CATEGORICAL CORRELATIONAL ANALYSIS ON FREIGHT SPOT RATES

Progress Report

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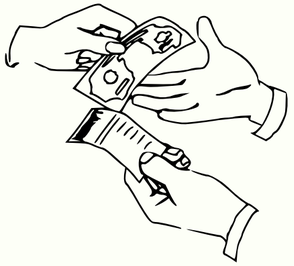
SECTION 01:

INTRODUCTION AND DATA WRANGLING

INTRODUCTION



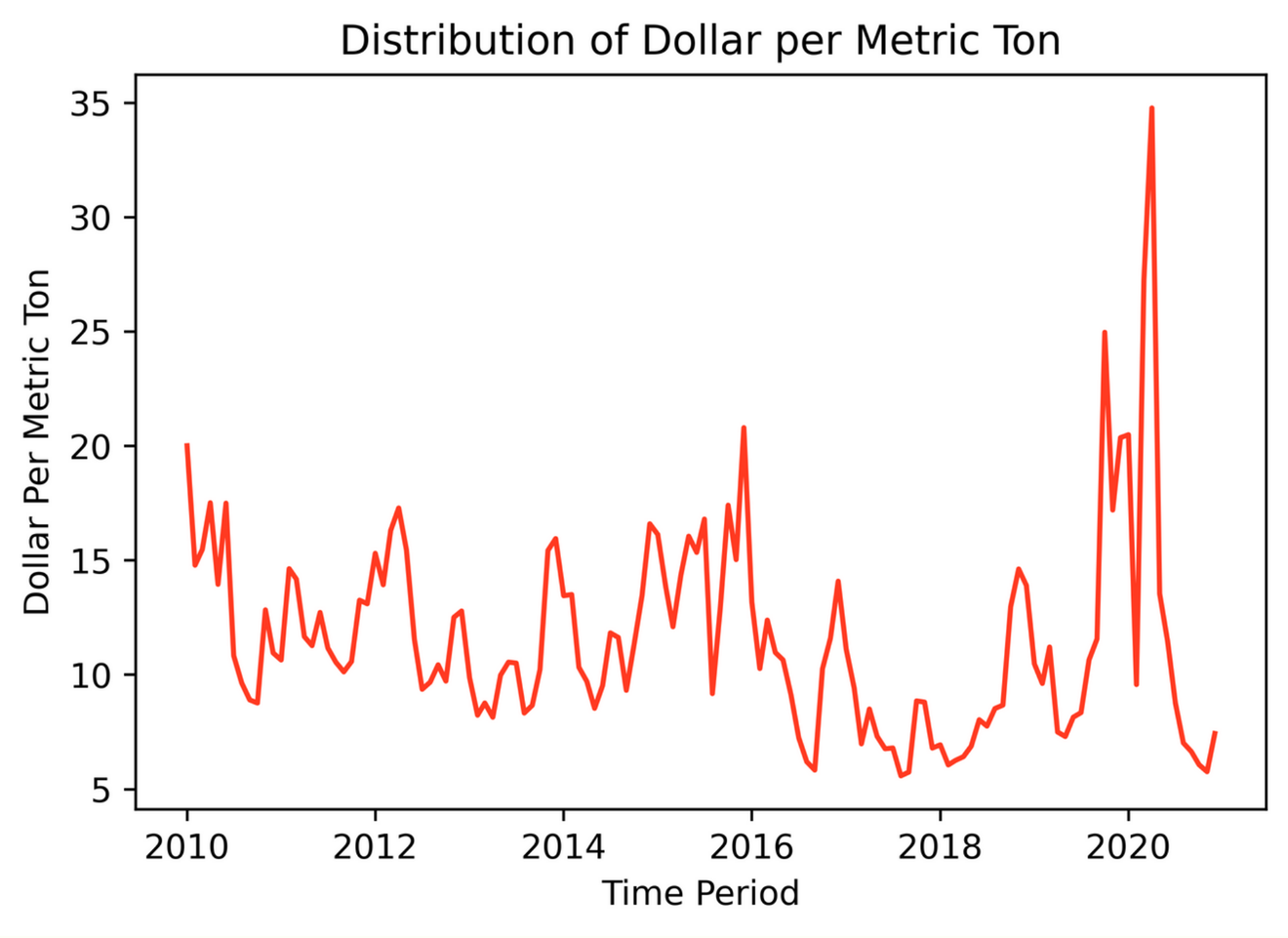
The freight market has two types of transactions. The first one is the time charter under which the ship is hired by the day. The second one is the freight contract in which the shipper buys transport from the shipowner at a fixed price per ton of cargo. Our presentation is centered on the second transaction.

