

Goal



Study how wildfires and smoke exposure affect the economy and urban life in the Denver-Aurora-Lakewood area.

Research Questions



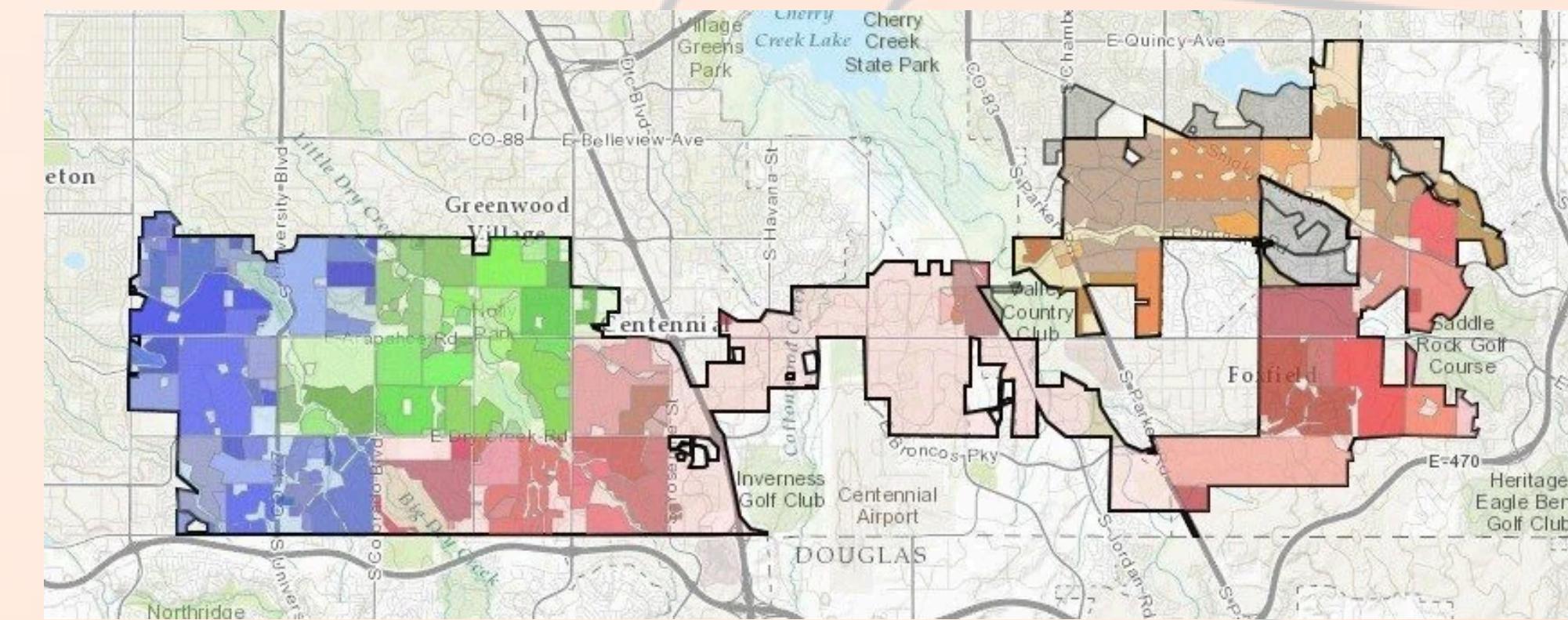
How do wildfires and smoke affect the housing market?



