

The Effect of Food Commodities Price on Inflation in Medan City

Rahmanta^{a*}, Yusak Maryunianta^{b, a,b} Dosen Program Studi Agribisnis, Fakultas Pertanian, Universitas Sumatera Utara, Medan, Indonesia, Email: rahmanta1213@gmail.com

The phenomenon of inflation is always interesting to discuss especially with regard to its broad impact on macroeconomic aggregates, namely economic growth, external balance, competitiveness, and interest rates and income distribution. Therefore, it is necessary to conduct a study of some of the effects of changes in food prices on inflation in Medan City. The research method used is VECM. The results showed, in the short term there are several variables that influence inflation in the current period, namely the price of rice one month before, the price of rice two months earlier, the price of red chilli one month earlier, the price of red chilli two months earlier, the price of cayenne pepper one month before, the price of cayenne pepper two months earlier, the price of onion two months earlier and the price of garlic two months earlier. While in the long term there is one variable that affects inflation, namely red chilli. Thus, food price inflation in the long term and short term remains a significant driver for the installation of overall consumption prices and food prices in Medan city. The most dominant commodity FEVD analysis results in explaining inflationary curbs in Medan City from the most influential to the smallest are the price of red chilli, the price of shallots, the price of rice, the price of cayenne pepper, and the price of garlic.

Key words: *Commodities price, inflation and VECM.*

Introduction

Fluctuations in food commodity prices occur quickly. The imbalance between food supply and demand requires a food commodity price stabilisation policy against three types of benefits from the food commodity price stabilisation policy, namely: (1) Protecting farmers as producers from falling prices so farmers can apply more efficiently. (2) Protecting the consumption of the lower middle income class (poor consumers) from the fluctuation of price increases so that this policy can be a form of Social Safety Net. (3) Creating a more stable

macroeconomic condition that encourages investment and economic growth (Kesuma, 2018). The *Bank of Indonesia* argues that inflation is an increase in the price of goods and services in general, which will be a high burden on many parties. Economists of Keynesianism argue that inflation is a monetary phenomenon. In studies pioneered by Friedman and continued by various subsequent studies have been able to test that in the long term there is a close relationship between inflation and the amount of money in circulation (Suseno, et al., 2009 and Kesuma, 2018).

Decreased purchasing power of a currency will have a decreased impact on people's purchasing power for daily needs. Besides the unstable inflation rate also makes it difficult for planning in the business world; it does not encourage people to save and share other negative impacts that are not conducive to the economy as a whole. According to Santoso (2011), price changes in food commodity is the biggest contribution to the inflation rate in Indonesia, with a large enough population, where demand for food is increasing but sometimes the supply of food is not enough to meet the existing demand. This can increase the price of food, which in turn drives the rate of inflation.

Changes in prices for food commodities are the biggest contributor to the national inflation rate, especially in the Medan City area. Based on data obtained from the Central Bureau of Statistics Republic of Indonesia (BPS) of Medan City, inflation in Medan City in 2014 was 8.24%, was 3.32% in 2015, amounted to 6.6% in 2016 and in 2017, it amounted to 3.18% .

The phenomenon of inflation is always interesting to discuss, especially when related to the broad impact of macroeconomic aggregates, namely economic growth, external balance, competitiveness, and interest rates on income distribution. Therefore it is necessary to do a study of how much influence the change in food prices has on inflation in Medan City.

Literature Review

Inflation

According to Keynes's theory inflation occurs if the aggregate demand exceeds the amount of goods that can be offered by the economy so that the Inflationary Gap rises. According to Keynes's theory that inflation occurs because a society wants to live outside its economic limits, people's demand for goods always exceeds the amount of available goods arising from what is called the 'Inflationary Gap'. In general, those who produce it do not go up as fast as prices should in smaller parts of goods (Suseno et al, 2009).

Inflation is defined as a price increase in general and continuously within a certain period. An increase in the price of one or two items cannot be called inflation unless the increase is

widespread (or results in an increase in prices) on other goods, the opposite of that inflation is deflation (BI, 2018).

