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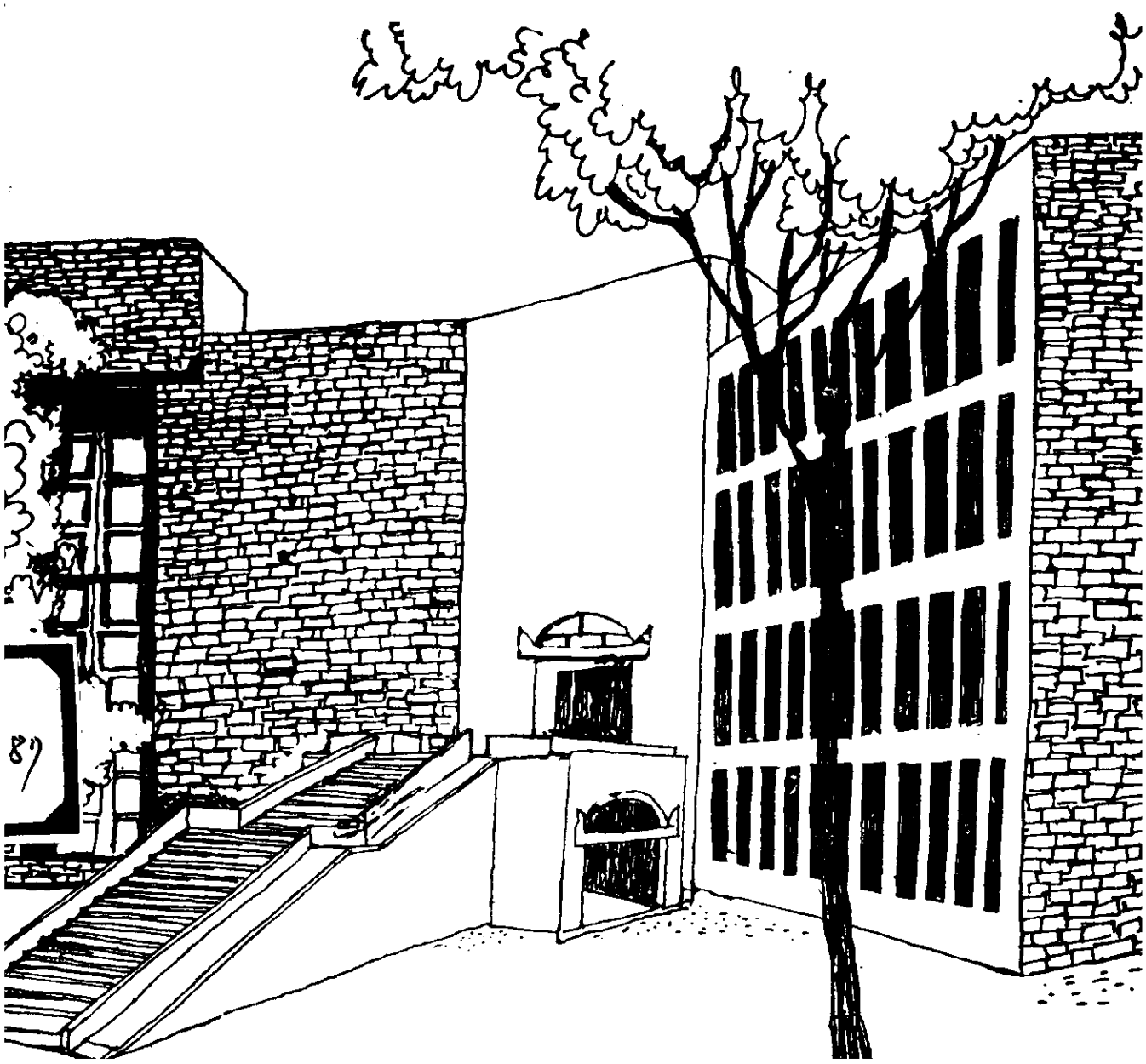

INDUSTRIAL CONFLICT: T&D.
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INDUSTRIAL CONFLICT: TRENDS AND DETERMINANTS

By

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INDUSTRIAL CONFLICT: TRENDS AND DETERMINANTS

INTRODUCTION

It is well known that economic development leads to conflicting interests between the employers and employees. With the birth of All India Trades Union Congress in 1920, a formal system of industrial relations emerged in India. Thus any study of industrial conflict in India should begin with 1921.

The objective of this study is to assess the growth of industrial conflict during the various phases of economic development from 1921 to 1984, and to identify the economic and institutional factors which could have influenced conflict over this period.

The data for this study are drawn from official statistics. The data on conflict include industrial disputes, workers involved, and mandays lost. These relate to the period 1921 to 1984. Some estimates on wages and consumer price index are also available over the same period of time. On the contrary, the statistics on trade unionism, such as the number of unions registered, unions submitting returns, and membership of unions submitting returns are only available from 1927-28 to 1978. However, the major changes which occured in the trade union movement since 1920 have been documented. More accurate data on non-wage-earning employees, wages, and share of wages in value added are available since 1946 for the factory sector. The data on certain variables are thus available for some periods only. As a consequence, these data will be used selectively.

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Growth in Industrial Conflict

All the three indicators of conflict, the number of disputes, workers involved,and mandays lost, have increasing secular trends (Table 1). The number of disputes has increased secularly over the period 1921 to 1984. The index number in 1921 stood at 60.18 (1944 = 100) and this index registered a figure of 356.98 by 1984. During the sub-periods, 1921-38, 1939-60, and 1961-84, the increase in index numbers was 60.18 to 60.64, 61.70 to 240.57, and 206,22 to 356.98, respectively, indicating relative stability during the first period, growth in the second period, and relatively slower growth in more recent years. The annual compound growth rates,0.7, 15.1 and 8.4 for the respectiva periods, resulted in the growth rate of 13.5 per cent for 1921-84.

In so far as the workers involved are concerned, the index number was 109.09 (1944 = 100) in 1921, which increased to 314.35 by 1984. For the three sub-periods,the growth rates worked out to be -6.4, 5.7, and 17.2 percentages resulting in the overall growth rate of 8.6 per cent. These figures indicate that the first period was characterised by low level of workers' involvement, while the other two periods showed an accelerated involvement of workers in industrial conflict.

In terms of the mandays lost due to industrial disputes, there has been an upward trend, particularly in the recent years. The index number increased from 202.61 in 1921 to 880.82 in 1984. The three sub-periods showed a growth of -5.0 per cent, 2.1 per cent, and 30.3 per cent respectivaly. The overall growth rate worked out at 7.9 per cent.

The three series thus exhibit a secular growth in industrial conflict, but the highest increase was registered by disputes followed by workers involved and then by mandays lost. During the first period under consideration, there was a decline for workers involved and mandays lost, but a slow increase for disputes. During the second period, the highest increase occured in the number of disputes, followed by workers involved, and then by mandays lost. During the third period, it was mandays lost which showed the highest increase, followed by workers involved, and then by number of disputes. In general, it may be seen that the three series differ in their growth rates from one period to another.

An attempt was also made to identify the cyclical fluctuations in industrial conflict over the period 1921-84. This was achieved by eliminating both the trend and irregular movements. It may be observed from Table 2 that while there have been cyclical fluctuations, the lengths of the cycle have not been uniform over the period. The pattern also differs from one indicator of conflict to another.

In case of industrial disputes, the lengths varied from 11 years to 4 years. The distribution was estimated as 1 for 11 years; 2 for 9 years; 1 for 7 years; 2 for 6 years; 2 for 5 years; and, 1 for 4 years. For workers involved, the pattern was slightly different. The distribution worked out to be 1 for 12 years; one each for 9 years, 8 years, and 6 years; and, three each for 5 years and 4 years. The pattern for mandays lost indicated one longish cycle of 10 years; 2 for 6 years; four each for 5 years and 4 years; and, one for 3 years.

The data also indicate that there were nine cycles for industrial disputes, ten for workers involved, and as many as twelve for mandays lost. It may also be noted that there is a striking similarity in the cycles for disputes and workers involved, while the cycles for mandays lost are much shorter and more frequent.

Explanatory Models

A generalized model to explain the trends in conflict has been suggested. It emphasizes the role of both economic and institutional variables which influence conflict. The economic variables include growth in economic activity, wage rates, and inflationery trends. The institutional variables include the growth in trade union movement and political changes in the country.

As indicated earlier, information on all these variables are not available for the entire period of 1921-84. We have therefore developed the following models:

1921-1938:

$$S = \alpha + \beta_1 CPI - \beta_2 W - \beta_3 P + \beta_4 H + \beta_5 T \qquad \ldots (1)$$

1939-1960:

$$S = \alpha + \beta_1 CPI - \beta_2 W - \beta_3 U_s/U_r + \beta_4 E - \beta_5 P + \beta_6 H + \beta_7 T \qquad \ldots (2)$$

1961-1978:

$$S = \alpha + \beta_1 CPI - \beta_2 W - \beta_3 W/V - \beta_4 N/E - \beta_5 U_s/U_r - \beta_6 P + \beta_7 H + \beta_8 T \qquad \ldots (3)$$

Note: S = Number of disputes, workers involved, or mandays lost;

CPI = Cost of living index (or Consumer Price Index);

N/E = Ratio of salaried staff to total employees;

W = Agerage wages; E = Employment; U_s/U_r = Percentage of unions submitting returns to the unions registered;

P = Political and economic events;

H = History of trade Union Movement; and

T = Time Trend.

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In the models proposed here, it is expected that some of the variables will have a positive impact on industrial conflict, while the others should exert a negative influence. For instance, the consumer price index is expected to have a positive impact, since rising prices erode real wages and lead to increasing conflict. The money wages are expected to have a negative relationship. Similarly, the share of wages in value added is also expected to be negatively correlated with conflict. Increasing employment indicates growth in the economy which tends to have a positive influence on industrial conflict. Thus the trends in economic variables such as CPI, W, W/V, and E are expected to have an impact on industrial conflict.

During the past few years, the ratio of salaried staff to total employees has been increasing. This should lead to the resolution of grievances at the workplace level itself. Thus, N/E should have a negative relationship with conflict. Among the other institutional variables, the percentage of unions submitting returns to the unions registered, which

indicates the growing militancy of trade unions is expected to have a positive impact on conflict. The political events in the country should create instability and therefore, they exert a dampening influence on conflict. On the other hand, the political history of trade unionism, characterized by fragmentation of the trade union movement is expected to have a positive impact on conflict. Finally, the time trend itself will have a positive impact since the dependent variable, industrial conflict, has tended to increase secularly. The results of regression analyses are presented in Table 3.

The regression analysis for the period 1921-38 suggests that some of the variables which influenced industrial conflict were consumer price index, wages, political events and the internal situation within the trade union movement. For example, the number of disputes are primarily influenced by consumer price index and the internal situation within the trade unbon movement (equation 1). The regression coefficients for these two variables have the expected signs, but they are not statistically significant. Moreover, the coefficient of determination is also low. The number of workers involved was influenced by the political events in addition to the two variables mentioned above (equation 2). The regression coefficients for these variables have the correct sign but they are also statistically insignificant. In this equation also, the coefficient of determination is fairly low. As for the mandays lost, an additional variable appears to be wages.

Equation (3) shows the impact of wages, consumer price index, and political events. Here again the coefficient of determination is rather low.

However, the coefficients of regression for the above mentioned variables have the right signs, but these are not statistically significant. It may be observed from the regression results for the period 1921-38 that both economic and non-economic variables influenced industrial conflict.

For the period 1939-60, the explanatory variables included the ratio of unions submitting returns to the number of unions registered (U_s/U_r), employment (E), Wages (W), consumer price index (CPI), the political events (P), and the internal changes in trade union movement (H).

It may be observed from the regression result (equation 4) that W and CPI seem to influence the number of industrial disputes.

The regression coefficients of W and CPI have the correct signs, but these are not statistically significant. However, the coefficient of determination is fairly high, indicating that the variables taken together could explain over 80 per cent of the variation.

Equation 5 shows the influence of W, CPI, and T on workers involved. The regression coefficients for these variables have the expected signs but they are statistically insignificant. At any rate, the coefficient of determination is also very low.

The impact of economic and institutional factors on mandays lost is considered in equation 6. It may be seen from this equation that the regression coefficients for W, CPI, and H have the expected signs, but these

coefficients are not statistically significant. At the same time, the coefficient of determination is also very low.

Over the period 1939-60, the critical factors appear to be W, CPI, and H. However, W and CPI seem to be a common variable in the equations considered.

For the period 1961-78, the variables N/E and W/V were also considered. The total number of disputes over the period is influenced by N/E, W, U_s/U_r, and P. Equation (7) shows that the regression coefficients for N/E, W, U_s/U_r, and P have the expected signs but only the coefficient for P is significant at 1%. The coefficient of determination is extremely high for the equation.

The number of workers involved is influenced by N/E, W, U_s/U_r, and P. (equation 8). The regression coefficients for these variables have the expected signs, but the coefficient for only P is significant at 5 per cent. Moreover, the coefficient of determination for equation 8 is also fairly high.

The factors influencing mandays lost are considered in equation (9), which shows the impact of N/E, U_s/U_r, and P. However, the regression coefficient for only P is significant at 10 per cent. The coefficient of determination for equation 9 is again very high.

Over the period 1961-78, the most important variables influencing conflict appear to be U_s/U_r and P. To some extent N/E and W also seem to be influential. Surprisingly, the CPI and W/V do not seem to be as important.

CONCLUSIONS

To recapitulate, this study has demonstrated that:

a) There has been an upward trend in all the three indicators of conflict over the period 1921-1984. But this upward trend has been subject to cyclical changes and irregular movements.

b) Both economic and institutional variables seem to influence industrial conflict.

c) During the first two decades (1921-38) rising prices political events, and trade union history appeared to be the most critical factors in the explanation of conflict.

d) The next two decades (1939-60) were marked by the increasing influence of wages and consumer prices on the course of industrial conflict.

e) The last two decades (1961-78) witnessed the growing impact of the wages, inter-union rivalry and the political events in the country.

These findings suggest that industrial conflict in India has been increasing secularly. with some fluctuations. Both economic and institutional variables seem to influence this growth. Consequently, any policy to manage industrial conflict has to acknowledge the complexities in conflict situations. But these findings are tentative in view of the fact that the data for the study are drawn from secondary sources. It may, therefore, be useful to undertake further research to develop time series data on the explanatory variable from the primary sources themselves. But that exercise will lead us to the as yet uncharted field of economic and social history.

TABLE I

STATISTICAL PROFILE OF GROWTH

	INDEX (1944=100)		Annual Compound Growth Rate (%)	VARIATION Mean (Index)	S.D. (Index)	C.V. %
1921-84	1921	1984				
D	60.18	356.98	13.5	206.63	160.28	77.56
W	109.09	314.35	8.6	175.32	129.08	73.62
ML	202.61	880.82	7.9	358.46	379.53	105.87
1921-38	1921	1938				
D	60.18	60.64	0.7	30.16	14.69	48.71
W	109.09	72.90	-6.4	55.75	31.27	56.06
ML	202.61	266.84	-5.0	197.09	209.38	106.23
1939-60	1939	1960				
D	61.70	240.57	15.1	164.83	67.09	40.70
W	74.36	179.26	5.7	149.98	73.24	48.83
ML	144.83	189.61	2.1	185.77	103.88	55.92
1961-78	1961	1978				
D	206.22	356.98	8.4	182.02	48.32	26.50
W	93.09	348.35	17.2	298.96	129.09	43.18
ML	142.68	822.16	30.3	352.17	190.95	54.22

TABLE II

Cyclical Fluctuations in Industrial Conflict

INDUSTRIAL DISPUTE			WORKERS INVOLVED			MANDAYS LOST		
Peak to Peak	Trough	Years	Peak to Peak	Trough	Years	Peak to Peak	Trough	Yrs
1922-27	1926	6	1922-29	1926	8	1922-24	1922	3
1927-38	1935	11	1929-38	1935	9	1924-29	1926	5
1938-47	1940	9	1938-43	1940	5	1929-33	1932	4
1947-52	1950	5	1943-47	1944	4	1933-37	1934	4
1952-58	1955	6	1947-51	1950	4	1937-41	1940	4
1958-67	1962	9	1951-57	1955	6	1941-47	1944	5
1967-71	1970	4	1957-69	1962	12	1947-57	1953	10
1971-78	1976	7	1969-73	1971	4	1957-63	1962	6
						1963-69	1964	6
1978-83	1982	5	1973-78	1976	5	1969-73	1972	4
			1978-83	1982	5	1973-78	1976	5
						1978-83	1980	5

TABLE III

Selected Regression Results

1921-38

1. Disputes

$$-136.029 + 2.401^{***}\ W + 0.237\ CPI + 4.713\ P + 11.049\ H + 1.90\ T$$
$$(2.078) \quad (0.181) \quad (0.544) \quad (1.570) \quad (0.876)$$

$R^2 = 0.425$; F with D.F. (5,12) = 1.774; D.W. = 1.399

2. Workers Involved

$$-293.51 + 1.217\ W + 4.036\ CPI - 0.485\ P + 14.025\ H + 7.169\ T$$
$$(0.499) \quad (1.309) \quad (0.024) \quad (0.850) \quad (1.410)$$

$R^2 = 0.302$; F with D.F. (5,12) = 1.041; D.W. 2.054.

3. Mandays Lost

$$-1634.33 - 2.884\ W + 29.131\ CPI - 159.672\ P - 59.138\ H + 59.352\ T$$
$$(0.162) \quad (1.435) \quad (1.194) \quad (0.544) \quad (1.772)$$

$R^2 = 0.325$; F with D.F. (5,12) = 1.156; D.W. = 2.532,

1939-60

4. Disputes

$$261.508 + 0.573\ U_s/U_r - 4.643^{**}\ E - 0.954\ W + 1.042\ CPI$$
$$(0.576) \quad (2.349) \quad (0.697) \quad (1.099)$$

$$+ 74.953^{***}\ P - 1.663\ H + 30.865^{**}\ T$$
$$(2.087) \quad (0.060) \quad (2.597)$$

$R^2 = 0.813$; F with D.F. (7.14) (8.695) D.W. = 2.069

5. Workers Involved

$$494.831 + 0.212\ U_s/U_r - 7.651^{***}E - 0.655\ W$$
$$(0.114) \quad (2.067) \quad (0.255)$$

$$+ 1.275\ CPI + 124.577^{***}\ P - 26.565\ H + 32.961\ T$$
$$(0.718) \quad (1.853) \quad (0.514) \quad (1.482)$$

$R^2 = 0.450$; F with D.F. (7,14) = 1.637; D.W. 1.801.

6. Mandays Lost

$$1025.86 + 2.344\ U_s/U_r - 14.940^{**}\ E - 4.373\ W + 3.045\ CPI$$
$$(0.868) \quad (2.783) \quad (1.176) \quad (1.183)$$

$$+ 28.455\ P + 18.691\ H + 76.931^{**}\ T$$
$$(0.292) \quad (0.249) \quad (2.384)$$

$R^2 = 0.425$; F with D.F. (7,14) = 1.477; D.W. = 1.813.

1961-78

7. Disputes

$$-43.249 - \underset{(1.478)}{0.346}\ CPI - \underset{(1.396)}{1.362}\ N/E - \underset{(0.568)}{0.199}\ W + \underset{(1.426)}{4.154}\ W/V$$

$$- \underset{(0.080)}{0.119}\ U_s/U_r - \underset{(3.956)}{66.952}\ *P - \underset{(0.697)}{18.555}\ H + \underset{(1.913)}{26.779}\ T$$

$R^2 = 0.901$; F with D.F. (8,7) = 7.958 ; D.W. = 1.593.

8. Workers Involved

$$625.707 - \underset{(1.856)}{1.153}\ CPI - \underset{(1.066)}{2.762}\ N/E - \underset{(0.356)}{0.331}\ W + \underset{(0.381)}{2.947}\ W/V$$

$$-\underset{(0.632)}{2.487}\ U_s/U_r - \underset{(3.038)}{136.492}\ **P - \underset{(1.016)}{71.865}\ H + \underset{(1.308)}{48.607}\ T$$

$R^2 = 0.902$; F with D.F. (8,7) = 8.073; D.W. = 2.547.

9. Mandays Lost

$$-395.402 - \underset{(2.594)}{2.118}**\ CPI - \underset{(0.237)}{0.806}\ N/E + \underset{(1.476)}{1.805}\ W + \underset{(0.791)}{8.034}\ W/V$$

$$-\underset{(0.254)}{1.311}\ U_s/U_r - \underset{(2.145)}{126.625}***P - \underset{(0.715)}{66.478}\ H + \underset{(0.727)}{35.483}\ T$$

$R^2 = 0.923$; F with D.F. (8,7) = 10.467; D.W. = 2.357.

Significance: * ; at 1%; ** at 5%; *** at 10%.

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