

INTENSIFICATION VERSUS RATIONALIZATION:
INDUSTRIAL DISPUTES IN JAPAN AND THE UNITED STATES, 1961-1980.

by

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TABLE OF CONTENTS

	Page
Acknowledgements	ii
List of Tables	vi
Chapter 1 Labor Process and Industrial Disputes.....	1
Statement of Problem.....	1
Theoretical Justification.....	3
The Importance of Industrial Disputes.....	4
Industrial disputes in the Context of Labor Process.....	7
Discussion of the Hypotheses.....	19
Disputes in a Comparative Context.....	22
Conclusion.....	27
Chapter 2 Research Methodology.....	28
Sources of Data.....	28
Operational Measures of Variables.....	30
Data Analysis Procedures.....	32
Chapter 3 Data Analysis Results.....	36
Hypothesis 1.....	43
Hypothesis 2.....	45
Hypothesis 3.....	47
Hypothesis 4.....	49
Conclusion.....	54
Chapter 4 Discussion of Results.....	56
Chapter 5 Conclusion.....	74

Bibliography.....	85
Appendix A.....	101
Vita	102
Abstract	

LIST OF TABLES

Table No.	Title	Page
1	Statistics for Labor Disputes in Ten Countries	6
2	Trends of Labor Disputes in the U.S. and Japan	24
3	Mean Strike Volume for Manufacturing Industries, Selected Years 1961-1980	37
4	Mean of Proneness to Disputes for Manufacturing Industries, Selected Years 1961-1980	38
5	Mean of Extensity of Disputes for Manufacturing Industries, Selected Years 1961-1980	40
6	Mean of Intensity of Disputes for Manufacturing Industries, Selected Years 1961-1980	41
7	Mean of Variables in the Labor Process for Manufacturing Industries, Selected Years 1961-1980	42
8	Beta Weights of Disputes Variables for Intensification of Labor (1961-1980)	44
9	Beta Weights of Disputes Variables for Capitalization of Technology (1961-1980)	46
10	Beta Weights of Disputes Variables for Bureaucratization of Production (1961-1980)	48
11	Beta Weights of Disputes Variables for Degree of Unionization (1961-1980)	50
12	Mean of Degree of Unionization for Manufacturing Industries, Selected Years 1968-1978	52

13	Comparison of Norminal Wages; Blue-Collar Hourly Rate in Manufacturing Industries, Selected Years 1960-1975	58
14	Distribution of Union Membership by Economic Sector in the U. S. , Selected Years 1968-1978	66
15	Degree of Unionization by Manufacturing Industries in the U. S. , Selected Years 1968-1978	68
16	Distribution of Union Membership by Economic Sector in Japan, Selected Years 1968-1978	69
17	Degree of Unionization by Manufacturing Industries in Japan, Selected Years 1968-1978	70
18	Summary Account of the Support for Hypotheses	75

Chapter 1

LABOR PROCESS AND INDUSTRIAL DISPUTES

Statement of Problem

At the core of every human conflict are people who have certain interests and motives opposing other people with divergent interests and motives. Industrial disputes are no exception. For Marx, the industrial dispute expresses an antagonism between capital and labor -- class struggle. The starting points in Marx's analysis were the "sphere of production" and the "relations of production," those places where capital and labor are united in an interdependent relation, but in opposition to each other.

Following Marx, class struggle is the force which results in the change from co-operation to manufacture to modern industry within the capitalist mode of production. In order to continue to accumulate and reproduce the capitalist mode of production, the capitalist tries to

overcome a dependency on labor by introducing changes in the labor process. Along with the development of large-scale industry, various changes related to technology and management enhance capitalists' abilities to control the working situation, and to extract surplus value. In the face of this power, laborers gradually lose their autonomy to a mechanized and bureaucratized production process. As a result, the antagonism between capital and labor should slowly deepen, and industrial disputes increase.

However, there have been many changes in the structure of capitalist societies since Marx. Some of them refute his predictions about these structural changes. In a Weberian sense, for example, the dominant feature of the modern capitalist economy is rationalization accompanied by the spread of a spirit of functional efficiency and measurement; of an economizing attitude towards, not only material resources but all of life through law, economy, accounting, technology, and the entire culture. This principle of rationality can be found especially within the modern bureaucratic organization. For Weber, a bureaucracy is the most efficient method of handling large-scale organizational tasks.

Followers of Weber have attempted to relate the bureaucratization of industry to the strategies of

management (Dahrendorf, 1959; Bendix, 1974). These tendencies toward rationalization, bureaucratization, and thus the movement from coercive to normative compliance, are thought to reduce the occurrence of industrial disputes. Dahrendorf, in particular, suggests several points at which Marx's theory encounters differently. For example, Dahrendorf conceives industrial disputes as a necessary feature of industrial life, but with the development of institutional mechanisms, such as collective bargaining, mediation, and formal representations of labor within the enterprise, the intensity and violence of industrial disputes are reduced.

This study looks at the effects of the labor process on the occurrence of industrial disputes. In this way, the relative validity of the two major theoretical accounts can be assessed. Samples were drawn from two developed countries, the United States and Japan, to add a cross-national comparative dimension to the assessment.

Theoretical Justification

The power of industrial disputes and their effects on the activities of capitalists and managers are serious at the enterprise, industry and societal levels. For these reasons, we find industrial disputes are the concern of various theoretical approaches in contemporary social

science. The following discussion will be divided into: (1) importance of industrial disputes; (2) industrial disputes in the context of labor process; and (3) discussion of the hypotheses.

1. The Importance of Industrial Disputes

The problem of industrial disputes is not new. Historically, when workers believed that they would better their position through organized collective action, they have opposed managers and owners. Industrial disputes can appear in diverse forms, from a massive armed confrontations to sabotage and slow-downs by a few workers. The best known disputes are strikes initiated by labor and lockouts initiated by employers. Lockouts are rare today, although they were not uncommon under laissez-faire capitalism up to the mid-1930s. In the early stages of capitalism, strikes had subversive implications. However, strikes gradually were legitimized as an element of liberalization in the capitalist countries. Nowadays, the right to strike for a contract has come to be accepted in principle as one of the basic democratic freedoms and as a logical concomitant of collective bargaining. The right to strike is also embodied in several international agreements, such as the International Agreement in the Economic, Social and Cultural Rights adopted by the United

Nations in 1966 and the Universal Declaration of Trade Union Rights adopted by the World Congress of Trade Unions in 1978.

The mainsprings of disputes are very complex, but industrial disputes are usually political confrontations in less developed countries, where the government is usually the dominant employer (Wilczynski, 1983, pp.176-84). In less-developed countries where income levels are low, poverty might be a very important issue and strikes challenge the political structures which maintain that poverty. In less developed countries, then, strikes of any sort are illegal and standing militaries, rather than collective bargaining, are used to maintain control. In the affluent industrial countries, strikes have a more explicit economic focus. Hours of work, working arrangements, work discipline, union membership and the recognition of collective bargaining can become important issues of disputes. The ten countries with the largest number of industrial disputes, as officially reported to the International Labor Organization in 1980, were generally affluent countries (see Table 1).

Strikes, even for economic reasons, are costly. Workers' experience is the loss of wages, the contracting of debts, and other personal hardships. Capitalists'

TABLE 1
 Statistics for Labor Disputes in Ten Countries

	Number of Disputes	Workers involved per dis.	Working days lost
1. U.S.A.	4780	359.8	35467000
2. France(in 1978)	3206	219.8	2200400
3. India	2829	969.0	930300
4. Spain	2680	2131.8	18416980
5. United Kingdom	2145	2176.1	29474000
6. Australia	2042	912.3	3964400
7. Italy	2000	8118.7	27530430
8. Finland	1715	131.3	243400
9. Japan	1153	389.9	930300
10. Canada	1050	440.5	7834230

Source: Based on Yearbook of Labor Statistics 1980 (Geneva:ILO, 1980)

losses are idle capital, loss of profits, and strike-breaking expenses. "To weigh the gains and losses of strikes is like weighing the gains and losses of any other kind of warfare" (Knowles, 1954, p.262). The possible gains from strikes are very equivocal because in many respects the gains never outweigh the losses.

As industrial processes become more centralized and interdependent in a national economy, however, the potential effect of strikes increases. A big strike tends to affect not only a single section of an industry but the industry as a whole. As industrial disputes bring about greater losses to both workers and capitalists, and to the public and society as a whole, they receive more attention. Institutions and procedures for avoiding or minimizing disputes and for settling them exist in most affluent countries. For example, the methods employed are informal and formal negotiations between the representatives of labor and capital, conciliation, arbitration, and mediation.

2. Industrial Disputes in the context of Labor Process

Human beings, having needs to survive, engage in productive activity. In this sense, labor is the actual human effort in the process of production. The labor process is a fundamental condition of human existence. In

Marx's writings, the concept, "labor process" denotes the general, historically-transcendent process whereby humans interact with nature to produce use values to meet their needs (Marx, 1867, p.284).

The labor process in its most abstract form is

human action with a view to the production of use-values, appropriation of substance to human requirements; it is the necessary condition for effecting change of matter between Man and Nature; it is the everlasting Nature-imposed condition of human existence, and independent of every social phase of that existence, or rather, is common to every such phase (Marx, 1867, p.290).

