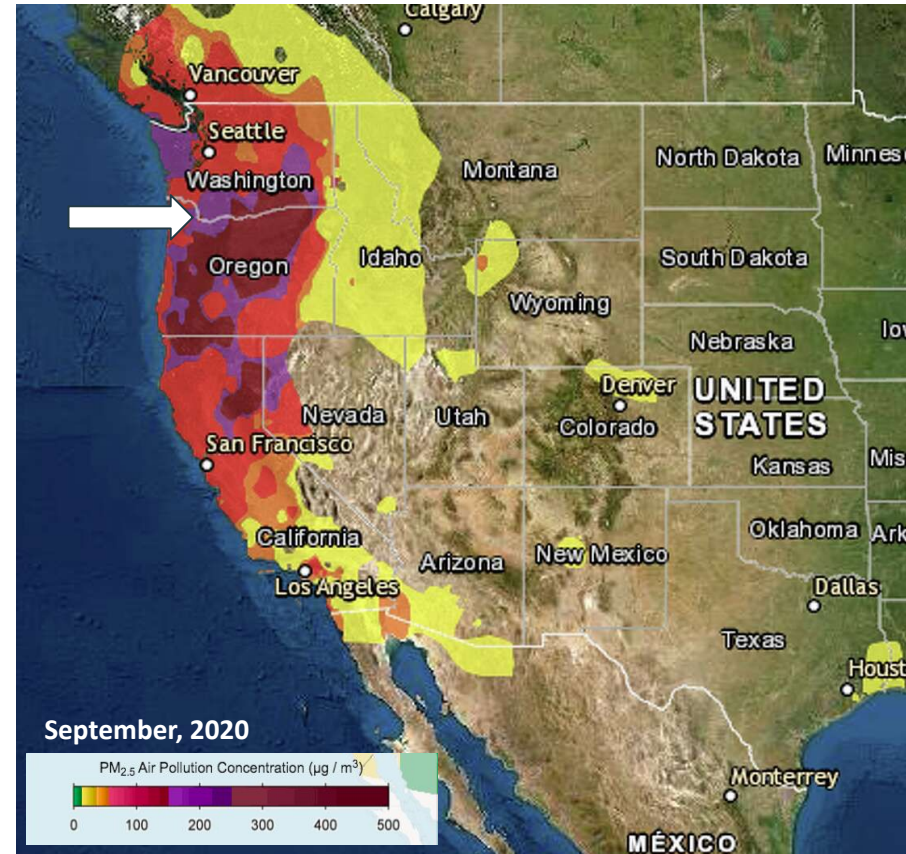
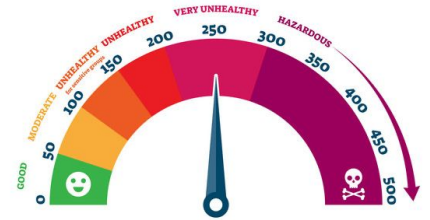


