

ORIE5741 Project Proposal

--Employment Rate Prediction Upon Genders

We are proposing a project aimed at understanding the impact of macroeconomic factors on the unemployment rate for men and women in the US. Specifically, we would like to investigate how changes in factors like GDP, inflation, region, interest rates, wage, population, tax rate and CPI affect the unemployment rate for each gender. The dataset we will use is from FRED and covers the period from 1980 to 2021.

The problem of unemployment is a significant challenge for our organization and the wider US economy. High unemployment rates can lead to social and economic instability, as well as increased public spending on welfare programs. Therefore, understanding the factors that influence unemployment rates is crucial for developing effective policies to tackle this issue.

Furthermore, our research will also examine the impact of macroeconomic factors on unemployment rates for men and women separately. Women in the US face unique challenges in the labor market, including lower pay, fewer promotions, and higher rates of unemployment. By analyzing the impact of macroeconomic factors on unemployment rates for women, we can identify the specific challenges they face and develop targeted policies to address them. This will help promote gender equality and create a more inclusive and diverse workforce in the US.

To answer this question, we will use feature engineering techniques in Python. Specifically, we will use regression analysis to estimate the impact of each feature on the unemployment rate, while controlling for other variables that may affect the relationship. We will also investigate interactions between the different features to see if they have a combined effect on unemployment rates and create lagged variables to capture the effects of changes in the macroeconomic factors over time. We will then select the significant features and use statistical analysis techniques to examine the relationship between the macroeconomic factors and unemployment rates for men and women separately.

We believe that this project is worthwhile because it has the potential to provide valuable insights into the factors that drive unemployment rates for men and women in the US. By understanding these factors, we can develop more effective policies to tackle unemployment and promote gender equality in the labor market.

Furthermore, we are well-suited for this project given our experience in big data analysis and statistical modeling. We have experience working with large datasets and using statistical software such as Python and R, which will be valuable for this project. Therefore, we are confident that we are likely to succeed in this project and produce valuable insights that will benefit our organization and the wider US economy.