THE IMPACT OF INFLATION ON ECONOMIC GROWTH (CASE STUDY IN INDONESIA 1987-2016)

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ABSTRACT

Economic growth is a key in developing a country. The amount of how much economic growth can develop a country can be seen in how it affects everything starting from the amount of supply in a country. Economic growth also showed the extent to which economic activity will affect additional income of the people within a given period. Economic growth can be interpreted as a process that the changes felt in the long term and it can be measured by using GDP growth or in this case the change in total output. Another reason why economic growth is important is that since it is affected by GDP growth, then every time there is an increase in total output, that means the economic growth increased and so will the prosperity of the country. However, Economic Growth does not get affected by only the GDP growth, but also other factors like inflation. This research aims to analyse the impact of inflation towards economic growth in a given period of time, and in this research, the period will be starting from 1987 until 2016.

This research uses Ordinary Least Square or OLS to determine the effect of independent variables on the dependent variable. The results obtained in this research indicate that inflation affect economic growth

Keywords: Economic growth, inflation, GDP growth.

ABSTRAK

Pertumbuhan ekonomi adalah kunci dalam mengembangkan suatu negara. Jumlah berapa banyak pertumbuhan ekonomi dapat mengembangkan suatu negara dapat dilihat

dalam bagaimana hal itu mempengaruhi segala sesuatu mulai dari jumlah pasokan di suatu negara. Pertumbuhan ekonomi juga menunjukkan sejauh mana kegiatan ekonomi akan mempengaruhi pendapatan tambahan orang-orang dalam suatu periode tertentu. Pertumbuhan ekonomi dapat diartikan sebagai proses yang dirasakan perubahan dalam jangka panjang dan dapat diukur dengan menggunakan pertumbuhan PDB atau dalam hal ini perubahan dalam total output. Alasan lain mengapa pertumbuhan ekonomi penting adalah karena pertumbuhannya dipengaruhi oleh pertumbuhan PDB, maka setiap kali ada peningkatan output total, itu berarti pertumbuhan ekonomi meningkat dan begitu juga kemakmuran negara. Namun, Pertumbuhan Ekonomi tidak terpengaruh hanya oleh pertumbuhan PDB, tetapi juga faktor-faktor lain seperti inflasi. Penelitian ini bertujuan untuk menganalisis dampak inflasi terhadap pertumbuhan ekonomi dalam jangka waktu tertentu, dan dalam penelitian ini, periode akan dimulai dari 1987 hingga 2016.

Penelitian ini menggunakan Ordinary Least Square atau OLS untuk mengetahui pengaruh variabel independen terhadap variabel dependen. Hasil yang diperoleh dalam penelitian ini menunjukkan bahwa inflasi mempengaruhi pertumbuhan ekonominelitian ini menunjukkan bahwa inflasi mempengaruhi pertumbuhan ekonomi
Kata kunci: Pertumbuhan ekonomi, inflasi, pertumbuhan PDB.

1. INTRODUCTION

1.1 Background

Inflation in the developed countries is considerably high for a lot of reasons, for example, the increase in demand for goods relative to supply. Because the demand in the developed countries is more than the supply, some people would pay more than they need to get the goods they want. However, a high inflation must be avoided in developing countries, because unlike in developed countries, there is more supply than the demand. A high inflation will cause the price of goods and services to rise, causing the demand for them to fall, and should it continue, then the economy growth will keep on falling.

All countries will want to have a high economic growth, because the higher the economic growth means that the welfare of the people is assured, and it also means that the growth of Gross Domestic Product is high. There are several methods to increase GDP growth like for example Foreign Direct Investment(FDI), controlling taxes, export and import, exchange rates, and also inflation. As of 2016, the economic growth and inflation are still stable unlike in the previous 30 years where there are spikes in both inflation and economic growth. The spikes show that there is a distinct relationship between the two. Therefore, in order to dig deeper into the relationship of the two, this research was done under the name of "THE IMPACT OF INFLATION ON ECONOMIC GROWTH (CASE STUDY IN INDONESIA 1987-2016)"

1.2 Research Question

According to the background, the research questions are as follow:

a. Does inflation has significant impact on economic growth in Indonesia?

b. Does inflation has an adverse effect on economic growth in Indonesia?