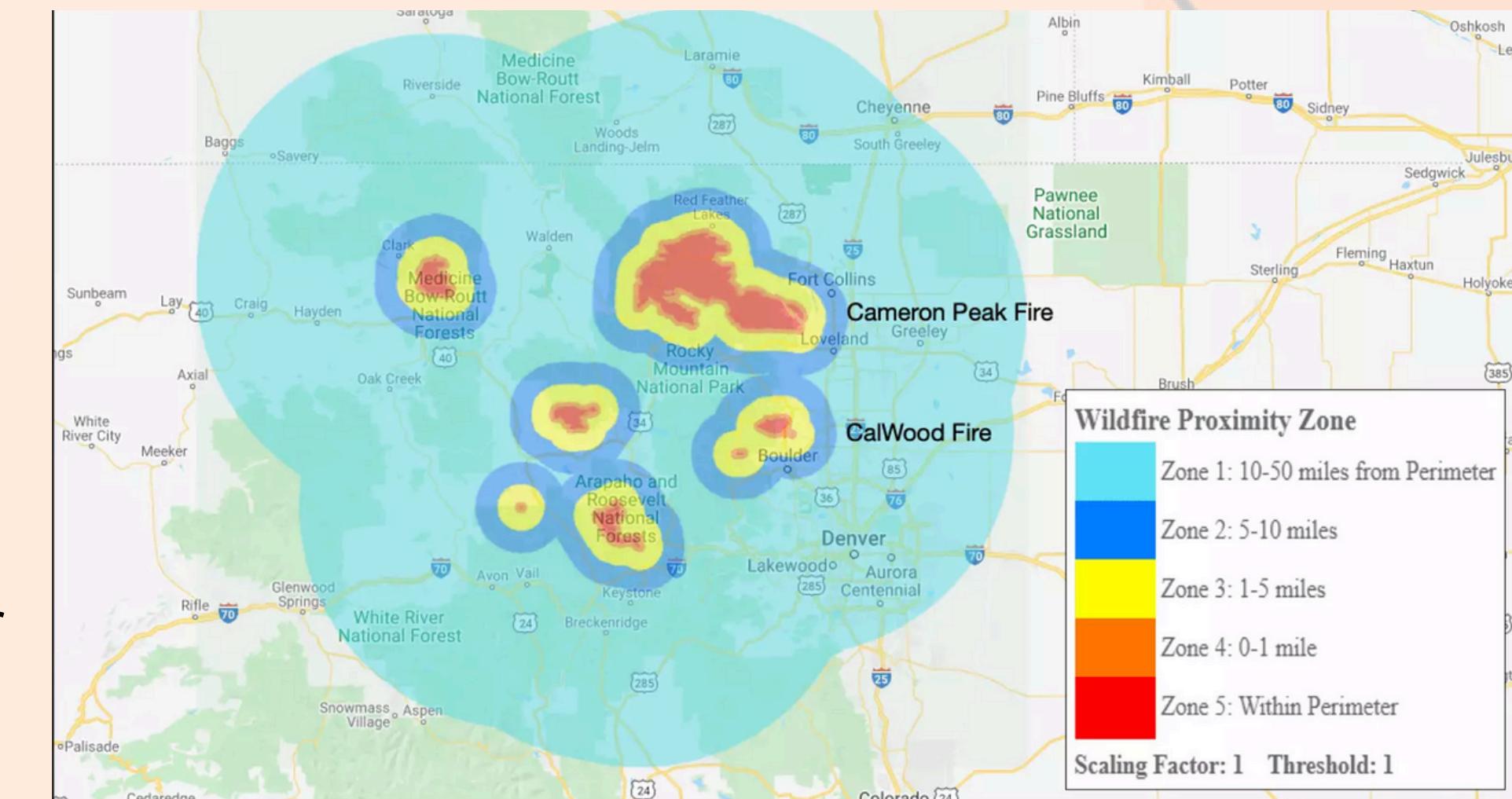
How are jobs and wages affected in areas exposed to wildfire smoke?



How does wildfire smoke impact overall economic trends, like consumer spending and market growth?



Map of Centennial, CO



CalWood Fire and Cameron Peak Fire in Colorado

This research is crucial for understanding and mitigating the economic and societal impacts of wildfire smoke on urban communities, enabling informed policy and planning decisions.

