Motivation

Lately, wildfires have been throwing a major curveball at economic growth and stability. These environmental disasters aren't just burning forests; they're shaking up how our local economies work. They've brought a wave of unpredictability and instability, affecting everything from industries to job markets in areas hit by these fires.

Researchers like Max Nielsen-Pincus, Cassandra Moseley, and Krista Gebert dug into this in the Journal of Forestry (November 2013)[1]. They found that while fighting fires gives a quick boost to the economy, it also leaves things shaky for up to two years afterward. In places like California, where wildfires are getting worse, it's causing problems for jobs and wages, making economic gaps even wider. To handle this, we need to put money into local resources for fighting and recovering from these fires. Also, getting communities more involved in ways to deal with and adapt to these wildfires is super important to get through their economic effects.

The increasing intensity of wildfires presents a hurdle for job opportunities and income growth locally, sustaining disparities in the economy. To tackle this issue, it's crucial to allocate funds to local efforts aimed at controlling wildfires and aiding recovery. Empowering community involvement in strategies to lessen and adapt to these fires is vital for managing their economic impact.

I want to conduct this analysis to understand the economic implications of smoke incidents in Salina, Kansas, by analyzing the relationship between smoke occurrences and economic factors like employment, income fluctuations, and industries' resilience.

My goals are to figure out how these regular smoke incidents affect jobs and income, and how well different industries bounce back. This study can give policymakers a heads-up on how these smoke incidents mess with our economy, so they can plan ahead and take steps to help industries and families before things get bad. Understanding these economic vulnerabilities caused by smoke incidents can help us prepare and support those industries and households before things go south.

Impact focus

The primary impact focus revolves around comprehensively understanding how smoke incidents within Salina, Kansas impact various economic aspects. This inquiry isn't merely about identifying the presence of smoke but goes deeper, investigating how these incidents ripple through the economic landscape of the city. To go into more detail about them, here's an elaboration:

- The first aspect of this exploration involves closely examining the fluctuations in employment patterns attributed to these smoke incidents. Understanding how these occurrences influence job availability, stability, or the workforce's engagement is fundamental. This analysis seeks to uncover the extent to which smoke incidents disrupt or alter employment dynamics across different sectors and job types within Salina.

- The second deals with income disparities, which stand as another crucial area of investigation within this study. It aims to shine a light on how smoke incidents impact income levels across various strata of the city's population. This entails understanding whether certain demographics or sectors experience more pronounced income disparities during and after smoke events, ultimately discerning the economic inequalities exacerbated by these incidents.

- Lastly, the analysis delves into the resilience of different industries in Salina, particularly concerning their ability to withstand and recover from the economic shocks caused by smoke incidents. Examining which industries manage to navigate these disruptions with more resilience provides invaluable insights into potential strategies for economic recovery and sustainability amidst environmental challenges.

Data to be used

Dataset #1 :

The primary dataset from the US Census Bureau (https://data.census.gov/) covers employment, industries, occupations, classes of workers, household income levels, and household structures for Salina, Kansas (2010-2021). This information is crucial to correlating economic indicators with smoke incidents.

License:

The data from the US Census Bureau is not subject to copyright in the United States, and a royalty-free, nonexclusive license is granted for use, copying, and derivative works outside of the United States.

Dataset #2:

Further, I am also going to be using historical employment and unemployment data from the BLS Data Finder 1.1 (https://www.bls.gov/bls/data_finder.htm).

License:

This resource under the US Bureau of Labor Statistics provides relevant information for analyzing employment and unemployment trends in Salina City. It is open for public use within the USA.

Unknowns and dependencies

When diving into economic analysis, the data we rely on becomes the bedrock of our insights. In this study, our main data source stems from the United States Census Bureau, a rich repository that captures crucial economic metrics spanning employment figures, income disparities, and industry specifics within Salina, Kansas. However, there's a hitch. While this Bureau directly collects data from folks and businesses, there's a risk lurking in the shadows. Factors like human errors, inconsistent reporting methods, or intentional data tampering could jeopardize the reliability of our findings, casting doubt on the robustness of our analysis.

Moreover, navigating through external economic factors such as inflation, interest rates, and governmental policies—powerful influencers of employment and wages—adds another layer of complexity. Pinpointing the exact impact of each amidst this multifaceted mix becomes a tough nut to crack.

Another challenge lies in previous research that linked employment with wildfire smoke but not specifically in Salina, Kansas. This regional difference can significantly alter the story, as different cities dance to their economic tunes.

Furthermore, the smoke estimate data we're using covers a vast area, roughly 1250 miles around Salina. Given Salina's geographic position, where winds might have pushed most of the wildfire smoke towards Missouri, there's a possibility that the economic repercussions were felt elsewhere, raising concerns about the data's direct relevance to Salina's economic scenario.

Timeline to completion

Week 1: (Nov 14th - Nov 17th)

- Days 1-2 (Nov 14th - Nov 15th): Data Collection: Gather and clean US Census Bureau employment, income, and household data.
- Days 3-4 (Nov 16th - Nov 17th): Data Collection: Gather and clean BLS Employment and Unemployment data.

Week 2: (Nov 18th - Nov 24th)

- Days 5-6 (Nov 18th - Nov 19th): Utilize statistical methods to explore potential correlations between smoke incidents and economic factors (employment, income).

Begin drafting initial findings. Also, conduct the Industry Resilience Assessment to determine specific sectors resilient to smoke-related employment disruptions.

- Days 7-9 (Nov 20th - Nov 22nd): Forecasting: Build models to forecast future economic factors based on smoke estimates.

Week 3: (Nov 25th - Dec 1st)

- Days 10-11 (Nov 25th - Nov 26th): Create graphs or charts illustrating correlations or trends found during the analysis.
- Days 12-13 (Nov 27th - Nov 28th): Explain observed patterns or trends, including dips, spikes, or coinciding events.
- Nov 30th: Presentation Day.
- Days 14-15 (Nov 29th - Dec 1st): Finalize documentation outlining the integration process, analysis methodologies, and preliminary findings for transparency.

References

1. Max Nielsen-Pincus, Cassandra Moseley, Krista Gebert, The Effects of Large Wildfires on Employment and Wage Growth and Volatility in the Western United States, *Journal of Forestry*, Volume 111, Issue 6, November 2013, Pages 404–411, https://doi.org/10.5849/jof.13-012