# Vancouver, WA





**AIR QUALITY**



Data Acquisition

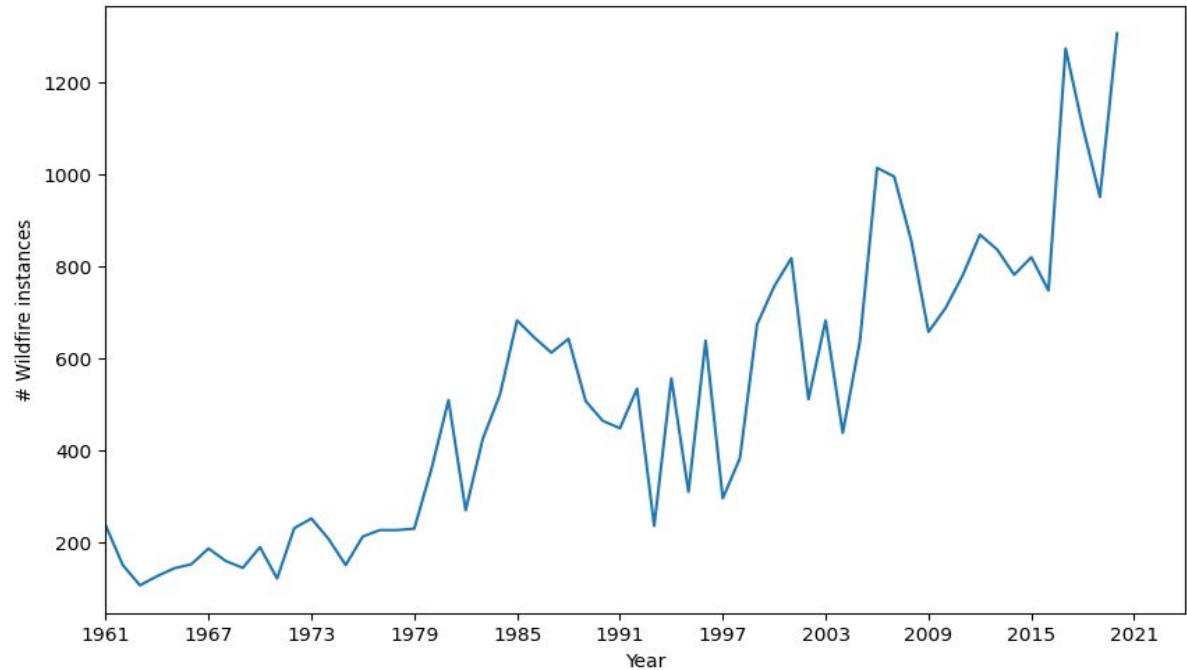
Data Processing

Statistical Analysis

Predictive Modeling

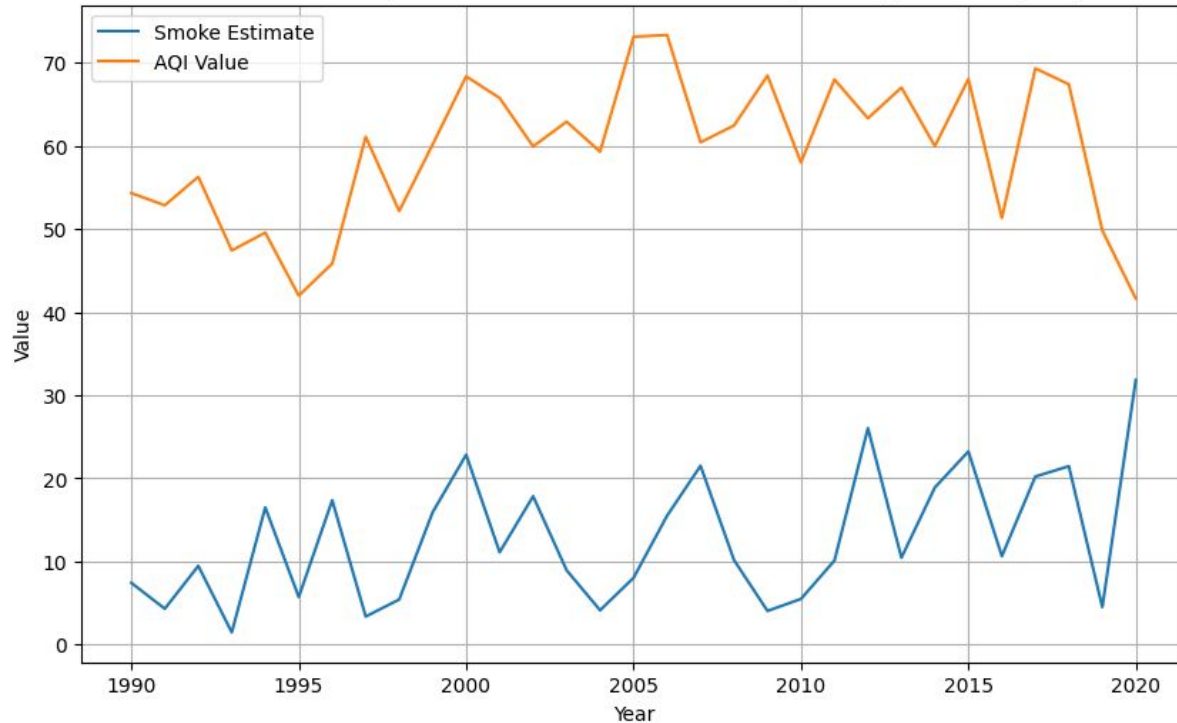


Number of Wildfire instances each Year



$$\text{Smoke Estimate} = W \times c \times \text{GIS (SqMiles)} \times \frac{1}{\text{average distance}}$$