Stakeholders



Urban Planners and Local Governments



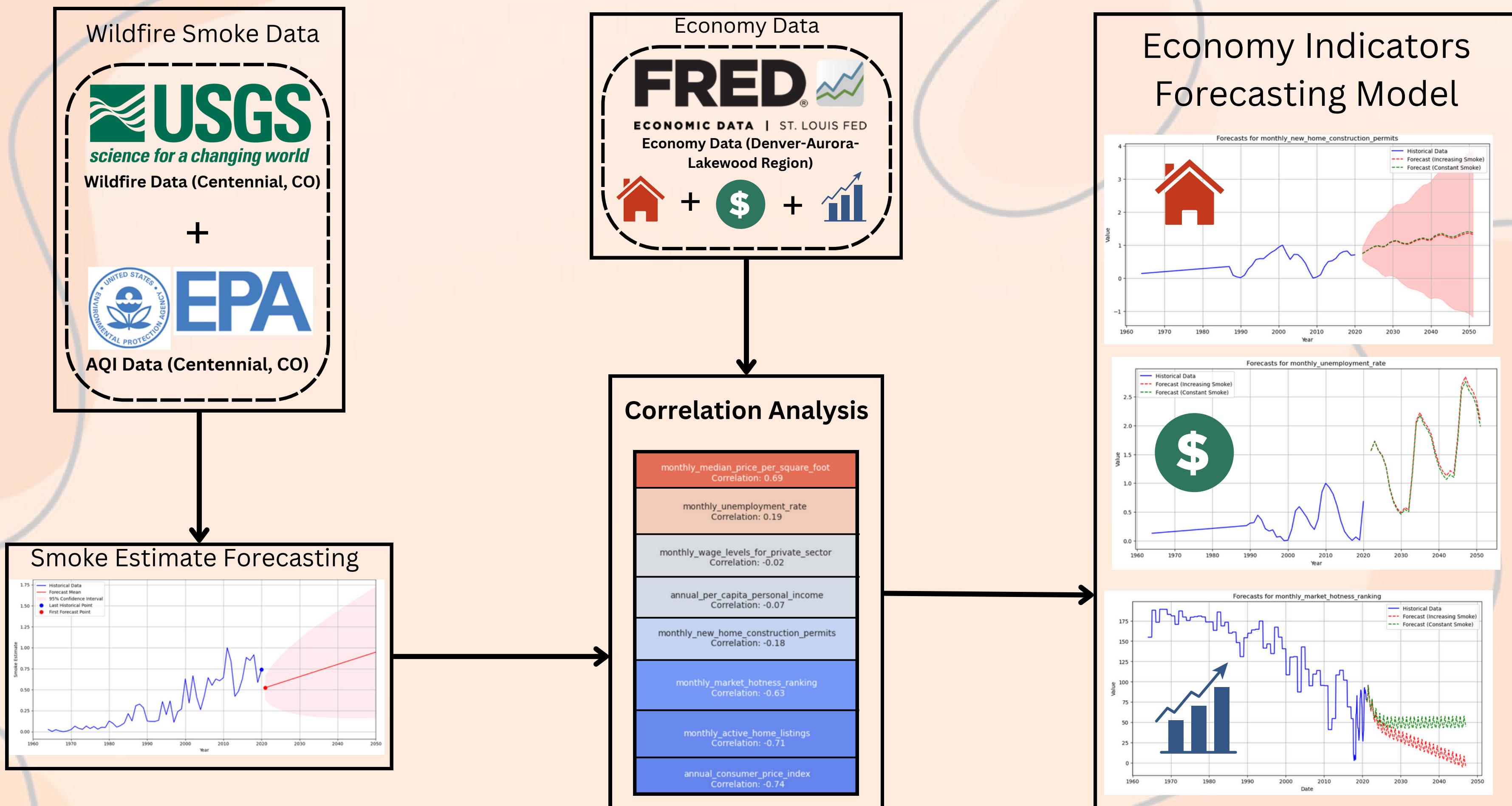
Businesses and Employers



Real Estate Developers and Homeowners



Methodology

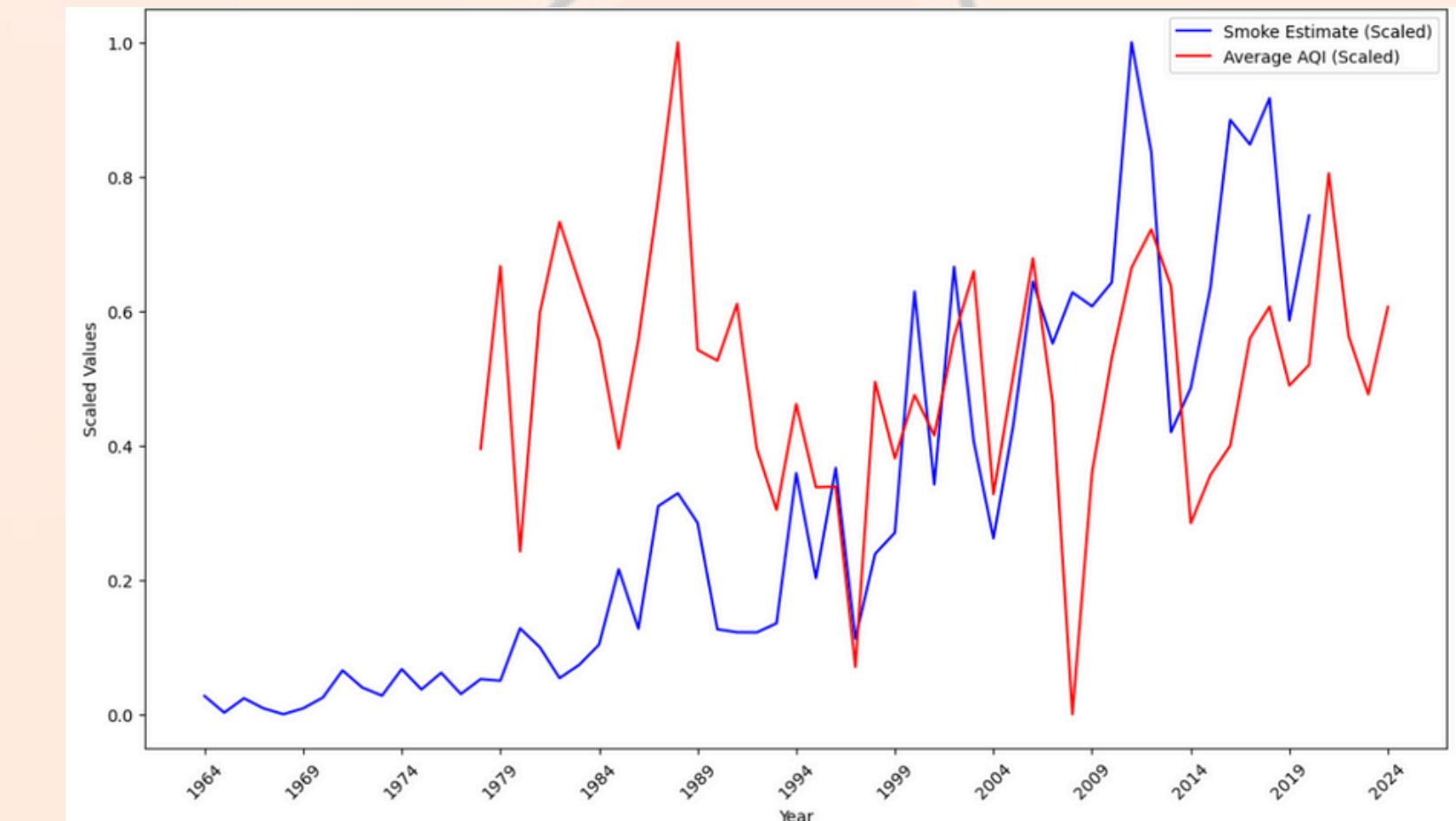


Smoke Estimate

Calculation: Physical and Empirical Factors

