



Inflation Trends for the Consumer Price Index (CPI) Less Food and Energy: An Empirical Analysis 1999-2018

Christian G Hense and Gurkamal Pannu
 Dr. Tony S Caporale and Dr. Robert D Dean

- **Study Purpose:** In this study, I examined inflation trends for the consumer price index (CPI-Less Food and Energy) using Time-Trend Regression Models. I also forecast inflation for the year 2018.

- **Period of Analysis**

1999 – 2017

2009 – 2017

- **Trend Regression Period**

1999 – 2017

2009 – 2017

- **Forecasting Period**

Month by month, 2018

- **Forecast Error Test**

Less than 2%

- **Time Trend Regression Models**

$$CPI_t (M) = A_1 + B_1 (T_m)$$

Where:

CPI = Consumer Price Index – Less Food and Energy

T = 1, 2, 3 ... n

T = time in years

M = specific month e.g. January

- **Forecast Regression Model**

$$CPI_{N+1} (M) = A_1 + B_1 (T_{n+1}(m)) + RMSE$$

Where: RMSE = Root Mean Square Forecasting Error

Findings

- Both time trend inflation models have forecast error < 1.5%
- Post 2008 inflation trend model has a lower average forecast error
- CPI- Less Food and Energy Inflation Index peaked in November 2018 and 1999-2017 forecast model peaked in October (A leading Indicator)
- The 2009-2017 Inflation Model's Index Value peaked in October (A leading Indicator)
- Both inflation trend models appear to be quite stable over time

Table 1
 Inflation Forecasts
 For CPI-Less Food and Energy, 2018
 Trend Regressions 1999 - 2017

Month	Actual	TF+RMSE	Forecast Error (%)
January	254.64	254.91	0.92%
February	255.78	255.84	0.99%
March	256.61	256.51	1.05%
April	257.03	256.99	1.02%
May	257.47	257.43	1.02%
June	257.70	257.69	1.01%
July	257.87	257.68	1.08%
August	258.01	258.08	0.98%
September	258.43	258.61	0.94%
October	259.06	259.10	0.99%
November	259.11	259.00	1.04%
December	259.08	258.80	1.11%
Average Forecast Error			1.01%

Table 2
 Inflation Forecasts
 For CPI-Less Food and Energy, 2018
 Trend Regressions 2009 - 2017

Month	Actual	TF+RMSE	Forecast Error (%)
January	254.64	254.85	0.78%
February	255.78	255.89	0.82%
March	256.61	256.41	0.94%
April	257.03	257.00	0.87%
May	257.47	257.49	0.85%
June	257.70	257.71	0.85%
July	257.87	257.67	0.93%
August	258.01	258.11	0.82%
September	258.43	258.66	0.76%
October	259.06	259.32	0.75%
November	259.11	259.32	0.77%
December	259.08	259.24	0.79%
Average Forecast Error			0.83%