In this abstract definition, the labor process specifies the relation between workers and nature. And it is a social process in which people interact. This process is composed of three elements: (1) labor activity, that is, work itself; (2) the object on which the work is performed; and (3) the instruments of work, including labor. The last two elements Marx calls the "means of production." He also calls them the "objective conditions of production," distinct from the subjective conditions of production. The specific way in which the objective and subjective factors of the labor process combine provides the basis of Marx's classification of social relations.

Marx's theory of the labor process is illuminated by his analysis of capitalism. Marx regards capitalism as both a form of economic organization and a type of society (Giddens, 1982, p.43). As a type of economic enterprise, capitalism is based on the pursuit of profit, using private ownership of the means of production. Capitalistic economic organization involves two basic structural elements, capital and labor. Capital cannot be understood without labor because capital is an accumulated labor. For Marx, capitalist economic organization presupposes a class society based upon the relation between capital and labor. This relation, however, is an antagonistic and contradictory relation. Even though Marx does not deny the intermediate groups between capital and labor -- petite bourgeoisie, artisans, merchants -- Marx insists that there is an inherent tendency for the classes to polarize in the capitalist society. As the classes polarize, their class relations become more antagonistic and class conflicts become more acute over time.

The foundation of Marx's analysis of capitalism starts from the theory of value (Marx, 1867). This theory holds that in a society where the means of production are privately owned and used to produce commodities for exchange, these commodities tend to be exchanged for the

amount of abstracted labor used in their production. Under capitalism, the purpose of commodity production and exchange is making surplus value. Then, how is this to be accomplished? Surplus value is possible if the producer produces a commodity that has a use value, which yields a greater amount in exchange value than amount paid to the producer. In this sense, the basic commodity is labor power, the human ability to work. As a peculiar commodity, labor power produces other commodities, the value of which is greater than the value of the means of subsistence necessary to reproduce that labor power. Accordingly, the purchase of labor power allows the capitalists to expropriate surplus value (Marx, 1867, pp.125-77).

This principle is no more evident than with wages. When we consider wages the main question is: "How is it possible for real wages to rise with the rate of exploitation?" Daily experience, Marx says, tells us that wages reflect the value or price of labor (Marx, 1867, p.675). Thus, if a worker is paid on a time basis he/she gets so much per hour; if he/she is paid piece-rates his/her wage is calculated in terms of how much he/she produces. Moreover, the view that wages are the value of labor implies that workers are paid, according to the amount of work they do.

But from this point, no such thing as surplus value can exist. According to Marx, surplus value is produced by living labor and is the difference between the value produced by labor and the value paid as wages. This means that the workers cannot be paid the full value of what they produce. This is a problem for the workers: surplus value requires workers to be paid only a portion of what they produce. Marx concludes the worker is exploited: exploitation and the production of surplus value are the same thing -- the output of unpaid labor (Marx, 1867, pp.768-72).

Marx explains changes in the labor process as attempts to raise the rate of surplus value, or the degree of exploitation of labor power. However, it is an important point that attempts to raise the rate of surplus value by changing the labor process take place within the context of the conflictual social relations of production of capitalism. In other words, to increase surplus value, the capitalists increase exploitation of the working class. Workers often resist being exploited, promoting further changes in the labor process motivated by attempts to control the workers.

According to Marx (1867, pp.439-639), the first step of the capitalist labor process is the mere gathering of a

relatively large number of workers under one roof. Marx calls this simple co-operation. The capitalists' motive in initiating this change is that simple co-operation increases the productiveness of labor, and consequently increases the rate of surplus value. But this simple co-operation has another effect on the labor process. It alters the balance of power in the class struggle for the "real appropriation" of the means of production. That is, it enhances the capitalists' control over the actual material production of use values.

The second major form of the capitalist labor process was the development of the manufacturing division of labor -- the differentiation and separation of tasks within a workshop. This increased the productivity of labor beyond what was achieved under the simple co-operation. Marx points out that increased division of labor gave the capitalist greater control over the real appropriation of the means of production and over workers. Consequently, the manufacturing division of labor weakens the individual worker's position and fragments the workers as a collectivity, while the position of the capitalist improves.

A third major phase of productive activity replaced labor power with machinery to increase the productivity of

the workers. Machinery acts like the manufacturing division of labor to reduce the labor time necessary to produce commodities and to increase the rate of relative surplus value. Marx calls this stage "Large-scale Industry." With the introduction of division of labor and machinery, the capitalist control over the labor process is increased. Replacing labor power with machinery, the capitalist could better control workers but the control intensifies the labor process. Consequently, alienation increased and workers were more likely to engage in collective action to restructure their relations vis a vis the products of their labor. Thus Marx perceives technological change under capitalism as contributing to class conflict.

For our purpose, Dahrendorf's challenge to Marx is the most critical. Opposite to Marx's analysis of class conflict, Dahrendorf develops the notion of conflict regulations and institutionalization in advanced industrial countries. For Dahrendorf (1959), we are living in a post-capitalist society, that is, an industrial society. Capitalism, as an economic concept, is only one form of industrial society, limited to Europe and the United States in the nineteenth and early twentieth centuries. By contrast, the structure of industrial

production will not disappear since "industrial production is not just a passing guest in history, but will probably be with us forever in one form or another" (Dahrendorf, 1959, p.40). In Dahrendorf's view, Marx's capitalist society is a class society formed by the distribution of private property. These classes, founded on the relations of production, become significant bases for political power. By the possession of property and power, the classes are polarized into two great hostile camps, bourgeoisie and proletariat. According to Dahrendorf (1959, pp.241-57), capitalism disappears through a relatively smooth process of social development, governed by the economic changes involved in the spread of industrial production.

In the industrial society, there are many changes Marx did not perceive, such as the separation of ownership and control, the decomposition of labor by skill and stratification, the emergence of a new middle class, and social mobility. The separation of ownership and control has a number of latent effects, one being a significant change in the basis of legitimacy of entrepreneurial authority. The old-style capitalist exercised authority because he owned the means of production. Since the scale of industry increases, the ownership of property alone no

longer legitimates control over the enterprise. On the other hand, the "functionary without capital," the manager, has emerged to run the daily operation of the enterprise. Replacement of capitalists by managers affects class conflict in three ways. First, the decomposition of capital brings about a change in the membership of groups participating in conflict. Second, as a result of this change in recruitment and composition, there is also a change in the nature of the issues that cause conflicts. Finally, the replacement of capitalists by managers involves a change in the pattern of conflict (Dahrendorf, 1959, pp.41-71).

The decomposition of labor suggests a dispersion of objective class interests and a corresponding reduction in working class militancy, because there is no bond left that unites workers together for specific goals. As a result, the possibilities for revolutionary overthrow of capitalism as Marx envisioned are reduced. Dahrendorf agrees with Marx in a certain sense that the technical development of industry tends to abolish all differences of skills and qualification of labor in the early capitalist stage. However, with the advanced development of industrial production, two new patterns, technical innovations in production and a new philosophy of

industrial organization, involve a shift from unskilled to skilled labor within the working class. As a result, a new stratum, the new middle class emerges within industrial societies. The relation between workers and owners becomes more obscure because of the mediation by salaried employees who represent a different set of interests from the workers.

Those successive changes coming with the industrial production also affect the class structure in a society. It is the social mobility that Marx believes merely a symptom of short-lived transitional periods of history. In Dahrendorf's words, "social mobility has become one of the crucial elements of the structure of industrial societies" (Dahrendorf, 1959, p.57). With the equal opportunity open to individuals, the education system plays a major role in affecting individual's social positions in society. Education, modern management, and various avenues of social mobility, then, alter the form of class structure and of disputes in advanced industrial societies.

With these changes, Dahrendorf expects a tendency toward less intense and less violent industrial disputes by virtue of the institutionalization of class conflict and the development of industrial democracy. Of concern

here is the institutionalization of conflict which means that the tension between capital and labor is recognized as a principle of social structure and accepted as a legitimate social practice as long as it remains within sanctioned boundaries. Moreover, there has been an institutional isolation of industry which means that conflicts in political and industrial areas are no longer fused into a single arena but confined within the borders of their "proper" realm. In this sense, industrial disputes are no longer considered an expression of class antagonism, but are rather in the nature of a bargaining game between interest groups. Different from Marx's prediction that capitalist society would be unable to cope with the class conflict, every industrial society is capable of coping with the disputes through an institutionalized process of regulation.

Dahrendorf (1959, pp.225-27) presupposes three organizational factors for effective conflict regulation. First, both parties to a conflict have to recognize the reality and cause of conflict for each other. Second, opponent groups have to agree on certain rules that provide the frame of their relationships. Final prerequisite for effective conflict regulation is the organization of interest groups. The organization of an

interest group creates an entity endowed with certain rules, material resources and personnel. In this sense, Dahrendorf perceives the organization of trade unions as interest groups. The "parliamentary" negotiating bodies must be established where the representatives of interest groups meet. Trade unions and employers' associations serve a quasi-parliamentary function in industrial disputes. As a result, industrial disputes are regulated, losing some of their intensity and violence.