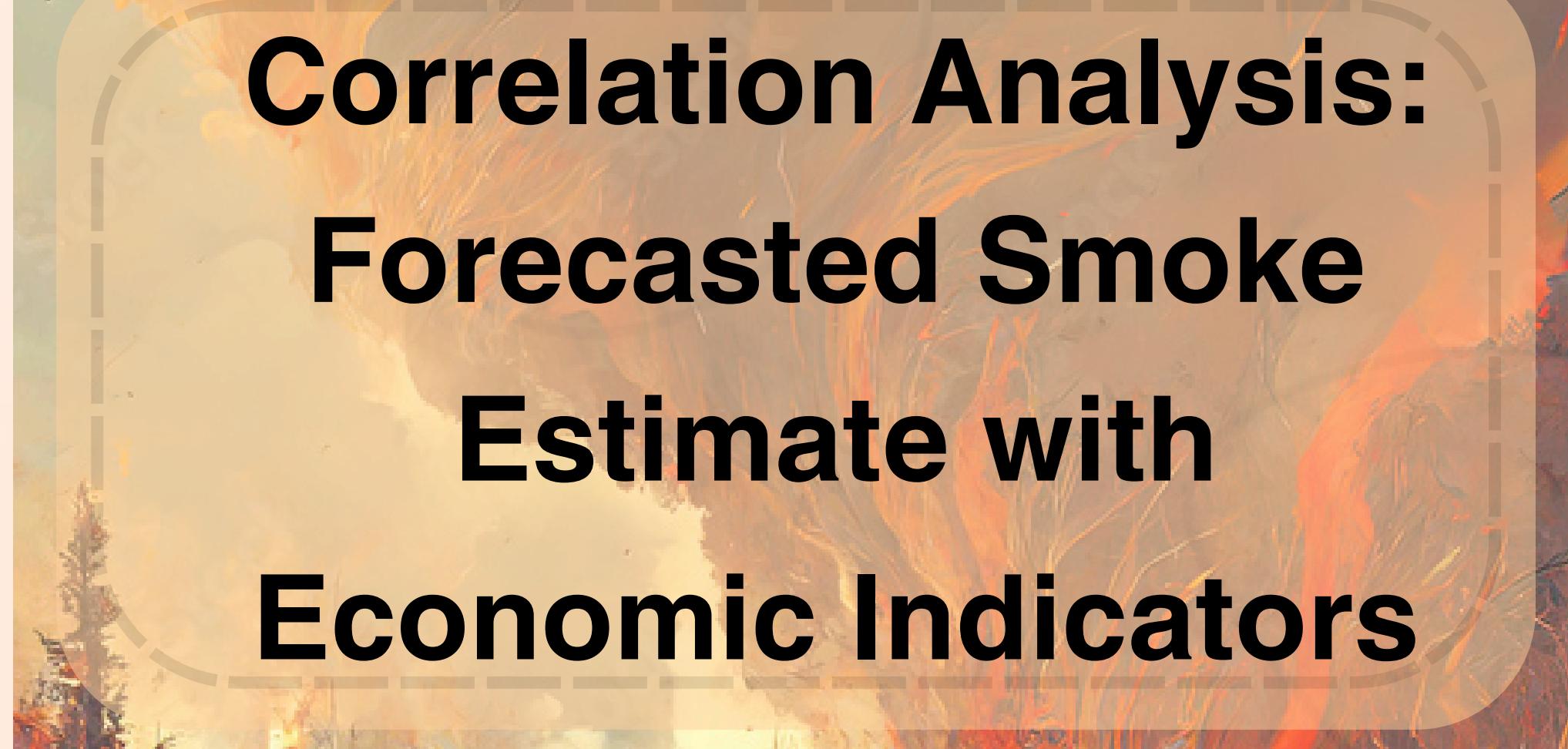


Smoke Estimate and AQI Correlation



Smoke Estimate Forecasting





Correlation Analysis: Forecasted Smoke Estimate with Economic Indicators

monthly_median_price_per_square_foot
Correlation: 0.69



monthly_unemployment_rate
Correlation: 0.19



