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ABSTRACT

This historical study tests the hypothesis that wage and hour issues in collective bargaining have not declined in relative importance over time. Comparing strikes and lockouts caused by wage and hour conflicts with those caused by all other issues, it is concluded that wage and hour issues have not declined in relative importance and likely will not decline during the next several years. Tables and graphs are appended. (DW)

WAGES AND HOURS AS SIGNIFICANT ISSUES IN COLLECTIVE BARGAINING

by

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Introduction

The increasing scope of issues subjected to collective bargaining in the United States over the past several decades has been the subject of much discussion among practitioners and academicians. That a much broader range of issues is treated at the bargaining table today than in the 1920's or even in more recent periods is too widely accepted to require proof.[1] Increasing length and complexity of typical collective bargaining agreements are also established facts. From the beginning of the American collective bargaining experience, wage and hour issues have been basic to the bargaining process. The continuing importance of such issues is attested to in the literature of the field. In the 1959 edition of his well-known text, Harold Davey noted that "the wage bargain is still the paramount issue in most collective negotiations."[2] In a more recent work, Randle and Wortman attest to the continuing significance of both wages and hours as issues in collective bargaining.

Some of the expansion in the scope of collective bargaining agreements clearly represents a broadening of the definition of wages to include so-called "fringe" or "supplemental" benefits. Non-wage clauses covering issues such as hiring, layoffs, promotions, work scheduling, work assignment, and discipline have also become increasingly common and more detailed, however. Indeed, some of the items found in current

agreements reflect an expansion of the legal meaning of the term "conditions of employment."

An interesting question is whether wage and hour issues, although of continuing importance, have become relatively less important as the scope of bargaining issues has expanded historically. Philip Taft observed in 1969 that Samuel Gompers' business unionism is still a predominant characteristic of the trade union movement in the United States.[4] Business unionism implies, among other things, a major emphasis on the "bread-and-butter" issues of wages and hours. Little or no quantitative information on the dynamics of the relative importance of such issues has appeared, however. This paper represents an initial attempt to fill this void.

One potential measure of the significance of a particular issue or set of issues in collective bargaining at a certain time is their importance as causes of strikes or lockouts. Data on strikes and lockouts in the United States have been collected for many years. From 1881 through 1905 these data were published by the U.S. Commissioner of Labor. Since 1914 such data have been collected and published on an annual basis by the U.S. Department of Labor. Portions of these published data have been utilized in various studies of industrial conflict and industrial peace. Little use appears to have been made of the classifications of strike data on an annual basis with respect to the major reported cause or causes of strikes.[5] This study draws upon these particular data.[6]

Objectives. An attempt was made to test the basic hypothesis that wage and hour issues have not declined in relative importance historically in the U.S. collective bargaining experience, at least for several decades. A secondary goal of the study was to determine whether the future importance of such issues is reasonably predictable on the basis of historical evidence. Finally, if the answer to the second question was affirmative, an attempt at prediction was anticipated.

Nature of data. Use of historical data nearly always presents the researcher with problems. Value judgments about the seriousness of particular problems must be made and treatment modified or restricted as deemed prudent.

The problem of changing classifications utilized in regard to causes of strikes and lockouts occurred since data collectors varied the classification scheme a number of times over the years. Strikes and lockouts caused primarily by wage issues or hour issues were always included in one or more major categories. In addition, classifications such as "strengthening the bargaining position, wages and/or hours" were frequently found. In the present study, data were classed in the category of wage and hour issues if either or both the terms "wages" and "hours" were a part of a category. Since wage and hour issues are closely related in typical bargaining, no attempt was made to run separate analyses of wage and hour issues. In more recent years fringe benefits have been included in the published "wage" categories. Throughout the remainder of this paper the term "wage issues" will be used to designate data relevant to this range of issues.

Since various measures pertaining to strikes and lockouts over wage issues are compared to measures of strikes and lockouts over all other issues throughout this paper, the nature of these other issues should be noted briefly. For some of the years studied, published causal data were classified into a small number of major categories. These categories then were further subdivided. Examples of such major categories other than wages and hours include union organization, other working conditions, job security, and interunion and intraunion matters. For other years, published data simply were classified into a variety of causes without use of major categories.

It was noted at the beginning of this paper that by no means all of the expansion in the scope of collective bargaining agreements

represents an exapnsion in the definition of wages. This statement can be supported by noting that from 1919 to 1933, eleven of the 19 listed causes of strikes and lockouts comprised the "wage issue" group. In the data for 1967, only 19 of the total of 52 reported causes comprised the "wage issue" group.

In the very early data (primarily 1881 to 1905), strike and lockout information was presented separately. Later, the compliers combined both strike and lockout figures. In the limited analyses of the early data, strike and lockout figures have been added. The term "strike" as used throughout this paper includes both strikes and lockouts.

The reliability of the data obviously varied from one time period to another. Moreover, the basis of reporting was not entirely consistent throughout the years. Where these changes were deemed relatively minor, continuous series were developed for the measures utilized. In some cases where the changes were deemed more serious, separate series were computed for different time periods or the period examined was limited to years during which the reported methodology appeared consistent.[7]

While the data used are the best available, no claim is made that they perfectly reflect important issues in collective gargaining. In addition to the possibility of inaccurate data collection is the fact that an issue or issues reported as strike causes may not have been the real causes of certain strikes.[8] There would appear to be no a priori reason why this should produce systematic bias in the data, however, in the sense of consistently increasing or decreasing figures in a particular causal category. Despite these limitations on the data, their availability over rather extensive time periods suggested they would provide a useful starting point in examining the basic hypothesis and the related questions.

Measures and Procedures

Two dimensions of industrial conflict over wage issues were examined: the length of strikes and the intensity of strikes. Two of the four measures of strike length and three of the six measures of strike intensity were adapted from those used by Dubin in his 1965 study of industrial conflict.[9] Some of Dubin's measures, in turn, represent indices earlier employed in the international study of Ross and Hartman.[10] Additional measures particularly appropriate for examining the length and intensity of strikes over wage issues as compared to strikes over all other issues were utilized. The ten measures employed in this study are discussed below. The measures and related symbols are summarized in Table 1.

INSERT TABLE 1 APPROXIMATELY HERE

Length of strikes over wage issues. Four measures were used to determine the behavior and relative importance of the length of strikes over wage issues: 1) the annual number of working man-days lost due to wage strikes (MW), 2) the annual percentage of total working man-days lost due to wage strikes (MW/MT), 3) the annual average number of working man-days lost per striker in wage strikes (LW), and 4) the annual ratio of the average number of working man-days lost per striker in wage strikes to the average number of working man-days lost per striker in strikes due to all issues except wages (LW/LO). One and three are absolute measures while two and four are relative measures of the length of strikes.

The ratio LW/LO represented by the fourth measure is the most refined indicator of the relative length of wage strikes and strikes over other primary issues. In the analyses reported below, the longest continuous time period examined with these four measures covered the 41 years from 1927 through 1967.

Intensity of strikes over wage issues. Six measures were used to determine the absolute and relative importance of the intensity of strikes over wage issues: 5) the annual number of strikes due to wage issues (SW), 6) the annual percentage of total strikes due to wage issues (SW/ST), 7) the annual number of workers involved in strikes over wage issues (WW), 8) the annual percentage of total number of strikers in strikes over wage issues (WW/WT), 9) the annual percentage of estimated total working days lost due to strikes over wage issues (IW), and 10) the annual ratio of the percentage of estimated total working days lost due to strikes over wage issues to the percentage of estimated working days lost due to strikes over all issues except wages (IW/IO). Five, seven, and nine are absolute measures while six, eight, and ten are relative measures of the intensity of strikes.

Measures five through nine represent different indicators of intensity and relative intensity of strikes over wage issues. The ratio IW/IO represented by the tenth measure is the most refined indicator of the relative intensity of wage strikes and strikes over other primary issues.

In the longest-term analyses, measures five and six were examined for the 25 year period from 1881 through 1905, the 13 year period from 1914 through 1926, and 41 year period from 1927 through 1967.[11] The longest continuous time span for which the seventh and eight measures were examined was the 41 year period from 1927 through 1967. Measures nine and ten utilized man-days idle as a percent of estimated total working time in the total economy including governmental and agricultural sectors. Since the data for the total economy had been calculated only back to 1939 by the Bureau of Labor Statistics at the time of the research, the longest period examined with these measures was the 29 year span from 1939 through 1967.[12]

Procedures. The ten measures described were first plotted individually as time series with time represented on the horizontal axis in each case for the period being examined. Since there were no obvious simple curvilinear trends in the resulting plots, data in each case were fitted with a least squares linear trend line.

Considering each measure over the time period examined, the resulting trend line is historically descriptive of the period. The slope coefficient indicates the average increase or decrease of the trend measure per year in a descriptive sense.

For purposes of prediction of expected future behavior of the various measures, statistical inference tests were made on the slope coefficients. A simple, but rather naive, prediction was made initially using the data for the longest historical period examined in the case of each measure. In essence, a significant slope suggests that trends observed over a relatively long period of time are likely to continue unchanged into the near future.

It was believed that an examination of trend lines for briefer, more recent periods would provide a better basis for predicting future behavior of the ten measures. While institutional factors have not been entirely constant in the post-World-War II period, it seems reasonable to assume considerably greater stability of such institutional factors than over the much longer time spans previously considered.[13] Next, therefore, the data for the 20 year period from 1948 through 1967 were fitted with a least squares linear trend line for each of the ten measures. The slope coefficients were then tested for statistical significance.

Following the 20 year analyses, the above procedures were repeated for each of the two ten-year periods of 1948-1957 and 1958-1967. The usefulness of the predictions from the first ten-year period for predictions about the second period could thus be examined. Finally, in

the case of those measures for which the 1958-1967 period appeared predictable from the 1948-1957 period, predictions beyond 1967 were suggested on the basis of significant trends.

As already indicated, the major purposes of this study were: 1) to test the hypothesis that wage issues have not declined in importance historically in the United States collective bargaining experience, at least for several decades: 2) to determine whether future importance of wage issues is reasonably predictable; and, 3) if so, to make some such predictions. The procedures thus far described were employed for these purposes.

Since all measures examined clearly varied considerably with time about the least squares trend lines, knowledge as to the nature and causes of these variations would clearly be desirable. Some preliminary analyses were carried out to examine relationships among some of the ten measures and other potentially relevant variables. These are summarized after the discussion of the major trend analyses. It should be emphasized, however, that these procedures were by no means exhaustive, and no claims are made that this research contributes much to an understanding of these year-to-year variations of the data about the trend lines.

Results of Long-Term Analyses

Historical Behavior of Measures. Given the fact that the published annual data utilized in the ten measures of strike activity are the only such data available, it appeared useful to examine the nature of the trends based upon these data from a purely descriptive point of view. In this sense, any slope in a fitted trend line describes the historical behavior of the measure examined. The historical discussion in this sub-section of the paper treats slopes of trend lines from this point of view. In making significance tests of slope coefficients, one is treating the data as a sample of possible sets of data from an underlying

population of true data, despite the fact that other samples are not obtainable. Such significance tests were employed when attention shifted to prediction attempts.[14]

Three of the four trend lines fitted to measures of length of wage strikes showed positive slopes for the 1927-1967 period as may be seen from Figures 1 and 2.[15] Two were absolute and one, relative measures.

INSERT FIGURES 1 AND 2 APPROXIMATELY HERE

The trend of man-days lost in wage strikes (MW) increased at an annual rate of approximately four per cent. While the length of wage strikes (LW) decreased a little more than one per cent per year, the ratio of the relative length of wage strikes to strikes over other issues (LW/LO) increased slightly over the period.

The only measures of strike intensity examined for the 1881-1905 period were number of wage strikes (SW) and percentage of total strikes due to wage issues (SW/ST).[16] Although the number of wage strikes increased considerably over this period, the percentage of wage strikes decreased over time as seen in Figure 3 and the trend equations. In

INSERT FIGURE 3 APPROXIMATELY HERE

this period, using these two measures of strike intensity, the hypothesis that wage issues did not decrease in importance clearly was not supported.

An analysis of available data showed that the number and percentage of strikes for union recognition increased sharply from 1881 to 1905. Some increase in number and percentage of total strikes over working conditions also occurred. Union recognition and working conditions became relatively more important issues while wages became a less important issue on the basis of these measures for this early period.

In the 1914-1926 period, again, only the number (SW) and percentage (SW/ST) of wage strikes were examined. Both decreased during this period. Thus the hypothesis that wage issues did not decrease in importance is not supported, on the basis of the two intensity measures used, for the 1914-1926 period.

The analyses of the intensity measures for subsequent time periods present a somewhat different picture, however. Three of the six measures showed rising trend lines while three showed decreasing trends.

As can be seen from Figure 3, the trend for the total number of wage strikes (SW) increased slightly more than four per cent per year from 1927 to 1967. The percentage of wage strikes, however, decreased very slightly during this period.

In a similar manner, the number of workers involved in wage strikes (WW) increased from 1927 to 1967 while the percentage of strikers involved in wage strikes (WW/WT) decreased slightly. These trends are shown in Figure 4.

INSERT FIGURE 4 APPROXIMATELY HERE

The behavior of the remaining two measures of strike intensity is shown in Figure 5 for the 1939 to 1967 period. Here, a slight annual

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INSERT FIGURE 5 APPROXIMATELY HERE

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decrease in the percentage of estimated total working days lost in wage strikes (IW) can be observed. The relative intensity of wage strikes compared to strikes over other issues (IW/IO) increased during the period, however.

Except for the early periods from 1881 to 1905 and 1914 to 1926, measures utilized tend to support the hypothesis that wage issues have not declined in importance historically in the United States collective

bargaining experience. Four of the five absolute and two of the five relative measures exhibited positive slopes for the longest continuous periods analyzed. Positive slopes are indicative of increasing, rather than decreasing, importance of the wage issue. It should be noted, particularly, that the most refined measures of relative length and intensity of wage strikes (LW/LO and IW/IO) exhibited positive trends over these time periods.

Predictions. If one wishes to predict future behavior of the ten measures on the basis of all data analyzed thus far for the periods subsequent to 1926, the statistical significance of the slope coefficients as well as their signs must be examined. Table 2 presents this

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INSERT TABLE 2 APPROXIMATELY HERE

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information. For economy of presentation, similar data for the twenty and the two ten-year periods studied subsequently are included in Table 2 along with information for certain earlier periods.

Only two of the slope coefficients from the long-term analyses were statistically significant at the five percent level. These involved two absolute intensity measures, annual number of wage strikes (SW) and annual number of strikers in wage strikes (WW). Both slopes were positive, a fact rather plausibly explainable by the expansion of collective bargaining over this relatively long period. A prediction of the future importance of wage issues, based on these analyses, must be that such issues will not decline in importance.

As indicated above, institutional factors in the American economy have changed considerably over the periods considered thus far. Moreover, the time spans examined for the ten measures differed. Clearly, an examination of the measures over briefer, and uniform time periods is necessary.

Results of Short-Term Analyses

Data for the short-term analyses are presented in Table 2. The findings can be summarized very briefly.

1948-1967 period. Most of the slopes for the twenty-year period were negative. Applying a significance test to these slope coefficients indicated the decrease to be statistically significant at the five per cent level in only two cases, however. One of these was the ratio of average strike length represented by the relative measure four (IW/IO). The other was the absolute intensity represented by measure nine (IW).

Failure of eight of the ten measures to decrease significantly over the twenty-year period was taken to support the hypothesis that wage issues have not declined in importance over the period in the sense that a prediction of future declines would be warranted.

Ten-year periods. Negative slopes again predominated in the analyses of the two ten-year periods of 1948-1957 and 1958-1967. But none of the slope coefficients were statistically significant in either of the ten-year periods.

If one had predicted the behavior of each of the ten measures in the 1958-1967 period on the basis of the trend lines in the 1948-1957 period, the prediction would have been that no changes would occur. And this prediction would have been correct.

Additional Analyses

As previously indicated, some selective and limited analyses were carried out to examine variations in several of the length and intensity measures about the trend lines within a few specific time periods studied. The purpose was to determine whether there were obvious relationships which might contribute to an understanding of the variations observed.

Wage strikes and total strikes. Pearson product-moment correlations between certain of the length and intensity measures for wage strikes and the related total measures of strike activity for all causes were calcul-

ated. In a descriptive, historical sense, any non-zero correlations might provide insight into the variations of the data around the trend lines. The correlations were then tested for statistical significance for possible predictive use. These correlations and significance levels are presented in Table 3.

INSERT TABLE 3 APPROXIMATELY HERE

The measures of length of wage strikes showed significant positive correlations with related measures of total strike activity for all time periods for which these coefficients were calculated. As total man-days lost due to all types of strikes (MT) increased, the percentage of man-days lost due to wage strikes (MW/MT) increased and vice versa. Moreover, as average strike length increased for all strikes (LT), the ratio of length of wage strikes to other strikes (LW/LO) tended to increase and vice versa.

In the case of intensity measures, the ratio of percentage of total scheduled working days lost in wage strikes to total days lost in strikes for other causes (IW/IO) varied as total days lost in strikes for all causes (IT) for most periods examined. Except for the 1881-1905 and the 1914-1926 periods, correlations of other intensity measures examined generally were not significant.

Measures four (LW/LO) and ten (IW/IO) have been referred to previously as the more sophisticated length and intensity measures examined. The significant correlations involving these measures suggest that the relative importance of strikes due to wage issues (compared to strikes over other issues) tends to be greater in terms of both length and intensity in years of high strike activity generally.

Wage strikes and price levels. One might hypothesize that variations in measures of the importance of wage strikes are related to general price levels in markets where wage earners purchase goods and services.

Higher price levels in a given or previous year might focus worker and union attention on wage issues. Scattergrams for examining possible relationships between measures four (LW/LO), six (SW/ST), and ten (IW/IO) were constructed for the 1948-1967 period. Specifically, relationships between SW/ST and the following three measures were examined: 1) the consumer price index for the year in question, 2) the consumer price index for the previous year, and 3) the percentage change in the consumer price index from the previous to the current year. The measures LW/LO and IW/IO were examined against the percentage change in consumer price levels only. None of the scattergrams showed any evidence of either appreciable negative or positive relationships, and resulting correlations were not statistically significant.[17]

Wage strikes and unemployment levels. An hypothesis that variations in measures of the importance of wage strikes are related to unemployment rates for the economy might be made.[18] Higher unemployment levels in a given or previous year might focus worker and union attention on other than wage issues since higher wages might result in reduced employment for union members. Scattergrams for examining possible relationships between the same measures noted in connection with price levels were constructed for the 1948-1967 period. Relationships between SW/ST and the following three measures of unemployment were examined: 1) the percentage of unemployment for the year in question, 2) the percentage of unemployment for the previous year, and 3) the percentage change in the percentage unemployment from the previous to the current year. The measures LW/LO and IW/IO were examined against the percentage change in unemployment levels only. As in the price level scattergrams, there was no evidence of either appreciable negative or positive relationships, and no statistically significant correlations were found.[19]

Length and intensity relationships. Since length and intensity represent different dimensions of the importance of strikes, a cursory

examination of the relationship between the most refined measures of relative length and intensity of wage strikes was made. Specifically, LW/LO was plotted against IW/IO for the 1948-1967 period.

The scattergram suggested existence of a positive, linear relationship between LW/LO and IW/IO. Computation of the Pearson product-moment correlation resulted in a value of .74, significant at the .01 level. The relationship is consistent with the findings reported above that the relative importance of strikes due to wage issues tends to vary with total strike activity in terms of both length and intensity. Evidence from the 1948-1967 period suggests, therefore, that relative length and intensity of wage strikes tend to vary in a similar manner from year to year.

Discussion and Conclusions

As indicated above, the long-run historical data subsequent to 1927 indicate an increase rather than a decrease in the importance of the wage issue for a majority (six of ten) of all the measures. Predictions based on statistical inference over the long periods strongly support the hypothesis postulated.

Again, on the basis of statistical inference, the hypothesis is much more strongly supported than contradicted for the twenty-year periods as well as the two ten-year components of that period. If one is not a statistical purest, he may be impressed by the fact that most of the slope coefficients were negative in the short-term analyses. Moreover, it can be pointed out that for periods as short as ten or twenty years an appreciable slope coefficient is required for statisical significance to be attained even at the five per cent level. Some readers, consequently, may feel that support of the hypothesis on the basis of the shorter periods is less impressive than the statistics suggest.

In contrast, it may be observed that significant slope coefficients should be found if appreciable trends exist even in relatively short-term

analyses. Indeed, the decrease in relative measure six, SW/ST, for the 25 year period from 1881 to 1905 did yield a slope coefficient significant at the one per cent level. And the coefficient for the same measure in the 13 year period from 1914 to 1926 was significant at the five percent level.

As noted above, various limitations on the reliability of the data must be recognized. The analyses for the more recent and shorter time periods might be considered more appropriate in making predictions for, say, the next decade since institutional characteristics of the economy were more similar than during the longer periods studied. These shorter-term analyses, however, are more prone to errors due to unreliability of the data since any one individual bit of data has a greater effect on the trend equation over a short in contrast to a long span of years. Consequently, some readers may wish to place more reliance on the longer-period analyses.

In terms of the basic objectives of the research, the author's conclusions are as follows:

1. The basic hypothesis that wage and hour issues have not declined in relative importance historically in the U.S. collective bargaining experience is strongly supported by the evidence examined above for the period from 1927 to 1967. The more limited data available for earlier periods do not support the hypothesis. From 1881 to 1905, in particular, the relative importance of wage and hour issues appears to have declined.
2. Barring major institutional changes in the 1968-1977 decade, it appears feasible to make a prediction concerning the importance of wage and hour issues. The behavior of all ten measures was similar in both the 1948-1957 and the 1958-1967 periods. Analyses for the first of these decades would have predicted the behavior of the ten measures during the second

decade. Thus predictions for the 1968-1977 decade on the basis of the 1958-1967 measures appear reasonable.

3. The relative importance of wage and hour issues is unlikely to decline significantly in the next several years. In the light of the data examined, year-to-year variations in the individual measures studied can be expected, however.

The implications of this research will vary with the particular concern of the reader with collective bargaining interests. A continuing emphasis on wage and hour issues in the training of professionals in the labor relations area appears desirable. While study and research in the behaviorial aspects of collective bargaining relationships should not be discouraged, the economic aspects inherent in wage and hour issues suggest the importance of sound training in economic fundamentals.

While this research does not indicate that wage and hour issues are increasing in importance, it suggests that such issues cannot be neglected by collective bargaining practitioners with impunity. Neither labor nor management representatives can focus their attention on expanding areas of the bargaining relationship to the extent of neglecting the fundamental issues examined above.

The expanding scope of collective bargaining does not represent a declining importance of wage and hour issues. These findings emphasize the continuing importance of business unionism on the American scene. And this, despite the fact that most of the recent interest in and expansion of trade union activities has occurred in the public sector and white-collar areas.