Consumer Price Index (CPI)

An indicator often used to measure inflation rates in Indonesia is the Consumer Price Index (CPI). Changes in the CPI from time to time show the price movements of goods and services consumed by the public. Determination of CPI goods and services is carried out on the basis of a Living Cost Survey (LCS) conducted by Central Bureau of Statistics Republic of Indonesia (BPS). Then, BPS will monitor the price development of these service goods on a monthly basis in several cities, in traditional and modern markets for several types goods / services in each city (BI, 2018).

In addition to CPI inflation, inflation still has several methods of measurement, including the wholesale price index (CPI) inflation and deflator Gross Domestic Income (GDI) inflation. However, the indicator most often used in measuring inflation is CPI inflation because CPI inflation reflects changes in the prices of goods and services needs of the wider community, in real life CPI inflation is inflation that directly affects business and consumer decisions.

Factors of Inflation Formation

Inflation can arise due to three things, namely the pressure from the Supply (Cost Push) pressure from the demand side (Demand Pull), and from the inflation expectations. Factors of Cost Push Inflation and it can be caused by the depreciation (weakening) of the exchange rate, the impact of inflation occurring abroad, especially in trading partner countries, an increase in the prices of commodities governed by the government (Administered Price), as well as sudden disruptions. On the supply side (Negative Supply Shocks) due to natural disasters that occur in an area and / or disrupted distribution of goods.

While the causal factor for Demand Pull Inflation is the high demand for goods and services compared to the capacity of supply (supply), macroeconomically the condition is illustrated by the Output Rill that exceeds when its potential output or the total demand (Aggregate Demand) is greater than the capacity of the economy which ultimately leads to an Output Gap. This is in accordance with the law of economics, if demand exceeds supply, prices will rise by using agreed demand and supply, then this will be described as an increase in the general price level that occurs or what is called inflation.

In the case of inflation which is more caused by the demand side, there is a tendency that the output is in line with the elasticity of aggregate supply. In contrast to inflation caused by the supply side, price increases are often followed by decreases in available goods.

Prior Research

Setiawan (2015), *Fluctuations in Food Commodity Prices and Their Impacts on Inflation in Banten Province*, examined how the development of food commodity prices, the impact of food commodity price fluctuations on inflation, and how the linkages of inflation between regions around Banten province using descriptive methods and autoregression and granger quality. The results showed that the development of food commodity prices in 2011-2014 in general increased and the results of the analysis showed the price of food commodities that have a contribution in explaining the diversity of inflation in Banten province from the most influential to the smallest is jangung, curly red chilli, shallots, beef, purebred chicken and free-range eggs.

Rizaldy (2017), *The Effect of Food Commodity Prices on Inflation in Malang City in 2011-2016*, examined how much the price of shallots affect inflation in the short and long term, how much the price of cayenne pepper influences inflation in Malang in the short term and the long term by using descriptive methods and the Partial Adjustment Model (PAM). The results show that the price of shallots has a significant effect on inflation in Malang both in the short and long term.

Haryanti, M (2016), *Analysis of Factors Affecting Inflation in the Regional Economy in Sumatra An Panel Data Alliance in the 2009-2013 Period*, examined how the influence of subsidised premium prices, road infrastructure conditions, economic growth and government spending together to provincial inflation on the island of Sumatra. The results of his research show that together the variable price of subsidised premiums, road infrastructure conditions, economic growth and government spending have an effect on provincial inflation on the island of Sumatra.

Andryans, T, (2015), *Inflation Analysis with a Dynamic Panel Approach: Case Studies in Java, North Sumatra, South Sumatra, South Sulawesi, South Kalimantan and Bali*, assessing and analysing signification of real GRDP variables, Minimum Wages, and more inflation to inflation in the areas of DKI Jakarta, Banten, West Java, Central Java, in Yogyakarta and East Java, North Sumatra, South Sumatra, South Sulawesi, South Kalimantan and Bali, this study uses a dynamic panel model with observational data of 11 provinces for 2009. The 2013 results of this study stated that partially real GDP, UMP, and lag inflation variables are the right instruments to influence inflation in the regions of DKI Jakarta, Banten, West Java, Central Java, in Yogyakarta and East Java, North Sumatra, South Sumatra, Sulawesi South, South Kalimantan, Bali.