monthly_wage_levels_for_private_sector
Correlation: -0.02



annual_per_capita_personal_income
Correlation: -0.07



monthly_new_home_construction_permits
Correlation: -0.18



monthly_market_hotness_ranking
Correlation: -0.63



monthly_active_home_listings
Correlation: -0.71



annual_consumer_price_index
Correlation: -0.74



Forecasting the Impact of Rising Wildfire Smoke on the Housing Market

Impact of smoke on New Home Construction Permits

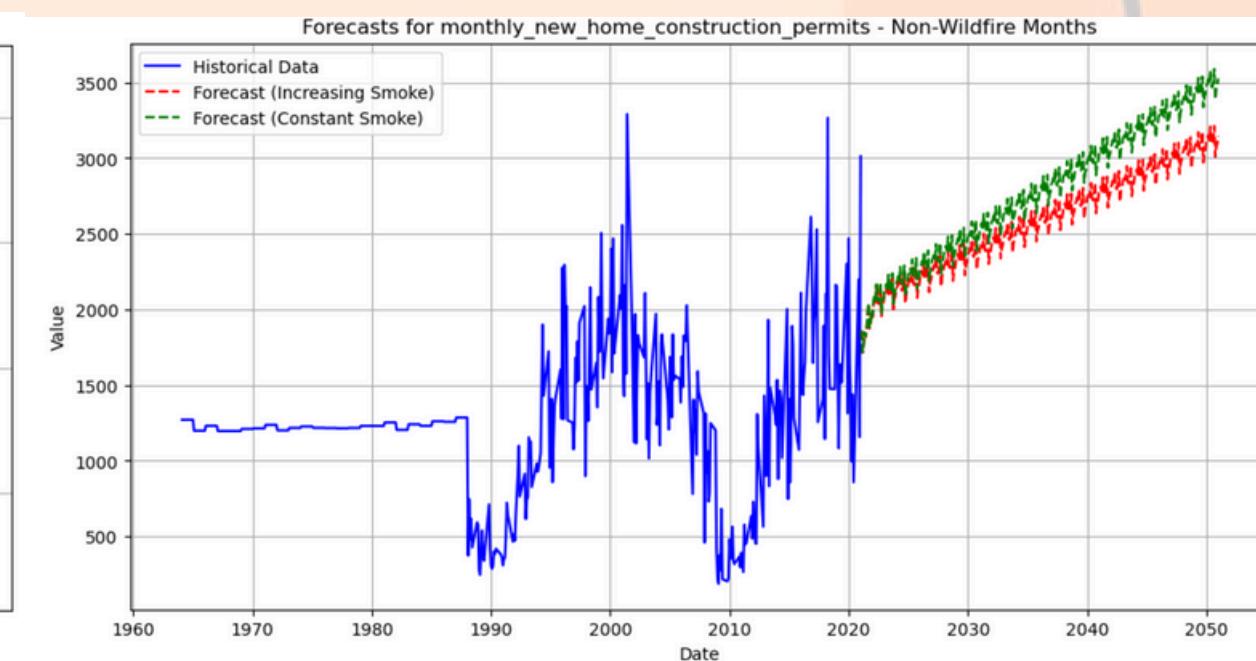
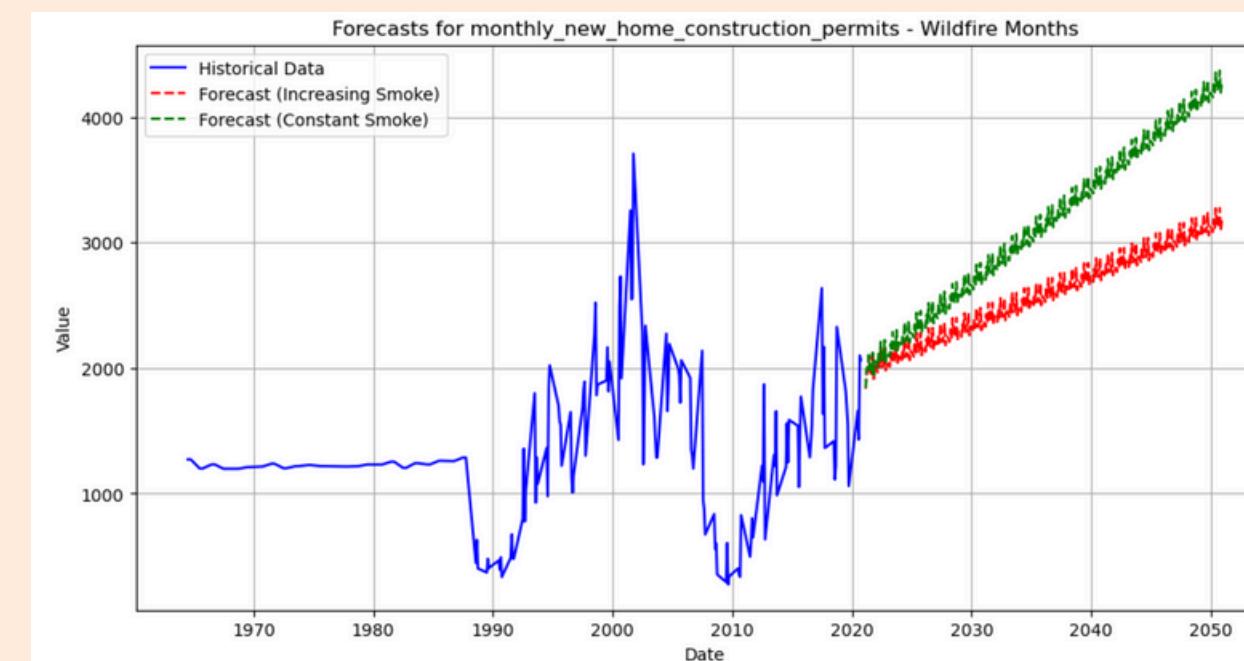
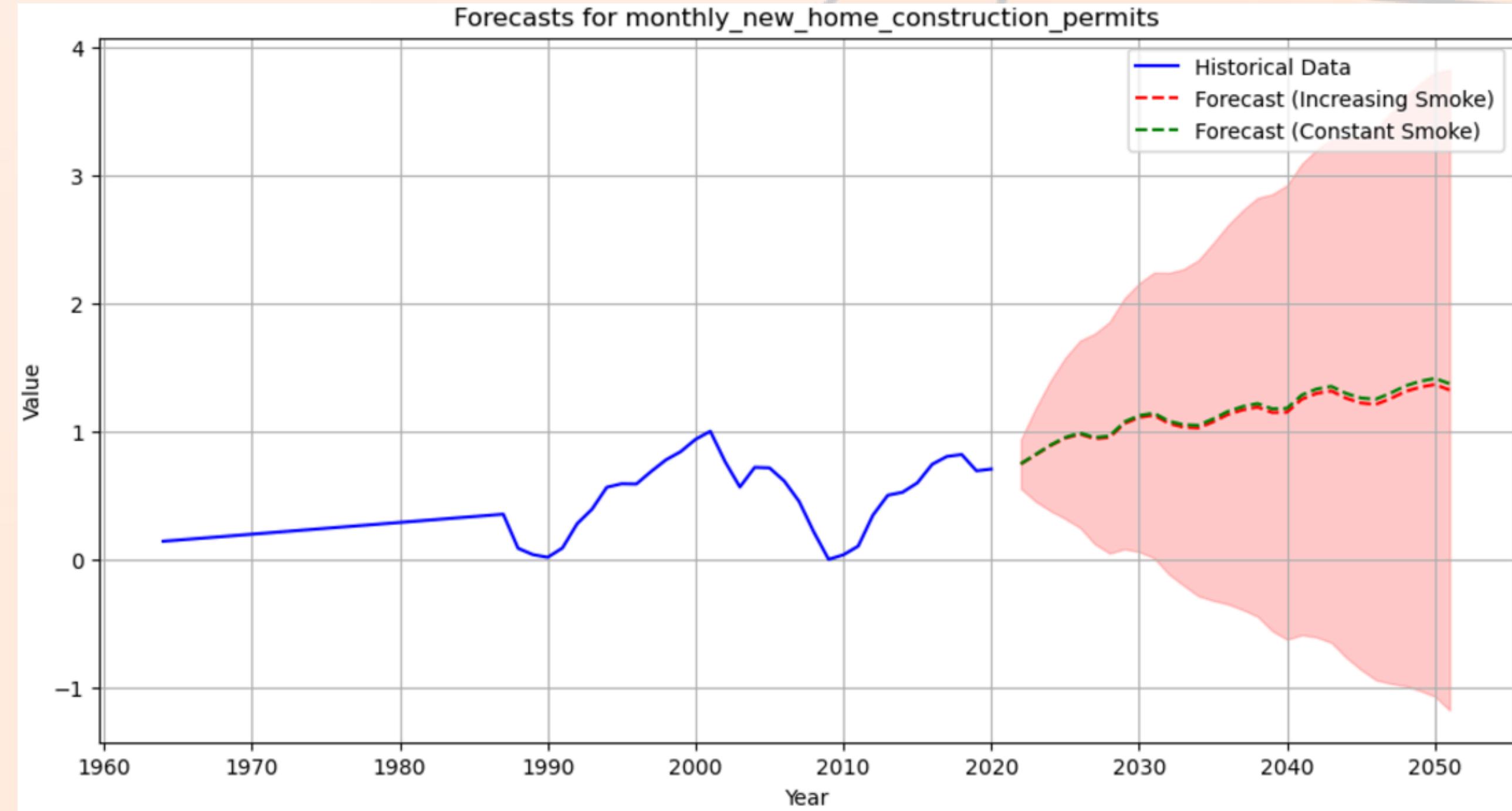
During **Wildfire months:**

