Machine learning model

How will prices change in the next 12 months?

To anyone who finds this work helpful or is interested in your ideas.

This work was carried out as part of the Vancouver DataJam 2021 “Consumer Price Index” project to forecast the Monthly adjusted price index.

Description:

For this project, ideas were taken from the most applied part of measurement theory, with concepts such as measurement changes to put the data in perspective; in the context of the pandemic that currently affects us, and with which we have been for almost two years.

For these changes, the greatest possible cleaning was tried to avoid corrupting the data. Under this task, the linear regression model was used. Being a widely known and busy model allows us to obtain a line containing the largest amount of data without affecting the measured change (on a basis previously contextualized to the current dynamics).

These ideas have been used along with the Monte Carlo method to optimize the code and reduce its time.

The following elements were considered for this prediction model:

- We proceeded to introduce a reversion model to the mean (Heath - Jarrow - Morton, late 80’s to model the evolution of interest rates).
- The primary function was to capture all the dynamics of the curve to reduce the problems of overfitting.
- Once the dynamics of the goods and services have been arrested, we see ourselves in the fulfilled promise of returning the measurement changes and answering the problem of making forecasts with the dynamics.

These allow us to solve this problem and provide a general proposal of structure for any similar problem.

Getting Started:

Dependencies:

- Use any interface that allows reading .ipynb files.

Installing:

- https://github.com/Yypinguino/Vancouver-DataJam-2021.git

Executing program:

- Follow the original order by choosing the initial characteristics.

- Have and charge the base `MAPI_N_18_21.cvs` .

Help:

- The code allows modifications to work with other bases especially if they are similar to the one originally used.

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Version history:

- 0.1
    - Initial Release