Hasanah (201), *The Impact of Fluctuations in Animal Food Prices from Livestock Against Inflation in Bogor Regency*, examined analysing the development of animal food commodity

prices from livestock and the impact of fluctuations in animal food commodity prices from livestock to inflation in Bogor Regency. The results showed that the development of prices of animal food commodities from livestock in Bogor Regency in 2010-2013 generally had an upward trend. Identification of patterns in the data on commodity prices for broiler chicken (carcass), beef hash, beefsteak, pure beef, beef liver, mutton / lamb and broiler eggs showed an increasing trend, while in commodity prices for free-range chicken eggs, eggs ducks, and fresh milk tend to be stable. In the short term, there are no animal food commodities from livestock which have a significant impact on inflation in the Bogor District. In the long run, there are six out of ten commodities that have a positive impact on inflation in Bogor District, namely beefsteak, pure beef, mutton / lamb, broiler eggs, and duck eggs. Four other commodities, namely broiler chicken meat (carcass), beef, free-range chicken eggs, beef liver, and fresh milk have a negative impact on inflation in Bogor Regency.

The difference between this research and prior research includes the use of variables, period and place of research, and research methods. This study uses inflation, rice prices, cayenne pepper, shallots and garlic. Whereas the journal first discusses CPI, food inflation, and many use monetary variables to influence inflation. For the analysis tool used in this study is the Vector Autoregression (VAR Model). In addition, the equation of this research with previous research is equally discussing about inflation.

Research Method

Research Location

The location of this research is in Medan City, North Sumatra Province.

Data Collection Techniques

The data used in this study are monthly time series data from January 2014 to August 2019. The data used are secondary data in the form of monthly food price developments at the consumer level which is the average price at the city level, namely Medan City, North Sumatra Province. The data was obtained from Central Bureau of Statistics Republic of Indonesia (BPS) of Medan City and the food price system for the main commodity of North Sumatra (*Siharapanku*).

Data Analysis Method

The method used is the Vector Autoregressive (VAR). VAR analysis was carried out using Software Eviews 10. Food commodities to be analysed were the price of rice, the price of red chilli, the price of cayenne pepper, the price of onion and the price of garlic in Medan City.

Based on the model then testing using the VAR method is carried out according to the following equation:

$$\begin{aligned} \text{INF}_t &= a_0 + a_1 \text{INF}_{t-p} + a_2 \text{HBR}_{t-p} + a_3 \text{HCM}_{t-p} + a_4 \text{HCR}_{t-p} + a_5 \text{HBM}_{t-p} + a_6 \text{HBP}_{t-p} + \text{et}_1 \\ \text{HBR}_t &= b_0 + b_1 \text{HBR}_{t-p} + b_2 \text{INF}_{t-p} + b_3 \text{HCM}_{t-p} + b_4 \text{HCR}_{t-p} + b_5 \text{HBM}_{t-p} + b_6 \text{HBP}_{t-p} + \text{et}_2 \\ \text{HCM}_t &= c_0 + c_1 \text{HCM}_{t-p} + c_2 \text{INF}_{t-p} + c_3 \text{HBR}_{t-p} + c_4 \text{HCR}_{t-p} + c_5 \text{HBM}_{t-p} + c_6 \text{HBP}_{t-p} + \text{et}_3 \\ \text{HCR}_t &= d_0 + d_1 \text{HCR}_{t-p} + d_2 \text{INF}_{t-p} + d_3 \text{HBR}_{t-p} + d_4 \text{HCM}_{t-p} + d_5 \text{HBM}_{t-p} + d_6 \text{HBP}_{t-p} + \text{et}_4 \\ \text{HBM}_t &= e_0 + e_1 \text{HBM}_{t-p} + e_2 \text{INF}_{t-p} + e_3 \text{HBR}_{t-p} + e_4 \text{HCM}_{t-p} + e_5 \text{HBM}_{t-p} + e_6 \text{HBP}_{t-p} + \text{et}_5 \\ \text{HBP}_t &= f_0 + f_1 \text{HBP}_{t-p} + f_2 \text{INF}_{t-p} + f_3 \text{HBR}_{t-p} + f_4 \text{HCM}_{t-p} + f_5 \text{HCR}_{t-p} + f_6 \text{HBM}_{t-p} + \text{et}_6 \end{aligned}$$

