**Abstract**

This project investigated the relationship between natural gas prices and mining employment. It used distributions, correlation, hypotheses testing and regressions to identify any presence of a relationship between the variables.

**Intro**

Talking heads on stations like CNBC mention that coal consumption is down and they casually imply that the root cause is lower natural gas prices. Additionally, I’ve read articles that content that the lower gas prices have also driven mine closures and unemployment in the sector. Is this true? Can we statistically prove a relationship (let alone a cause)?

**Discussion**

I could not prove a correlation between natural gas prices and mining unemployment. Employment in the mining sector was flat in the decade ending in December 2018, so maybe I was investigating a small change that was hyped by the media.

A more thorough investigation would have two main improvements:

1. Lagging the employment numbers to account for the fact that layoffs don’t happen instantly when gas prices fall.
2. I better quantification of coal produced and consumed to help better describe the relationship of the market.

I am very comfortable working with monthly data. I think it could be a bad assumption to believe that monthly data would be appropriate in this case. Commodities fluctuate monthly, but employment in a sector may have a better frequency of data.

The challenges of this project were enjoyable, because they helped me digest what we learned this quarter. I also took two days off of work to knock this out, so I had a little time to think challenges through. One thing that was suboptimal was using PMFs on monthly data. There was too little data to make the graphs informative when cutting by year.