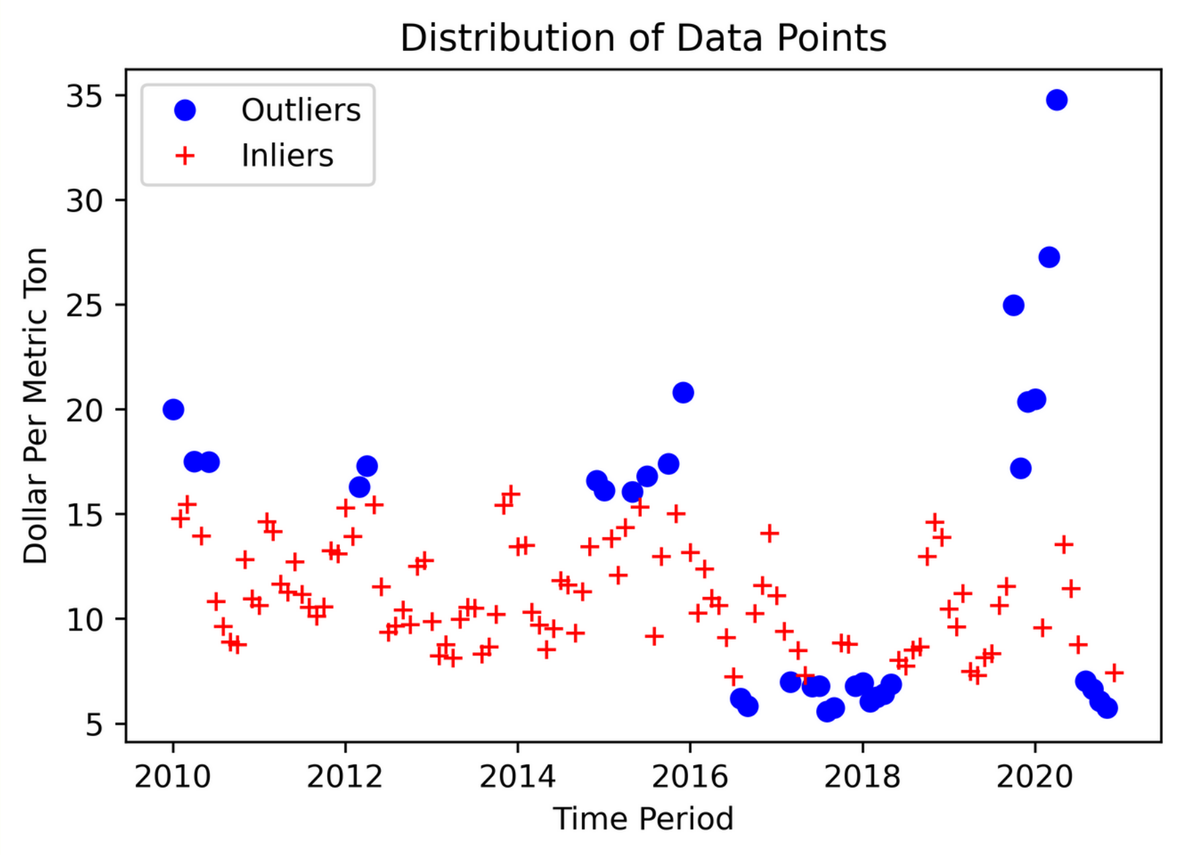
We wish to identify outlying values of Dollar per Metric Ton which is our target variable and highlight features that correlate with our inlying and outlying target variables values with and without time lag to find landmark parameters.

Our data is a monthly time series ranging 10 years from 2010 to 2020 and having 108 parameters. It tracks BDTI, flat rates, dollars per metric ton and other data points for the TD3 route.

DEFINING AND CREATING OUTLIERS

Our goal is to find a methodology which will include the 2020 spike in freight rates as outliers and define other values as outliers too.





We calculated the Zscore values of our target variable with mean and standard deviation and picked the values with a Zscore higher than 1 or lower than -1 as Outliers.

We found 34 target values which were then grouped according to their closeness in value and time series.

ESTABLISHING CLUSTERS OF OUTLIERS

- The outliers were analyzed for our clusters based on proximity in time series and values. 5 clusters were found.
- The inliers were then grouped into the same clusters based on the inclusive time period.
- In all clusters the outlying and inlying clusters had distinct ranges.