Where:

INF _t	: Inflation in the current year
INF _{t-p}	: Inflation in the previous year
HBR _t	: Price of onion in the current year
HBR _{t-p}	: Price of onion in the previous year
HCM _t	: Price of red chilli in the current year
HCM _{t-p}	: Price of red chilli in the previous year
HCR _t	: Current price of cayenne pepper
HCR _{t-p}	: Price of cayenne pepper in the previous year
HBM _t	: Price of shallots in the current year
HBM _{t-p}	: Price of onion in the previous year
HBPT	: Price of garlic in the current year
HBPT-p	: Price of garlic in the previous year
a ₀ ... f ₆	: Constants or intercepts
a _i ... f ₆	: Coefficient
et ₁ ... et ₆	: Error Term

Vector Autoregressive (VAR) Model Stage

According to Widarjono (2013), there are two things done before using the VAR method, namely the specification and identification of the VAR model. Specifications, the VAR model includes the selection of variables and determining the lag of each endogenous variable. There are several stages in conducting a VAR analysis, namely: (1) Data Stationarity Test; (2) Determination of Optimal Lag; (3) VAR Model Stability Test; (4) Cointegration Test; (5) Estimated Vector Error Correction Model (VECM); (6) Impulse Response Function (IRF) analysis; and (7) Forecast Error Variance Decomposition (FEVD) Analysis.

Research Results

Data Stationarity Test

Table 1: Stationarity Test Results at Level

Variable	ADF Statistic	MacKinnon Critical Value			Information
		1%	5%	10%	
LnINF	-6.451115	-3.538362	-2.908420	-2.591799	Stationary
LnBERAS	-12.67845	-3.540198	-2.909206	-2.592215	Stationary
LnCM	-6.655356	-3.540198	-2.909206	-2.592215	Stationary
LnCR	-10.03820	-3.540198	-2.909206	-2.592215	Stationary
LnBM	-8.328644	-3.540198	-2.909206	-2.592215	Stationary
LnBP	-4.831683	-3.540198	-2.909206	-2.592215	Stationary

Source: Data processed with Eviews 10

Based on the stationarity test results at the level in Table 1, it shows that the results of the statistical ADF values on all variables are smaller than the MacKinnon Critical Value, this then rejects H_0 which means stationary at the level.

Determination of Optimal Lag

Table 2: Optimal Lag Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1262.590	NA*	4.66e+10*	41.59310*	41.80073*	41.67447*
1	-1238.810	42.10078	7.01e+10	41.99378	43.44717	42.56338
2	-1211.658	42.73158	9.68e+10	42.28387	44.98302	43.34169

Source: Data Processed with Eviews 10

Based on Table 2, it is stated that the optimal lag that will be used is the optimal lag 0. All variables in lag 0 affect each other.

VAR Model Stability Test

Table 3: Results of the Medan City VAR Stability Test

Root	Modulus
-0.214383 - 0.553707i	0.593760
-0.214383 + 0.553707i	0.593760
-0.038948 - 0.587652i	0.588941
-0.038948 + 0.587652i	0.588941
0.213184 - 0.534917i	0.575833
0.213184 + 0.534917i	0.575833
0.535935	0.535935
0.308022 - 0.367969i	0.479874
0.308022 + 0.367969i	0.479874
-0.472093	0.472093
-0.385981	0.385981
-0.092429	0.092429
-0.214383 - 0.553707i	0.593760
-0.214383 + 0.553707i	0.593760

Source: Data processed with Eviews 10

Based on Table 3 it is known that the modulus value of all unit roots < 1 can be concluded that the specification of the model is stable, so that the existing VAR estimation is used for Impulse Response Function (IRF) analysis and Forecast Error Variance Decomposition (FEVD) analysis is stable and valid. All the unit roots of the VAR estimation stability test results have a modulus less than 1. Then the VAR estimate that meets the stability condition is the VAR estimation using lag 2.

