Hot Labor Summer: A historical analysis of major strike timing in the United States

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Introduction

The summer of 2023 was termed a "summer of strikes" in mainstream media, or "hot labor summer" on social media. There were strikes from 65,000 workers of SAG-AFTRA, 15,000 of Unite Here Local 11, 11,500 of the Writers Guild, and workers in many other industries (Escobar and Zhang 2023). This led me to wonder, has summer been a common time to strike in prior years? As I began researching this, I did not find evidence of whether time of year has been an important factor in strike activity among the organized labor movement overall in the United States (U.S.). In other words, it is not clear to me if there are popular "strike seasons" in U.S. labor history.

A workforce's decision of when to strike, if they are legally allowed to strike at all, is complex. It can be influenced by factors that are hard to measure systematically, such as union members' interpretations of how well contract negotiations are going and how much power they have. Of the factors that are measurable, and measured, it seems that strikes often occur after contracts expire. For instance, UAW president Shawn Fain called for unions to align their contract expiration dates for May 1, 2028, to allow for a coordinated general strike on May Day (Dimaggio 2023). Industry specific operations timelines are also relevant to strike timing, as removing labor at the times when critical and urgent functions are performed will have the greatest impact on the employer. For example, academic strikes in higher education have targeted the grading periods at the end of semesters (Eastwood 2023). There is strong rationale for agricultural workers to have season-specific strikes, but the National Labor Relations Act excludes them from federal rights to strike and protections against retaliation. Because of this, state law can prevent workers from striking in strategic seasons. Oregon and Arizona laws ban on-site picketing and limit striking during periods of perishable crop harvests (National Agricultural Law Center 2023).

Recent reports of strike activity over time often focus on the number of workers involved in a strike (Bivens et al. 2023), and look at changes over years or decades. For example, in a New York Times visualization of BLS work stoppage data (Escobar and Zhang 2023), "each line shows the number of U.S. workers involved in work stoppages by month over the course of a year." By scanning the data for each year, it appears that the number of workers on strike is often concentrated in the middle months of the calendar year. But the authors of this article do not explore a possible relationship between month or season and strike activity. And I have not found other research that has assessed this. In this study I will collapse the strike data across years, and focus on monthly changes in three measures of strike activity: number of strikes started, the number of strikes occurring, and the days of idleness per month.

Research Questions

1. What months have been most popular for large strikes in the US?
2. Is there a significant correlation between time of year and strike activity in the US?

Methods

All files to reproduce the current study are available on the following GitHub page: https://github.com/isabelshaheen/striketiming.git. Data come from the Bureau of Labor Statistics (BLS) Work Stoppages Program survey. This monthly survey contains national aggregate counts of major work stoppages, including only those involving 1,000 workers or more. I am conceptualizing "major work stoppages" as a proxy for "major strikes", following the work of others (Bivens et al. 2023), who argue that this is reasonable because BLS does not distinguish between strikes and lockouts in its work stoppage data, and lockouts are very rare relative to strikes. The indicators of strike activity that I focus on in this study are:

1. Number of work stoppages involving 1,000 workers or more **beginning** in the period
2. Number of work stoppages involving 1,000 workers or more **in effect** in the period
3. Days of idleness (in 1,000s) from all work stoppages in effect in the period

Data

I obtained the data from the BLS API with the R package `blsR`. I used data from all years of the survey that are available in the BLS API: 1982 to 2023. Retrieving the three indicators above for each month over 41 years yielded a dataset with 502 observations of five variables.

Visualizations

To help answer the first question - what months are most popular for large strikes in the US - I created a stacked bar graph for each of the indicators. The interactive version of the charts is available in html format, which is possible by running the .qmd file "final_report_O'Malley" in RStudio, and rendering the document to html. In the interactive version, each bar is broken up into blocks by year that are proportional to the number of strikes in that year. Hovering over a block on the graph allows the reader to see the year and the exact y-value (i.e., the quantity of strikes beginning, strikes occuring, or days idle) in a given month in that year.

Figure 1. Number of work stoppages involving 1,000 workers or more **beginning** in the month (1982 - 2023)

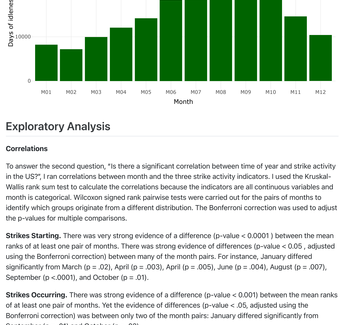


Figure 2. Number of work stoppages involving 1,000 workers or more **in effect** in the month (1982-2023)

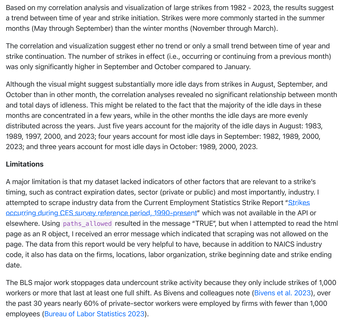
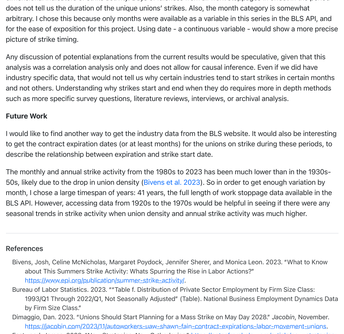