Time Series Comparison of Smoke Estimate and AQI Value (Vancouver, WA)



**Spearman Correlation: 0.23**

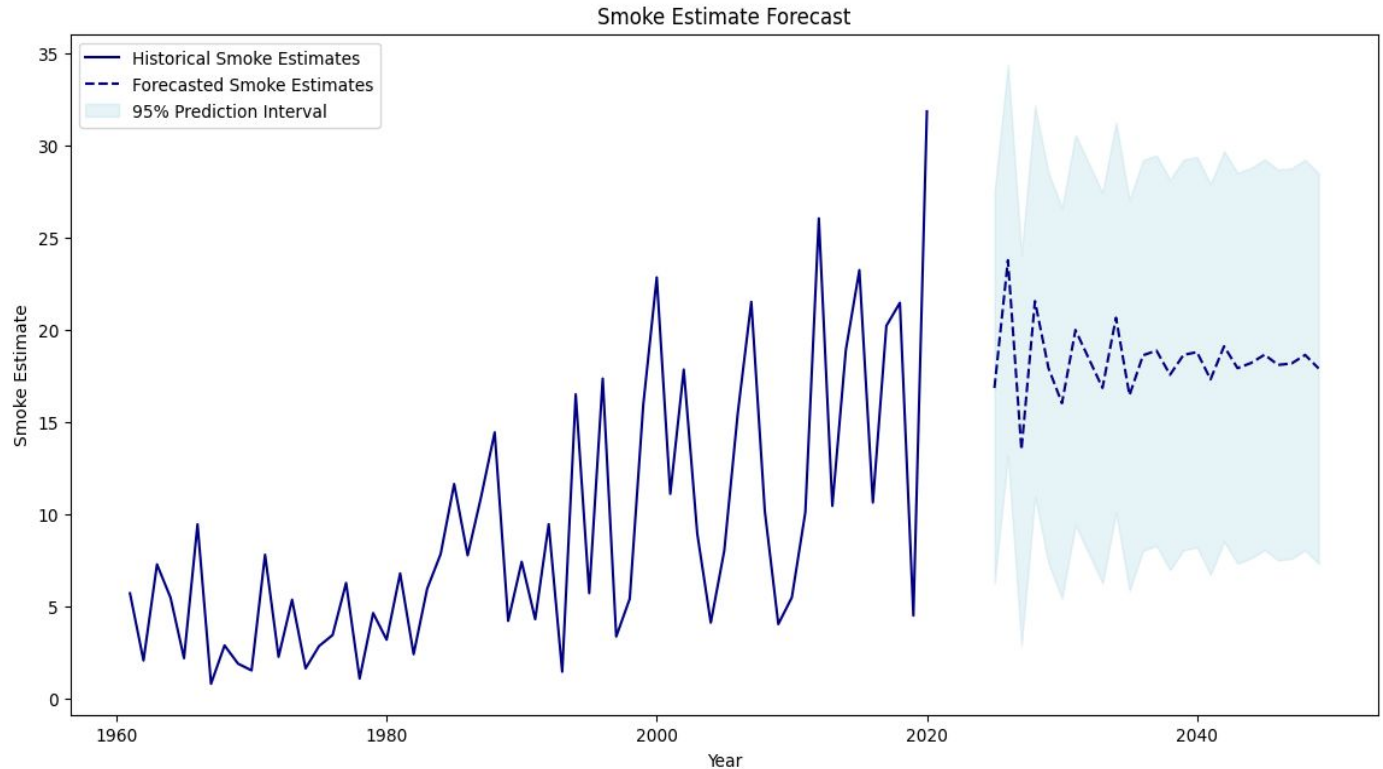
**p-value: 0.22**

# Smoke Estimate Forecast (ARIMA)

**After Differentiating:**

**ADF Statistic: -7.42**

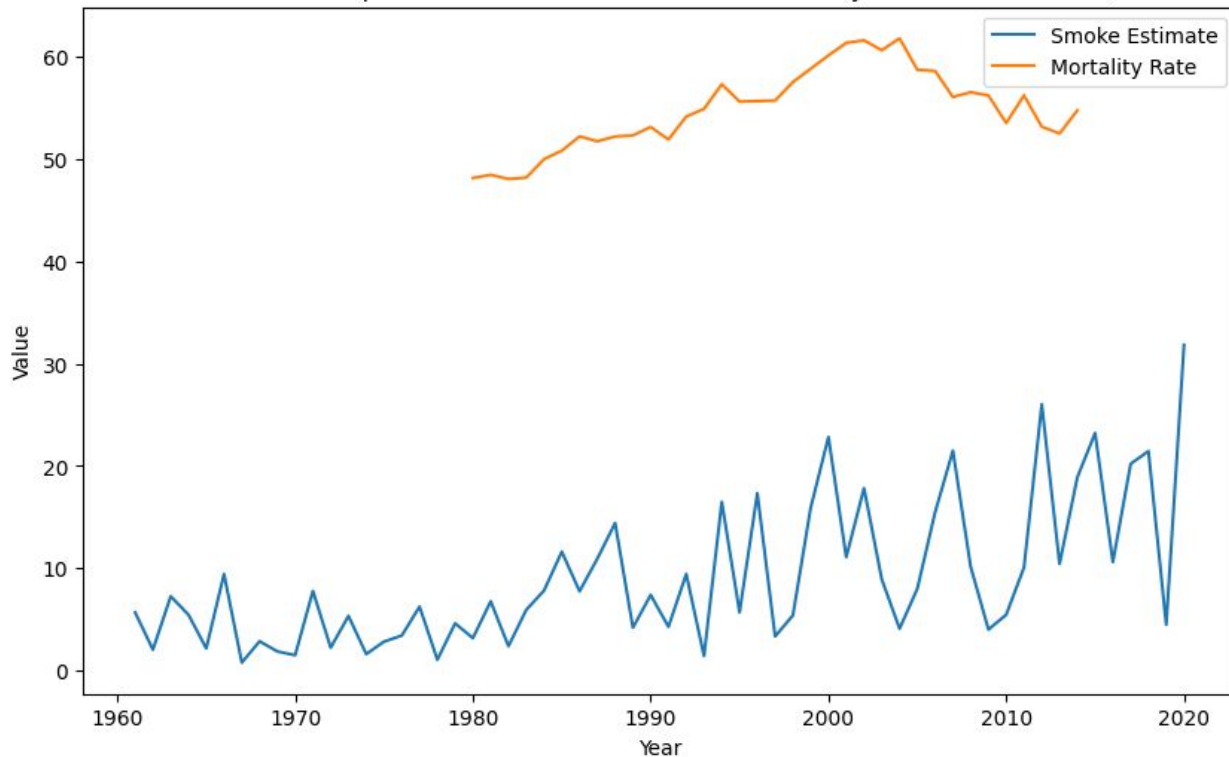