16.17%

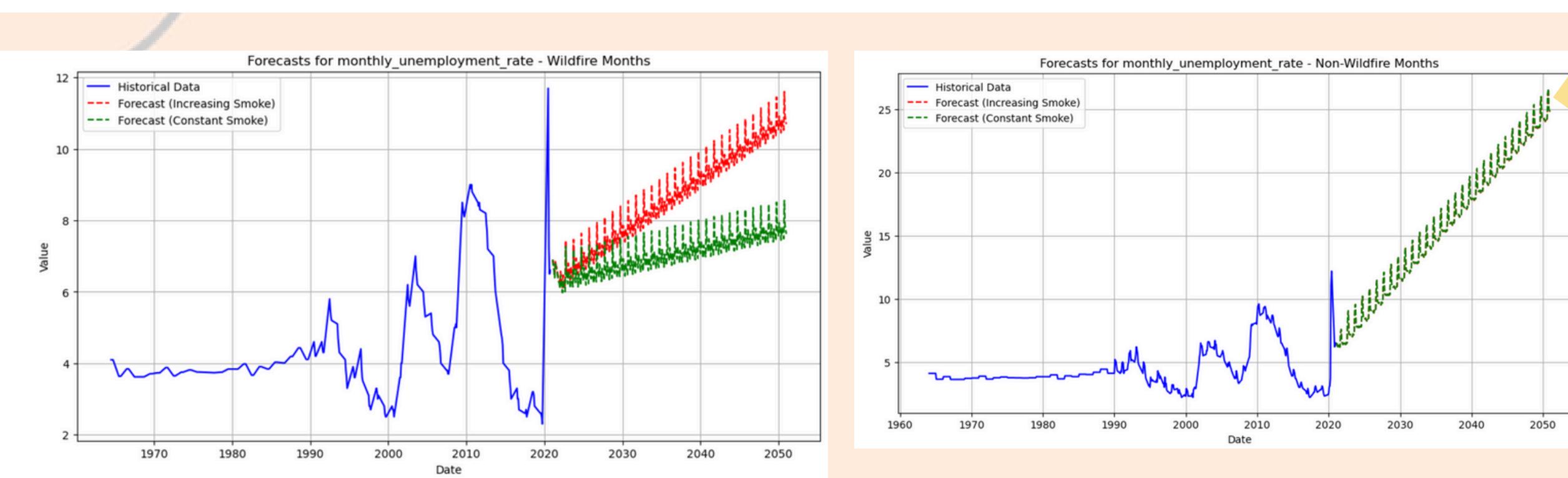
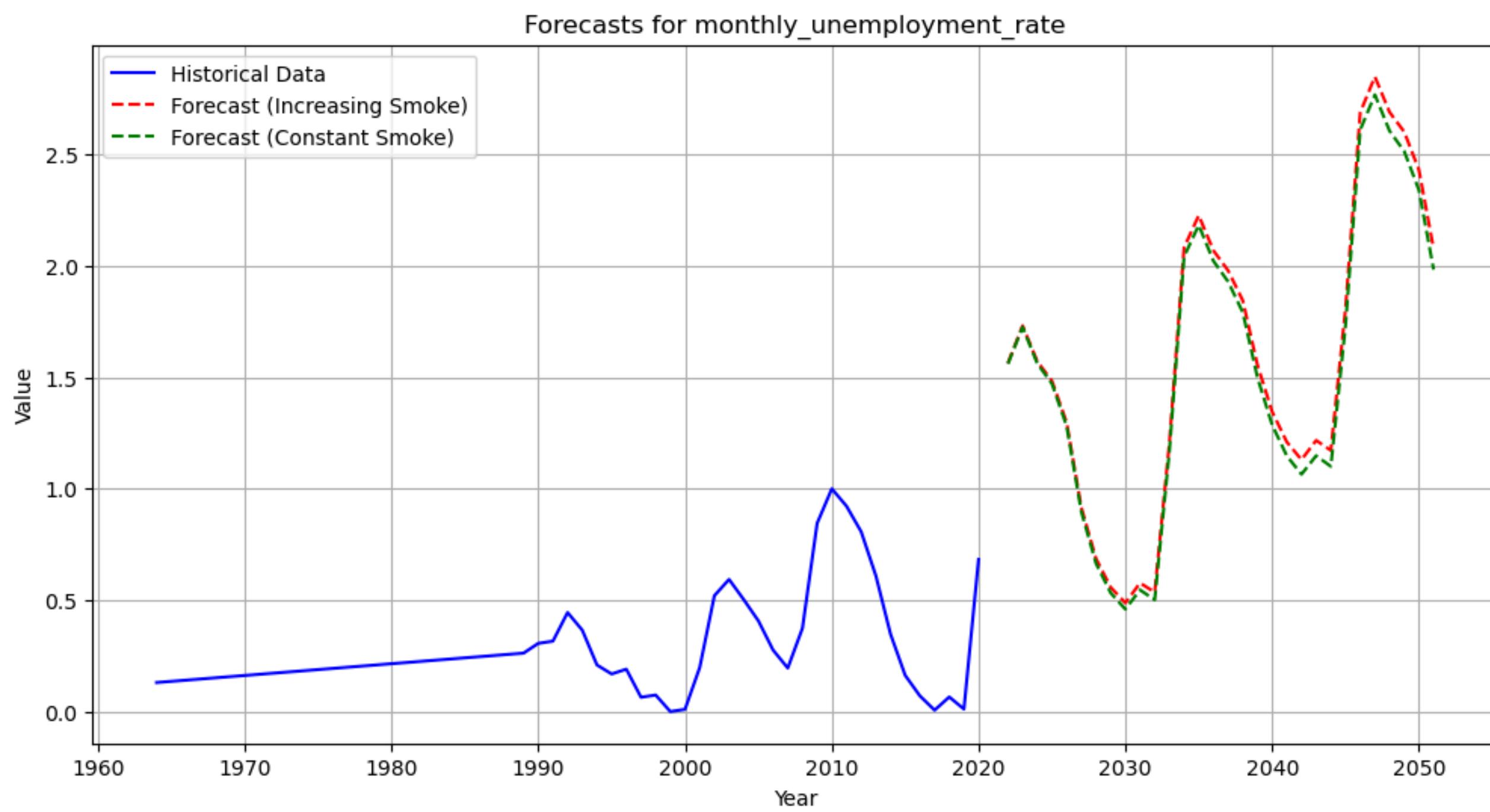


