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ECONOMIC PERFORMANCE AND
STRIKE ACTIVITY: A MACROECONOMIC
MODEL OF EIGHT COUNTRIES, 1955-1981

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BY
G. WAYNE GREER (C)

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PREFACE

After having explored the articles by Orley Ashenfelter and George Johnson, and Martin Paldam and Peter Pederson, it was discovered that there existed a strong relationship between strike activity and economic performance. But, how and to what extent that relationship existed was unknown. The original belief was that there existed a positive relationship between economic performance and strike activity. That was sufficient from a philosophical point of view, to allow for a more comprehensive study of the relationship.

It was quickly learned that it would be an impossible task, given all the econometric limitations, to prove that this relationship existed. However, it was soon discovered that strikes result, in principle, from a breakdown in the collective bargaining process, an impasse at the negotiation stage. Since it was also known, that both sides prepare vast amounts of information during the pre-negotiation stage, it was assumed that when labour and management, or labour, management and government, as the case may be, enter into the collective bargaining process they utilize accumulated economic information as a basis for offers and counter-offers. Given the nature of these negotiations, particularly, in Canada, there

would eventually be an impasse, and a resulting strike or
lockout.

Therefore, it was concluded that the economic variables
utilized in the pre-negotiation stage of the collective bar-
gaining process would be related, in some way, to the level
of industrial conflict. Thus, the development of this study
was initiated. The study would explore the relationship
between economic performance and strike activity through the
use of an econometric model, as well as an analysis of the
historical development of industrial relations institutions
in each of the eight countries that will be analysed in this
study: Australia, Austria, Canada, Japan, Sweden, the United
States, the United Kingdom, and West Germany. Later in the
study, an entire chapter will be devoted strictly to Canada.

No thesis can ever be written without an army of support
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To my wife Mara, for whom this paper is dedicated, thank you for your patience and subtle encouragement as I struggled to maintain my sanity. Special thanks to my parents, Shirley and Wayne, for encouraging me to strive for more. To my friends Kon and Mario, special thanks for making this entire experience more enjoyable for me. And finally, to our special friend Pookey, for being the levity that we need to make everyday complete.

To

MARA

With whom it all seems
worthwhile

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INTRODUCTION

Throughout the past quarter-century there has been a transition (in the so-called industrialized nations of the western capitalist world) from management-totalitarianism¹ to industrial-humanitarianism² with new and enlightened interests in concepts such as tripartite cooperation, various forms of workers' participation in management, human relations rather than control of human resources, and policies that reflect a true nationalism rather than a partisan individualism.³

However, this transition has not come without hard effort, occasional human sacrifices and large social welfare and monetary costs. Social services' cost in terms of higher production costs resulting from the upward spiral of wages (i.e. labour costs are downward sticky) as well as from production shutdowns and for slowdowns due to labour disputes. These higher production costs result in higher prices to the consumer and this in turn creates the welfare loss.⁴

Monetary costs in terms of lost wages and lost profits, and the ripple effect that this lack of spending on consumer goods and additional equipment and services has upon the entire economy. The multiplier effect shows us that a single dollar can create up to four additional dollars as it moves its way through the economic cycle. The multiplier is defined as the ratio of the change in national income to the initial change in expenditure that brings about it.⁵

What about this transition? Although not clearly visible in countries like Canada, Australia, Great Britain⁶ and the United States, countries such as Austria, West Germany,⁷ Japan and Sweden are testaments to the role that industrial relations systems can have on improving labour-management-government relations. These improved relations can then be molded to reflect a new form of what may be called, socio-democratic nationalism that has the interests of every element of society reflected in certain socio-economic policies.