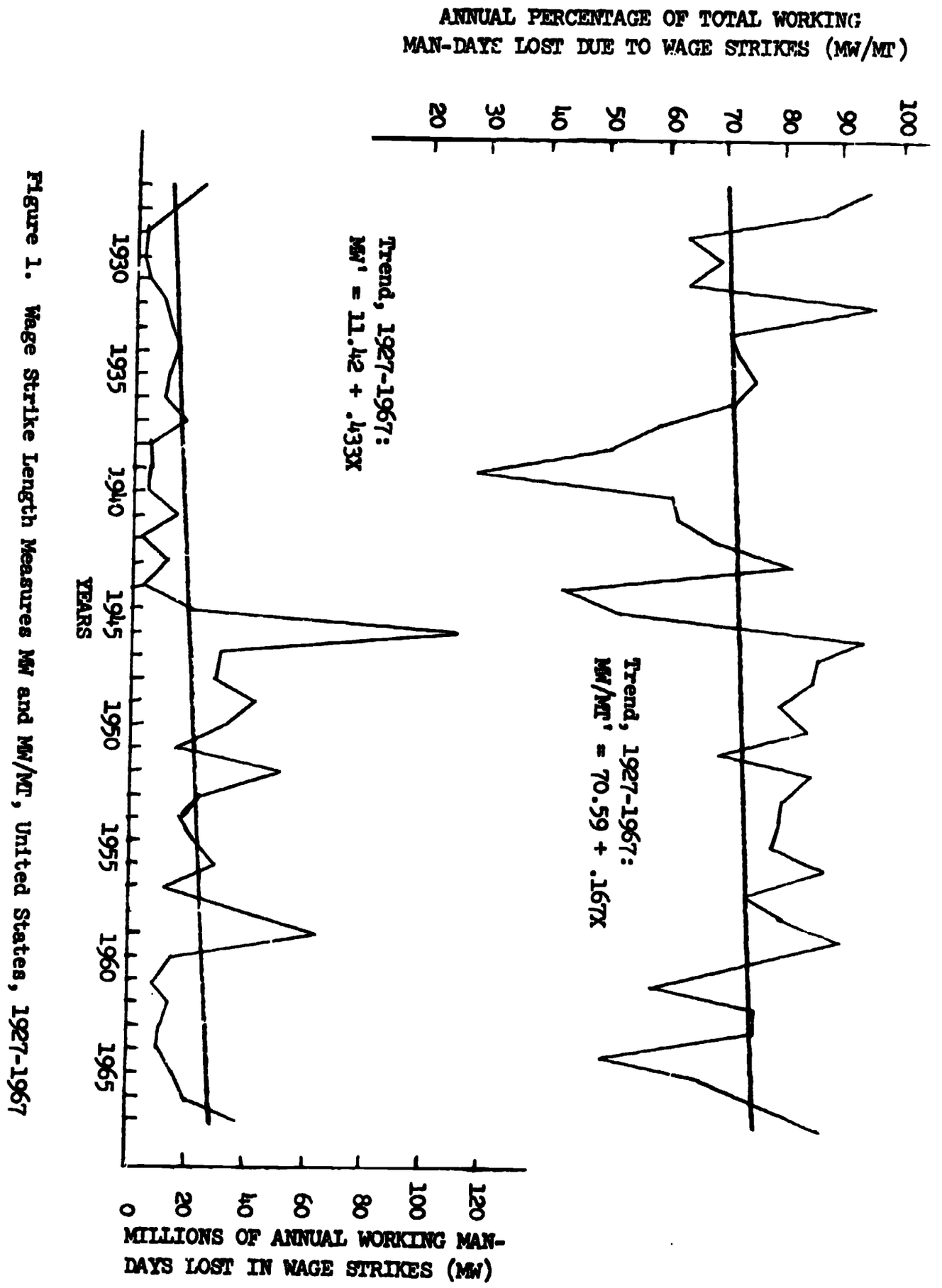

Figure 1. Wage Strike Length Measures MW and MW/MT, United States, 1927-1967

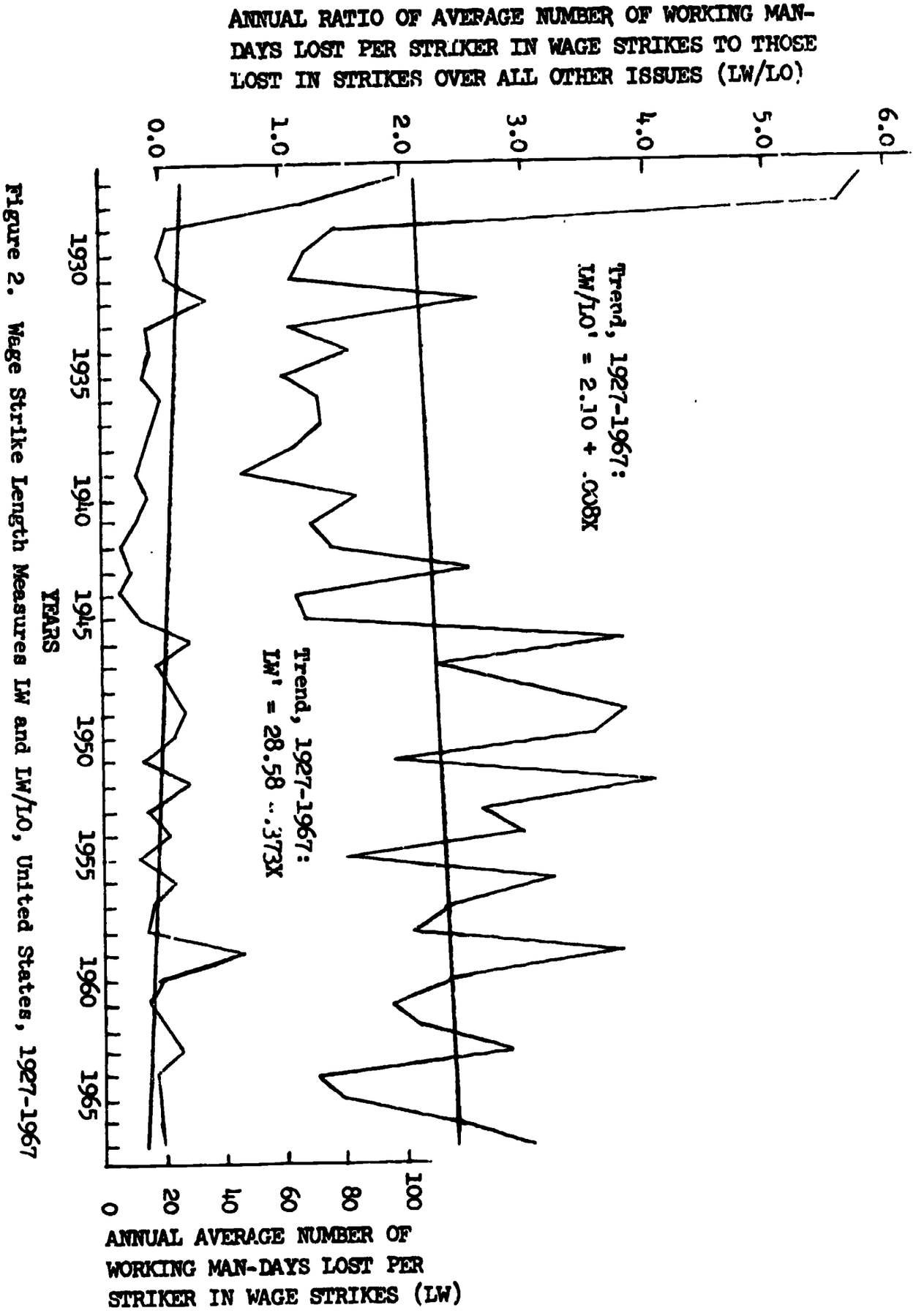

Figure 2. Wage Strike Length Measures LW and LW/LO, United States, 1927-1967

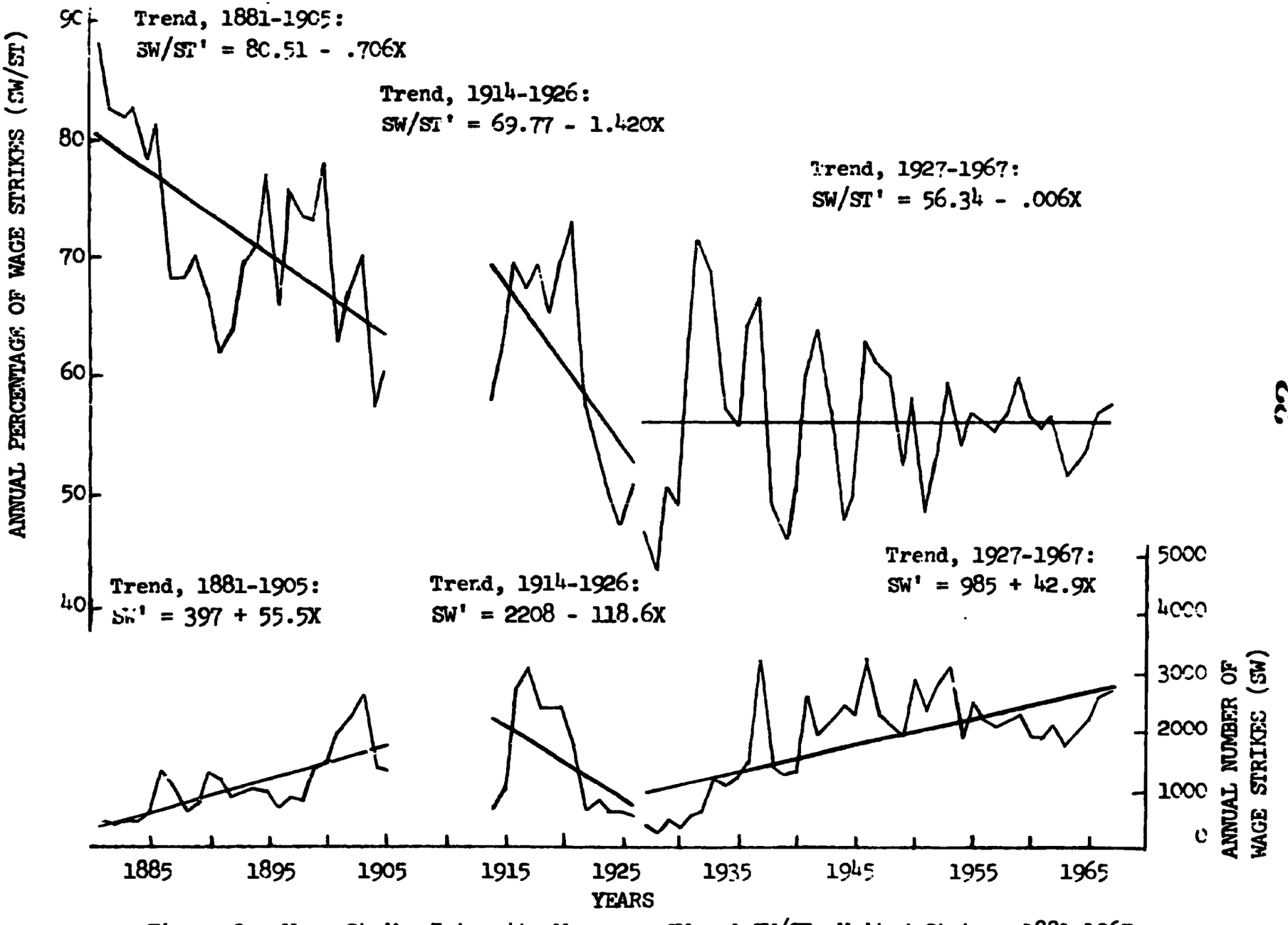

Figure 3. Wage Strike Intensity Measures SW and SW/ST, United States, 1881-1967

Figure 4. Wage Strike Intensity Measures WW and WW/WT, United States, 1927-1967

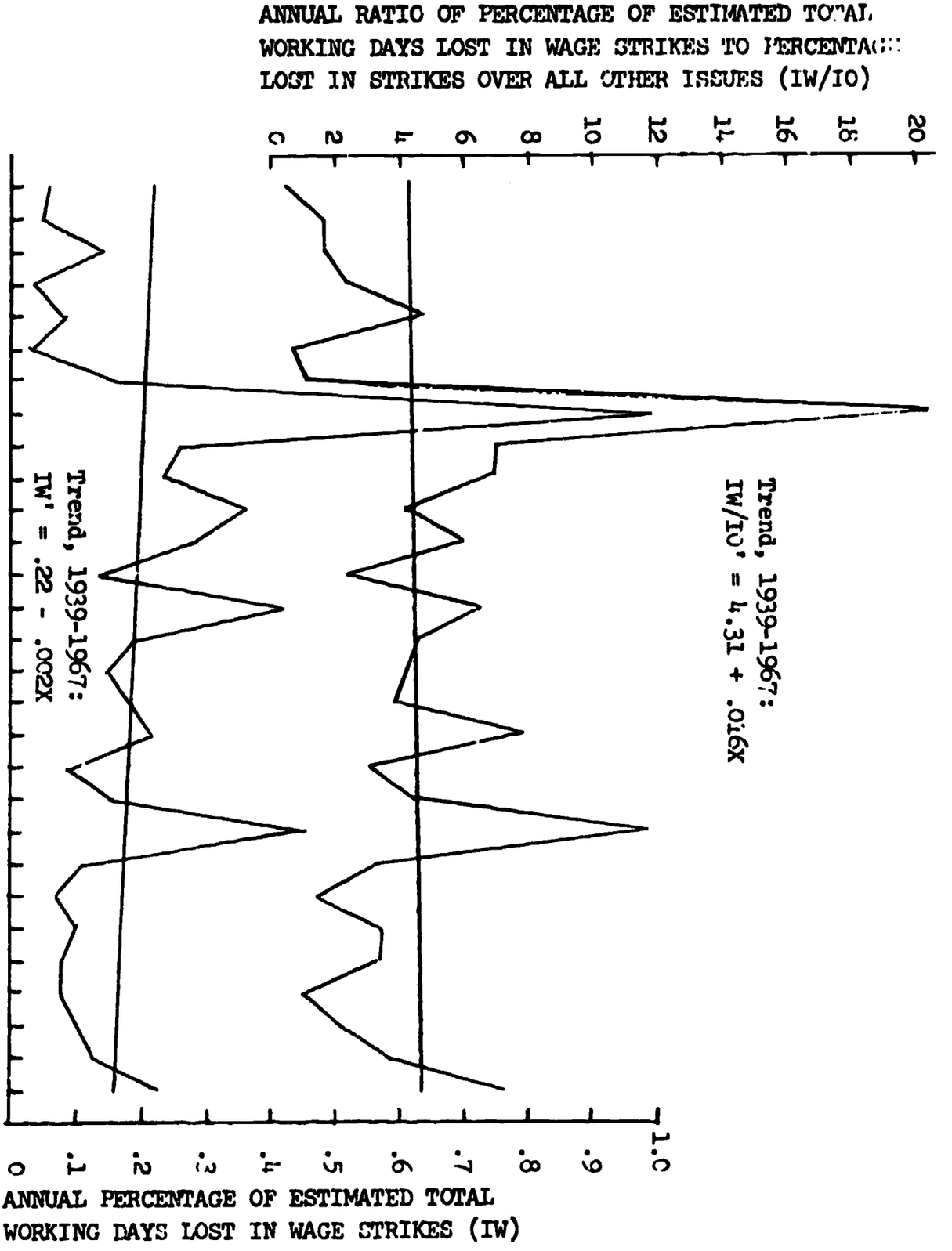

Figure 5. Wage Strike Intensity Measures IW and IW/IO, United States, 1939-1967

TABLE 1

MEASURES OF STRIKE ACTIVITY UTILIZED

Number of Measure	Symbol for Measure	Title of Measure	Dimension of Measure	Nature of Measure
1	MW	Millions of Annual Working Man-days Lost in Wage Strikes	Length	Absolute
2	MW/MT	Annual Percentage of Total Working Man-days Lost in Wage Strikes	Length	Relative
