is significant correlation between outstanding money and inflation.

II. Methods

Method of the study is descriptive analysis with the intention to find correlations among the variables. According to Supranto (2013), descriptive analysis is a study to present an analysis of the real situation. Samples were taken from Badan Pusat Statistik of 2010-2015 data. Variables used in the study are unemployment rate, fuel prices, money supply as independent variables and inflation as dependent variable. Data were analyzed using Pearson Product Moment and processed by statistical software SPSS with error rate of 5 per cent

III. Results

This section of the research discuss the result of the study. Tables below show the result on the correlation between variables in the

1 Regre ssion	2.336	3	.779	2.080	.112 ^a
Residual	22.081	59	.374		
Total	24.416	62			

a. Predictors: (Constant), fuel_price, unemployment_rate, money_supply b. Dependent Variable: inflation

research.

Table 1
Model Summary

Model	R R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.309 ^a	.096	.050	.61176

a. Predictors: (Constant), fuel_price, unemployment_rate, money_supply

Based on the table 1 above, the statistics shows that there is a low correlation between unemployment rate, fuel prices, money supply and inflation rate in Indonesia indicated by $r = 0.309$.

Table 2
ANOVA^b

Model	Sum of Square s	df	Mean Square	F	Sig.

Table 3
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-4.191	4.183		-1.002	.320
money_supply	1.152 E-6	.000	.266	.525	.601

unemployment_rate	.464	.468	.402	.991	.326
fuel_price	.000	.000	.288	1.271	.209

Table 2 above indicates the significant value between variables in the research. The statistics shows that simultaneously the correlation between unemployment rate, fuel prices, money supply and inflation rate is not significant. Indicated by $F = 2.080$ and $\rho = 0.112$ at $\alpha = 0.05$. Furthermore, the statistics shows that partially there is no significant correlation between variables as indicated by each

a. Dependent Variable: inflation

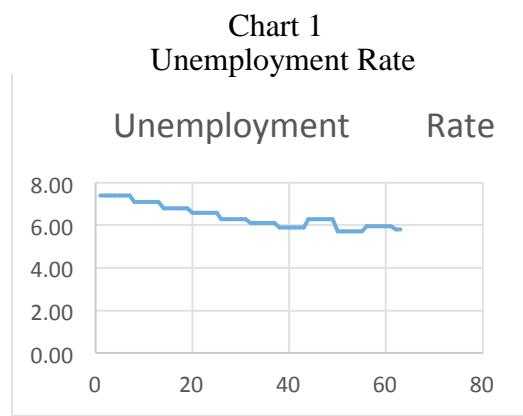
independent variable such as: money supply indicated by t-count = 0.525 < t-table = 2.000 and $\rho = 0.601$; unemployment rate indicated by t-count = 0.991 < t-table = 2.000 and $\rho = 0.326$; fuel price indicated by t-count = 1.271 < t-table = 2.000 and $\rho = 0.209$. All variables are not significant at $\alpha = 0.05$.

IV. Discussion

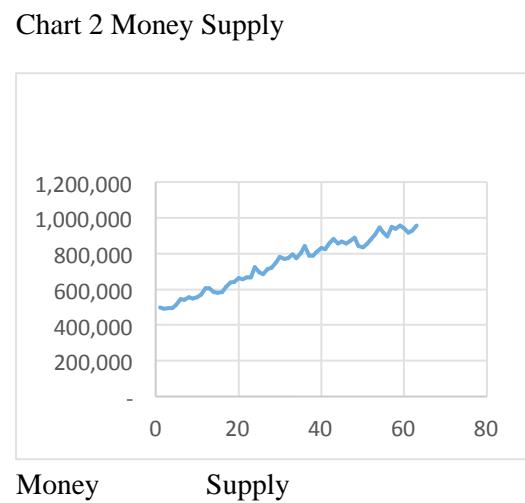
The summary of the research regarding variable of the study are as follows: Chart 1 describe the unemployment rate.

Chart 2

describes the money supply. Chart 3 describes the fuel prices. Chart 4 describes the inflation rate.

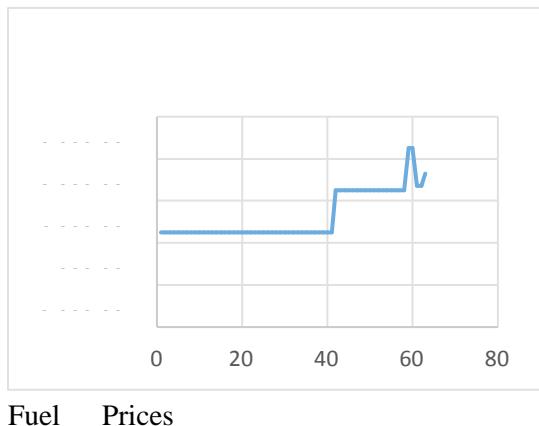


The chart 1 shows that there is decreasing trend of unemployment rate from January 2010 to March 2015.