Figure 3. Days of idleness (in 1,000s) from all work stoppages in effect in the month (1982 - 2023)



Exploratory Analysis

Correlations

To answer the second question, "Is there a significant correlation between time of year and strike activity in the US?", I ran correlations between month and the three strike activity indicators. I used the Kruskal-Wallis rank sum test to calculate the correlations because the indicators are all continuous variables and month is categorical. Wilcoxon signed rank pairwise tests were carried out for the pairs of months to identify which groups originate from a different distribution. The Bonferroni correction was used to adjust the p-values for multiple comparisons.

Strikes Starting. There was very strong evidence of a difference (p-value < 0.0001) between the mean ranks of at least one pair of months. There was strong evidence of differences (p-value < 0.05 , adjusted using the Bonferroni correction) between many of the month pairs. For instance, January differed significantly from March ($p = .02$), April ($p = .003$), April ($p = .005$), June ($p = .004$), August ($p = .007$), September ($p < .0001$), and October ($p = .01$).

Strikes Occurring. There was strong evidence of a difference (p-value < 0.001) between the mean ranks of at least one pair of months. Yet the evidence of differences (p-value < .05, adjusted using the Bonferroni correction) was between only two of the month pairs: January differed significantly from September ($p = .01$) and October ($p = .02$).

Days of Idleness. There was evidence of a difference (p-value = 0.035) between the mean ranks of at least one pair of months. However after using the Bonferroni correction, the evidence of differences was not significant at $p < .05$ or $p < .01$.

Conclusion

Based on my correlation analysis and visualization of large strikes from 1982 - 2023, the results suggest a trend between time of year and strike initiation. Strikes were more commonly started in the summer months (May through September) than the winter months (November through March).

The correlation and visualization suggest either no trend or only a small trend between time of year and strike continuation. The number of strikes in effect (i.e., occurring or continuing from a previous month) was only significantly higher in September and October compared to January.

Although the visual might suggest substantially more idle days from strikes in August, September, and October than in other month, the correlation analyses revealed no significant relationship between month and total days of idleness. This might be related to the fact that the majority of the idle days in these months are concentrated in a few years, while in the other months the idle days are more evenly distributed across the years. Just five years account for the majority of the idle days in August: 1983, 1989, 1997, 2000, and 2023; four years account for most idle days in September: 1982, 1989, 2000, 2023; and three years account for most idle days in October: 1989, 2000, 2023.

Limitations

A major limitation is that my dataset lacked indicators of other factors that are relevant to a strike's timing, such as contract expiration dates, sector (private or public) and most importantly, industry. I attempted to scrape industry data from the Current Employment Statistics Strike Report "Strikes occurring during CES survey reference period, 1990-present" which was not available in the API or elsewhere. Using `pathlib_allowed` resulted in the message "TRUE", but when I attempted to read the html page as an R object, I received an error message which indicated that scraping was not allowed on the page. The data from this report would be very helpful to have, because in addition to NAICS industry code, it also has data on the firms, locations, labor organization, strike beginning date and strike ending date.

The BLS major work stoppages data undercount strike activity because they only include strikes of 1,000 workers or more that last at least one full shift. As Bivens and colleagues note (Bivens et al. 2023), over the past 30 years nearly 60% of private-sector workers were employed by firms with fewer than 1,000 employees (Bureau of Labor Statistics 2023).

Monthly counts of number of strikes started and number of strikes occurring are relatively one dimensional indicators of strike activity. Days of idleness from all work stoppages in effect in the period does not tell us the duration of the unique unions' strikes. Also, the month category is somewhat arbitrary. I chose this because only months were available as a variable in this series in the BLS API, and for the ease of exposition for this project. Using date - a continuous variable - would show a more precise picture of strike timing.

Any discussion of potential explanations from the current results would be speculative, given that this analysis was a correlation analysis only and does not allow for causal inference. Even if we did have industry specific data, that would not tell us why certain industries tend to start strikes in certain months and not others. Understanding why strikes start and end when they do requires more in depth methods such as more specific survey questions, literature reviews, interviews, or archival analysis.

Future Work

I would like to find another way to get the industry data from the BLS website. It would also be interesting to get the contract expiration dates (or at least months) for the unions on strike during these periods, to describe the relationship between expiration and strike start date.

The monthly and annual strike activity from the 1980s to 2023 has been much lower than in the 1930s-50s, likely due to the drop in union density (Bivens et al. 2023). So in order to get enough variation by month, I chose a large timespan of years: 41 years, the full length of work stoppage data available in the BLS API. However, accessing data from 1920s to the 1970s would be helpful in seeing if there were any seasonal trends in strike activity when union density and annual strike activity was much higher.

References

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