Diminishing intensity and violence of disputes reflects the structure in industry. In Dahrendorf's view, authority not ownership, dominates the formal control of the means of production. Consequently, relations to the means of production no longer determines dominance or privilege in society, and the old class conflict no longer remains part of the workers' repertoire of collective action. Indeed, industrial disputes now play a functional role in industrial societies.¹

1 Bell (1976) extends Dahrendorf's argument, predicting the appearance of post-industrial society based on the scientific revolution. There are new modes of life, such as the increased bureaucratization of science and the increasing specialization of intellectual work into minute parts, fulfillment and enhancement of self in the culture, and so on. For Bell, the concept of a post-industrial society is not a complete picture of social order; it is an attempt to describe and explain an axial change in the social structure of the society. But such a change implies no specific determinism between a "base" and a "superstructure." Accordingly the essential division in

3. Discussion of the Hypotheses

Based on the conflicting views of Marx and Dahrendorf, several hypotheses are postulated. In order to produce surplus value, labor power must become a commodity, sold and bought on the market at its value. For Marx, the intensity of labor, or the quantity of labor expended in a given time, is one factor affecting the rate of surplus value. However, an attempt to raise the rate of surplus value, that is the intensification of labor, takes place within the context of the conflictual social relations of production. Adopting Marx's theory toward the intensification of labor and industrial disputes, an hypothesis is drawn as following:

Hypothesis 1: Increased intensification of the labor process will increase the levels of industrial disputes within manufacturing industries.

modern society is not between those who own the means of production and an undifferentiated "proletariat," but the bureaucratic and authority relations between those who have power of decision and those who have not. Indeed, the post-industrial society brings about a transformation in the class structure. With the change in the class structure, the labor problems in the post-industrial society have to be analyzed in terms of structure of trade unionism and democracy in unions.

The introduction and improvement of machinery is one way to attempt to increase workers' productivity and control over the labor process. Moreover, replacement of labor power with machinery not only further alienates labor, but threatens the job security of labor. Thus,

Hypothesis 2: Increased capitalization of technology will increase the levels of industrial disputes within manufacturing industries.

On the other hand, in a Weberian sense, Dahrendorf claims that the value of rationality prevails in all industrial societies. The value of rationality coincides with the bureaucracy. The bureaucratization of production within industry has modified the authority structure, reducing the intensity of industrial disputes. In accord with Dahrendorf's view, the following hypothesis will be tested:

Hypothesis 3: Increased bureaucratization of production will decrease the levels of industrial disputes within manufacturing industries.

Rationality, for Dahrendorf, also displays effective routines on human cooperation, e.g., the institutionalization of industrial disputes within industrial societies. With the institutionalization of

industrial disputes, the violence of conflict has diminished considerably. Moreover, trade unions have established an intricate system of conflict regulations. Then, hypothesis 4 is drawn from Dahrendorf's theory as follows:

Hypothesis 4: Increased trade union membership will decrease changes in the levels of industrial disputes within manufacturing industries.

The hypotheses are basically derived from Marx's and Dahrendorf's positions. Marx argued that the concentration of capital and capitalization of technology were mechanisms by which capital intensified labor, raised worker productivity, and devalued laborers' value. Thus, industrial disputes will increase as workers resist against these changes in the labor process. If the actual results of this study are not radically in opposition to either Hypothesis 1 or Hypothesis 2, it can be said that Marx's theory in this instance is not adequate to explain industrial disputes. It would also mean that Dahrendorf's approach has to be considered a more likely explanation of industrial disputes, especially if there is a strong support for Hypothesis 3 or Hypothesis 4. Dahrendorf argued that these changes in the labor process are signs of the advancement of rationality in the production

process. And with the tendency toward rationalization, industrial disputes will decrease.

Disputes in a Comparative Context

The situations and causes of industrial disputes differ in detail from one workplace to another, and furthermore, from one country to another. Therefore, it is meaningful to compare and analyze the differences and similarities of industrial disputes between countries. Furthermore, social scientists as well as other scholars have increased their efforts to understand and explain human behavior in diverse national contexts, recognizing the narrowness and ethnocentricity of their disciplines. These efforts have given rise to greater use of the international comparative analysis for the purpose of testing the validity of theoretical statements and analytical approaches.

In this light, this study attempts to extend such efforts to the field of industrial disputes. The manufacturing industries of two industrialized nations, the United States and Japan, will be the focus. Evans (1971) notes that only 24.5% of all work stoppages in 1968 in the United States lasted more than a month, while strikes lasting four days or less were 27.7% of all disputes in 1966 and 24.3% in 1968. At the same time in

Japan, such short-term strikes were 75.1% and 55.5% of all disputes respectively. In 1968 the average number of man days lost per strike was 2.4 in Japan and 18.5 in the United States (Evans, 1971, p.29). A comparison of international statistics on labor in the United States and Japan shows the consistent pattern which Evans mentioned (see Table 2). According to Evans, "most American strikes are in the nature of tactics rather than ultimate solutions" (Evans, 1971, p.30).

With the remarkably successful performance of the Japanese economy for almost two decades, the Japanese labor relations system has been attracting the attention of many labor theorists. Meanwhile, stagnant and declining productivity since the early 1970s is the most serious symptom of the American economy (Fellner, 1979). This "crisis of productivity" has been attributed partly as a failure to motivate workers to increase their productivity. In contrast, Japanese enterprise organizations and industrial relations appear to assure flexible organizational adaptability to changes in external conditions while maintaining high morale and commitment on the part of workers. Abegglen (1958) found the organizational arrangements and practices in Japanese factories different from those in American plants. He

TABLE 2
Trends of Labor Disputes in the U.S. and Japan

	U. S. A.				JAPAN			
	A	B	C	D	A	B	C	D
1965	3968	23300	3.8	15.0	1542	5669	2.0	3.4
1966	4405	25400	4.0	13.0	1252	2742	.9	2.4
1967	4595	42100	6.4	14.7	1214	1830	.6	2.5
1968	5045	49018	7.2	18.5	1546	2841	.9	2.4
1969	5700	42689	6.1	18.6	1783	3634	1.1	2.6
1970	5716	66414	9.4	20.1	2260	3915	1.2	2.3
1971	5138	47589	6.7	14.5	2527	6029	1.8	3.2
1972	5010	27066	3.7	15.8	2498	5147	1.5	3.3
1973	5353	27950	3.6	12.3	3326	4604	1.3	2.1
1974	5074	47991	6.1	17.3	5211	9663	2.7	2.7
1975	5031	31240	4.1	17.9	3311	8016	2.2	2.9

Source: Based on Workstoppage data issued by Bureau of Labor Statistics in the U.S., Census of Manufactures in Japan.

A: Number of Labor Disputes

B: Number of Man-days lost

C: Number of Man-days lost per 10 employees

D: Duration of Disputes (number of days)

characterized labor relations in Japanese factories as family relations.

The main characteristics of Japanese industrial relations are lifelong employment, the length-of-service reward system, and enterprise unionism (Cole, 1971; Hanami, 1979; Shirai, 1983). Lifetime employment is the system under which the employer provides a worker with security throughout his working life. In turn, the worker offers unlimited commitment and loyalty to his employer. The *nenko* wage system is a method of determining wages, salaries, and other rewards based on a worker's length of service, but partly on age and education too. Therefore, a worker willingly commits to the firm over a long period of time with an incentive system to learn on the job. Enterprise unionism is a type of union organization where employees of the firm, including white- and blue-collar workers are organized together in a single union. All union members are company employees, so that the employer can expect them to share similar interests with the management and be less prone to strike. Besides these three "pillars," a popular publication of the Organization for Economic Cooperation and Development (OECD, 1977) concluded that the uniqueness of Japan was "the fourth pillar," the social norms within the enterprise. The

report pointed out that this consists of such elements as a view of the enterprise as a community, a set of vertical relationships with reciprocal obligations, and a consensual system of decision-making; it is the cultural asset that keeps the Japanese work organizations operating successfully and productively.

Until 1960, the majority of scholars in the industrial relations field regarded the peculiarities of Japanese industrial relations as simply the backwardness or immaturity of Japan's capitalist development. They usually assumed that rationalization and modernization are only possible through Westernization. Around the beginning of the 1960s, however, a number of scholars began to recognize that the unique Japanese labor practices improved labor productivity.

Although organization systems and activities such as labor disputes, unions, and collective bargaining are based on the same concepts in the United States as in Japan, their concrete manifestations are not identical. For Hanami (1979), Japanese labor disputes tend to be cultural rather than economic and are less formally organized than in the Western countries. Therefore, the Western method of resolving disputes cannot work effectively in Japan. In general, Japanese people and

foreign observers tend to believe in the uniqueness of Japanese industrial relations and emphasize its difference from Western industrial relations.

At this point, it is worth finding out if the Japanese uniqueness in industrial relations has increased or decreased industrial disputes in Japan. Since the last two decades reveal different patterns of industrial growth for the United States and Japan, the data for the present study will cover the years 1961 to 1980.

Conclusion

The preceding discussion suggests that changes in the labor process affect the patterns of industrial disputes. In Marx's view, changes in the labor process are means to exploit and control over labor power, so that changes in the labor process ultimately bring into conflict, the interests of capital and labor. On the other hand, Dahrendorf perceives the replacement of capitalist society by industrial society, which is based on rationalization and bureaucratization. As a result, there is less conflict between capital and labor in modern industrialized societies. Competing hypotheses, then, can be generated from these two opposite perspectives. In addition, through the comparative analysis of the United States and Japan, it is possible to evaluate the relative validity of the two theoretical perspectives.

Chapter 2

RESEARCH METHODOLOGY

Methodologically, this study assesses the relationships among changes in the degree of intensification of labor, capitalization of technology, bureaucratization of production, institutionalization of disputes, in relation to changes in workers' collective action -- industrial disputes. With the use of the statistical pooling process, this study systematically analyzes the relationships among key variables in manufacturing industries in the United States and in Japan, from 1961 to 1980.