Cointegration Test

Table 4: Johansen Cointegration Test Results

Hypothesised No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob. **
None *	0.645887	208.1066	95.75366	0.0000
At most 1 *	0.555318	145.8182	69.81889	0.0000
At most 2 *	0.498358	97.19449	47.85613	0.0000
At most 3 *	0.359704	55.80240	29.79707	0.0000
At most 4 *	0.274548	29.05290	15.49471	0.0003
At most 5 *	0.150625	9.795245	3.841466	0.0017

Source: Data processed with Eviews 10

Based on the results of Table 4 shows the existence of cointegration in the Johansen Cointegration Test shows early indications of a long-term relationship between variables (cointegrated) so that between these variables form a smooth relationship. Cointegration test results show that the variables INF, HBR, HCM, HCR, HBM, HBP, have a long-term relationship.

Vector Error Correction Model (VECM) Efficiency

The basis of the significance test on the VECM estimation is done by comparing the value of $t\text{-count} > t\text{-table value}$ so it can be said to have a significant effect and vice versa if the value of $t\text{-count} < t\text{-table value}$ then it can be said to have an insignificant effect.

Table 5: Medan VECM Estimation Results

Variable	Coefficient	T-Statistic	T-Table (5%)	Interpretation
Short Term				
CointEq1	-0.277596	[-2.71932]	-	-
D(INF(-1))	-0.361241	[-2.28801]	1.67155	Not Significant
D(INF(-2))	-0.258974	[-1.82614]	1.67155	Not Significant
D(HBR(-1))	-0.018874	[-0.31538]	1.67155	Significant
D(HBR(-2))	-0.024271	[-0.64730]	1.67155	Significant
D(HCM(-1))	0.005318	[1.25588]	1.67155	Significant
D(HCM(-2))	0.006204	[1.59017]	1.67155	Significant
D(HCR(-1))	0.003161	[0.74296]	1.67155	Significant
D(HCR(-2))	0.002183	[0.54804]	1.67155	Significant
D(HBM(-1))	0.016243	[2.19114]	1.67155	Not Significant
D(HBM(-2))	0.008803	[1.53833]	1.67155	Significant
D(HBP(-1))	-0.024026	[-2.63059]	1.67155	Not Significant
D(HBP(-2))	-0.012502	[-1.46165]	1.67155	Significant
C	0.006667	[0.06556]	1.67155	Significant
Long Term				
INF(-1)	1.000000	-	-	-
HBR(-1)	-0.335643	[-3.30125]	1.67155	Not Significant
HCM(-1)	-0.006867	[-0.81905]	1.67155	Significant
HCR(-1)	0.022320	[1.82537]	1.67155	Not Significant
HBM(-1)	0.098452	[6.94548]	1.67155	Not Significant
HBP(-1)	-0.075863	[-4.26955]	1.67155	Not Significant
C	-0.576712	-	-	-

Source: Data processed with Eviews 10

The VECM estimation results above show that the interpretation of the error correction value (CoeintEq1) is negative at -0.277596 so that the error correction model (CoeintEq1) is declared to be valid or stable. There is an adjustment from the short term to the inflation in Medan City, which is corrected every month by 0.2776%.

Based on the results in table 5 it can be seen that in the short term there are several variables that influence inflation, namely HBR (t-1), HBR (t-2), HCM (t-1), HCR, HCR (t-1), HBM (t-2), and HBP (t-2). While in the long run there is one variable that affects inflation, namely HCM. These variables are said to have a significant effect on inflation because the statistical value of each of these variables is greater than the table (1.67155). Thus, food price inflation in the long term and short term remains a significant impetus for overall consumer price inflation and food prices in Medan City.

VECM estimation results until lag-2 for the observation period January 2014 to August 2019, VECM model for inflation variables (INF), rice prices (HBR), red chilli prices (HCM), prices of cayenne pepper (HCR), prices of shallots (HBM)), and the price of garlic (HBP) according to the short-term VECM equation is as follows:

$$D(INF) = 0.006667 - 0.018874 (HBR_{(t-1)}) - 0.024271(HBR_{(t-2)}) + 0.005318(HCM_{(t-1)}) + 0.006204(HCM_{(t-2)}) + 0.003161(HCR_{(t-1)}) + 0.002183(HCR_{(t-2)}) + 0.016243(HBM_{(t-1)}) + 0.008803(HBM_{(t-2)}) - 0.024026(HBP_{(t-1)}) - 0.012502(HBP_{(t-2)})$$