1.3 Research Objective

This research is done to know the relationship between inflation and economic growth, and also the impact of the inflation towards economic growth in developing countries, in this case, Indonesia starting from 1987 up to 2016. Whether the result of this research has positive or negative impact from inflation towards economic growth, as long as it shows significant effect, then the objective is achieved.

1.4 Research Method

The research method used is a simple Ordinary Least Square(OLS) as there is only 1 dependent variable and 1 independent variable, with both having quantitative data. The result will be done through E-Views 9.

2. Literature Review

2.1 Economic Growth

Economic growth, in classical economics or Ricardian Economics, the theory of production and the theory of growth are based on the theory of variable proportions, which by increasing one among the factors of production while holding the other constant, will allow the increase of output or quantity of commodities.

Economic development is simultaneously a concept, an activity, and a professional practice, and economic growth is a narrower concept of it. Economic growth focuses on the increase in a country's real GDP which can be caused by an increase in the quantity of commodities, quality of commodities, or both, or even an increase in value of commodities produced by every sector of economy.

Economic growth is also a long-term rise in capacity to supply the increasingly diverse commodities to the population to improve their well-being. It can also refer to a country's increase in output or GDP, economic goods provision, and presence of advanced technology. As economic growth is synonymous to GDP Growth, therefore there is a need to know what it is and what affect it.

2.1.1 GDP Growth

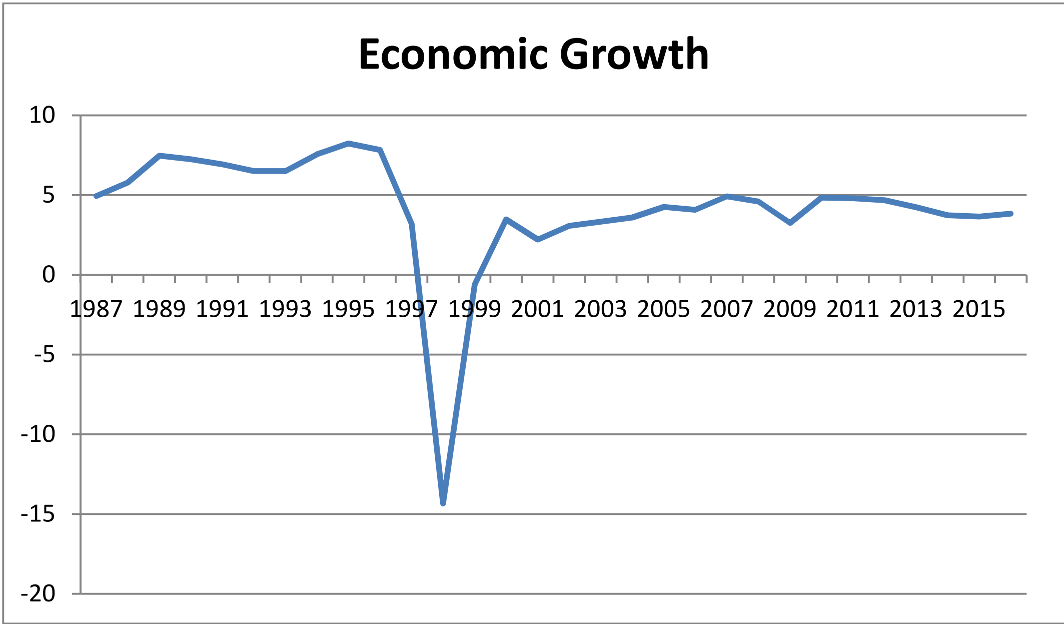
An increase in GDP causes an increase in economic growth, therefore, it can be inferred that GDP growth is similar to economic growth.

GDP is a very strong measure to gauge the economic growth and it reflects the total of production of a country and as such comprises all purchases of goods and services produced by a country and services used by individuals, firms, foreigners, and government. GDP accounts all production of goods and services produced by both domestic and foreign firms and institutions. GDP is mostly used as an indicator by almost all the governments and economic decision-makers to plan and formulating policies. It allows one to judge whether the economy is growing or weakening, whether it needs a boost or restraint, and if a threat like recession or inflation looms in the country. In order to increase GDP, there are several factors that largely influence GDP, for example Foreign Direct Investment (FDI),

human resources, and Information and Communication Technology (ICT), also taxes, export & import, inflation, and exchange rate.

Graph 2.1

GDP Growth Rate in Indonesia (1987-2016)



Source: World Bank (2017, August)

By observing the two figures above, it is easy to see that there is a huge discrepancy between inflation and GDP Growth. In 1987 until 1990, Indonesia kept on increasing its economic growth that in the span of 4 years, the economic growth that was in 4,9% reached 7,2% in 1990. However, the trend was broken in the next year for 3 years until 1993 that showed the economic growth to fall at the lowest in the last 3 years which is 6,5%. After that, the economic growth started to catch up and it increased in the next 4 years until it reaches 1997 which reduced the economic growth by twice, 3,2% in 1997 as in 1996, the economic growth was 7,8% in 1998 because in 1998, the economic Growth rate decreased from 4,7% to (-13,1%) which is followed by a steep rise in inflation from 12,6% to 75,3%. This proves that there is negative co-relation between inflation and economic growth, and it also proves that the higher the inflation rate is, the worse the state of the economy in a

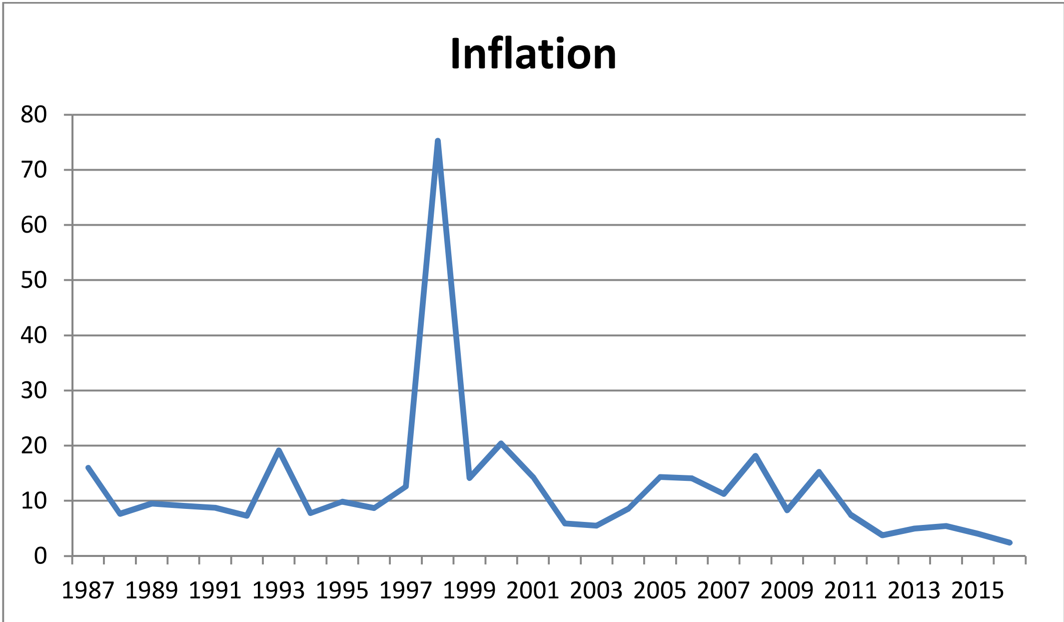
country is, if it were left alone. Although there is not much difference between the two in the next few years, there is bound to be problems in the future.

2.2 Inflation

Inflation is the increase in general prices of commodities. The increase in the price is of one or two items cannot be called inflation unless the increase is widespread and the result of the increase affected the price of other commodities. Inflation is persistent, which means that it cannot be eliminated, and it will exist as long as there is economic growth. Once inflation reaches or exceeds 50% per month, or more than 1% per day, it is no longer called inflation, but hyperinflation. Hyperinflation in this case means that the price level will massively increase. There will be inflation if there is an increase in price of commodities as a whole because inflation can influence the price of commodities. Should there be an increase in some commodities for a short term, then it cannot be called inflation because inflation is calculated for at least a month.

Graph 2.2

Inflation Rate in Indonesia 1987-2016



Source: World Bank(2018)

From the graph above, it can be inferred that Indonesian government had a good response for the economic crisis that happened in 1998, whereas the inflation raised from 12,57% in 1987 to 75,27%, because they caused the inflation to drop back to the previous state although a little bit higher that is 14,16% in 1999. Starting from then, the inflation rate fluctuated and was unstable as Indonesia just passed the economic crisis because the inflation rate increase to 20,45% in 2000, but decreased again to 14,3% in the next year. Starting from 2001, the inflation decreased to the scale which can be said good for Indonesia, which is 5,9% in 2002 and 5,49% in 2003. However, whether it was to respond for the global economic crisis that will happen in 2008 or not, the inflation rate in Indonesia started to increase to 8,55% in 2004, and again to 14,33% in 2005. Although the inflation rate was suppressed from 14,09% in 2006 to 11,26% in 2007, because of the global economic crisis that happened overseas, Indonesia was also affected, but not as much as the crisis that happened in 1998 as the inflation rate only reached 18.15% in 2008. Once again, Indonesian government suppressed the inflation rate to 8,27% in 2009 but it rebounded because the crisis was still ongoing, causing the inflation rate to be at 15,26% in 2010. Once the crisis passed, the inflation rate in Indonesia started to stabilized and the inflation rate keeps on dropping from 7,47% in 2011 and eventually 2,45% in 2016.

2.2.1 Inflation Indicators

Inflation has always been followed by increase in price, even if the price level fluctuates; it still shows that there is a tendency of increase in prices in not only 1 product, but all commodities. There are several macroeconomic indicators that can be used to measure inflation, for example Consumer Price Index (CPI), Producer Price Index (PPI), and GDP Deflator.

1. Consumer Price Index

CPI represents the changes in price level of commodities that are specifically used to track the progress of inflation in economy purchased by consumers. The formula to calculate CPI is as followed:

$$CPI = \frac{Price\ of\ the\ Current\ Year}{Price\ of\ the\ Base\ Year} x100$$

Price of the current year includes the average of all commodities in the period that needs to be calculated, while the base year, consists of the average of all commodities in the base period. In order to calculate inflation, the formula below will explain it:

$$Inflation = \frac{CPI - CPI'}{CPI'}\ x\ 100\%$$

In order to get inflation rate, there needs to be CPI of the current year and CPI'(CPI from the previous year). The result from the difference in the CPI, divided by the CPI', and the result would be the inflation rate of the current year.

Not only CPI can be used to calculate inflation, but it can also be used to calculate economic growth through GDP in the form of GDP Growth. According to Mahmoud, Limam Ould Mohamed(2015), that researched the connection between CPI and GDP Growth and found out that there is a positive and significant relationship between the two. It also referred that moderate inflation will increase productivity and output level.

2. Producer Price Index

Unlike consumer price index that is looking at the price in the perspective of the consumer, producer price index is observed in the perspective of the producer. In order to calculate it, the formula used is as follow,

$$PPI = Q\ x\ P0\ \frac{P1}{P0} x\ Q\ x\ 100$$

To calculate PPI, the aggregate quantity of commodities of the year, aggregate price of the base year, and aggregate price of commodities of the year will be needed. In order to calculate inflation, the same formula from calculating inflation using CPI can be applied to PPI.

$$Inflation = \frac{PPI - PPI_{-1}}{PPI_{-1}}\ x\ 100$$

3. GDP Deflator

$$GDP\ Deflator = \frac{Nominal\ GDP}{Real\ GDP}\ x\ 100$$

By using Nominal GDP and Real GDP, multiplied by 100, GDP deflator can be calculated. In order to calculate inflation using GDP Deflator, the same formula of calculating inflation using CPI can be applied into GDP Deflator.

$$Inflation = \frac{GDP\ Deflator -\ GDP\ Deflator_{-1}}{GDP\ Deflator_{-1}}\ x\ 100$$

To calculate inflation, the GDP Deflator is the GDP Deflator of the current year, and GDP $Deflator_{-1}$ is the GDP Deflator of the previous year or base year.

By looking at the explanation from above, it can be assumed that there is a deep relationship between economic growth and GDP, and inflation with GDP. An increase in inflation rate will affect the price of commodities, and the effect on price would influence the demand and supply of the goods because of the economy cycle between consumer and producer that involves the purchasing of commodities and production of commodities. Inflation rate would reduce the demand for commodities.

2.2.2 Types of Inflation

Inflation reflects on price, and price level will affect the demand for goods and the whole economy cycle, however, there are several types of inflation that is beneficial for Indonesia. Types of inflation can be categorized based on the intensity and cause.

2.2.2.1 Types of Inflation Based on the Intensity

The types of inflations categorized by intensity are listed below:

1. Hyperinflation

Hyperinflation is the condition whereas the prices of commodities rise significantly at 50%. This kind of inflation significantly reduces the real power of money of a country. Unlike normal inflation, hyperinflation can be observed by just tracing the price of

commodities of the time and prior to the inflation, which is one year before it happened. Hyperinflation happens because the government recklessly prints money, in most cases, to pay for war.

2. Creeping Inflation

Creeping inflation, or mild inflation is when the prices of commodities increases by 3% a year. This type of inflation is beneficial for countries as it will increase the price of commodities, while keeping the demand for them stable or even increases. During this inflation, price increase is beneficial as it'll increase the value of product.

3. Walking Inflation

The speed at which walking inflation is faster than creeping inflation as it is a condition when the prices of commodities increases by 3% 10% a year. This type of inflation is harmful as it will lower the demand for commodities because the sudden increase in price is big as the commodities were purchased in large amount and it ended up causing the suppliers to be unable to keep up.

4. Galloping Inflation

Galloping inflation is even worse than walking inflation as the prices increases by more than 10% a year. During this inflation, the value of money would be significantly decreased in a quick pace that business and the employee income can't keep up with the costs and prices. Foreign investors avoid the country, depriving it of needed foreign investment. The economy becomes unstable, and loss of government's credibility.

2.2.2.2 Types of Inflation Based on Causality

Types of inflation based on the causes, listed with some additions, are listed below:

1. Monetary/Currency Inflation

This inflation happens due to printing more money by the government to cover its deficit, or to pay for war. If the government were to print money to cover everything needlessly, it will only lead to hyperinflation.

2. Demand Pull Inflation

Demand pull inflation is an increase in aggregate demand over the available commodities results into the rise of price level. This inflation happens when aggregate

demands for goods and services exceed the available aggregate supply. With less supply for commodities, the price naturally increases.

3. Cost-Push Inflation

Contrary to demand pull inflation, cost push inflation will happen when there is an increase in the price of raw materials will cause the increase in cost of production, which in turn will increase the price of the products and reduce the supply of the products. Not only for raw materials, but also necessity goods, for example oil and gas, can affect the whole economy, as the more expensive gasoline, means that the cost of production will increase.

3. FINDINGS AND DISCUSSION

3.1 Estimation Result

Figure 3.1 Estimation Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.305646	0.576129	12.68058	0.0000
INFLATION	-0.258394	0.032705	-7.900864	0.0000

R-squared	0.690347	Mean dependent var	4.119536
Adjusted R-squared	0.679287	S.D. dependent var	3.979584
S.E. of regression	2.253697	Akaike info criterion	4.527362
Sum squared resid	142.2163	Schwarz criterion	4.620775
Log likelihood	-65.91043	Hannan-Quinn criter.	4.557245
F-statistic	62.42365	Durbin-Watson stat	0.873517
Prob(F-statistic)	0.000000		

The result of the test shows that the probability of inflation affecting economic growth is 0%, which is lower than =5%, that means inflation can greatly affect economic growth, and every time there is an increase in inflation by 1%, the economic growth will suffer a decrease by 0,26%. The Adjusted R-squared of the result shows 68%, which can be interpreted that there is other variables that affect economic growth, and in this case, there

is 32% other variables that can explain the change in economic growth. Although there are 32% other variables that affect economic growth, the amount of percentage of Adjusted Residual Squared cannot be denied as inflation covered nearly 70% of what caused the change in economic growth.

4. CONCLUSION & SUGGESTION

4.1 Conclusion

From the estimation test and data analysis about economic growth as the dependent variable by using inflation as the independent variable, the conclusion can be summarized as followed:

1. There is a significant impact of inflation towards economic growth as inflation can explain nearly 70% of what makes economic growth.

2. By using OLS(Ordinary Least Square), the inflation in Indonesia can be said that it has negative relation with economic growth.

5.2 Suggestion

As this research is focused on only inflation and economic growth in Indonesia, there should be other countries involved to compare it with Indonesia, because in the economic analysis of this research is statistically incorrect in developed countries. By comparing Indonesia and a developed country, there will be several results that can be concluded, thus making this research to be even more detailed regarding the relationship between inflation and economic growth.

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