The discussion in this chapter will be divided into the following sections: (1) data sources; (2) operational measures of variables; (3) analysis procedures.

Sources of Data

The cases for analysis in this study are the twenty two digit SIC (Standard Industrial Classification) manufacturing industries.² The data for the study were generated from various sources: Annual Survey of Manufactures, Census of Manufactures, and workstoppage data issued by Bureau of Labor Statistics for the United States, and Japan Statistical Yearbook and Census of Manufactures for Japan. Some data for both countries were taken from Industrial Statistics issued by the United Nations. Consistent data were obtained for nineteen manufacturing industries in the United States, tobacco being the exception, and eighteen manufacturing industries in Japan, tobacco and miscellaneous industries being the exceptions.

2 These are: (1) food and kindred products; (2) tobacco products; (3) textile mill products; (4) apparel, other textile products; (5) lumber and wood products; (6) furniture and fixtures; (7) paper and allied products; (8) printing and publishing; (9) chemicals and allied products; (10) petroleum and coal products; (11) rubber, miscellaneous plastic products; (12) leather and leather products; (13) stone, clay, glass products; (14) primary metal products; (15) fabricated metal products; (16) machinery, except electrical; (17) electric, electronic equipment; (18) transportation equipment; (19) instruments, related products; (20) miscellaneous manufacture's industries. Ordinance and not otherwise coded manufacturing industries were not included because the earlier Census of Manufactures did not always divide the two groups.

Six variables were obtained from Census of Manufactures. They are: (1) total number of employees (NE); (2) total number of operatives (NOP); (3) total wages of operatives (WOP); (4) value of shipments' (VS); (5) value added by manufactures (VA); (6) capital expenditure for machinery and equipment (CE); (7) consumer price index (CP).

For the United States case, five variables were taken from data issued by Bureau of Labor Statistics to measure workers' union activity and their collective strike activity. These are: (1) number of unions (NU); (2) total number of union membership (NUM); (3) number of strikes (NS); (4) number of workers involved in strike (NWS); and (5) number of man days idle lost to strikes (MDI). In the case of Japan, these five variables were obtained from two sources, Japan Statistical Yearbook and Annual Report of Statistics and Survey of Labor Disputes. The three work stoppage variables were reported annually for all manufacturing industries. The two unionization variables were reported every two years from 1968 in the United States for all manufacturing industries. So the relationship between unionization and industrial disputes were analyzed for slightly different times in the two countries.

Operational Measures of Variables

The measure of the intensification of labor for each industry was created by dividing the percentage changes in value of shipments by the percentage changes in operative's wage for each year (VS/WOP). The amounts of value of shipments and operative's wage were standardized by the consumer price index for each year. This proportion is an indirect measure of the increasing rate of intensification of labor.

The measure for the capitalization of technology for each industry was the actual amount of money spent for new machinery and equipment standardized by industry size, that is, (CE/NE). This measure depicts increased use of mechanization by measuring the amount of capital spent for new equipment and technological development. More specifically it indicates the degree of technological sophistication within an industry since presumably the more sophisticated equipment costs more money. However, the greater the CE/NE ratio, the greater the labor process are assumed to be controlled by technology.

Bureaucratization of production for each industry was measured by the proportion of nonoperative workers to the total number of workers employed in each industry $\{(NE - NO)/NE\}$. The larger the ratio, the greater the bureaucratic control, since proportionally fewer employees are involved in productive jobs.

Unionization was measured by degree of union membership for each industry. Operationally, it is the proportion of the total union members to the total number of employees (NUM/NE).

Industrial disputes are measured primarily as the strike volume. Strike volume has been employed in numerous studies of industrial disputes. It is a three dimensional profile consisting of number of strikes, number of workers involved, and man days idle. Volume indicates the number of man days idle per 1,000 workers, that is $SV = (MDI/NE)*1,000$ within each industry.

In order to depict industrial disputes in greater detail and to gain important dimensions of disputes, the components of strike volume, proneness, extensity and intensity are also measured (Britt and Galle, 1972). Proneness to dispute is defined as the annual number of strikes ($PRON = NS$). The extensity dimension of disputes denotes the number of workers involved per work stoppage per 1,000 workers in an industry ($EXT = (NWS/NS/NE)*1000$). The last measure of disputes is the intensity of disputes, which is defined as the number of man days idle per workers involved in work stoppages ($INTEN = MDI/NWS$).

Data Analysis Procedure

Data in this study are composed of two types: time-series data for each industry pertain to a given unit or entity at a number or points in time; cross-sectional data aggregated by the industries. When observations are available for several individual units (in this study, manufacturing industries) over a period of time (years), a practical problem of some importance occurs. Occasionally sufficient observations will not be available to estimate either a time-series or a cross-section equation, suggesting that some method of combining the two must be used. Unmodified, normal regression is not appropriated for dealing with these data. For this reason, we consider the possibility of combining the data to obtain more valid parameters.

The process of combining cross-section and time-series data is called pooling. However, the necessity of combining time-series and cross-section variables in the model adds a new dimension to the problem of model specification. The model specification problem in turn suggests that the structure of the error term might be complex, since the error term is likely to consist of time-series related disturbances, cross-section related disturbances, or a combination of both (Pindyck and Rubinfeld, 1981, pp.252-261).

If the disturbance term has a changing variance, we call the disturbance heteroscedastic. Heteroscedasticity might arise if one is examining a cross section of firms in an industry. When the disturbance terms from different observations are correlated, it is said that the disturbance terms are autocorrelated or serially correlated. As for the cross-sectional observations, it is frequently assumed that the disturbance terms are mutually independent. Accordingly, when dealing with pooled cross-section and time-series observations, a cross-sectionally heteroscedastic and time-wise autoregressive model based on these three assumptions is adopted. In this study, one specific pooling technique, Park's method, was used. Park's (1967) method assumes that the disturbance term might be correlated over time and over cross-section units. This method specifies the first order autoregressive model in which the disturbance terms have the structures of heteroscedasticity, autoregression and cross-sectional independence.

By the procedure of Park's method, unstandardized regression coefficients b values are given as the coefficients. However, it is inappropriate to interpret the b 's as indicators of the relative importance of variables. The actual magnitude of raw coefficients

depends on the units in which the variables are measured. When variables differ in units of measurement, the sheer magnitude of their coefficients does not reveal anything about relative importance. For this reason, Beta coefficients were calculated, which are the coefficients of the independent variables when all variables are normalized by subtracting their mean and dividing by their estimated standard deviation (Pindyck and Rubinfeld, 1981, p.90). All of the analyses were conducted using the Statistical Analysis System (SAS).

Chapter 3

DATA ANALYSIS RESULTS

In this chapter, I address the results of the data analysis. First, the general trend of the whole manufacturing industries are addressed, and then the hypotheses utilizing the results of data are discussed.

Mean strike volume of manufacturing industries in the United States increased from 637.320 in 1961 to 925.467 in 1971 to 1911.809 in 1980 with some variation in slope. In Japan, mean strike volume of manufacturing industries in Japan declined from 423.6 in 1961 to 281.75 in 1971 to 75.69 in 1980 with some variation in slope (see Table 3). More specifically, Table 4 presents mean of proneness to disputes in both countries. In the United States, mean of proneness to disputes increased from 89.05 in 1961 to 130.00 in 1970, but decreased from 130.00 in 1970 to 95.26 in 1980. Japan shows a similar trend, increasing from

TABLE 3
Mean Strike Volume
for Manufacturing Industries, Selected Years 1961-1980

	U. S. A.	JAPAN
1961	637.32(500.80)*	423.60(529.54)
1965	778.74(465.15)	331.66(313.81)
1970	1620.18(1981.6)	224.03(226.42)
1975	906.93(974.08)	329.37(536.73)
1980	1911.81(5674.6)	75.69(166.06)

* Standard deviations are put into the parentheses.

TABLE 4
Mean of Proneness to Disputes
for Manufacturing Industries, Selected Years 1961-1980

	U. S. A.	JAPAN
1961	89.05(53.54)*	45.00(32.58)
1965	110.11(80.56)	51.11(39.35)
1970	130.00(87.90)	71.72(62.93)
1975	99.47(83.19)	103.56(77.90)
1980	95.26(80.58)	30.83(24.81)

* Standard deviations are put into the parentheses.

45.00 in 1961 to 71.72 in 1970 and decreasing from 71.72 in 1970 to 30.83 in 1980. In Table 5 about mean of extensity of disputes, both countries show different trends. The mean extensity of disputes in the United States decreased from 0.91 in 1961 to 0.46 in 1970, but increased to 1.50 in 1980. In Japan extensity decreased from 2.54 in 1961 to 1.56 in 1970 to 0.91 in 1980. The mean intensity of disputes in the United States and Japan show the opposite trends. The mean intensity of disputes in the United States increased from 13.59 in 1961 to 25.88 in 1970 to 32.31 in 1980. On the other hand, the mean intensity of disputes in Japan decreased from 4.32 in 1961 to 1.56 in 1970 to 0.91 in 1980 (see Table 6).

Table 7 presents the mean of each independent variable, intensification of labor, capitalization of technology and bureaucratization of production in both countries. For the United States there is an increase in the intensification of labor, but Japan shows a fluctuation. Both countries show increases in the capitalization of technology, but for the United States there is a more rapid increase. For the United States bureaucratization of production increases, but Japan shows an increase in the 1960s and a decrease in the 1970s.