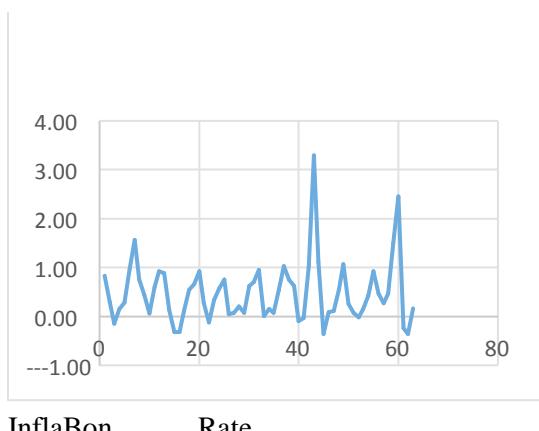
The chart 2 shows that there is an increasing trend in the money supply from January 2010 to March 2015.

Chart 3 Fuel Prices



The chart 3 shows an interesting trend of fuel prices, where the price was stable in the first 40 months but there was a combination of increase and decrease in the last 10 months.

Chart 4 Inflation Rate



The chart 4 shows a volatile trend of inflation rate from January 2010 to March 2015.

Based on the result and discussion above, the researcher concluded that the variable used in the study are not significantly affecting the inflation rate. Thus, the researcher suggests further research regarding factors affecting inflation rate and use other variables to give thorough understanding on solution for inflation rate.

References

- Al-Roubaie, A. (2010). An assessment of international liquidity and higher oil prices. *World Journal of Entrepreneurship Management and Sustainable Development*, Vol. 6, No. 3. Bahrain: Ahlia University.
- Prasetyo, A. P. (May 4, 2015). *Tempo*. Retrieved from www.tempo.co. Abdini, C., & Adyawarman. (March 30, 2012). *Review of pricing policy of subsidized fuel oil from time to time*. Retiredre from <http://www.setneg.go.id/>
- Carlstrom, C. T. & Timothy S. (1999). *Fuerst money growth and inflation: does fiscal policy matter?* Federal Reserve Bank of Cleveland Economic Commentary, April 15.
- Colander, D. C. (2001). *Economics*. New York: McGraw-Hill.
- Dunaev, B. (September 2011). *The rate of growth of wage rate as a function of unemployment rate*. Cybernetics & Systems Analysis. Vol. 47 Issue 5, p791-799. DOI: 10.1007/s10559-011-9358-7
- Fitzgerald, T. J. (1999). Money growth and inflation: how long is the long-run? Federal Reserve Bank of Cleveland Economic Commentary, August 1.
- Sugiyono. (2012). *Statistik untuk penelitian*. Bandung: Alfabeta.
- Sukirno, S. (2014). *Pengantar teori mikroekonomi*. Jakarta: PT. Raja Grafindo Persada.
- Supranto. (2013). *Petunjuk Praktis Penelitian Ilmiah Untuk Menyusun Skripsi, Tesis dan Disertasi*. Jakarta: Mitra Wacana Media.
- Kochetkov, Y. (2012). *Modern Model of Interconnection of Inflation and Unemployment in Latvia*. Engineering Economics. Vol. 23 Issue 2, p117124. DOI: 10.5755/j01.ee.23.2.1543.

- Mankiw, N. G. (2012). *Principles of economics* (6th ed.). The Dryden Press.
- Foresti, P. & Napolitano, O. (2014). *Money Demand in the Eurozone: Do Monetary Aggregates Matter?* Engineering Economics. 2014, Vol. 25 Issue 5, p497-503. DOI: 10.5755/j01.ee.25.5.3810.
10.1016/j.energy.2011.04.028.
- Pagoso, C. M., Dinio, R. P., Villasis G. A. (2008). *Principles of economics*. Philippine: Rex Book Store Inc. “Inflasi bisa lebih dari 7,2%”. Harian Kompas, Wednesday June 19th 2013.
- Wu, M. & Ni, Y. (2011). *The effects of oil prices on inflation, interest rates and money*. Energy. July 2011, Vol. 36 Issue 7, p4158-4164. DOI: