Effects of Strikes on Captured Profit for Autoworkers

Tuong Van

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The UAW or United Autoworkers representing production workers in the automotive industry went on strike for a new contract that has won benefits many have called historical. This paper aims to measure how much the production line workers benefited from the strike, and if the benefits are comparable to pre 2008 levels. This paper finds that workers who were not laid off after the strike captured slightly more profit, though workers who were laid off as a result of the strikes lost their share of profit. This paper also finds that the strike has positively impacted different subsectors of the industry by slightly increasing their share of profits captured.

1. Introduction

Research question. The UAW or United Auto Workers is a union that collectively bargains with many firms such as automobile firms on behalf of workers with the intended goal of securing them a contract with higher wages or more rights. When negotiations for a new contract break down, the union workers usually go on strike as seen in the automobile industry when workers represented by the UAW went on strike in 2023. This paper intends to look at the effect of the strike and see if the workers benefit more after the strike than before. How much the workers benefit before and after the strike will be measured in terms of profit captured as a percentage by these specific workers.

Answer to the question. Overall, this paper finds that the strike has an immediate short-term 1.3 percentage point increase in profit captured. This increase sets the profits captured by production workers to be equivalent to pre-2008 levels, 0.8 percentage points of the increase is lost due to a reduction in labor employed by firms.

Positioning in the literature. Previous literature has shown that the overall wages for these production workers increased by 11% after the strike and will increase by another 14% over the duration of the contract at the cost of 0.1 percentage points of annualized GDP growth in the third quarter of 2023, and 0.5 percentage points in the fourth quarter of 2023. This paper also intends to look at the effects of the strike as of Q3 of 2024, which has not been studied extensively in previous literature as the most recent analysis currently extends to Q2 of 2024. The profits captured after the strike will then be compared to pre-2008 levels to see if they are similar, as the rationale for these labor strikes has been to return to profit-sharing levels that were attained before the great recession in 2008.(Rua and Tito 2024)

2. Data

This section of the paper introduces data from the Bureau of Labor Statistics (BLS) as well as data from the Bureau of Economic Analysis (BEA). The data used in both datasets measures statistics from each quarter of the year starting from 2007 and ending in the third quarter of 2024, with 71 observations in each column.

2.1. Data from the BLS

From the BLS, total wage data from the subsections of the automotive industry were used. These subsections were automobile manufacturing, motor vehicle and parts wholesalers, motor vehicle and parts retailers, and automobile repairs. This data includes the total

wages paid out to production-level workers within these subsections in thousands of dollars per quarter. Data for the automobile manufacturing subsections that measured total employment in thousands. For the wage data, the median and average total wage for production workers was around 14.2 billion dollars, while the standard deviation was 3 billion dollars. For other wages paid to the non-manufacturing sectors of the automotive industry, the mean was 37.8 billion dollars, the median was 35.8 billion dollars and the standard deviation was 9.7 billion dollars.

2.2. Data from the BEA

T. he data from the BEA includes real-valued output per quarter from all automobile firms which is noted as revenue as well as fixed private investments from all automobile firms, with both of these results being in billions of chained dollars that are seasonally adjusted. Data from the BEA also shows the average expenditure per car and total production in thousands per month. To determine total expenditure, production was multiplied by the expenditure per month and then averaged over 3 months to determine the average expenditure per quarter. The median total expenditure was 16.9 billion dollars, while the mean total expenditure was 18 billion dollars, and the standard deviation was 5.5 billion dollars. As for the fixed investments, the median was 18.9 billion dollars, the mean was 18.1 billion dollars, and the standard deviation was around 5.5 billion dollars. The median for GDP output or revenue is 53.7 billion dollars, while the mean is 49.8 billion dollars, and the standard deviation is 5.78 billion dollars. The standard deviation is very high likely due to the magnitude of the numbers used which also could mean that these values are highly variable.

3. Methodology

This section displays the equations used in the results alongside the methodology

. To determine if the workers were able to capture more profit, two equations were used:

(1) $$W/(R-(E+F))$$

(2) $$\pi/(R-(E+F))$$

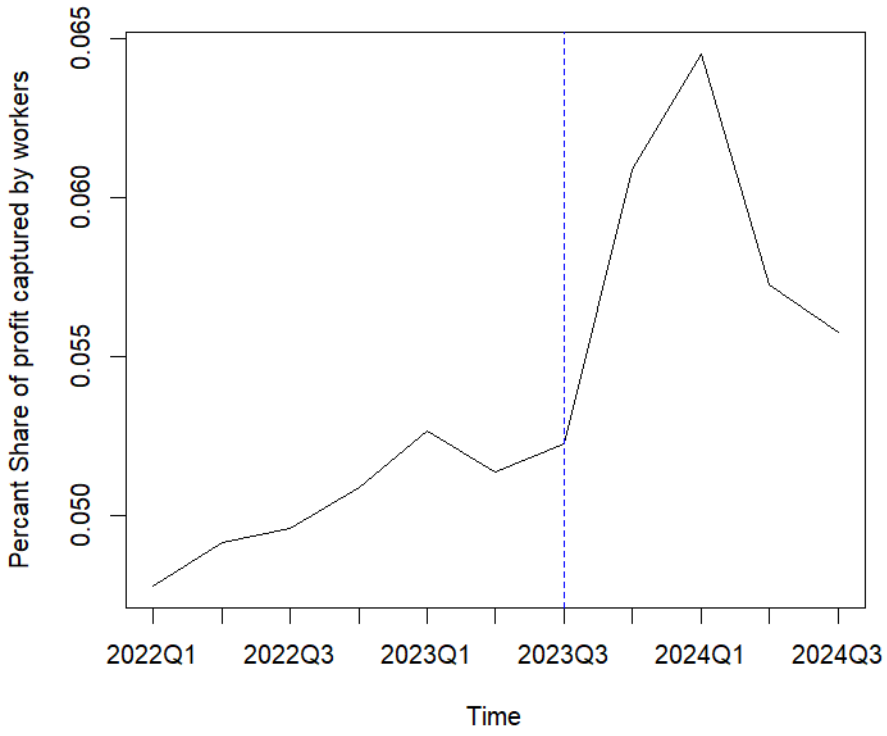
where π is the profit generated by the firm, W is the total wages paid out to all production workers, R is the total revenue of the firm or its GDP output, E is the total expenditure, and F is the fixed private investments from all firms. π is calculated by subtracting all expenditures, total wages from workers, and all fixed private investments, and R-(E+F)

gives the value added. The total wages for the workers represent the profit captured, so dividing the total wages by the value added gives a percentage of the profit captured by the workers. For the firms, dividing profit by value-added gives the percentage of profit that they capture, and when combined with the profit captured by the workers should total 1. After the share of profit captured by workers was calculated, this percentage was initially graphed from Q1 2022 to Q3 2024 to better visualize the effect of the strike on the share of profits captured and graphed again with data going back to 2007. The intended goal of graphing the data going back to 2007 was to see if the production workers captured a larger share as autoworkers made several concessions during the great recession and reclaiming these concessions has been a primary reason for any strike by production workers in the automotive industry.

4. Main Results

This section displays the main results alongside graphs and potential implications

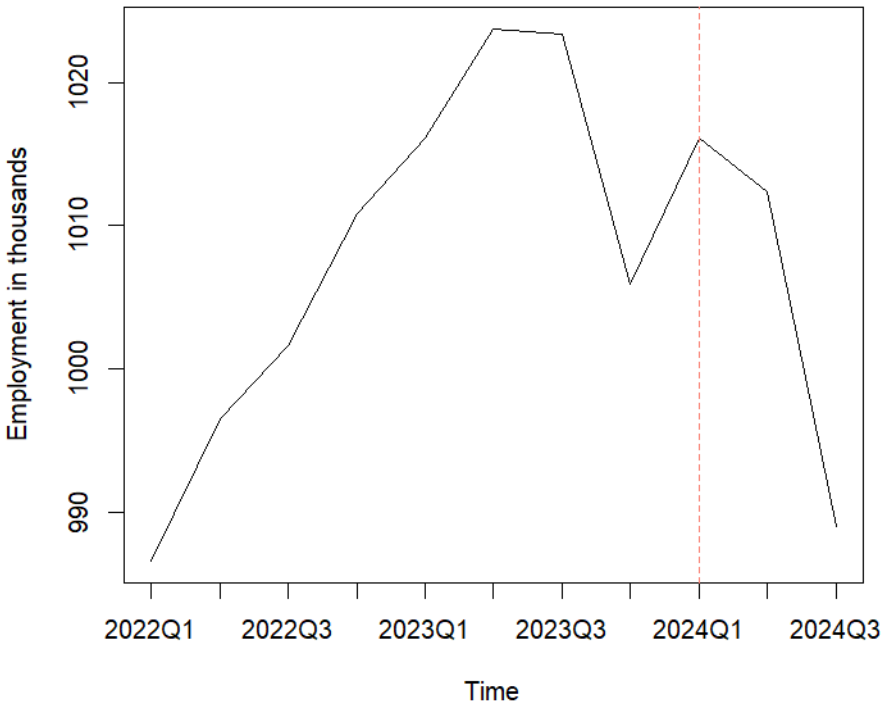
4.1. Results from Q1 2022-Q3 2024, production workers only