As for the VECM equation for the long term is as follows:

$$INF = -0.576712 - 0.335643 HBR_{(t-1)} - 0.006867 HCM_{(t-1)} + 0.022320HCR_{(t-1)} + 0.098452HBM_{(t-1)} - 0.075863HBP_{(t-1)}$$

Impulse Response Function (IRF) Analysis

In this study the results of the IRF test will be displayed in the form of a table that is explained within a period of 36 periods ahead of the study period. Then it will be seen in three time periods namely short term (1-12), medium term (13th to 24th month) and long term 25th to 36th months.

Table 6: IRF Results

No.	INF	HBR	HCM	HCR	HBM	HBP
1	0.785074	0.000000	0.000000	0.000000	0.000000	0.000000
12	0.368194	0.096418	0.180530	-0.091559	-0.174863	0.030296
13	0.366182	0.098286	0.184103	-0.091960	-0.177624	0.034830
24	0.367570	0.098256	0.182027	-0.090900	-0.175608	0.033764
25	0.367581	0.098243	0.182015	-0.090789	-0.175555	0.033768
36	0.367573	0.098227	0.181998	-0.090814	-0.175548	0.033729

Source: Data processed with Eviews 10

Based on Table 6 IRF results for the short term that every one standard deviation occurs shock INF (inflation) will be responded to inflation itself so it rises by 0.368194. IRF results that provide a large response to inflation are the price of red chilli. Every standard deviation occurs shock the difference in the price of red chilli will be responded to by inflation so that it rises 0.180530, which means if an increase in the price of red chilli by 1% will result in an increase in inflation by 0.180530%.

In the medium term that every one standard deviation occurs inflation shock will be responded to inflation itself so it rises by 0.367570. IRF results that provide a large response to inflation are the price of red chilli. Every standard deviation occurs shock the difference in the price of red chilli will be responded to by inflation so that an increase of 1% will result in an increase in inflation of 0.182027%.

In the medium term, every one standard deviation occurs inflation shock will be responded to inflation itself so it rises by 0.367573. IRF results that provides a large response to inflation are the price of red chilli. Every standard deviation of shock occurs the difference in the price of red chilli will be responded to by inflation so that it rises 0.181998 which will mean that if the increase in red chilli price difference of 1% results in an increase in inflation of 0.181998%.

Analysis Forecast Error Variance Decomposition (FEVD)

Table 7: Analysis Forecast Error Variance Decomposition (FEVD)

Period	S.E.	INF	HBR	HCM	HCR	HBM	HBP
1	0.78507 4	100.000 0	0.00000 0	0.00000 0	0.00000 0	0.00000 0	0.000000
12	1.75170 3	66.7436 0	3.60913 0	13.4163 9	3.38650 5	12.0470 8	0.797296
13	1.81309 8	66.3789 3	3.66270 1	13.5542 0	3.41828 7	12.2047 6	0.781117
24	2.38470 4	64.5073 4	3.98665 5	14.2441 7	3.57275 5	13.0160 4	0.673047
25	2.43000 3	64.4129 3	4.00286 1	14.2791 0	3.58038 5	13.0572 2	0.667499
36	2.88163 2	63.7024 9	4.12457 0	14.5417 2	3.63854 1	13.3673 3	0.625342

Source: Data processed with Eviews 10

Based on Table 7, the FEVD analysis of commodities that will be dominant in explaining the diversity of inflation in Medan City from the greatest influence to the smallest is the price of red chilli (HCM), price of onion (HBM), price of rice (HBR), price of cayenne pepper (HCR), and the price of garlic (HBP).

Red chilli is the first in explaining the diversity of inflation in Medan with a percentage of 14.541%. The high public demand for chilli is suspected because there is no commodity or food that can substitute for the need for red chilli. Not only for daily food consumption, red chilli is also used as raw material in the food industry. Thus, the consumption value of red chilli in Medan City is relatively large. Therefore, the rising price of curly red chillies will cause inflation variations in Medan City.