TABLE 5
 Mean of Extensity of Disputes
 for Manufacturing Industries, Selected Years 1961-1980

	U. S. A.	JAPAN
1961	.91(1.28)*	2.54(2.61)
1965	.59(.41)	2.70(2.95)
1970	.46(.33)	1.56(2.17)
1975	.53(1.05)	1.23(1.32)
1980	1.50(5.20)	.91(1.04)

* Standard deviations are put into the parentheses.

TABLE 6
 Mean of Intensity of Disputes
 for Manufacturing Industries, Selected Years 1961-1980

	U. S. A.	JAPAN
1961	13.59(6.73)*	4.32(3.85)
1965	17.43(5.83)	3.45(1.77)
1970	25.88(9.19)	1.56(2.17)
1975	28.18(11.78)	1.23(1.32)
1980	32.31(12.78)	.91(1.04)

* Standard deviations are put into the parentheses.

TABLE 7
 Mean of Variables in the Labor Process
 for Manufacturing Industries, Selected Years 1961-1980

	INT	U. S. A. CAP	BUR	INT	JAPAN CAP	BUR
1961	.66	.49	.24	-8.39	.13	.27
1965	4.02	.76	.23	4.97	.19	.38
1970	2.57	1.05	.24	.36	.48	.43
1975	4.21	2.16	.25	2.44	.63	.46
1980	4.73	3.52	.26	-8.52	.58	.21*

INT: Intensification of Labor

CAP: Capitalization of Technology

BUR: Bureaucratization of Production

* Compared with other numbers in the column, this number is strikingly low. Because Japanese data for the number of operatives in 1976 to 1980 were not available in Industrial Statistics, those were obtained from Census of Manufactures for Japan. There is no obvious reason for the apparent deviation from the previous trend. However, the comparable data for the U.S. were available in Industrial Statistics. Thus a decision was made to use Census of Manufactures for only 1976 to 1980. The effect of this substitution is not significant since the relationships between bureaucratization and variables of disputes in Japan were not changed, when the data for bureaucratization from 1976 to 1980 were excluded from the analysis.

The analysis focuses on the internal dynamics of changes in the labor process and changes in the pattern of industrial disputes within manufacturing industries. The pattern of industrial disputes will be depicted in various levels, such as proneness, extensity, intensity, and strike volume. Strike volume is a composite variable made from the other three components.

Hypothesis 1:

Table 8 presents the result of change between 1961 to 1980 in the strike volume regressed on intensification of labor for the United States and Japan. The intensification of labor is positively related to strike volume in the United States manufacturing industries, but it is negatively related to the level of strike volume in Japanese manufacturing industries. In other words, as the changes in value of shipments get larger, the changes in operatives' wages get smaller, and then the strike volume increases in the United States. In Japan, as the changes in operatives' wages get larger in relation to the increase in value of shipments, the strike volume decreases. Therefore, Hypothesis 1 is supported in the case of the United States, but not supported in the case of Japan.

TABLE 8*
Beta Weights of Disputes Variables for Intensification of Labor (1961-1980)

	U.S.A. (N=20x19)			JAPAN (N=20x18)		
	SV	PRON	INT	SV	PRON	INT
Inten.	.081	.061	.113	-.208	.018	-.043
of Labor	(.00)**	(.00)	(.00)	(.00)	(.00)	(.00)

* All of Beta Weights are very strongly significant.
 ** P values are put into the parentheses.

SV: Strike Volume

PRON: Proneness to Disputes

EXT: Extensity of Disputes

INT: Intensity of Disputes

Changes in the intensification of labor have a positive effect on the level of strike proneness in both countries. The level of changes in the intensification of labor is also positively related to levels of extensity and to intensity of disputes but only in the United States. On the other hand, there are negative relationships between the intensification of labor and the extensity and intensity of disputes in Japan. Thus, the pattern of support for Hypothesis 1 is fairly consistent for the four measures of industrial disputes in the United States but not in Japan.

Hypothesis 2:

Table 9 presents the relationship between changes in the capitalization of technology and the strikes variables. The level of changes in the capitalization of technology has a positive effect on changes in the level of strike volume in both countries.³ It means that as the changes in the capitalization of technology get larger, strike volume increases. These findings provide support for Hypothesis 2 based on the Marxist theory.

3 The capitalization of technology and bureaucratization of production are interrelated. However, the multicollinearity between these two variables cannot be controlled in the pooling process, the industrial disputes variables regressed on the capitalization of technology and bureaucratization of production separately (see Appendix A).

TABLE 9*

Beta Weights of Disputes Variables for Capitalization of Technology (1961-1980)

	SV	U.S.A. (N=20x19)			SV	JAPAN (N=20x18)		
		PRON	EXT	INT		PRON	EXT	INT
Capital.	.459	-.009	.048	.064	.018	.056	.195	-2.285
of Tech.	(.00)**	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)

* All of Beta Weights are very strongly significant.

** P values are put into the parentheses.

SV: Strike Volume

PRON: Proneness to Disputes

EXT: Extensity of Disputes

INT: Intensity of Disputes

In addition to strike volume, the changes in capitalization of technology have a slightly negative effect on the proneness to disputes in the United States, but has a positive effect in Japan. In terms of the extensity of disputes, both countries show positive relationships. There is a positive relationship between the capitalization of technology and the intensity of disputes in the United States. However, there is a negative relationship in Japan. Thus, the pattern of support for Hypothesis 2 is not consistent for the four measures of industrial disputes in the United States and Japan.

Hypothesis 3;

Table 10 indicates that there is a tendency within the United States manufacturing industries for changes in the bureaucratization of production to be positively related to changes in the levels of strike volume. However, there is a negative relationship between the bureaucratization of production and the level of strike volume in Japanese manufacturing industries. That is, as the changes in bureaucratization of production get larger, the strike volume increases in the United States. In Japan, the strike volume decreases as the changes in bureaucratization of production get larger. So Hypothesis

TABLE 10

Beta Weights of Disputes Variables for Bureaucratization of Production (1961-1980)

	U.S.A. (N=20x19)				JAPAN (N=20x18)			
	SV	PRON	EXT	INT	SV	PRON	EXT	INT
Bureau.	.123	.228	.072	.160	-.330	-.000	-.052	-.038
of Pro.	(.00)*	(.00)	(.00)	(.00)	(.00)	(.98)**	(.00)	(.21)***

* P values are put into the parentheses.

** Beta Weight is not significant at .98 level.

*** Beta Weight is not significant at .21 level.

SV: Strike Volume

PRON: Proneness to Disputes

EXT: Extensivity of Disputes

INT: Intensity of Disputes

3 is supported in the case of Japan, but not supported in the United States.

More specifically, the bureaucratization of production has a positive effect on the proneness to strike in the United States, but has little negative effect in Japan. For bureaucratization of production, the United States has a positive relationship with extensity, whereas in Japan they have a negative relationship. Similarly, related to the intensity, there is a positive relationship in the United States, but a negative relationship in Japan. Interestingly, the bureaucratization of production is positively related to all of the disputes variables in the United States, but negatively related to those in Japan. So, the pattern of support for Hypothesis 3 is consistent for the four measures of industrial disputes in the United States and Japan.

Hypothesis 4:

In Table 11, the degree of unionization has a positive relationship with the level of strike volume in the United States and Japanese manufacturing industries. Different from Dahrendorf's view, the unionization in manufacturing industries does not contribute to the regulation of disputes. Accordingly, Hypothesis 4 is not

TABLE 11

Beta Weights of Disputes Variables for Degree of Unionization (1961-1980)

	U.S.A. (N=20x19)				JAPAN (N=20x18)			
	SV	PRON	EXT	INT	SV	PRON	EXT	INT
Degree	.033	.070	.009	-1.452	.248	.169	.219	-.072
of Uni.	(.21)*	(.40)**	(.00)	(.00)	(.00)	(.02)	(.00)	(.16)***

* P values are put into the parentheses.

** Beta Weight is not significant at .40 level.

***Beta Weight is not significant at .16 level.

SV: Strike Volume

PRON: Proneness to Disputes

EXT: Extensivity of Disputes

INT: Intensity of Disputes

supported with regard to the degree of unionization in both countries.

Table 12 shows that the trend of degree of unionization in both countries are different. The degree of unionization in the United States decreased from 0.48 in 1968 to 0.47 in 1974 to 0.45 in 1978. Japan experienced an increase from 0.40 in 1968 to 0.42 in 1973 to 0.43 in 1978. The United States and Japan show positive relationships between the degree of unionization and the proneness to dispute. The degree of unionization has small positive effects on the extensity of disputes in the United States, but larger effects in Japan. It means that the larger the number of unionized workers by industry, the greater the union's ability to mobilize workers for strikes. Both countries have negative relationships between the degree of unionization and the intensity of disputes. That is, as the industry becomes unionized, the intensity of disputes will be reduced. The two countries show the same relationships between variables, and the pattern of support for Hypothesis 4 is consistent for the four measures of industrial disputes in both countries.

