Labor and the Law: An Empirical Analysis of the History of Labor Conflict and New Deal Policies on Strikes and Strike Behavior between 1932 and 1940

By

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Abstract

Using both national and state level data of strikes, this paper analyzes the implications of changing economic conditions and legal rulings on general strike occurrences and outcomes between 1932 and 1940. The Supreme Court ruling *National Labor Relations Board v. Jones & Laughlin Steel Corporation, 301 U.S. 1 (1937)* upheld the constitutionality of *The National Labor Relations Act (1935).* The decision decreased the ambiguity about the legal status of organized labor. This was followed by a dramatic rise in strikes as unions sought recognition. Ultimately, this led to a greater proportion of strikes being resolved through compromise and a declining number of strikes on the national level.

Introduction

Labor disputes within organized labor and the decision to strike are greatly influenced by legal rulings. During the 1930s the New Deal led to a series of new laws and legal rulings that changed the nature of collective bargaining. This influenced potential strikers because as new laws and legal rulings took effect, they responded to the legal decisions and sought to maximize their payoffs through given actions. In terms of strike activity, one expects that there will be an instantaneous change in strike behavior once the legal status of a given union action is clarified.

This paper will take a two pronged approach to making this conclusion. First, this paper will use a theoretical approach already defined by Geraghty and Wiseman in their paper, *Conflict and Compromise: Changes in U.S. Strike Outcomes, 1880 to 1937.* They show the fundamental cost-benefit considerations between compromise and striking.

This paper will use historical data from 1932 through 1940 to show the effects of legislation and legal rulings of the New Deal. The econometric estimates show that the New Deal legislation and subsequent Supreme Court rulings, which established the legality of collective bargaining, caused an immediate drastic spike in strikes, but decreased strikes in the long run.

A Brief History of Labor Unions in the United States

Organized labor in America has played a pivotal role in shaping economic organizations and has influenced American social structure for over 150 years. The labor movement in the United States has its crude beginnings in the 1820s. The 1820s stirring of a new factory system of production alarmed journeymen who anticipated a drop in the value of their skills (Margo

1992). As early as the 1850s labor unions were small groups of employees banning together to effectively communicate demands with management.

Labor unions in the United States, in the form that we know today, were developed in the 1880s with the formations of The Knights of Labor. The Knights of Labor was founded in 1869 in Philadelphia as a progressive labor organization committed to the ideals of ending child labor and bringing equality into the workplace. By the middle of the 1880s there were nearly 1 million members of numerous different organized labor organizations with roughly 70% of total union membership belonging to the Knights of Labor. Similarly, the Knights of Labor's admission of unskilled, semiskilled, black, and women workers brought an entirely new demographic to the organized labor front (Card 35). Between 1879 and 1886 the Knights of Labor saw memberships increase 3500%, from 20,000 to 700,000. With this jump in union membership there was an associated rise in strike activity. The United States Bureau of Labor reported nearly 2,500 strikes in 1886 alone (Geraghty (2005)).

In the 1880s American labor union history is seen as synonymous with the history of the national craft unions (Goldin 23). Unions saw growth during prosperous times, and no drastic declines during troubled times (such as the union declines that were associated with "The Long Depression" in the 1870s). Ultimately, this increased overall union membership and strengthened conditions necessary for the growth of organized labor.

A major development in the American labor movement was the use of courts by employers to stop unionization. The Sherman Anti-Trust Act of 1890 was signed into law by President Benjamin Harrison on July 2, 1890. The Sherman Act implicitly forbade unionization, and employers used this as a tool against unionization. This is unequivocally seen in the 1908 Supreme Court Decision, *Loewe v. Lawlor, 208 U.S. 274*.

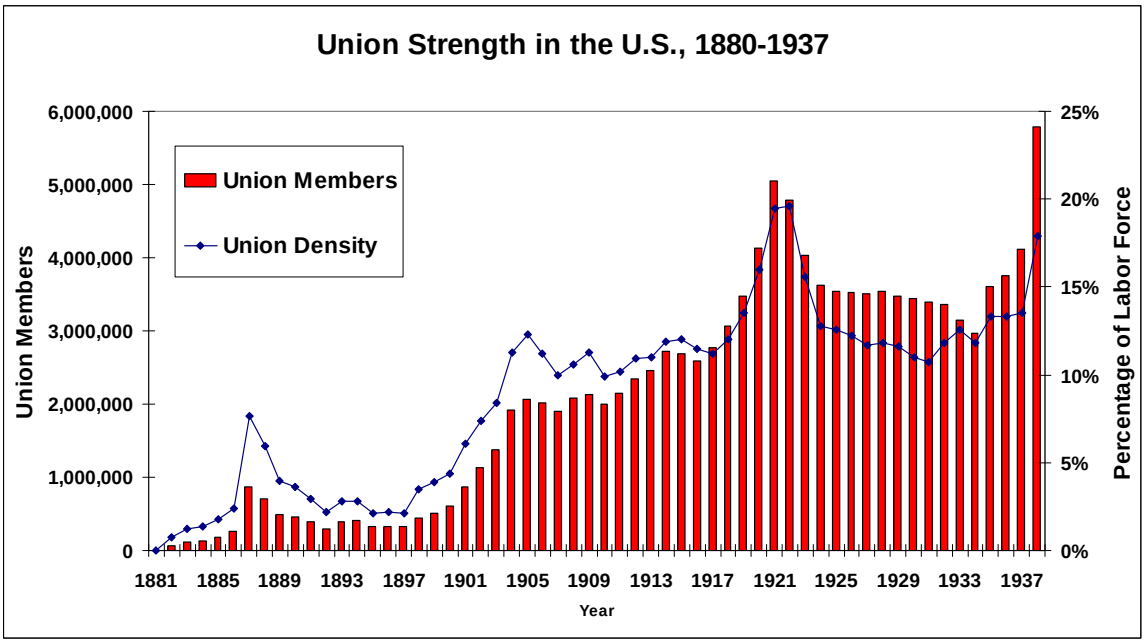
> *"And then followed the averments that the defendants proceeded to carry out their combination to restrain and destroy interstate trade and commerce between plaintiffs and their customers in other states by employing the identical means contrived for that purpose; and that, by reason of those acts, [208 U.S. 274, 309] plaintiffs were damaged in their business…." (Loewe v. Lawlor, 208 U.S. 274)*

The Supreme Court Decision claimed that the Hatters' Union's strike against D. E. Loewe & Company was in violation of the Sherman Anti-Trust Act of 1890, and awarded damages to D. E. Loewe & Company. This case is often referred to as "The Danbury Hatters' Case" and is an important precedent against strikes and unionization.

From 1904 through 1915, union membership rose by 500,000 to nearly 2.6 million members. The outbreak of World War I and the resulting restructuring of the labor force saw union membership double, as the federal government established favorable conditions for the recognition of collective bargaining. Following World War I, the United States fell into a sharp recession from 1921-1922. Consequently, union membership fell back to only 3.6 million. During the relative prosperity of the 1920s union membership fell, while the incorporation of new technologies that put craft jobs at risk. The 1930s brought drastic changes to organized labor in the United States. By the end of the decade organized labor had essentially become fully integrated within society, and union membership had jumped to 6.5 million workers.

How did the 1930s shape organized labor's role in the United States and, more specifically, what economic, political, and social incentives shaped strike activity during this decade?

Figure 1

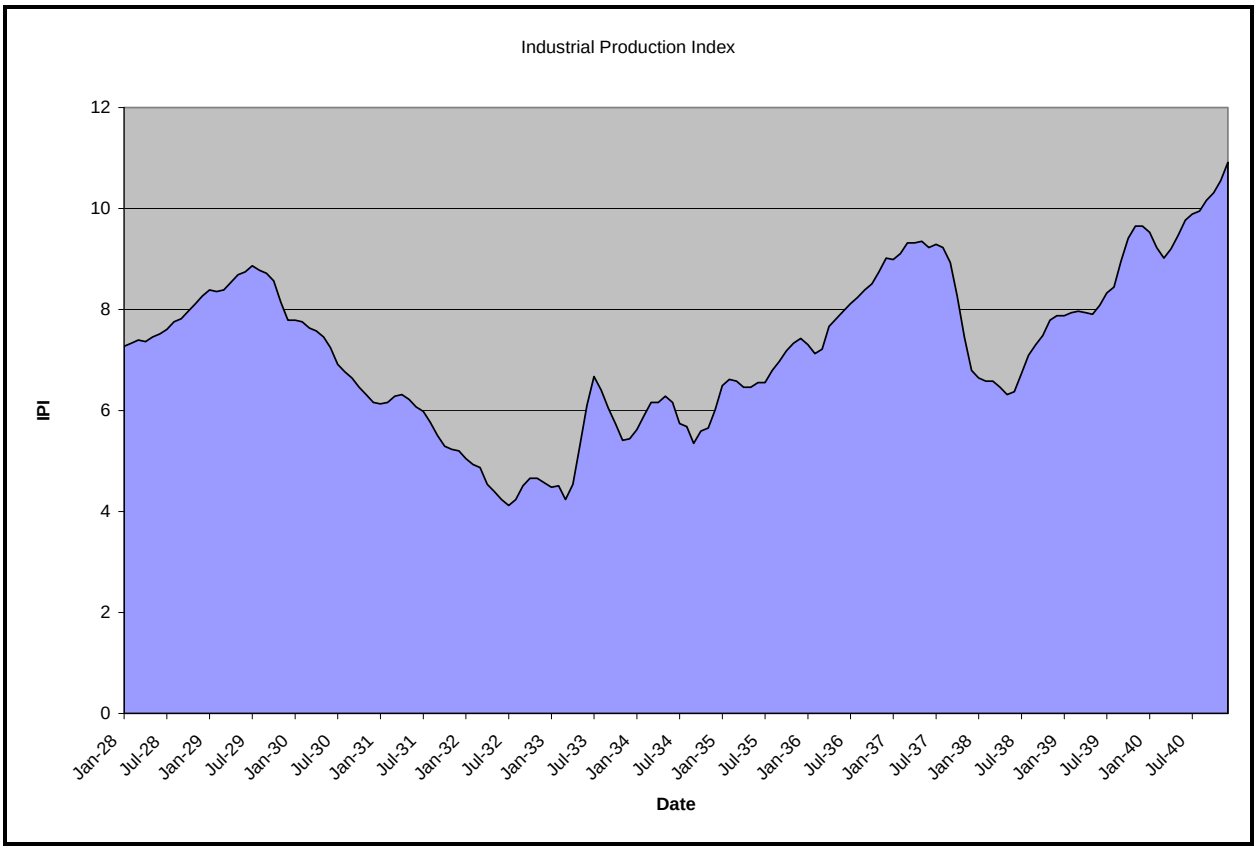


From Troy (1965); Geraghty (2005)

A Brief Overview of the Economy and Labor Conditions in the 1930s

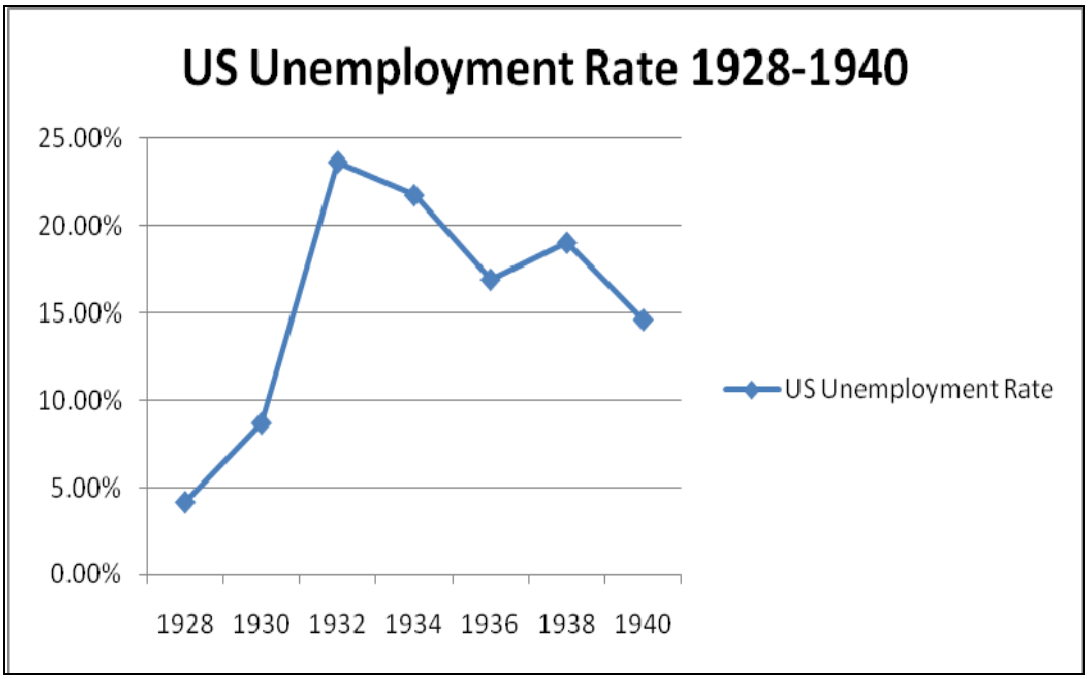
The 1930s were hectic times by any standard. America suffered a severe stock market crash in 1929, and the world soon entered "The Great Depression." Banks were failing, and people were losing their savings, causing decreased consumer activity and a lack of capital investment. The economic situation in the United States kept getting worse until reaching a low-point in 1933. As seen in figure 2, industrial production dropped rapidly, and by 1933, it was only half of the level it had been in 1930. Figure 3 highlights the drastic rise in unemployment between 1928 and 1932 which further undermined the national economy. Amid the floundering economy, Franklin Delano Roosevelt was elected President in 1932, and he began his famous "New Deal Reforms" in 1933.

Figure 2



Data From: Board of Governors of the Federal Reserve System.

Figure 3



Data From: U.S. Department of Labor, Bureau of Labor Statistics.

Figure 4

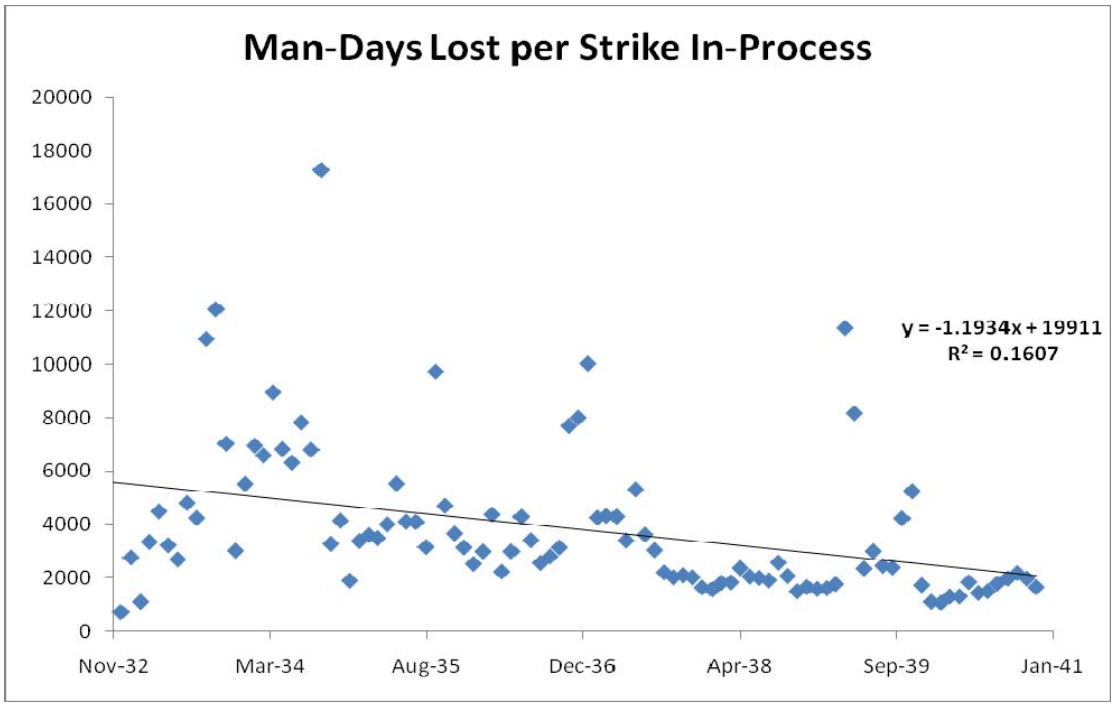


Figure 5

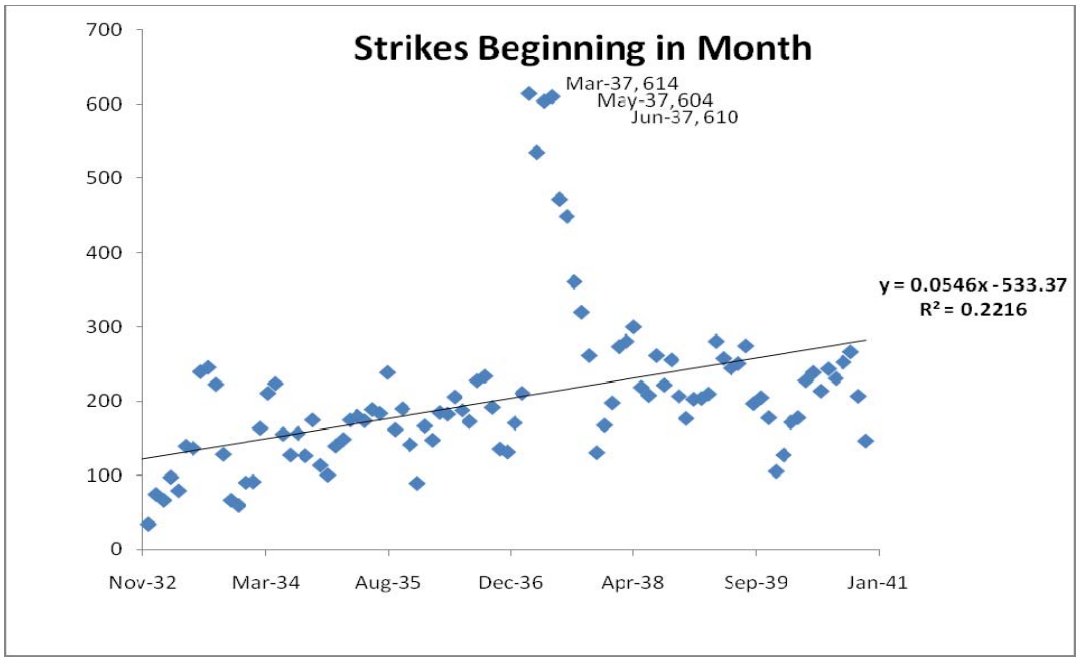

Strikes Beginning in Month
Mar-37, 614
May-37, 604
Jun-37, 610
y = 0.0546x - 533.37
R² = 0.2216
700
600
500
400
300
200
100
0
Nov-32
Mar-34
Aug-35
Dec-36
Apr-38
Sep-39
Jan-41

Figure 6

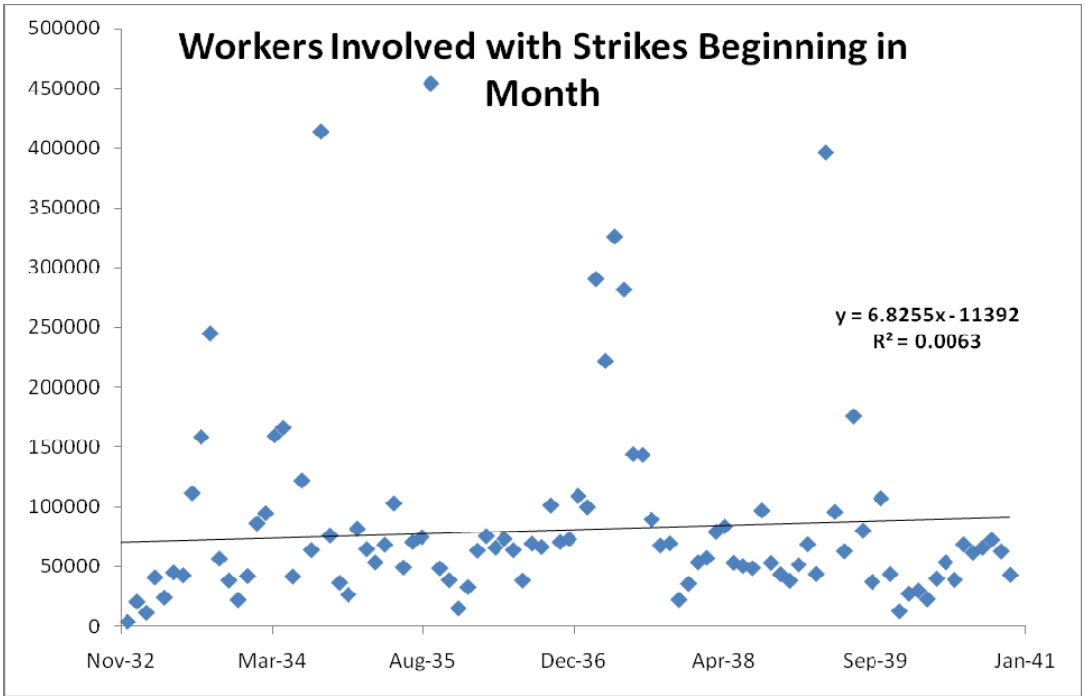
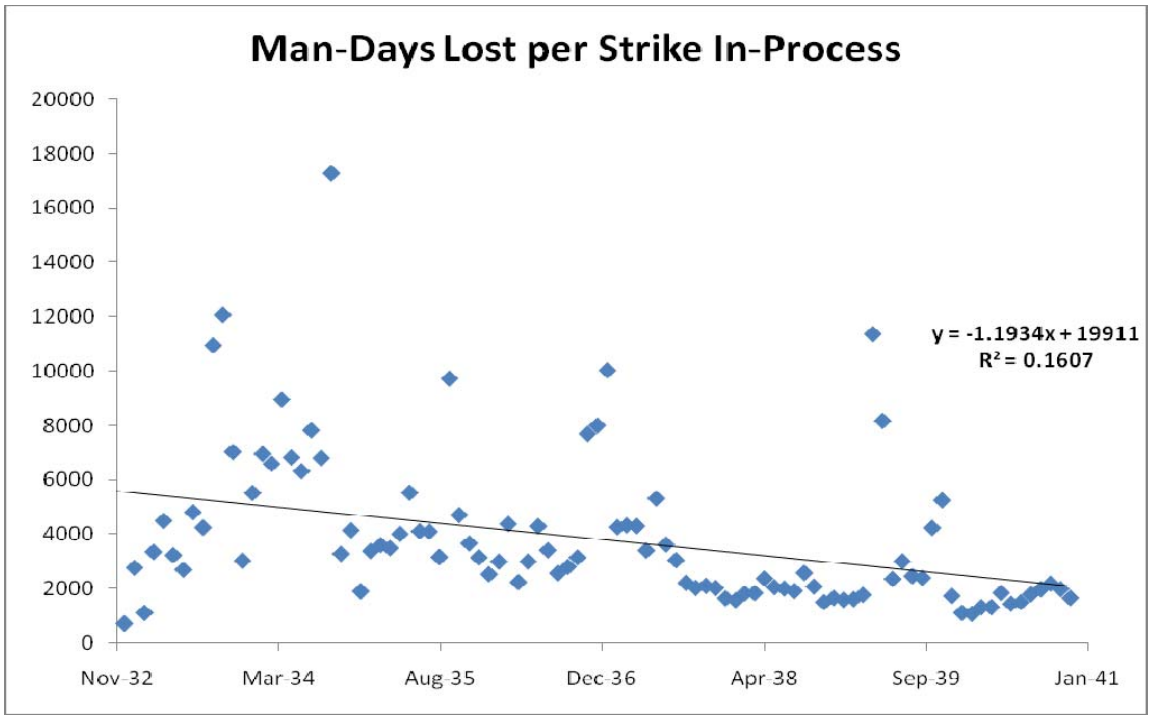

Workers Involved with Strikes Beginning in Month
y = 6.8255x - 11392
R² = 0.0063
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
Nov-32
Mar-34
Aug-35
Dec-36
Apr-38
Sep-39
Jan-41

Figure 7



Monthly strike data between January 1932 and December 1940 are depicted in Figures 4,5,6,7. There was an upward trend of strikes beginning during a given month. However, there was an overall downward trend of workers involved in strikes beginning in that month, strikes that were in process continuing into that month, workers involved in continuing strikes, and overall man-days lost due to strike activity. These overall trends in strike activity imply that while strikes were becoming more commonplace, they were increasing in efficiency which can be described in the downward trend of Man-Days Lost per Strike in Figure 7. One major spike in strikes is identified during April 1937 and continues through October 1937 after which strikes fall back to the regular level of activity.

Analysis of Labor and Strikes in the 1930s

Roosevelt's "New Deal" challenged the status-quo of government policies on the economy. A key set of changes in government policy was the New Deal labor policies which began with the passing of the *National Industrial Recovery Act* in 1933. The *NIRA* included clauses about the legal status of unions and collective bargaining. This act outlined specific rights for workers, organized labor, and collective bargaining:

> *"SEC. 7. (a) Every code of fair competition, agreement, and license approved, prescribed, or issued under this title shall contain the following conditions: (1) That employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; (2) that no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing; and (3) that employers shall comply with the maximum hours of labor, minimum rates of pay, and. other conditions of employment, approved or prescribed by the President." (National Industrial Recovery Act)*

The key changes with the passing of the *National Industrial Recovery Act* sought to provide fair competition for workers. The NIRA established an employee's right to collective bargaining without threat from employers. The act maintained that the option to join a union was at the individual worker's digression, and that employers must comply with the legal declarations of the President.

The *National Industrial Recovery Act's* protection of workers, organized labor, and collective bargaining was short lived. Ultimately, the *National Industrial Recovery Act* was found unconstitutional by the Supreme Court in May 1935 with the *Schechter Poultry Corp. v. United States* (295 U.S. 495, 1935). The courts ruling stated that the act delegated to much legislative power to code making authorities and had to be found invalid:

> *"On both the grounds we have discussed, the attempted delegation of legislative power and the attempted regulation of intrastate transactions which affect interstate commerce only indirectly, we hold the code provisions here in question to be invalid and that the judgment of conviction must be reversed." (Schechter Poultry Corp. v. United States)*

When the *NIRA* was unanimously declared unconstitutional by the Supreme Court, the New Deal legislators saw the labor provisions of the Act as being indispensable in terms of the necessary rights of workers. Thus, following the *Schechter* ruling, Congress passed the *National Labor Relations Act* (also commonly known as "*The Wagner Act*" after Senator Robert F. Wagner who introduced the legislation), protected the rights of workers to form unions, engage in collective bargaining, and strike to achieve their objectives (Goldin 23).

Exhibit A

> *"Section 1.[§151.] The denial by some employers of the right of employees to organize and the refusal by some employers to accept the procedure of collective bargaining lead to strikes and other forms of industrial strife or unrest, which have the intent or the necessary effect of burdening or obstructing commerce by (a) impairing the efficiency, safety, or operation of the instrumentalities of commerce; (b) occurring in the current of commerce; (c) materially affecting, restraining, or controlling the flow of raw materials or manufactured or processed goods from or into the channels of commerce, or the prices of such materials or goods in commerce; or (d) causing diminution of employment and wages in such volume as substantially to impair or disrupt the market for goods flowing from or into the channels of commerce." (The National Labor Relations Act)*

The *National Labor Relations Act* defined an act of employers preventing the formation of a Union by employees as a violation of commerce law. Effectively, the NLRA identified employer noncooperation as impeding the efficiency of the marketplace. Furthermore, the

NLRA associated an employer's noncooperation with exploitation of channels of commerce, prices of goods, and wages which made the act strictly illegal.

While this act was signed into law on July 5, 1935, it was not definitive in its ability to secure its defined rights for workers due to the Supreme Court Ruling on the NIRA which was ultimately seen as similar legislation that was deemed unconstitutional. This ambiguity led to an ultimate reservation towards striking by organized labor.

While there was a generally consistent trend of strike activity in the United States during the 1930s, 1937 saw an unprecedented jump in overall strike activity. For example, there were 581 strikes beginning in March 1937 compared to the 199 strikes beginning the month before in February 1937. Workers involved with those strikes beginning in March 1937 numbered 281,887 while February 1937 numbered just 106,910.

This jump in strike activities reflects a major Supreme Court Decision affecting the legal status of unions. *National Labor Relations Board v. Jones & Laughlin Steel Corporation*, 301 U.S. 1 (1937) was argued before the United States Supreme Court on February 10th and 11th, 1937 and ultimately decided on April 12, 1937. The Court's decision to accept the validity of the act is seen in its ruling:

> *"Our conclusion is that the order of the Board was within its competency and that the act is valid as here applied. The judgment of the Circuit Court of Appeals is reversed and the cause is remanded for further proceedings in conformity with this opinion. It is so ordered."* (*National Labor Relations Board v. Jones & Laughlin Steel Corporation*, 301 U.S. 1)

This case was instrumental in deciding the rights of workers in respect to collective bargaining, not because it created any new legal statutes regarding unionization, but rather because it upheld the constitutionality of the previously enacted National Labor Relations Act (The Wagner Act). The short-term implications of this Supreme Court ruling was the immediate adjustment of the labor system to a more clarified standing, and the long-term result was the clarified standing of labor organizations.

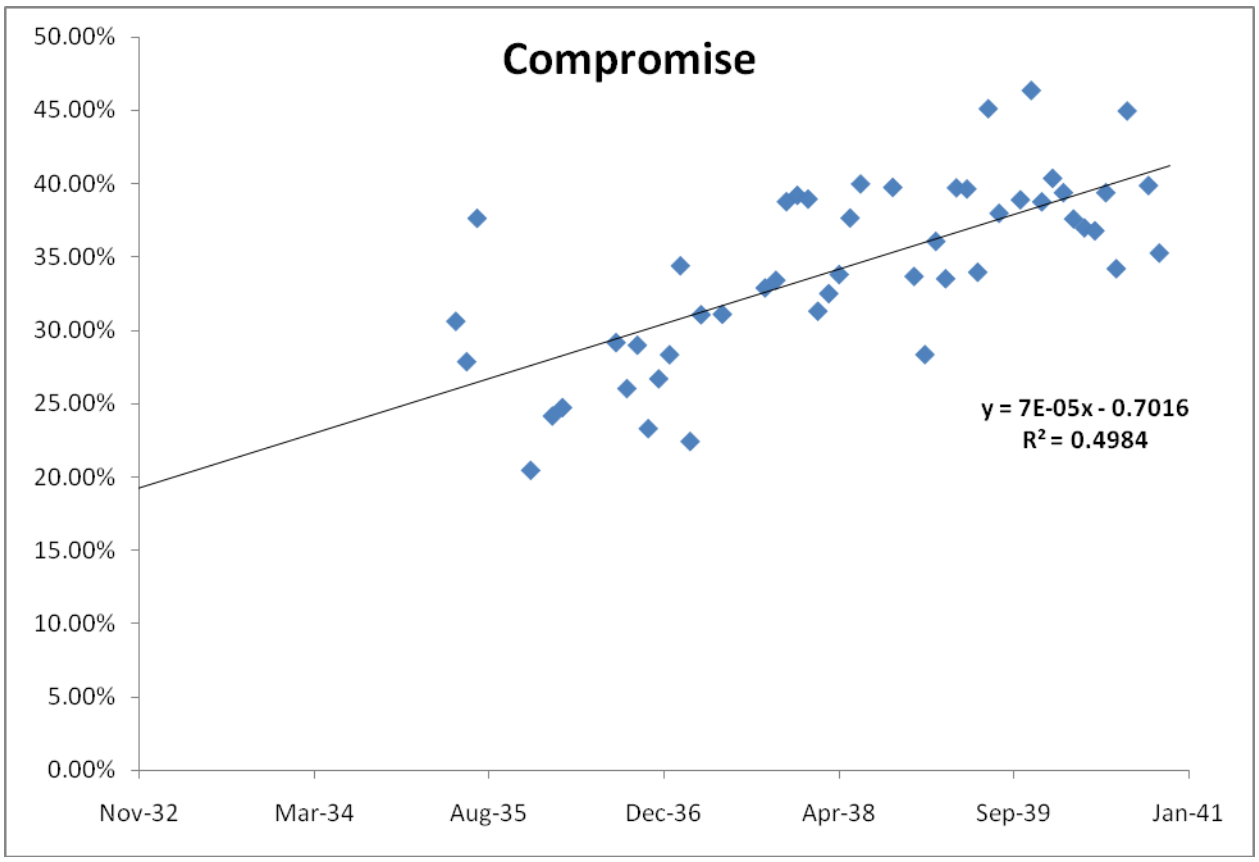
It was only after the Supreme Court's Decision on *National Labor Relations Board v. Jones & Laughlin Steel Corporation*, 301 U.S. 1 (1937) that workers felt comfortable with the defined rights from The National Labor Relations Act for unionization, collective bargaining, and striking. In May 1937, 56% of the total strikes and 72% of total workers involved in strikes were acting for reasons of union organization and recognition reasons.

The upward trend of monthly strikes during the 1930s is testament to the worker's increasing relative comfort level associated with striking. As the decade went along, workers and labor union leaders were no longer questioning the legal status of collective bargaining and unionization. While strikes in process during each month were increasing, strikes in process from the previous months was on the decline, implying that there was more incentive to quickly resolve strikes due to a strengthening economy and increased clarity of the legal status of strikes.

This can be seen even more clearly with the decline of man-days lost due to strike activity. The decline of man-days lost due to strike activity during the 1930s points to increased efficiency of collective bargaining. Amid the overall rise in total strikes in the United States between 1933 and 1940 and among the decline in man-days lost per strike and man-days lost per worker, the relationship among strike outcomes was also evolving. Both percentages of

successful strikes and percentages of strike failures were in the decline while strike compromises were on the rise.

Figure 8



The Use of Game Theory on the Analysis of Labor and Strikes in the 1930's

Organized labor was burdened by the legal ambiguities of striking that existed prior to the 1930s. New Deal legislation sought to deal with this problem by establishing organized labor, collective bargaining, and striking as lawful actions in order to define the relationship between workers and firms. Game theory offers insight into the relationship between striking workers and a firm. The mechanics of the strategic game as described by Geraghty and Wiseman in their

paper, *Conflict and Compromise: Changes in U.S. Strike Outcomes, 1880 to 1937* show the fundamental cost-benefit considerations between compromise and fighting in a strike.

Here, strikes are defined in terms of a worker's point of view. A "failed" strike is where the workers fail to obtain their demands. A "successful" strike is where the workers have their demands met. A "compromise" is an intermediate outcome where the strike is neither completely "successful" nor "failed" and neither side is completely victorious.

The conditions within organized labor relations during the early 1930s are not fully reflected in the payoff structure of the Geraghty Wiseman model. The ambiguities in strike legality during the early 1930s are represented by game:

Legal Ambiguities Normal Form of the Game

		Workers	
		Offer to Compromise	*Fight (Continue to Strike)*
Firm	*Offer to Compromise*	α, α	0, 1-δ
	Fight (Continue to Strike)	1, 0	-β, -β-δ

The parameter δ, where $0 < \delta < 1$, is an associated cost to workers continuing to fight due to the legal ambiguity of the act of striking. This gives the Firm a relative advantage in willingness to continue striking and thus less incentive to compromise. It also increased the cost of striking to begin with, and thus strikes would have to be more polarized in terms of outcome again making compromise less likely.

The Supreme Court rulings of the 1930s ultimately defined striking as a legal act. This led to a decrease in ambiguity. By defining this ambiguity as risk for the strikers, the Supreme Court rulings ultimately decreased the risk and thus cost of fighting a strike. This

logical reasoning leads to the following form of the Geraghty and Wiseman normal form of the game:

Geraghty and Wiseman Normal Form of the Game

		Workers	
		Offer to Compromise	*Fight (Continue to Strike)*
Firm	*Offer to Compromise*	α, α	0, 1
	Fight (Continue to Strike)	1, 0	-β, -β

In this scenario all decisions are made simultaneously. If both players fight then they both receive the payoff –β (where is β>0) due to the implicit costs of a strike from workers not working and firms not producing. If both players compromise, then they each receive α (where α $\in$ (0, 1)) which is their gain from splitting the prize. If either side offers to compromise while the other side decides to continue to fight, then the side that continues to strike "wins" and is awarded the prize (normalized to 1) whereas the side that offered to compromise is awarded nothing (0).

We also must note that for the purposes of this game, we assume the players are risk averse. Geraghty and Wiseman conclude that the symmetric Nash equilibrium of the game results in a compromise. The probability of this compromise is defined by $p \equiv \beta / (1 + \beta - \alpha) \in (0, 1)$. In this result, both the partial derivatives of p with respect to α and β are positive and thus, the factors that increase the strike costs or increase the relative value of compromise will increase strike compromises:

$$\partial p/\partial \alpha = \beta / (1 + \beta - \alpha)^2 \quad \text{and} \quad \partial p/\partial \beta = (1 - \alpha) / (1 + \beta - \alpha)^2$$

Geraghty and Wiseman's model helps to describe the changes in the organized labor system in the United States through its use of compromise as separate option. As the number of strikes was on the rise and the length of strikes (as defined by man-days lost) was decreasing, we can infer the increased efficiency in terms of willingness to compromise.

Between 1937 and 1940 there was a strong increase in the percentage of strikes that ended in compromise. The increased propensity to compromise reveals decreased ambiguities in the law and a leveling of the playing field in terms of the ability for workers to safely organize due to the *National Labor Relations Board v. Jones & Laughlin Steel Corporation*, 301 U.S. 1 (1937) Supreme Court ruling. This even playing field is reflected in the move to the classic payoff structure in the Geraghty and Wiseman normal form of the game.

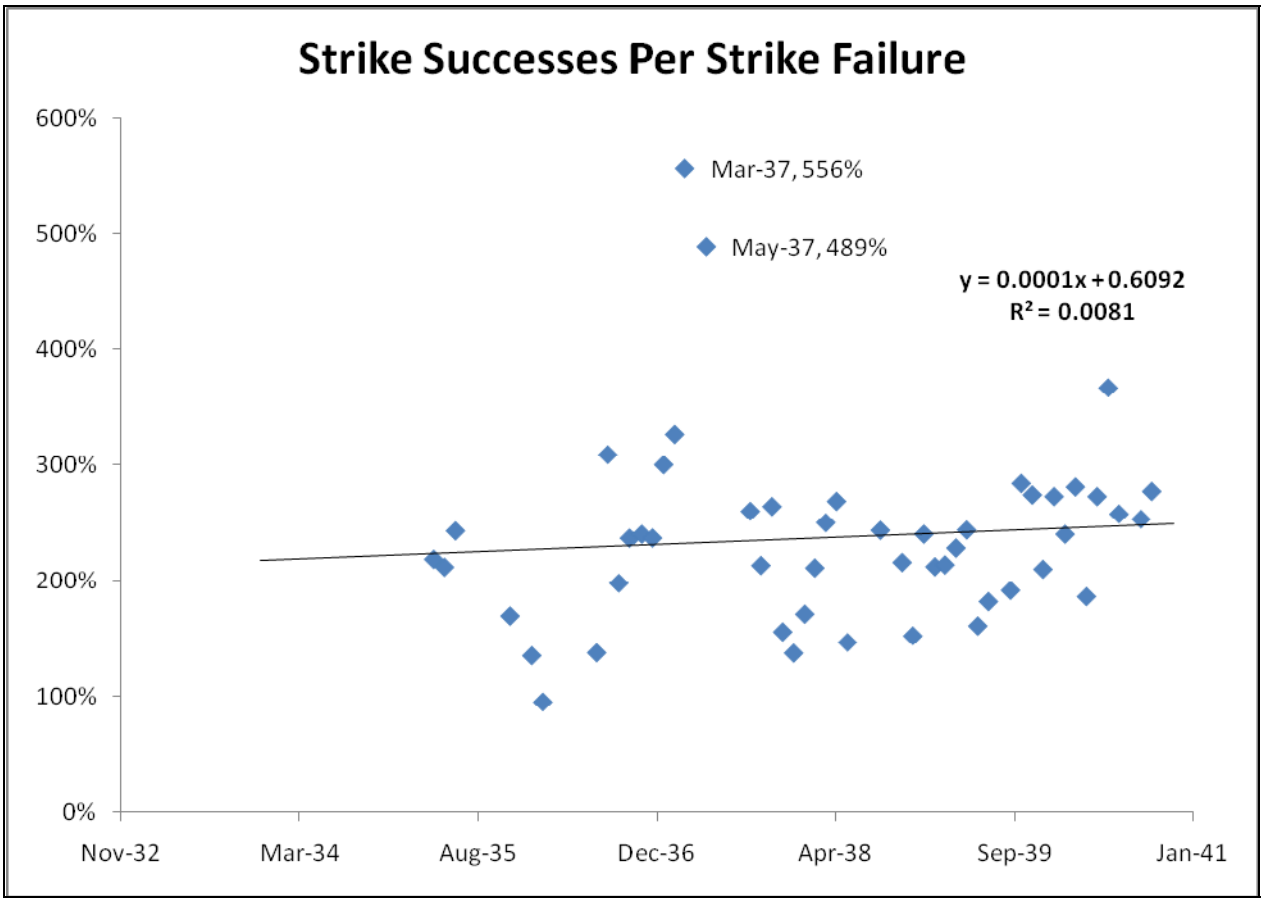
In terms of the strategic game, both the expected cost of a strike and the value of compromise relative to winning increased due to the Supreme Court ruling. This ultimately resulted in more frequent compromises, as defined by the model and confirmed by empirical data.

The expected cost of a strike increased because the precedent for firms to use courts against workers on strike or against a worker's right to organize had been extinguished. The strengthening economic situation in the United States also contributed to the increase in compromises because of the lost revenue from strikes. The increased value of compromise relative to winning is seen in the fact that better defined legal status would make strike outcomes more difficult to predict because firms would only fight strikes that did not have

strong legal precedent. Thus, the value of compromise was increased because of the risk adverse nature of the participants.

These situations that increased the value of compromise or the cost of continuing a strike tended to provide more incentive for the firm to negotiate and along with the *National Labor Relations Board v. Jones & Laughlin Steel Corporation*, 301 U.S. 1 (1937) Supreme Court ruling decrease risk to the workers. The combination of these two situations should not only increase compromise, as previously stated, but also increase relative strike successes per failed strikes for the same reasons as they should increase strike compromises. As expected, empirical data in Figure 9 shows that there was not only an increase in strike compromises between 1936 and 1940, but there was also a trend towards increased strike successes per strike failure.

Figure 9



Econometric Analysis of Labor and Strikes in the 1930's

The Data

The strike data and wage data for the econometric analysis were compiled by hand directly from U.S. Bureau of Labor Statistics publications. Data were broken down by state and by month for the entire time period. Due to the historical nature of the primary sources of this data, it is not complete and thus does contain some gaps. These gaps have very little effect on the time series regressions, but do significantly lower the potential number of observations within the panel data regressions.

Time Series Econometric Analysis

The Model

$$\text{STRIKE INDEX}_{it} = \beta_{0it} + \beta_1 \text{IPI}_{it} + \beta_2 \text{CPI}_{it} + \beta_3 \text{WeeklyManu\sim e}_{it} + \delta_4 \text{NLRAPassage} + \delta_5 \text{NIRAPassag\sim n} + \delta_6 \text{SupremeCTc\sim s} + \delta_7 1933 + \delta_8 1934 + \delta_9 1935 + \delta_{10} 1936 + \delta_{11} 1937 + \delta_{12} 1938 + \delta_{13} 1939 + \delta_{14} \text{Feb} + \delta_{15} \text{Mar} + \delta_{16} \text{Apr} + \delta_{17} \text{May} + \delta_{18} \text{Jun} + \delta_{19} \text{Jul} + \delta_{20} \text{Aug} + \delta_{21} \text{Sep} + \delta_{22} \text{Oct} + \delta_{23} \text{Nov} + \delta_2 4\text{Dec} + \delta_{25} \text{SCRN} + \delta_{26} \text{SCRNplus1} + \delta_{27} \text{SCRNplus2} + \delta_{28} \text{NLRAn} + \delta_{29} \text{NLRAnp1} + \delta_{30} \text{NIRApass} + \delta_{31} \text{NIRArej} + \varepsilon_{it}$$

Dependent Variables

Where the dependent variable represents a series of different "Strike Indexes" defined by one of the following:

a) Number of strikes beginning in month

b) Number of workers involved in strikes beginning in month

c) Number of strikes in process in month

d) Number of workers involved in strikes in process in month

e) Man days lost due to strike activity in month

Independent Variables

*The **β**s represent coefficients for continuous variables*
*The **δ**s represent coefficients of binary (dummy) variables*

IPI_{it}- Industrial Production Index

WEEKLYMANU~E_{it}- Average Weekly Wage for a Manufacturing Employee

CPI_{it}- Consumer Production Index

NLRAPASSAGE- The months since the passage of the *National Labor Relations Act*; All dates following and including July 1935

NIRAPASSAG~N- The months since the passage of the *National Industrial Recovery Act* until its rejection by the Supreme Court; June 1933 – May 1935

SUPREMECTC~S- The dates beginning three months after Supreme Court ruling *National Labor Relations Board v. Jones & Laughlin Steel Corporation*; All months after and including August 1937

SCRN- Supreme Court ruling on *National Labor Relations Board v. Jones & Laughlin Steel Corporation*; April 1937

SCRNPLUS1- The month following the Supreme Court ruling on *National Labor Relations Board v. Jones & Laughlin Steel Corporation*; May 1937

SCRNPLUS2- Two months following the Supreme Court ruling on *National Labor Relations Board v. Jones & Laughlin Steel Corporation*; June 1937

NLRAN- The month of passage of the *National Labor Relations Act*; July 1935

NLRANP1- The month following the passage of the *National Labor Relations Act*; August 1935

NIRAPASS – Passage of the *National Industrial Recovery Act*; June 1933

NIRAREJ- The rejection of the *National Industrial Recovery Act* with the Supreme Court ruling on *A.L.A. Schechter Poultry Corp. v. United States, 295 U.S. 495*; May 1935

1933- The year 1933

1934- The year 1934

1935- The year 1935

1936- The year 1936

1937- The year 1937

1938- The year 1938

1939- The year 1939

FEB- The month of February

MAR- The month of March

APR- The month of April

MAY- The month of May

JUN- The month of June

JUL- The month of July

AUG- The month of August

SEP- The month of September

OCT- The month of October

NOV- The month of November

DEC- The month of December

The model allows for an analysis of strike behavior to be defined, in a slightly different context, as a result of other variables over a given time frame. The Time Series Analysis is run beginning in January 1932 through December 1940 and contains 94 observations of the United States.

Running a simple Ordinary Least Squares regression (OLS) on the previously described Strike Model for each Strike Index provides the following results:

Results

Table 1: Time Series OLS Regression Coefficients with t-Statistics Underneath

Variable	Strikes Beginning	Workers in Strikes Beginning	Strikes in Process	Workers in Strikes in Process	Man Days Lost
ipi	35.831867	11717.622	40.942594	25959.111	347697.52
	2.4	0.53	2.37	1.03	1.46
cpi	-21.394461	29918.884	8.5305331	80502.275	825279.5
	-0.57	0.54	0.19	1.26	1.37
weeklymanu~e	7.4809863	-11667.607	7.8401383	-21188.213	-202869.26
	0.93	-0.99	0.85	-1.57	-1.59
nlrapassage	24.052497	135371.49	55.233794	159627.5	1252919.7
	0.53	2.03	1.05	2.1	1.73
nirapassag~n	30.13696	65417.581	41.230666	92313.361	909183.16
	1	1.47	1.18	1.81	1.88
supremectc~a	42.308618	-78720.784	148.14108	-111655.39	-1001092
	0.93	-1.17	2.81	-1.45	-1.37
1933	12.504393	13087.837	51.915494	39228.384	253837.19
	0.31	0.22	1.1	0.57	0.39
1934	-12.216609	29384.058	26.759455	43285.116	135989.46
	-0.29	0.48	0.55	0.61	0.2
1935	-27.625356	2143.0372	25.151149	18503.661	-335315.17
	-0.64	0.03	0.5	0.25	-0.48
1936	-68.462527	-75427.793	-35.959133	-69939.738	-946121.28
	-1.17	-0.87	-0.53	-0.71	-1.01
1937	36.073779	41375.185	80.667265	100631.83	539303.98
	0.49	0.38	0.94	0.81	0.46
1938	-23.704087	2165.0125	-64.182004	29031.025	-103188.97
	-0.31	0.02	-0.73	0.23	-0.08
1939	-100.36635	45676.087	-153.53186	105195.73	538470.17
	-1.12	0.35	-1.48	0.7	0.38
feb	0.55741367	13410.275	19.891785	20935.141	-21047.63
	0.02	0.38	0.72	0.52	-0.06
mar	84.678542	34550.378	113.51871	42763.674	388955.27
	3.53	0.98	4.08	1.06	1.01
apr	65.011384	89284.628	104.56969	108913.69	1218596.9
	2.56	2.39	3.55	2.55	3
may	68.519264	57922.752	122.52596	157025.03	1299104.2
	2.38	1.36	3.67	3.23	2.82
jun	50.921583	23599.889	112.78732	73159.62	806224.76
	1.93	0.61	3.69	1.64	1.91
jul	52.975391	46014.457	114.87653	89613.709	605675.92
	1.96	1.16	3.67	1.97	1.4
aug	72.269538	39166.113	124.36994	62586.055	477983.5
	2.69	0.99	4	1.38	1.11
sep	34.721043	120939.72	88.838903	145053.15	1029713
	1.33	3.15	2.95	3.31	2.47
oct	22.255472	10501.666	69.501885	51667.871	497219.82
	0.82	0.26	2.21	1.13	1.15
nov	-27.497866	-9880.5796	2.8931224	22367.869	193681.29
	-1.04	-0.25	0.09	0.5	0.46
dec	-69.435692	-22496.221	-50.563225	-6812.1104	-128036.31
	-2.6	-0.57	-1.63	-0.15	-0.3
scrn	104.53772	79780.79	90.162801	180980.33	1033626
	1.77	0.92	1.32	1.82	1.09
scrnplus1	168.81289	215277.71	159.73391	181480.94	527408.22
	2.89	2.5	2.36	1.84	0.56
scrnplus2	199.69575	202349.92	240.51536	289828.36	2997123.7
	3.41	2.35	3.55	2.94	3.21
nlran	6.5410304	-93552.946	-15.099693	-99419.992	-423162.22
	0.11	-1.11	-0.23	-1.03	-0.46
nlranp1	31.006977	-81165.792	22.811967	-62202.306	-414045.38
	0.55	-0.97	0.35	-0.65	-0.46
nirapass	-62.271605	-47763.428	-99.870164	-102798.37	-1428505.4
	-1.05	-0.54	-1.45	-1.02	-1.5
nirarej	8.3430478	63654.578	23.146433	2294.4092	541502.87
	0.13	0.69	0.32	0.02	0.54
_cons	38.325951	-275761.16	-403.46327	-880280.96	-9373476
	0.08	-0.4	-0.74	-1.11	-1.24

Strike Numbers; Beginning and In-Process

The regression of strikes beginning in a given month and the regression of total strikes in process during the month provide insights into the organizational thought process and incentive structure of strikes and strike behavior.

Monthly binary variables show seasonality effects. Strikes were more likely to increase during March through September, and more likely to decrease in December. March saw an increase of 84.7 (t=3.53) strikes beginning in a given month, April saw an increase of 65 (t=2.56) strikes beginning in the month; May an increase of 68.5 (t=2.38) beginning in the month; June an increase of 50.9 (t=1.93); July an increase of 53 (t=1.93); August an increase of 72.3 (t=2.69); September an increase of 34.7 (t=1.33), and December saw a decrease of 69.4 strikes beginning in the month (t=2.60). Strikes in process in month coefficients also confirm this result. Increases were seen in the amounts of 113.5, 104.6, 122.5, 112.8, 114.9, 124.4, and 88.8 strikes in process during the months of March, April, May, June, July, August, and September (t=4.08, 3.55, 3.67, 3.69, 3.67, 4.00, 2.95 respectively). Intuitively, weather conditions and social behavior contributed to more strikes in the summer months when weather conditions were more temperate as opposed to the winter when being out of work could mean being very cold and potentially deadly. Also, people were less willing to take risks by striking during the holiday season. This is highlighted by the fact that most strike activity "centers" were on the East Coast or in the Midwest.

Strikes beginning in a month saw an increase of 35.8 (t=2.40) strikes beginning in a month for a one point increase in the national Industrial Production Index (in the regression as 'ipi'). This strike activity rise can be attributed to the additional possibilities for labor conflict as

a result of the increased amount of industrial production. Thus, as the amount of work done rises there exists more potential for strikes to begin in a given month.

An increase of $1.00 in the average weekly wage for a manufacturing employee (in the regression as 'weeklymanu~e') was associated with an increase in strikes beginning in a given month of 7.48 strikes (t=.93) and a resulting increase in strikes in process during a given month of 7.84 strikes (t=.85). Initially, this may appear counter-intuitive as one might expect an increase in average wage to lower strike numbers because it would appease workers. This counter-intuitive result can be attributed to the fact that these strike indexes deal with a purely nominal amount of strikes and do not account for strike magnitude. For example, if a series of large manufacturing firms raise their worker's wages this causes the average wage to rise. If other smaller firm's workers feel they are being under compensated, they could strike. There would be an increase in smaller firm's strikes to bring their worker's wages to equilibrium and therefore an average weekly manufacturing wage increase due to wage increases for workers at large firms could result in strike increases due to a reaction by smaller firm's workers. In fact, this hypothesized result is confirmed by analysis of the number of workers involved with strikes analysis in the next section, where it is shown that an increase in average manufacturing wage by $1.00 will cause a decrease in total number of workers on strike during a given month.

Most notably from the regression of strikes beginning in a given month is the effects of the Supreme Court ruling on *National Labor Relations Board v. Jones & Laughlin Steel Corporation* (in the regression as 'scrn'). The jump in strike activity is captured in the regression through a binary variable for the month of April 1937 as that is the month of the NLRB Supreme Court ruling. The ruling caused a 104.53 (t=1.77) strike jump for strikes beginning in April 1937. In subsequent months strike activity is captured in the same method,

using binary variables. One month after the NLRB Supreme Court ruling (in the regression as 'scrnplus1') shows a jump of 168.81 (t=2.89) strikes beginning in the month of May 1937. Two moths after the NLRB Supreme Court ruling (in the regression as 'scrnplus2' shows a jump of 199.7 (t=3.41) strikes beginning in the month of June 1937. As previously hypothesized in this paper, there is a statistically significant effect of the NLRB Supreme Court ruling and a corresponding spike in strikes beginning due to the decision. The relatively low effect of the 'scrn' variable is due to the fact that the court did not rule on the case until April 12th and thus there was only a half month of affected behavior. The rationale remains intact that the decreased ambiguities from the ruling gave workers more incentive to strike as repercussions were now established as off limits. This effect is again highlighted through the regression of number of strikes in process during a month. The April 1937 Ruling (scrn) captures a jump of 90.16 (t=1.32) strikes in process during the month, the following month (May 1937 = 'scrnplus1') sees a 159.7 (t=2.36) strikes in process, and the next month following the NLRB ruling (June 1937 = 'scrnplus2') shows an associated 240.5 (t=3.55) strikes in process jump. The sustained effects of the NLRB ruling are the most likely cause of the greater number of strike increases (and greater statistical significance) within the regression of strikes in process in month as opposed to the regression of strikes beginning in month.

Workers Involved; Beginning and In-Process

The regression of workers involved with strikes beginning in a given month and the regression of workers involved with total strikes in process during the month allows for a more specific analysis of strike magnitudes. As compared to the general strikes analysis, the worker

index highlights how the sheer number of workers involved with strike activates was affected by different variables.

As seen with the number of strikes beginning and in process during a month, workers involved increases, as expected, due to better weather conditions during late spring, summer, and early fall months. The decrease in workers involved with strikes in process signifies that was wages increased workers were less likely to strike. This coupled with the increase of strikes due to an increase in wages show that larger firms were more likely to increase wages first and smaller firms would follow, often resulting in workers striking for higher wages to catch the increases already implemented by larger firms.

A binary variable from June 1933 through May 1935 of the *National Industrial Recovery Act* from induction to ultimate rejection through The United States' Supreme Court ruling on *A.L.A. Schechter Poultry Corp. v. United States, 295 U.S. 495* (in the regression as 'nirapassage~n') shows a monthly increase of 65,417.58 (t=1.47) workers involved with strikes beginning in a month and an increase of 92,313.36 (t=1.81) workers involved with strikes in process during a month during the life of this legislation. By helping to promote labor unions, this act led to increased strike activity in the form of worker's involvement in strikes. This act is seen as a prelude to the NLRA, and ultimately provides similar results to that of the effects of the NLRA.

The *National Labor Relations Act*, signed into law in July 1935, as a binary variable in the regression of workers involved in strikes in a given month (in the regression as 'nlrapassage') showed an increase of 135,371.49 (t=2.03) workers involved with strikes beginning in a given month after the law's inception and an increase of 159,627.5 (t=2.10) workers involved with strikes in process during a given month after the law's inception. This binary variable is 1 for all

months including and after July 1935 and 0 for all months prior to July 1935. As expected, by giving workers protection to organize and strike, the NLRA caused an increase of workers involved with strikes.

The jump in workers involved with strikes in the two months following the Supreme Court ruling *National Labor Relations Board v. Jones & Laughlin Steel Corporation* is captured with two binary variables (in the regression as 'scrnplus1' and 'scrnplus2'). For the month following the NLRB ruling (May 1937), the binary variable shows an increase of 215,277.71 (t=2.50) workers involved with strikes beginning in May 1937. The binary variable for two months after the NLRB ruling (June 1937) shows an increase of 2.35 (t=2.35) workers involved with strikes beginning in June 1937. These spikes in workers involved with strikes are due to the immediate reaction of workers seeking union recognition following the NLRB ruling which upheld the legality of unions and striking. These jumps in strike activity can be seen as a onetime occurrence and are the labor markets reactions bringing relations to an equilibrium following a period of ambiguity.

The binary variable of all dates including and after August 1937 is the period 3 months following the Supreme Court ruling *National Labor Relations Board v. Jones & Laughlin Steel Corporation* (in the regression as 'supremectc~s'). This variable seeks to capture the effects of the National Labor Relations Act after its legality verified and any immediate spike in activity due to the NLRB Supreme Court ruling has died down. The findings are that the ultimate effects of the NLRA, after being legally upheld, are that workers involved with strikes in process during a given month were reduced by 78,720.78 (t=1.17) workers. This shows that as the legal status of organized labor and strikes was upheld, there was a tendency for fewer workers to be on strike in a given month. The rationale behind this result is that employers were more willing to deal

with threatening workers and had to accept certain unionization efforts. By accepting and dealing with this change in circumstances, workers involved with strikes dropped.

Man-Days Lost Due to Strikes

As with the other strike indexes, man-days lost due to strikes saw an increase during months of better weather. The Consumer Price Index variable (in the regression as 'cpi') showed an increase of 825,279.5 (t=1.37) man-days lost per point increase in the CPI during a given month. This suggests that workers are more willing to be out of work as inflation rises. The intuition behind this is that if workers are underpaid due to inflation they have more incentive to hold out for higher wages.

The average manufacturing weekly wage variable (in the regression as 'weeklymanu~e') shows a decrease of 202,869.26 (t=1.59) days lost in a given month per $1.00 increase in wage. This suggests that as wages were rising, the magnitude of strikes were less. We see this being supportive of the previous results of more strikes as wages rise, but fewer workers involved in those strikes.

The lifetime of the *National Industrial Recovery Act*, June 16, 1933 – May 27, 1935 (in the regression as 'nirapassag~n'), has an effect of an increase of 909,183.16 (t=1.88) man-days lost per month. As with workers involved with strikes, we see this as reflection of the legality of unions and strikes in this law, and expectedly, there was an increase of strikes lost during this timeframe.

The binary variable representing all dates after the passage of the National Labor Relations Act, signed into law on July 5, 1935 (in the regression as 'nlrapassage'), shows an increase of 1,252,919.7 (t=1.73) man-days lost per month. As with the NIRA, the NLRA was

seeking to establish protection for organized labor and the right to strike and as expected there is an increase of man-days lost per month during its existence.

The jump in workers involved with strikes in the second months following the Supreme Court ruling *National Labor Relations Board v. Jones & Laughlin Steel Corporation* is captured with a binary variable (in the regression as 'scrnplus2') and shows an increase of 2,997,123.7 (t=3.21) man-days lost due to NLRB ruling in June 1937. This jump is attributed to the increased strikes and worker involvement as workers are reacting to the previously discussed clarified legal standing of unions and striking.

Beginning three months following the Supreme Court ruling *National Labor Relations Board v. Jones & Laughlin Steel Corporation* (in the regression as 'supremectc~s') in August 1937 capturing the long term, post spike reaction, effects of the clarified NLRA show a decrease of 1,001,092 (t=1.37) man-days lost per month. This shows that the ultimate result of a clarified legality of the NLRA is less man-days lost and ultimately more efficient strikes.

Panel Data and Other Strike Index Derivatives

The Panel Data analysis is run over February 1936 through December 1939 and contains between 1585 and 1698 observations. The varying observations are due to the changing nature of available state data during the 41 different months that the regression covers. In accordance with this, the Panel Data Model is slightly adjusted to better reflect the available data. The results of the Panel Data Regression strongly reflect the results of the Time Series Data regression and thus provide further evidence supporting the theoretical and empirical results previously described in this paper.

Further Analysis of Empirical Results

The ultimate results of the strike regressions show how strike behavior is affected by different variables. Some of the results obtained from the regressions may appear trivial and can be deduced by mere logical thinking, but nonetheless they provide insight into the strike activities of the era. These results allow for a statistical confirmation of any preconceived notions of the era's strike activity. If nothing, the more basic and rudimentary results allow us to paint a picture of the conditions in which we are analyzing and help to provide us with the fundamental background in which to develop an understanding of strike activity during the era.

The general results are that strikes were generally more likely to occur during better weathered months due to the difficulty of survival during winter months without income. Also, strikes were less likely to occur around December potentially due to the social ramifications of the holiday season and the increased social costs of being out of work. We see statistically significant rises in strikes, workers involved with strikes, and man-days lost due to strikes during the months of March, April, May, June, July, August, September, and October. The year 1937 was uniquely identified as seeing statistically significant increases of strike activity. These results set it apart from other years and can be directly attributed to the unique legal rulings regarding organized labor and strikes that took place in 1937. The jump in strikes in 1937 may be unique in the fact that workers were potentially striking more for union recognition due to a new found legal clarity as opposed to a traditional employer-employee conflict.

We find that increases in the average weekly manufacturing wage caused increases in the number of strikes but led to statistically significant declines in workers involved with strikes during that same months and declines in man-days lost due to strikes. These results suggest that increases in the average weekly manufacturing wage were often led by larger firms and there

was a corresponding "catch up" effect comprised of smaller firms' workers striking in order to bring their wages to equilibrium with the rest of the marketplace. This "catch up" effect led to a larger total number of strikes, but they were smaller strikes in terms of total workers involved and man-days lost. This ultimately led to less lost productivity due to strikes as large numbers of workers were less prone to strike as wages were rising, while those feeling that they could raise their wages through striking did so.

The macroeconomic growth of the economy, as measured by the industrial production index (IPI), resulted in more strike activity due to the increased use of labor. We can conclude that an increase in industrial production provides more potential areas for conflict and strikes activity should be on the rise. Workers also potentially saw increased production as signs of improving financial health of firms and thus sought to increase their wages and benefits during periods of rising industrial production implying even more potential for conflict. Other macroeconomic indicators such as the consumer price index (CPI), a measure for indexing rising prices, suggest strike activity also corresponds to inflation. Here, one can find that a rise in inflation caused a statistically significant rise in general strike activity. This can be attributed to workers seeking to increase their wages in order to maintain their purchasing power during times of rising costs and stagnant wages.

The most important results of the empirical analysis of strike activity are seen in the Supreme Court ruling *National Labor Relations Board v. Jones & Laughlin Steel Corporation*, 301 U.S. 1 (1937). This ruling upheld the *National Labor Relations Act* which was passed on July 5, 1935. While this act was signed into law in July 1935, it did not have any significant legal weight due to its predecessor, the *National Industrial Recovery Act* (June 1933), being declared unconstitutional by the Supreme Court in the May 1935 ruling *A.L.A. Schechter Poultry*

Corp. v. United States, 295 U.S. 495. The NIRA's repeal in May 1935 was followed, almost immediately, by the passing of the NLRA in July of that year. Seeking to provide organized labor with a definitive legal standing, the NLRA was modeled after the NIRA. This direct link between the NIRA and the NLRA made the constitutional legality of the NLRA in question from the start. It was not until the Supreme Court's ruling on *National Labor Relations Board v. Jones & Laughlin Steel Corporation*, 301 U.S. 1 (1937) that there was a clear legal precedent to which organized labor could successfully operate. The conditions created by this ruling caused a dramatic jump in strike activity. These strikes were seeking to establish organized labor in a newly defined legal environment.

While there was a dramatic increase in strike activity immediately following the *National Labor Relations Board v. Jones & Laughlin Steel Corporation*, 301 U.S. 1 (1937) ruling, the long term effects of the NLRB ruling was the creation of a new 'strike atmosphere'. The immediate jump in strike activity ultimately led the way to conditions in which strike activity was on the decline. The clearly defined legality of strikes resulted in workers having less risk in their decision to strike but also made firms accept the legality of striking and thus more likely to compromise with workers to solve strikes or avoid them outright. Workers brought organized labor to equilibrium with their immediate reaction to the NLRB ruling, but this ruling eventually led to conditions in which strike compromises would be on the rise and strikes in general would be on the decline.

Conclusion

Organized labor has a rich history within the political economy of The United States. Increased government intervention, as a product of The Great Depression and The New Deal has had a pivotal role in shaping organized labor and is a fundamental component of

economic labor history. Empirical and theoretical analysis of strikes during the 1930s reveals that the legal influences of Supreme Court rulings had very dramatic implications for strike behavior. By identifying the instruments causing change and illuminating the ultimate change in behavior, this paper identifies results that have fundamental applications in political economy, economic development, industrial organization, and law and economics.

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