3	LW	Annual Average Number of Working Man-days Lost per Striker in Wage Strikes	Length	Absolute
4	LW/LO	Annual Ratio of Average Number of Working Man-days Lost per Striker in Wage Strikes to Those Lost in Strikes over all Other Causes	Length	Relative
5	SW	Annual Number of Wage Strikes	Intensity	Absloute
6	SW/ST	Annual Percentage of Wage Strikes	Intensity	Relative
7	WW	Thousands of Workers Annually Involved in Wage Strikes	Intensity	Absolute
8	WW/WT	Annual Percentage of Workers Involved in Wage Strikes	Intensity	Relative
9	IW	Annual Percentage of Estimated Total Working Days Lost in Wage Strikes	Intensity	Absolute
10	IW/IO	Annual Ratio of Percentage of Estimated Total Working Days Lost in Wage Strikes to Percentage Lost in Strikes over All Other Issues	Intensity	Relative

TABLE 2

SLOPE COEFFICIENTS AND STATISTICAL SIGNIFICANCE FOR TREND LINES

Measure	Period	Slope Coefficient b	Signif. Level
MW	1927-1967	.433	---*
	1948-1967	-.769	---
	1948-1957	-1.875	---
	1958-1967	-.840	---
MW/MT	1927-1967	.167	---
	1948-1967	-.611	---
	1948-1957	-.292	---
	1958-1967	-.677	---
LW	1927-1967	-.373	---
	1948-1967	-.145	---
	1948-1957	-.796	---
	1958-1967	-.950	---
LW/LO	1927-1967	.008	---
	1948-1967	-.062	.05
	1948-1957	-.114	---
	1958-1967	-.043	---
SW	1881-1905	55.5	.01
	1914-1926	-118.6	---
	1927-1967	42.9	.01
	1948-1967	-11.4	---
	1948-1957	-7.0	---
	1958-1967	48.8	---
SW/ST	1881-1905	-.706	.01
	1914-1926	-1.420	.05
	1927-1967	-.006	---
	1948-1967	.006	---
	1948-1957	-.001	---
	1958-1967	-.251	---
WW	1927-1967	23.4	.05
	1948-1967	-30.7	---
	1948-1957	-37.8	---
	1958-1967	28.8	---
WW/WT	1927-1967	-.109	---
	1948-1967	-.183	---
	1948-1957	.530	---
	1958-1967	-.524	---
IW	1939-1967	-.002	---
	1948-1967	-.009	.05
	1948-1957	-.019	---
	1958-1967	-.011	---
IW/IO			
	1939-1967	.016	---
	1948-1967	-.091	---
	1948-1957	-.074	---
	1958-1967	-.237	---