As mentioned above, all of the variables in the labor process have positive effects on the strike volume in the United States. The strike volume is affected specially by

TABLE 12
 Mean of Degree of Unionization
 for Manufacturing Industries, Selected Years 1968-1978

	U. S. A.	JAPAN
1968	.48(.155)*	.40(.218)
1970	.48(.159)	.41(.237)
1972	.48(.180)	.42(.238) (in 1971)
1974	.47(.167)	.42(.232) (in 1973)
1976	.50(.175)	.43(.245)
1978	.45(.274)	.43(.255)

* Standard deviations are put into the parentheses.

the capitalization of technology and the intensification of labor. The bureaucratization of production contributes more than the degree of unionization to the strike volume in the United States. There are also positive relationships between all the variables in the labor process except between the capitalization of technology and the proneness to dispute. But the relationship between the capitalization of technology and the proneness to dispute is slightly negative, so it can be ignored. There are also positive relationships between all the variables in the labor process and the extensity of disputes in the United States. The degree of unionization has a consistently negative effect on the intensity of disputes. It means that the seriousness of disputes reduces through the union.

Unlike the United States, bureaucratization of production reduces the strike volume in Japan. Also different from the United States, the degree of unionization has the greatest effect on the strike volume in the Japanese manufacturing industries. The capitalization of technology has only a moderately positive effect on the strike volume compared with the United States. All of the variables in the labor process show the same trends related to the extensity of disputes

as they have relationships related to the strike volume. All of the variables are negatively related to the intensity of disputes. However, all of the variables in the labor process are positively related to the proneness to disputes in Japan.

Conclusion

For strike volume and the other three dimensions of industrial disputes, Hypothesis 1 is supported in the United States. Only the proneness to strike shows a pattern consistent with Hypothesis 1 in Japan. For strike volume and the extensity of industrial disputes, Hypothesis 2 is supported in both countries. Hypothesis 3 is not explicitly supported in the United States. This implies that all of the measures of industrial disputes show the pattern consistent with Hypothesis 3, but all of them do not support Hypothesis 3. On the other hand, Hypothesis 3 is explicitly supported in Japan. For the intensity of industrial disputes, Hypothesis 4 is supported in the United States and Japan. For other measures of disputes, Hypothesis 4 is not supported in both countries.

Based on these findings, we can see that there are different patterns of relationships between industrial disputes and labor process variables in the United States

and Japan. Economic growth of these two countries, while somewhat similar, does not account for the differences. Accordingly, it is desirable to compare and contrast the patterns of industrial relations system in the United States and Japan in terms of these results.

Chapter 4

DISCUSSION OF RESULTS

In this chapter, I will interpret the findings presented in the previous chapter. In general, the results suggest that industrial disputes in the United States tended to be persistently higher than in Japan. The strike volume and extensity have been decreasing, while the intensity of disputes has some fluctuations but generally shows a decrease, in Japan. The results also show the differences in relationships between strike volume and labor process variables. All of the labor process variables contribute to the increase of strike volume in the United States, whereas only the capitalization of technology and degree of unionization contribute to the increase of strike volume in Japan. So, how can these different patterns of industrial disputes be explained?

The results show that both countries have different patterns in the relationship between the intensification of operatives' labor and the strike volume. A negative relationship appears for the Japanese manufacturing industries, on the other hand, the United States manufacturing industries have a positive relationship. So, Hypothesis 1 -- increased intensification of labor is positively related to the levels of strike volume -- is supported in the United States, but not supported in Japan. In other words, Marx's view applies to the United States manufacturing industries, but not for those of Japan. The ratio of intensification of labor increased steadily in the United States manufacturing industries. In Japanese manufacturing industries, it can be said that there was little intensification of labor. As long as the ratio of intensification of labor is measured by dividing the increased amount of value of shipments by the increased amount of operatives' real wage, the intensification of labor means that operatives are not paid fully according to the amount of their productivity.

As shown Table 13, there were rapid and continuous wage increases in Japan. Whereas the United States experienced 100% increase of nominal wages of blue-collar workers from 1960 to 1975, Japan showed 900% of increase

TABLE 13

Comparison of Norminal Wages; Blue-Collar Hourly Rate in
Manufacturing Industries, Selected Years 1960-1975

Wage rate*	U. S. A.	JAPAN
1960		
Wage rate	2.26	.26
Differential	869	100
1965		
Wage rate	2.61	.45
Differential	580	100
1970		
Wage rate	3.36	.94
Differential	357	100
1975		
Wage rate	4.80	2.84
Differential	169	100

Referenced from Contemporary Industrial Relations in Japan.

* Rate is in U.S. dollar quipment.

of those for the same period. This trend can be contributed to the continuous growth of productivity. It is natural that the discontent expressed by workers in strike situations centers around the problem of wages. Wages are the only means for buying goods and services which they want. Therefore, the intensification of labor is a major source of discontent in the United States.

In Japan, the most important subject of collective bargaining has been wages. The Spring Offensive in 1955 was a movement for wage negotiations and it evolved into an interindustry concerted movement for a wage increase. Unions in both the private and public sectors joined in the movement. After the oil crisis of 1973 and the rapid economic growth, the wage rate increased moderately, helping to slow down inflation. Moreover, the unions in the four metal industries -- iron and steel, automobile, electric appliances, and shipbuilding -- took the lead within the labor movement in resolving the significance of the oil crisis and in establishing the pattern for wage increases. With the development of the Spring Offensive, wage increases have been standardized (Koshiro, 1983, pp. 217-25).

Unlike in the United States, wage levels of Japanese production workers are determined separately from jobs

being performed. Instead, each wage level is determined primarily by length of service, which is called "seniority wages." Moreover, the differential in wages between white- and blue-collar workers in Japan is less than in the United States (Koike, 1983, p.33). These characters of wage determination encourage workers' loyalty to their companies and the source of Japanese productivity.

The data analysis results also shows that the volume of disputes is positively related to changes in the capitalization of technology in both countries. This clearly supports Hypothesis 2 based on Marx's theory.

Many sociologists have focused on technology as a key determinant of industrial disputes. Technology helps establish the types of jobs as well as the amount of output that can be produced. One school of thought, called "technocratism," maintains that technological change is able to solve the problem of poverty and all basic social conflicts inherent in the society (Wilczynski, 1983, p.116). There is no disagreement with this point that technological progress has lightened the burden of heavy manual labor. However, new technology has another face besides lightening the weight of objects. It generates disputes within workplace. According to one study for the federal government in the United States, "significant

numbers of American workers are dissatisfied with the quality of their working lives. Dull, repetitive, seemingly meaningless tasks, offering little challenge or autonomy are causing discontent among workers at all occupational levels" (U. S. Dept. of Health, Education, and Welfare, 1973).

In Japan, the worsening labor shortage in the 1960s and early 1970s prompted many companies to introduce mechanization and automation as replacements for hazardous work. Moreover, pressure from market competition in international trade, and from the rising prices of oil and other resources, stimulated the modernization of plants and equipments. Consequently, modern techniques reduced the number of hard and dirty jobs on the one hand, but on the other hand, such techniques increased the monotony and alienation of work (Marsh and Mannair, 1970).

Changes in the bureaucratization of production between 1961 and 1980 are positively related to changes in strike volume in the United States, but the relationship is negative in Japan. The results for the United States do not support Hypothesis 3. But, Hypothesis 3 is supported in Japan. In other words, the Weberian sense of rationalization in the capitalist production process applies for the situation of Japanese manufacturing

industries, but does not apply for the situation of the United States.

Bureaucratization is not a universal feature of the United States manufacturing industries, but its use continues to expand. Since 1899, the ratio of nonproduction to production workers in the United States manufacturing industries is depicted as an upward trend with some variation in slope (Delehanty, 1968, pp.50-55). With the development of technology, machines displace direct labor but more staff are required to cope with the greater number of complex machines and the greater inputs and outputs. Organizations need a new application of techniques. The increase of bureaucracies has meant an increased use of technical knowledge. The use of technical knowledge is reflected in the subdivision, and consequent elaboration, of the managerial functions, such as planning, production organization, personnel selection and supervision in industry (Bendix, 1974, pp.198-244). With the bureaucratization in modern industrial organization, it was expected by some industrial sociologists that the industrial peace will accompany this development.

However, as shown by this study, the bureaucratization of production contributes to strike

volume in the United States. In contrast to the Weberian sense of bureaucracy, bureaucracy in industry can be seen simply as a hierarchical arrangement of unit organization based on division of function and authority. That is, bureaucracy is an organization of unequals, where the basic inequalities are exemplified in the supervisory hierarchy. Under the work situation of superordinate-subordinate relations, workers experience tension, sometimes failure, in their jobs. Among the various consequences of bureaucratization, the separation of the workers from the product and the means of production is the most significant. The removal of most mental work from the shop floor brings into being large offices filled with technical staffs. In Braverman's terms, the separation of conception and execution creates a distinctive form of institutionalized control (Braverman, 1974). Nevertheless, it is doubtful that this control significantly reduces strike activity.

In Japanese manufacturing industries, the bureaucratization of production contributes to the reduction of strike volume. But, compared to the United States, Japanese manufacturing industries show a greater increase in the ratio of nonproduction to production workers in 1960s. However, this tendency of

bureaucratization does not influence the profile of Japanese production workers. The profile of Japanese production workers are explicitly different from those of Western Europe production workers in terms of their wages but similar to those of Western Europe non-production workers (Koike, 1983, p.30). Moreover, the system under which Japanese production workers gain their skills plays an important factor for the internal markets and industrial relations in Japan. These tendencies are shown in policies of fringe benefits and welfare services. For example, blue- and white-collar workers and management people in plants wear the same kind of work clothes supplied by the firm, and eat lunch together at the factory mess-hall.