**p-value: 9.43e-11**





# Respiratory Mortality Rate

Time Series Comparison of Smoke Estimate and Mortality Rate for Vancouver, WA

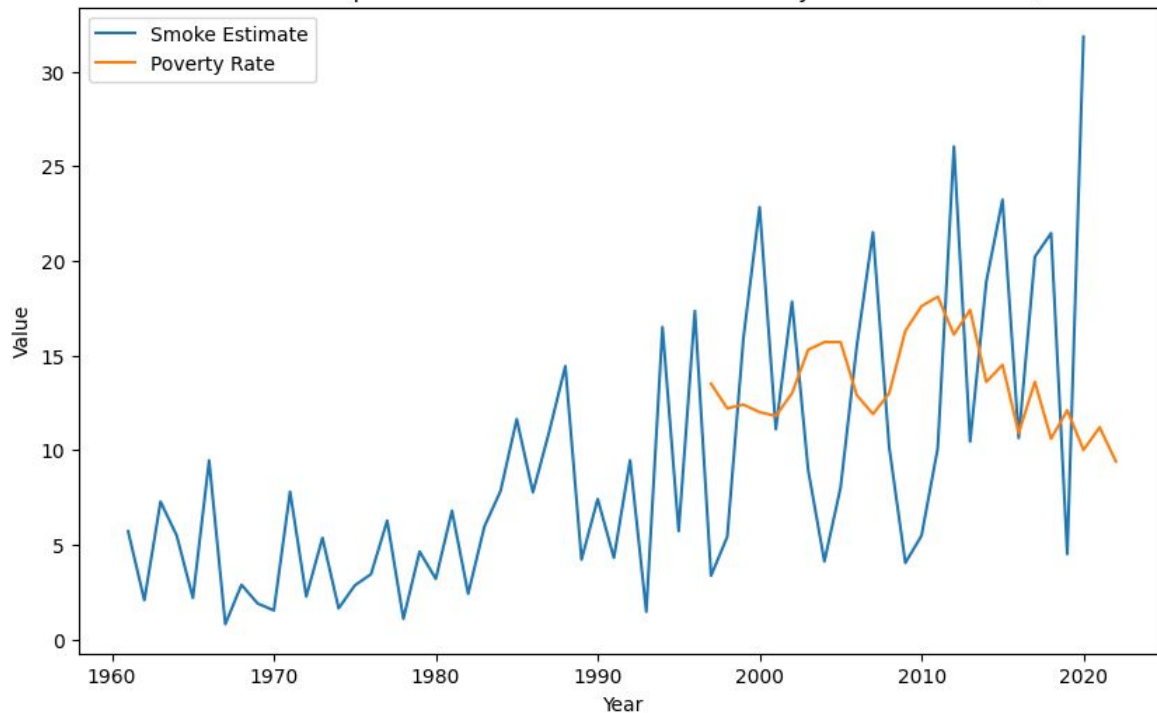


**Spearman Correlation: 0.32**

**p-value: 0.063**

# Poverty Rate

Time Series Comparison of Smoke Estimate and Poverty rate for Vancouver, WA