In Figure 1, the red line represents the quarter the strike happened, and after the strike

production workers captured 6 percent of the profits, which is a 0.8 percentage point relative to the previous quarter. This increased to 6.4 percent of profits being captured by the workers in Q1 2024, which is a 1.2 percentage point increase before the strike. This increase in profits captured likely is driven by two sources. The first source was a direct wage increase from the contract negotiated at the end of the strike. The second was the end of a two-tiered pay system that paid workers a lower amount until they worked at the firm for a duration. With the end of this system, many production workers were likely given the higher tier wage which would increase their wages and profit captured. However, the share of profits captured decreased by 0.7 percentage points in the subsequent quarter, and in Q3 2024 decreased again by 0.2 percentage points. This decrease is likely tied to employment as the figure below, which shows employment in thousands of all workers.

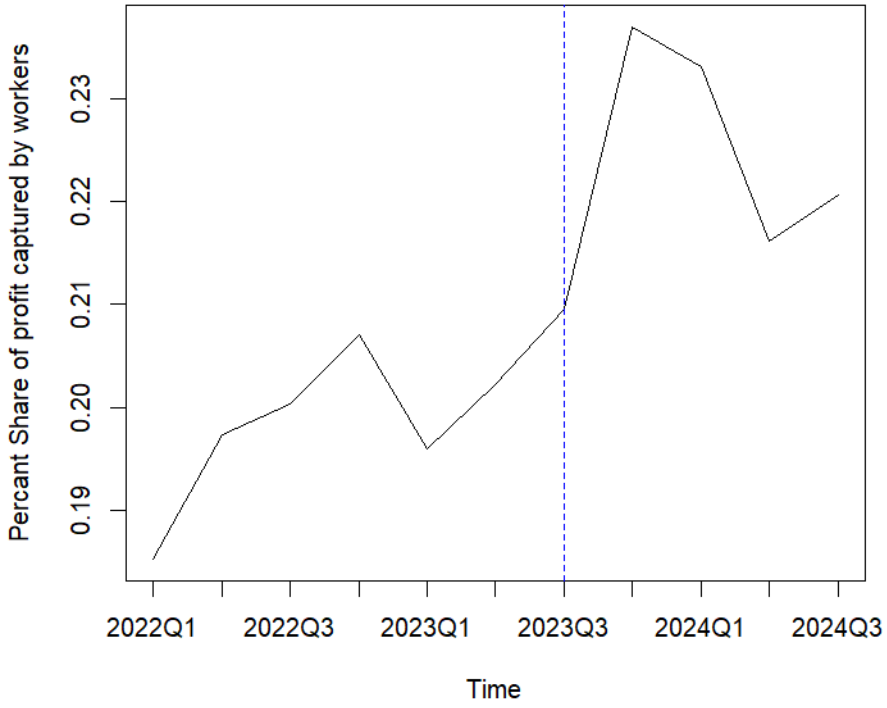
4.2. Employment in thousands Q1 2022-Q3 2024, production workers only



Above is Figure 2 which shows employment in thousands from the first quarter of 2022 to the third quarter of 2024 and, the pink line corresponds to Q1 2024, the quarter where profits captured were at the highest, and employment began to drop sharply after this quarter. This sharp drop in employment is likely the cause of the decrease in profit, which would indicate that the strike benefitted those who weren't laid off but harmed those who

were. Furthermore, individuals who were laid off may have been those who benefitted from the removal of the two-tiered pay system, canceling out the benefits workers may have gained from its removal. This can also be seen in Figure 1 as the profits captured increased overall by .3 percentage points relative to pre-strike levels.

4.3. Results from Q1 2022-Q3 2024, production workers, automotive retailers, wholesalers and repairs



The total profit captured by all low-level workers in the automotive industry shown in Figure 3 above increases by 3.7 percentage points initially in Q4 2023 but decreases to a 2.2 percentage point increase overall by Q3 2024 due to a slight shrinking of the labor force. This increase in captured profit may indicate that other sectors of the automotive industry may have gained increased wages as a result of labor action by the manufacturing sector of the automotive industry.

