

The background of the slide is a photograph of an oil pumpjack (jackal) in silhouette against a bright orange and yellow sunset sky. The pumpjack is a large mechanical structure used for extracting oil from the ground. The title text is overlaid on the upper half of the image.

INVESTIGATING LINKAGES BETWEEN US OIL PRODUCTION AND CONSUMER PRICES

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TOPIC AND POSSIBLE QUESTIONS

Topic

- US biggest producer with 11,118,870 bbl/day^[2]
- however not self-reliant (consumption>production), but majority is domestic^[3]
- 66% for transportation (gasoline(44%) and distillates))^[5]
- recently prices spiked due to Covid-19 and the invasion of Ukraine (inflation + decrease in supply) and are expected to continue to rise

Questions

Are there any linkages between consumer prices and...

- ... domestic production?
- ... global crude oil prices?
- ... domestic consumption?
- ... petrol industry stock performance?
- ... Inflation levels?
- ... all together or neither?

Main : 1. Do US consumer prices properly reflect the production output of the US oil industry?
2. If not production, what other metrics influence consumer prices the most and can ML predict consumer prices with (some of) these parameters?

Methods

- create additional ratio parameters
- stratified k-fold cross-validation for data split
- check which parameters are best to predict changes in consumer prices (Random forest) and tune hyperparameters using GridSearchCV
- try and build a ML algorithm from these findings and test it for the past two years

DATA

Data sources I will use include:

Yahoo finance **for** world oil prices(crude futures)

eia.gov/petroleum/ **for** US production output, reserves, imports/exports, prices, consumption, us crude oil/petrol stock prices

officialdata.org/us/inflation **to** adjust prices to inflation rates

And maybe some more for a time-frame of approximately a hundred years (starting 1920) ending today and weekly intervalls

SOURCES

- [1] various pages from <https://www.eia.gov/dnav/pet/>
- [2] https://en.wikipedia.org/wiki/List_of_countries_by_oil_production
- [3] <https://www.worldometers.info/oil/us-oil/>
- [4] <https://www.officialdata.org/us/inflation/1800?amount=1>
- [5] <https://www.eia.gov/energyexplained/oil-and-petroleum-products/use-of-oil.php>

Title-image: http://admin.acceleratingscience.com/metals/wp-content/uploads/sites/4/2015/02/istock_0000000393530_medium.jpg

Thank you!