With regard to control, there is the *sagyochō* system (new foreman), in which the *sagyochō* is given great control over the workers at the workshop level, and responsibility of supervising the workgroup. This new function of *sagyochō* system includes the primary assessment of workers for promotion and wage increases rather than simply watching over workers (Levine, 1958; Cole, 1971; Tokunaga, 1983).

In the relationship between the degree of unionization and the volume of disputes, both countries

show the same relationship, that is, changes in the degree of unionization is positively related to changes in the volume of disputes. Thus, Hypothesis 4 is rejected in both countries. In contradiction to Dahrendorf, the institutionalization of disputes do not contribute to the de-escalation of disputes. Judging from Beta coefficients in both countries, the degree of unionization does not affect as significantly the strike volume in the United States as in Japan.

Trade unions arose as the collective response of workers exposed to the economic hardship and insecure working conditions. Today, trade unionism is recognized as an essential part of the mechanism of social control in many societies (Fox and Flanders, 1969). Some union goals are institutional, seeking to ensure the maintenance of the organization, to keep its security against external and internal threats, and to provide power and influence to union membership. Goals also include improvements of wages and working conditions.

In the United States, unionism is intimately involved in plant-level industrial relations (Kochan, 1985). As shown in Table 14, workers in manufacturing industries are more likely to be unionized than are workers in government, even though the proportion of unionization

TABLE 14

Distribution of Union Membership by Economic Sector
in the U.S., Selected Years 1968-1978*

	Manu.	Non-Manu.	Gov.
1968	45.6	43.7	10.7
1970	44.3	44.5	11.2
1972	42.8	45.4	11.8
1974	42.4	44.1	13.5
1976	40.5	45.2	14.3
1978	37.3	46.0	16.7

* Source: Based on Workstoppage data issued by Bureau of Labor Statistics in the U.S.

fell from 46% in 1968 to 37% in 1978. The decrease in unionization can be explained as the result of shift in employment away from manufacturing industries. Another major change in the labor force is the shift in occupational composition from the relatively heavy unionized blue-collar operatives and labors toward the less-unionized white-collar occupations (Kochan, 1985, pp.17-19). In general, within manufacturing industries, paper, primary metal, petroleum, and transportation industries show a higher degree of unionization than any other industry (see Table 15). American unions focus primarily on economic gains through collective bargaining and are much less politically oriented than Japanese unions (Evans, 1971; Shirai, 1983).

The emergence of labor unionism represents one of the most remarkable changes in the institutional structure of postwar Japan. The postwar boom was caused by the positive government support for unions. As shown Table 16, the rate of unionization in manufacturing industries has increased slightly. Like the United States, petroleum, primary metal, and transportation and professional industries show higher rate of unionization (see Table 17).

Favored by the high economic growth of the 1960s, Japanese labor unions were in an advantageous position to

TABLE 15

Degree of Unionization by Manufacturing Industries
in the U.S., Selected Years 1968-1978*

	1968	1970	1972	1974	1976	1978
1.Food	.54	.56	.59	.58	.61	.38
2.Textile	.20	.21	.18	.18	.20	.18
3.Apparel	.64	.64	.58	.57	.58	.52
4.Leaner	.39	.47	.48	.50	.48	.49
5.Lumber	.56	.40	.33	.39	.45	.36
6.Furniture	.36	.49	.44	.48	.52	.36
7.Paper	.70	.69	.74	.57	.54	.61
8.Printing	.36	.34	.33	.33	.33	.25
9.Chemical	.45	.41	.34	.31	.29	.24
10.Pertoleum	.68	.56	.55	.56	.82	.52
11.Rubber	.45	.50	.44	.42	.48	.36
12.Stone	.50	.48	.51	.51	.56	.46
13.Primary M.	.61	.62	.69	.65	.72	.67
14.Fabricated M.	.40	.69	.45	.46	.50	.38
15.Machinery	.37	.29	.33	.34	.36	.30
16.Electiricity	.54	.56	.63	.60	.60	.38
17.Trans.	.71	.66	.60	.66	.65	.60
18.Professional	.16	.12	.12	.12	.13	.10
19.Miscellaneous	.49	.45	.79	.78	.67	-

* Source: Based on workstoppage data issued by Bureau of Labor Statistics in the U.S.

TABLE 16
Distribution of Union Membership by Economic Sector
in Japan, Selected Years 1968-1978*

	Manu.	Non-Manu.	Gov.
1968	36.7	53.9	9.4
1970	37.2	53.6	9.2
1971	39.1	51.3	9.4
1973	37.3	52.7	10.0
1976	39.3	50.0	10.7
1978	38.1	50.9	11.0

* Source: Based on Japan Statistical Yearbook.

TABLE 17
 Degree of Unionization by Manufacturing Industries
 in Japan, Selected Years 1968-1978*

	1968	1970	1971	1973	1976	1978
1. Food	.24	.25	.26	.27	.27	.26
2. Textile	.40	.39	.40	.37	.35	.31
3. Apparel	.19	.20	.21	.21	.22	.22
4. Lumber	.10	.11	.11	.11	.11	.10
5. Furniture	.15	.18	.18	.19	.18	.18
6. Paper	.34	.34	.34	.38	.36	.36
7. Printing	.31	.31	.31	.30	.32	.29
8. Chemical	.80	.99	.85	.84	.90	.91
9. Petroleum	.73	.64	.77	.80	.82	.79
10. Rubber	.26	.25	.25	.22	.22	.05
11. Stone	.34	.34	.31	.33	.34	.33
12. Primary M.	.66	.66	.68	.69	.73	.72
13. Fabricated M.	.20	.19	.19	.20	.23	.22
14. Machinery	.35	.33	.36	.34	.37	.36
15. Electricity	.50	.51	.55	.49	.53	.45
16. Trans.	.65	.72	.76	.71	.78	.81
17. Professional	.62	.60	.66	.63	.53	.51

* Source: Based on Japan Statistical Yearbook.

utilize their bargaining power to earn better conditions for their members. Now, Japan is a highly developed industrial society where collective bargaining functions as a full-fledged labor market institution, and the rights of workers to organize, bargain collectively and engage in collective actions such as strikes are guaranteed.

The Japanese enterprise unionism, as one of "four pillars" in Japanese industrial relations system, has been regarded as an important contributor to the economic growth in Japan, particularly between 1955 and 1974. Enterprise unions have some characteristics as following:

- (1) Membership is limited to the regular employees of a particular enterprise. Temporary and part-time workers are not eligible for membership;
- (2) Both blue- and white-collar workers are organized in a single union;
- (3) Union officers are elected from among the regular employees of the enterprise. They are paid by the union while they retain their employee status;
- (4) About 72% of the enterprise unions are affiliated with some type of federation outside the enterprise (Shirai, 1983, pp.118-19).

The enterprise union in Japan functions in two ways. It confronts and resists the employer in order to protect workers' interests. It also cooperates with the employer in promoting the mutual interests of both sides.

In evaluating the merit of Japanese unions, Shirai (1983) points out that Japanese unions have contributed in narrowing wage and status differentials between blue- and white-collar workers, and that unions have secured maximum economic gains for their members by cooperating with the management rather than confronting it. But, unions have not contributed to a reduction of strike activity.

With industrial disputes institutionalized, the institutional needs of unions lead to moderate and conservative policies. Both countries show that degree of unionization and intensity of disputes are negatively related. That is, the greater the degree of unionization, the less serious the degree of intensity. This is consistent with Dahrendorf's view the development of institutional mechanisms reduce the class militancy. Related to the proneness and extensity of disputes, degree of unionization has positive effects in both countries. In other words, unionization was found to be important in determining the shape of disputes. Where unions are present the shape of strikes has a greater chance of being frequent, broad and short.

The United States, one of the most industrialized countries, enjoyed an overwhelming superiority in material conditions as well as in nonmaterial conditions during the

1950s and the 1960s. On the other hand, Japan also experiences the extraordinary economic growth and its tremendous expansion in world markets during the last two decades. Perhaps because of these different economic backgrounds, both countries have different industrial relations systems. In the United States, the labor relations seem to increase strike volume. In the case of Japan, the bureaucratization of production and lower levels of intensification are effective mechanisms to decrease the levels of strike volume.

Chapter 5

CONCLUSION

The purpose of the present study was to look at the effects of labor process on the industrial disputes. Changes in the labor process do not reduce the levels of industrial disputes in the United States, especially when only strike volume is the main indicator of labor disputes. When each of the other three dimensions of disputes is viewed separately in the case of the United States, almost the same trend appears. On the other hand, low intensification rate of labor and bureaucratization of production reduce the levels of industrial disputes in Japan. As shown in Table 18, the relationships between labor process variables and industrial disputes measures in the United States and Japan have different patterns.⁴

⁴ There are some limitations in this study. Since all of the changes in the labor process can be interrelated affecting one another within industry, it might be more desirable to look at the relationship between each labor

TABLE 18
Summary Account of the Support for Hypotheses

	<u>SV</u>		<u>PRON</u>		<u>EXT</u>		<u>INT</u>	
	U.S.	J.	U.S.	J.	U.S.	J.	U.S.	J.
Intensification of Labor	+	-	+	+	+	-	+	-
Capitalization of Technology	+	+	-	+	+	+	+	-
Bureaucratization of Production	+	-	+	-	+	-	+	-
Unionization	+	+	+	+	+	+	-	-

SV: Strike Volume

PRON: Proneness to Disputes

EXT: Extensity of Disputes

INT: Intensity of Disputes

process variable and industrial disputes, controlling other labor process variables. Countless other factors might explain the occurrence of industrial disputes. In addition to changes in the labor process, institutional, political, economic, and cultural variables might play crucial roles in determining the patterns of industrial disputes.