*--- = Not significant at .05 level

TABLE 3

SELECTED INTERCORRELATIONS AND SIGNIFICANCE LEVELS

Measures Correlated	Period	No. Years	Pearson r	Significance Level
MW/MT and MT	1927-1967	41	.445	.01
	1948-1967	20	.601	.01
	1948-1957	10	.563	.05
	1958-1967	10	.610	.05
LW/LO and LT	1927-1967	41	.692	.01
	1948-1967	20	.614	.01
	1948-1957	10	.909	.01
	1958-1967	10	.729	.01
SW/ST and ST	1881-1905	25	-.603	.01
	1914-1926	13	.784	.01
	1927-1967	41	.063	---
	1948-1967	20	-.005	---
	1948-1957	10	-.096	---
	1958-1967	10	.316	---
WW/WT and WT	1927-1967	41	.083	---
	1948-1967	20	.309	---
	1948-1957	10	-.048	---
	1958-1967	10	.555	.05
IW/IO and IT	1939-1967	28	.860	.01
	1948-1967	20	.733	.01
	1948-1957	10	.459	---
	1958-1967	10	.934	.01

*--- = Not significant at .05 level

Footnotes

1. See, for example, Sumner H. Slichter, James J. Healy, and E. Robert Livernash, The Impact of Collective Bargaining on Management (Washington, D. C.: The Brookings Institution, 1960), p. 950; Sanford Cohen, Labor in the United States (3d ed. ref.; Columbus, Ohio: Charles E. Merrill Publishing Company, 1970), p. 207; and Paul Prasow and Edward Peters, Arbitration and Collective Bargaining: Conflict Resolution in Labor Relations (New York: McGraw-Hill Book Company, 1970), pp. 6,7.
2. Harold W. Davey, Contemporary Collective Bargaining (2d ed. rev.; Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1959), p. 215.
3. C. Wilson Randle and Max S. Wortman, Jr., Collective Bargaining Principles and Practices (2d ed. rev.; Boston: Houghton Mifflin Company, 1966), p. 354.
4. Philip Taft, "A Labor Historian Views changes in the Trade Union Movement," Monthly Labor Review XCII (September, 1969), pp. 8-11.
5. A brief examination of bargaining issues and strike data has been reported in John E. Maher, Labor and the Economy (Boston: Allyn and Bacon, 1965), pp. 163-167.
6. Data through 1936 were taken from the Bureau of Labor Statistics (BLS) Bulletin No. 651. This bulletin, Strikes in the United States 1880-1936, was compiled by Florence Peterson and presented the 1881-1905 data from earlier Commissioner of Labor reports as well as BLS data from 1914 through 1936. Data for 1937 through 1964 were taken from the annual reviews of work stoppages published in the Monthly Labor Review, usually in the May or June issue. Data for 1965, 1966, and 1967 were drawn from BLS Bulletins 1925, 1973, and 1611, respectively.
7. For example, data for most years examined were reported for disputes beginning in the specific year. From 1937 through 1946, however,

annual data were reported for disputes ending in the specific year. This change was not deemed sufficient to necessitate breaking the 1927-1967 period into separate series for trend analyses. In contrast, data from 1914-1926 included disputes involving fewer than six persons, lasting less than one day or shift, and occurring in U. S. territories; such disputes generally were excluded from subsequent data. This difference was deemed sufficient to warrant calculation of separate trend equations where 1914-1926 data were used.

8. For further development of this point, see Ross Stagner, Psychology of Industrial Conflict (New York: John Wiley and Sons, Inc., 1956) pp. 423-428 and 430-432.

9. Robert Dubin, "Industrial Conflict: The Power of Prediction," Industrial and Labor Relations Review XVIII (April, 1965), pp. 352-363.

10. Arthur M. Ross and Paul Hartman, Changing Patterns of Industrial Conflict (New York. Wiley, 1960).

11. The 1914-1926 period was treated separately due to incompatibility of data as noted in footnote 7. No data are available for the 1907-1913 period.

12. Because of recent increasing labor union activity in the public and agricultural sectors, these particular measures seemed appropriate. The "total economy measure of strike idleness" is described in U. S. Bureau of Labor Statistics, Bulletin No. 1611, Analysis of Work Stoppages 1967 (Washington, D. C.: U. S. Government Printing Office, 1969), pp. 52-54.

13. The degree of unionization has been relatively more stable than over earlier periods; the general legal framework of labor relations has not changed in major ways. Moreover, compared to earlier periods, the state of the economy has been one of general prosperity.

14. Readers who wish to consider descriptive trend lines as historically

meaningful only if statistically significant may note the significance levels in Table 2.

15. In all of the trend equations, years have been expressed in X with X = 0 for the first year of the series.

16. Adequate data for the other measures are not available. SW/ST in this period (and in the 1914-1926 period) was adjusted for the fact that causes were classified as "unknown" for as many as 18% of disputes reported in certain years. The assumption made in the adjustment was that disputes with unknown causes were divided among wage and other causes in the same proportions as were those with causes reported.

17. Pearson product-moment correlations were .04, .03, -.10, -.10 and -.02, respectively.

18. A number of studies of the relationship between total strike activity and business fluctuations have been reported. Some investigators have noted correlations between strikes and business cycles for certain periods. See, for example, Albert Rees, "Industrial Conflict and Business Fluctuations," The Journal of Political Economy (October, 1952), pp. 371-382; and A. R. Weintraub, "Prosperity Versus Strikes: An Empirical Approach," Industrial and Labor Realtions Review (January, 1966), pp. 231-238.

19. Pearson product-moment correlations were .00, .04, -.06, .18, and -.09, respectively.

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