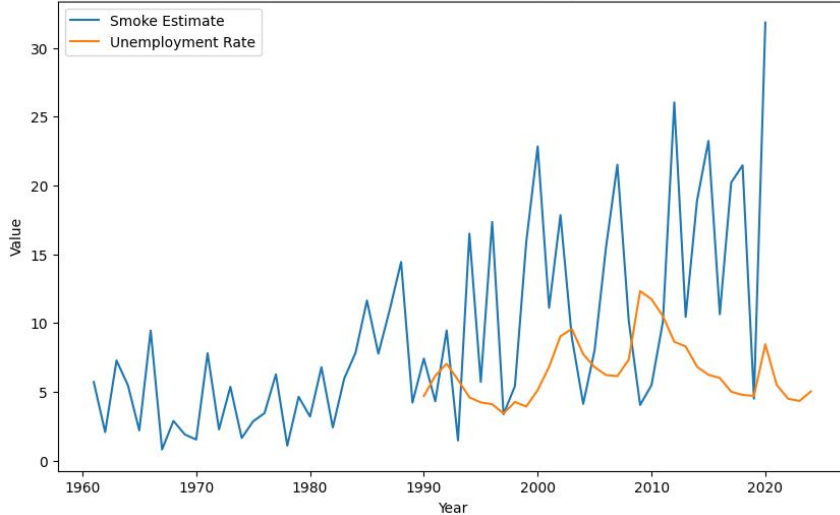


**Spearman Correlation: -0.41**

**p-value: 0.03**

# Unemployment Rate

Time Series Comparison of Smoke Estimate and Unemployment rate for Vancouver, WA

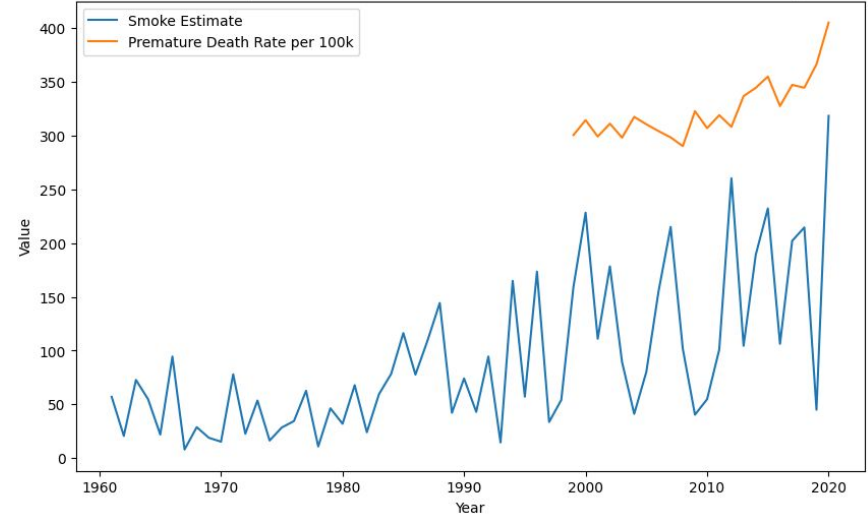