Strictly speaking, neither Marx's view nor Dahrendorf's view can explain the patterns of relationships in both countries at the same time. However, this study leads one to conclude several points.

First, increased use of technical direction for pacing work clearly affects labor dispute activity. New technologies restrict worker's autonomy and social contact. Workers find less opportunity to exercise control over their work. In Marx's terms, these changes increase the alienation of labor because it means that labor becomes more external to the workers and the products of their labor become alien objects. After Marx, some theorists explain technology in terms of control and management. Replacing labor power with machinery, the capitalist can better control workers, but the workers remain merely appendages to the machine. Gartman (1978) defines mechanization as a gradual evolution whereby the control of the actual work is removed and incorporated into semi-independent mechanisms. Many recent theorists assert that the key element of mechanization is the removal of control from the hands of workers. Their basic assumption is that mechanization involves a gradual evolution, where the actual control of the work becomes removed from the manual skills of direct workers and

incorporated into autonomous mechanisms. Edwards (1979, p.112) distinguishes technical control from simple mechanization, which the latter merely increases the productivity of labor. Technical control, however, includes a social dimension. Not only does the technology increase production but it also paces the work activity of workers. However, it appears that advanced technologies contributed to workplace conflict rather than lessened it. In accordance with Marx's perspective, then, strike volume increased with increased technical control in both the United States and Japan.

Second, the positive relationship between bureaucratization of production and strike activity in the United States suggests a trend contrary to Dahrendorf's speculations. On the other hand, Japanese bureaucratic control would appear at first sight to be more effective than that of the United States at limiting strike activity, since the bureaucratization of production contributes to the reduction of strike activity in Japan. These results do not consistently support Dahrendorf.

Dahrendorf (1959, p.69) points out that the values of rationality, achievement, and equality are the characteristics of all industrial societies. "Economic rationalism" is the key means of economic activity

oriented toward the maximizing of profits. Rationalization of production presupposes bureaucratization, in which hierarchical authority arrangements and impersonal relations are realized. Dahrendorf insists that the intensity of industrial disputes decreases to the extent the authority is rationally distributed and related to management skill.

The Japanese data may be more consistent with Dahrendorf's view, because of deliberate programs to reduce the rift between production and nonproduction workers in Japan. These changes are called "white-collarization," in which blue-collar workers share important skills and work-career characteristics with white-collar workers, and there are few wage as well as nonwage differentials between those two levels of organization (Koike, 1983). In a sense, Japanese bureaucratization of production is not totally a bureaucratic model.

Third, there is no consistent evidence that the degree of unionization regulates disputes in either country. The United States and Japan show the consistent patterns to Dahrendorf's speculation in terms of unionization and its relationship to intensity of disputes. For Dahrendorf, there should have been a

tendency toward decreasing intensity in industrial disputes by virtue of institutionalization of class conflict through unionization and collective bargaining. In this sense, industrial disputes no longer express class antagonism, but are part of a negotiating process between interest groups. The organization of interest groups have the ability and the means to enforce recognition of their interests and regulate disputes through negotiations.

In general, it appears that neither theory consistently accounts for the relationships between labor process variables and levels of industrial disputes in both the United States and Japan. Marx's view, however, appears better fitted to the results than Dahrendorf's view, especially to the results for the United States. This suggests different patterns of the labor process affect the patterns of industrial dispute in the United States and Japan.

Indeed, the United States and Japan have experienced different patterns in the process of industrialization, differences which are social and cultural (Gordon et al., 1982). Large scale managerialist corporations developed in the United States. In the process impersonal relations were deliberately introduced to replace familial relations. Bureaucratic rules, assembly line technology,

and the commodification of labor became the prominent features of the labor process in the United States factory system. These methods of control were partly required because of the huge masses of immigrant workers resulted in many problems. There was a wide social gap between employers and workers in terms of homogeneity of culture. Since there were differences of culture, value, and language, immigrant workers could not adjust to new environments around them. These disadvantages made their labors cheap and easily interchangeable in the American society. There was also a rapid job mobility related to labor turnover, which resulted in the shortage of skilled workers. Thus, to solve the labor problem and achieve work integration, rationalization movement was introduced in the United States.

Taylorism, which reflects the managerial strategies of American firms, involves the systematic analysis of the labor process, the goal being a science of work. It resulted in the fragmentation of work into direct and indirect labor and the deskilling of work in general (Braverman, 1974, pp.85-123). Taylorism rejected the personal dimension of employee-management relationships and pursued the commodification of every aspect of the labor process. The consequence of these kinds of

bureaucratic and rational innovations was the "proletarianization" of American labor (Gordon et al., 1982).

The Japanese form of management is known as familial pattern, paternalism, groupism, and loyalty (Levine, 1958; Cole, 1971; Wilczynski, 1983; Barbash, 1984). The paternalism of Japanese management was a logical consequence of the combination of feudal traditions and internal labor market conditions. Zaibatsu family grouping was the dominant organizational form in Japan. The Zaibatsu, which were fostered by the government, meant that these families had greater financial power based on bank and tight-knit relations among the affiliated firms. They were rigidly disciplined in family solidarity and tradition (Levine, 1958, pp.31-5).

But through the Zaibatsu arrangement, underlying principles of the family relationship became major factors in the formation of Japanese management practice. Throughout the early industrialization in Japan there were severe problems of labor shortages. In the well-organized labor market, employers solved problems of recruitment, turnover, and labor control through two systems, the factory dormitory system and oyakata system (Littler, 1982, p.149). The factory dormitory system, as one

solution to the problems of labor recruitment, provided a short-term accommodation to workers and prevented the abduction of workers by other employers. Oyakata, which means master workmen, find the labor, determine methods of work, supervise the work process and even provide payment to the workers. In the oyakata system, employers rely on these independent labor contractors. Together they emphasize internal solidarity which entail patriarchal authority based on the father/son relation.

Following the First World War, new markets opened to Japanese goods, and this economic boom helped to spur Japanese industrialization with the increasing use of technology. The pre-existing status hierarchy systems, Zaibatsu and oyakata combined these new Western technologies to produce more stable product markets. For management, Taylorism was introduced into Japan and adapted according to existing work practices and values, namely corporate paternalism. The corporate paternalism includes a hierarchy based on ascribed status, permanent employment system, welfare schemes and familial ideology (Littler, 1982, p.156). Contrast with Taylorism, corporate paternalism essentially involves a personal relationship between employer and worker extending to non-work related activities. The corporate paternalism became the basis

for lifetime employment and employment security. Moreover, with the support and control of the state, Japanese managerial strategies could incorporate aspects of the Western style of management, utilizing existing social relationship for labor process, without falling under foreign control.

The preceding discussion reveals the different managerial strategies applied to the labor process in the United States and Japan. As long as management is a mechanism which organizes and combines labor to produce goods and service, it is necessary to relate management to the notion of control. Control can be problematic, because labor power is the product of people, who have their own interests and needs and retain power to resist against external pressures. However, American scientific management, based on rationalization and bureaucratic control, is not more effective at regulating labor disputes than Japanese managerial strategies based on a combination of familial and personal relationships and bureaucratic regulation. Bureaucratic control and Taylorism in the United States imply centralizing managerial control and deskilling of workforce where the traditional family patterns and personal interrelationships were denied. In Japan bureaucratic and personal relations combine to control the labor process.

Moreover, the Japanese process of industrialization did not trace to the pattern of development which Marx and Dahrendorf predicted. Japan built up its technological base within a traditional industrial craftsmanship form of production with bureaucratic control derived from Zaibatsu and oyakata systems. Japan does not seem to follow the historical sequence of capital formations which Marx and Dahrendorf envisioned. This fact reveals that Marx's and Dahrendorf's periodizations of the development in capitalism are not consistent with at least the case of Japan. Therefore, Marx's and Dahrendorf's views are not adequate to explain the evolution of industrialization in Japan.

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Appendix A
Correlation Matrix between
Capitalization and Bureaucratization for the U. S.

CORR	COL1	COL2
ROW1	1	.647052
ROW2	.647052	1

Correlation Matrix between
Capitalization and Bureaucratization for JAPAN

CORR	COL1	COL2
ROW1	1	.579063
ROW2	.579063	1

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INTENSIFICATION VERSUS RATIONALIZATION:
INDUSTRIAL DISPUTES IN JAPAN AND THE UNITED STATES,
1961-1980

by

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(ABSTRACT)

This study looked at the effects of the labor process on the occurrence to industrial disputes. In Marx's view, changes in the capitalist labor process result in an increase of industrial disputes. However, Dahrendorf envisioned that there is a decrease of industrial disputes, especially a decrease of intensity and violence of disputes in industrialized societies, in which rationality is a dominant value. Thus, the relative validity of the two major theoretical accounts was assessed. Samples were drawn from two developed countries, the United States and Japan, to add a cross-national comparative dimension to the assessment. The results suggest that neither theory consistently accounts for the relationship between labor process variables and levels of industrial disputes in both countries. However, Marx's view appears better fitted to the results for the United States. Dahrendorf's theory seems to be the least appropriate for both societies.