4.4. Results from Q1 2007-Q3 2024, production workers only

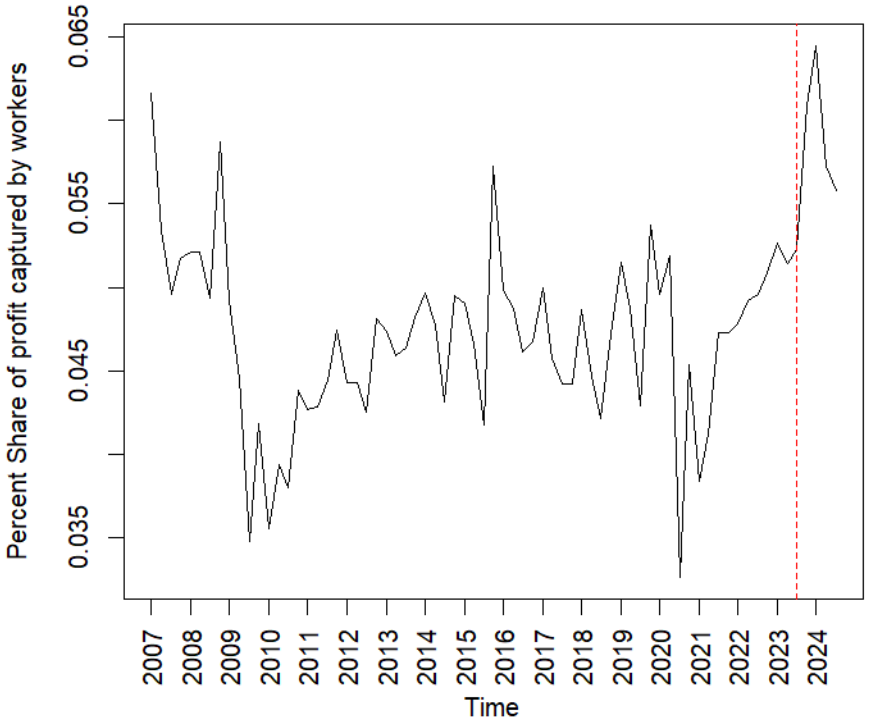


Figure 4 shown above shows the share of profits captured by production workers from Q1 2007 to Q3 2024. The second spike in 2008 is considered an outlier and should not be considered as the production workers captured a larger portion as they were paid at similar levels, but overall revenue was down which gave the impression that production workers captured more profit. After the strike, the highest share of captured profits in 2024 Q1 exceeded the share of profits captured in Q1 2007 which meant that workers were able to attain a share of profits at levels before the Great Recession, though this did not last. At the most recent data point of Q3 2024, though the profit captured by workers does not match pre-recession levels, it consistently remains 0.5-1.0 percentage points higher than the years after the recession to the pandemic in 2020.

5. Conclusion

Summary. Overall, the strike benefitted production workers who were not laid off as they captured an additional 0.3 percentage points of profit but also hurt 20000 workers as they were laid off. It is unlikely that all 20000 are from the sector that went on strike, but most of the layoffs are likely being driven due to the increased cost of labor. The

strike itself also appears to have had a positive effect on profit captured across different sectors as the automotive retail, repair, and manufacturing sectors saw a 2 percentage point increase in profit captured overall which cannot be solely explained by the increase from the manufacturing industry due to it's magnitude.

Implications, limitations, and possible extensions. Furthermore, this paper also finds that while production workers were unable to maintain the share of profit captured before the recession, their current share of profits captured remains 0.5-1.0 percentage points higher than the years after the recession. This would also indicate that labor action from unions benefits those who already work and hurts those who are looking for a job in that industry as the increased wages will likely cause firms to slow their hiring. This research has many limitations and holds a key assumption to be true. This assumption is that the expenditure per car takes into account the cost of capital which includes buying or maintaining factory equipment and the factory itself. As for limitations, one of the major limitations is the use of total wages rather than total compensation as many of the concessions made in the Great Recession were the benefits the workers had such as pensions. Using total wages does not factor that into account, which may lead to the pre-recession profits captured being significantly lower than their actual value and may consequently paint a different picture than what is noted in this paper. Another large limitation is the lack of exact data for all types of workers as the wage data from workers only looks at lower-level employees, and not other employees that may be higher up the ladder. This also may underestimate the effect of the strike as well as profits not captured by the subsectors mentioned in the data section will be factored into profit captured by the firm instead. With richer data, it may be possible to have a much better idea of how strong the effects of strikes are on neighboring sectors that may not be on strike, as well as whether these effects are isolated to only lower-level workers and not management. Richer data would also allow for the opportunity to see if union membership has an effect on profit captured, as well as employment.

References

Rua, Gisela, and Maria D. Tito. 2024. "Tapping the Brakes: The Effect of the 2023 United Auto Workers Strike on Economic Activity." *FEDS Notes*. https://doi.org/10.17016/2380-7172.3477.