**Spearman Correlation: 0.045**

**p-value: 0.809**

# Premature Deaths

Time Series Comparison of Smoke Estimate and Premature Deaths for Vancouver, WA

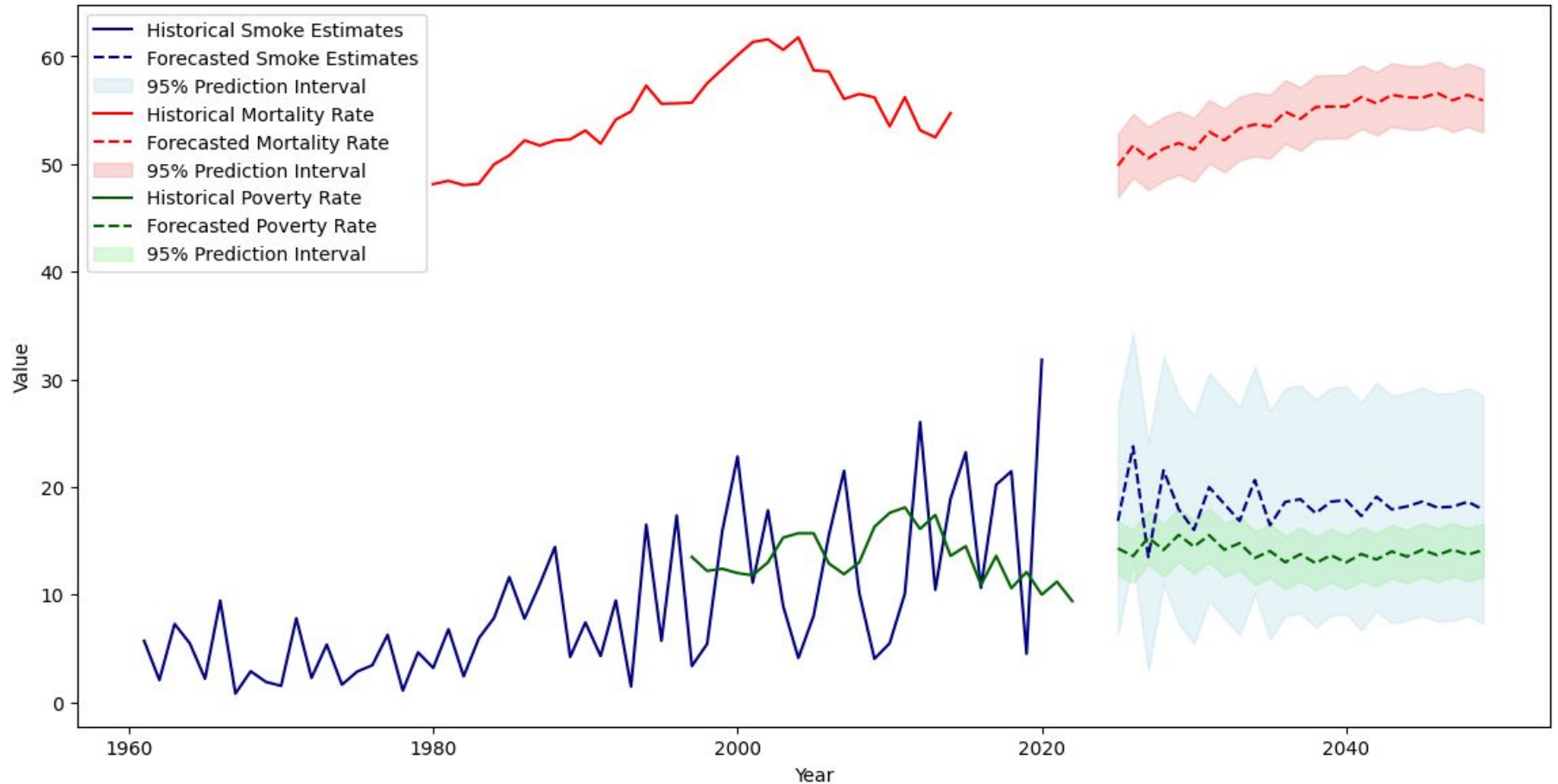


**Spearman Correlation: 0.193**

**p-value: 0.391**



Historical and Forecasted Data with 95% Prediction Intervals





Thank You!