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**Practical 2**

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The time series is created, and the log of the Producer Price Index is plotted.

From the image, it does not seem to be stationary.



Its AC And PAC also show no stationarity.

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It is run a regression of the first-difference against the lag, trend and 1 to 12 lag of the first difference. A hypothesis test shows that lags 9 to 12 are not statistically significant.

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Another regression is run, this time only using lags 1 to 8 of the first difference. A hypothesis test shows that lags 5 to 8 are statistically significant for a 10% confidence level.

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Residuals are plotted, and seem to be white-noise process, which is always stationary.



AC and PAC of the residuals indicate zero autocorrelation, which also points to a white noise process.

Table

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An ADF test, with trend, is applied to the log of the ppi, null hypothesis that it is a unit proof process cannot be rejected.

Graphical user interface, text, application, email

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An ADF test without trend is applied to the log of the ppi; once again, the null hypothesis that it is a unit proof process cannot be rejected.

There is strongly statistical evidence that the log of the Producer Price Index is a Unit Proof Process. To make it stationary, first-differences need to be obtained.

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The series is renamed as Inflation.



Its plot suggest that it might be a stationary process.

The AC and PAC suggest it is a stationary process.

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The ADF test with trend indicates there is statistical evidence that the process of the variable Inflation is stationary.

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The ADF test without trend also indicates that the series is a stationary process.

It can be concluded that the log of the Producer Price Index is not stationary, but the first-difference of the series is.