During **Non-wildfire months:**

6.42%



Forecasting the Impact of Rising Wildfire Smoke on the Unemployment Rate

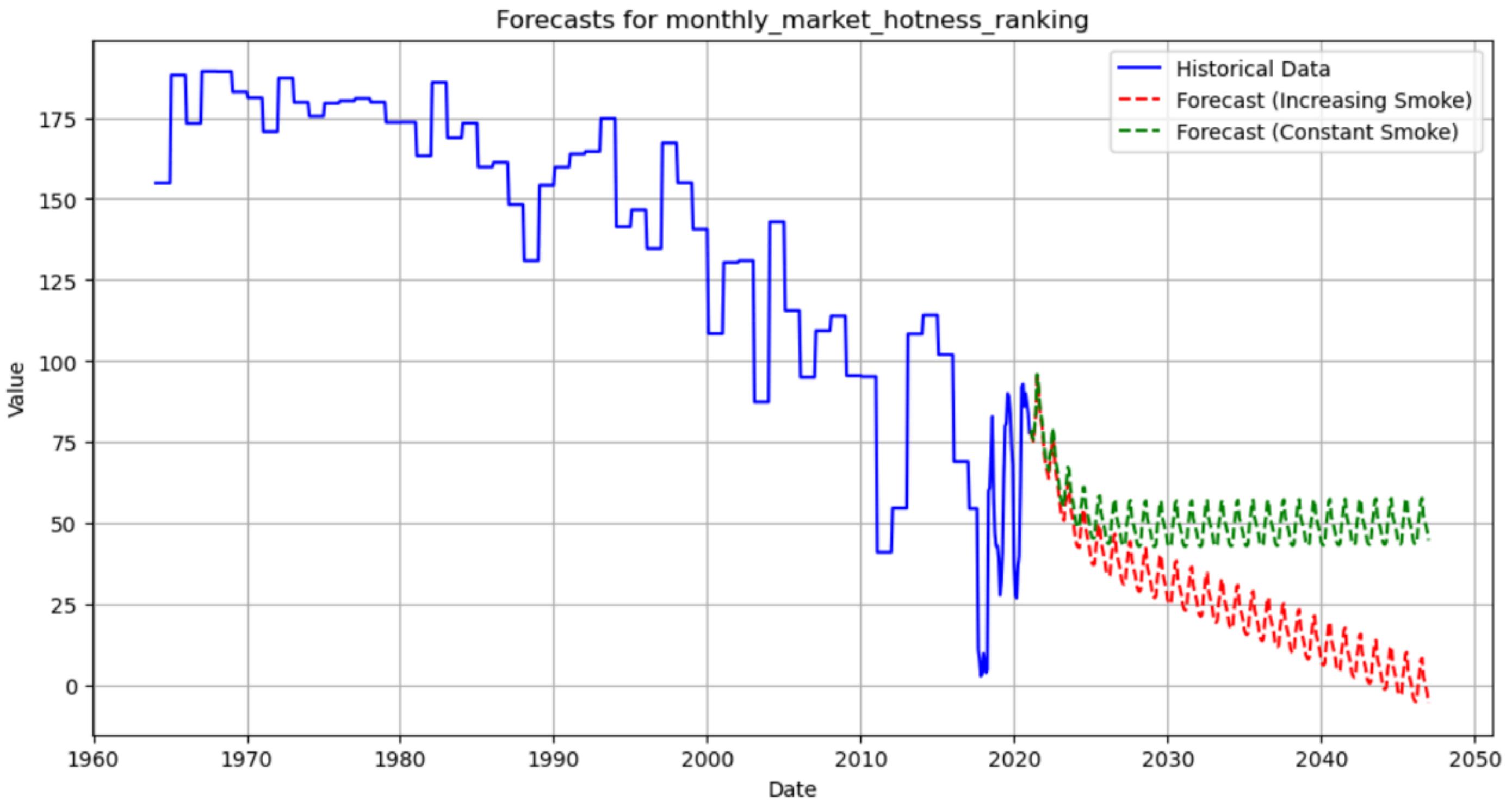


Impact of smoke on Unemployment Rate

During Wildfire months: 21.24%

During Non-wildfire months: 0.77% ↑

Forecasting the Impact of Rising Wildfire Smoke on the Consumer Goods Market



**Impact of smoke
on Consumer
Goods Market**

30.34%

Conclusions



Wildfire smoke significantly reduces new home construction permits



Wildfire smoke leads to a sharp rise in unemployment during wildfire months



Wildfire smoke leads to significant decline in the consumer goods market

Limitations



City-specific Data Limitation



Confounding Factors



Economic Complexity



A collage of various elements on a background of blurred newspaper clippings. At the top right is the text 'Early Detection and Response'. Below it is a red flame icon with the text 'Climate Change Drivers'. In the center is a red house icon with the text 'Tax incentives and Grants'. At the bottom left is a green circle with a white dollar sign (\$) symbol, with the text 'Paid leave during poor air quality and job training funding'. At the bottom right is a blue bar chart with an upward arrow, with the text 'Wildfire resilience funds to support small businesses'. The overall background consists of many overlapping newspaper snippets in different colors.