Red chilli can be used in fresh and processed form. Fresh red chilli can be used as a spice in cooking and sambal. While in the form of processed into chilli sauce and chilli powder. Shallots and rice are commodities that fulfil the second and third order in explaining the diversity of inflation in Medan City with a percentage of 13.367% and 4.124%. Shallots are used as a spice in cooking, a supplementary ingredient for food and medicine, while rice is the main daily staple food for the general public, including Medan City. But the percentage in explaining the diversity of inflation is not too high. It is suspected that the need for rice consumption in Medan City does not increase significantly even though the population continues to increase due to per capita rice consumption decreases. The decline in



consumption of rice commodities per capita was driven by changes in people's tastes in line with increased incomes (Prastowo et. Al. 2008).

The price of cayenne pepper and the price of garlic are the 4th and 5th rank commodities in explaining the diversity of inflation in Medan City with a percentage of 3.638% and 0.625%. The price of cayenne pepper and the price of garlic are seasonings; a supplementary ingredient for food and medicine.

Conclusion

In the short term there are several variables that affect inflation in the current period, namely the price of rice one month before. The price of rice two months earlier, the price of red chilli one month before, the price of cayenne pepper two months earlier, the price of red onions two months earlier and the price of garlic two months earlier. While in the long run there is one variable that affects inflation, namely red chilli. These variables are said to have a significant effect on inflation because the statistical value of each of these variables is greater than the table (1.67155). Thus, food price inflation in the long term and short term remains a significant driver for overall consumer price inflation and food prices in Medan City.

The most dominant commodity FEVD analysis results in explaining the diversity of inflation in Medan from the most influential to the smallest are the price of red chilli, the price of shallots, the price of rice, the price of cayenne pepper, and the price of garlic.

Acknowledgement

The researchers give thanks to the University of North Sumatra Research Institute, which has contributed morally and materially as an institution that has funded this research through the Basic Research Scheme with a Number contract. 351 / UN5.2.3.1. / PPM / KP - TALENTA USU /2019.



REFERENCES

- Andryas, T. 2015. Inflation Analysis with a Dynamic Panel Approach: Case Study in the Java Region, North Sumatra, South Sumatra, South Sulawesi, South Kalimantan and Bali. *Journal of Economics and Business*, Year XXVI, No. December 3, 2015. Jakarta.
- Bank of Indonesia, 2018. Inflation. <https://www.bi.go.id/id/moneter/inflasi/pengenalan/Contents/Default.aspx>
- Hasanah, F. N. 2014. The Impact of Animal Price Fluctuations from Animal origin on Inflation in Bogor Regency. Bogor.
- Kesuma, S. I., Erlina 2018 Influence of Natural Rubber Latex Export and Food and Animals Export to the Economic Growth. *Emerald Reach Proceedings Series*. Vol. 1 pp. 607–613. Emerald Publishing Limited. ISSN. 2516-2853. DOI 10.1108/978-1-78756-793-1-00061
- Kesuma, S.I., Maryunianta, Y (2018). Evaluation of Irrigation System to Support Implementation of Food Security Policy. *International Journal of Civil Engineering and Technology*.9(9). 600-614.
- Medan Central Statistics Agency, 2018. Medan in Figures 2018. Medan City.
- Medan City Statistics Agency, 2018. Inflation Data for 2014-2018. Medan city.
- North Sumatra Central Statistics Agency. 2018. Municipal Cumulative Inflation in North Sumatra 1980 - 2016. Medan.
- Rizaldy, D. Z. 2017. Effect of Food Commodity Prices on Inflation in Malang City in 2011-2016. *Journal of Development Economics*, Vol. 15, No. 2, page: 172.
- Santoso, T. 2011. Application of the GARCH Model for Indonesian Food Inflation Data. *Journal of Organization and Management*, Vol. 7, Number 1, pp. 38-52.
- Setiawan, A. F. 2015. Fluctuations in Food Commodity Prices and their Impacts on Inflation in Banten Province. Bogor Agricultural Institute. Bogor.
- Suseno and Siti Aisyah. 2009. Inflation. The Nationality Series. The Center for Education and the Study of the National Center (PPSK) of Bank Indonesia.