In some of these European nations there is a wider commitment to the welfare state and planning which probably results in greater constraints on union-management conflict.⁸ When a state employs a variety of income, fiscal, manpower, and welfare planning policies in the pursuit of sustained

full employment and economic growth, if almost inevitably is led to bring pressure upon unions and employers in pursuit of labour-management stability. The growing use in several European countries of the so-called "social contract" device to effect income, inflation, and employment trade-offs between governments, unions and employers is an important illustration.⁹

It will be these policies and trade-offs that will make up a large portion of this study, however, the main purpose will be an examination of a macroeconomic model that will attempt to explain industrial conflict and how each country copes with this very costly problem. A further examination will be made of some of the various industrial relations systems in place in each of the eight countries as well as making a brief commentary on each countries stage of development.

The base for the decision-making process will be the macroeconomic model which will allow for a breakdown of the collective bargaining process and an examination of the subconscious elements that effect this process. The principal focus will be on industrial conflict¹⁰, as measured by man days lost due to strikes and/or lockouts, and a nations' overall economic performance, as measured by several key indicators of that performance.

This model closely resembles the models of Paldam and Pederson (81) and Ashenfelter and Johnson (44), however because of this study's orientation there are many structural changes that set each of these models apart. This estimation is not restricted to the use of economic factors as explanatory variables,¹¹ since it is not only economic variables that are considered important but there are relevant political and social factors which, although difficult to quantify,¹² may be introduced into the equations.

One quickly realizes that strikes and lockouts go far beyond the realm of national economic performance; for example; they normally occur as a result of a breakdown in the collective bargaining process (those conscious elements such as employee benefits, wages, safety conditions, hours of work, job security, pensions, and union representatives' participation in management, to name but a few, that cannot be agreed upon by both sides while the formal process of bargaining has been taking place), or because of corporate economic necessity (which many people in Sudbury believe to be the main reason behind lengthy strikes and/or lockouts between Local 6500 of the United Steelworkers of America and the giant multinational conglomerate International Nickel Company of New York), or finally because of staunch union principles and ideas that supercede the need for

collective bargaining. These become the conscious elements that effect both sides desire to reach a mutually agreeable solution.

Kaufman (71) breaks down the determinants of strikes¹³ into the following categories;

1. economic conditions
2. political factors
3. psychological factors
4. institutional change, and
5. rival unionism

This study will consider some of these determinants as they apply to the conscious and subconscious aspects of the collective bargaining process. Since economic conditions and political factors are beyond the direct control of the union or its' employer, these two elements must be reflected in the model in order that an accurate study of the indirect effects can be completed.

In retrospect, people read in newspapers or hear on the streets that a union is out on strike because it was defending a moral issue or principle that goes beyond the traditional union demands of higher wages, better pensions, enhanced benefits, and job security - although one is normally hard pressed to determine exactly why this particular union was on strike. Each of these issues play an important role in a union's decision to strike, however,

the single most important set of factors, that subconsciously effects the method by which every union negotiates with its' employer, are the overall economic conditions of the entire nation.

Although job security is becoming increasingly more important, the single most important item in the collective bargaining process, from a union standpoint, is still the amount of proposed wage increase. How much more money will each employee be receiving throughout the duration of the contract, and in what stages or intervals? What is it that unions use as a guage for these demands? Undoubtedly, it is the nations annual rate of inflation, both the previous rate as well as the expected ¹⁴ rate over the future period(s) of any proposed contract. Therefore, if inflation is increasing at an annual rate of five percent, unions may demand an increase in excess of this amount in order to allow for a real increase in their wages and their spending power. It is important to note that an individual union negotiating with an individual employer, bargains based on a national phenomenon - the annual year to year rate of change of prices as expressed as an annual percentage. Is this not conscious bargaining utilizing a subconscious (but yet valuable) element?

For the purpose of this paper the determinants of the

15
 collective bargaining structure have been ignored. The assumption will be that all unions bargain in the same manner and have the same goals and objectives. This is a very naïve assumption, however if one analyses Figures 1.1 and 1.2 one can easily see how this assumption would allow for the creation of a national scope which allows for avoidance of the topic of differentials.

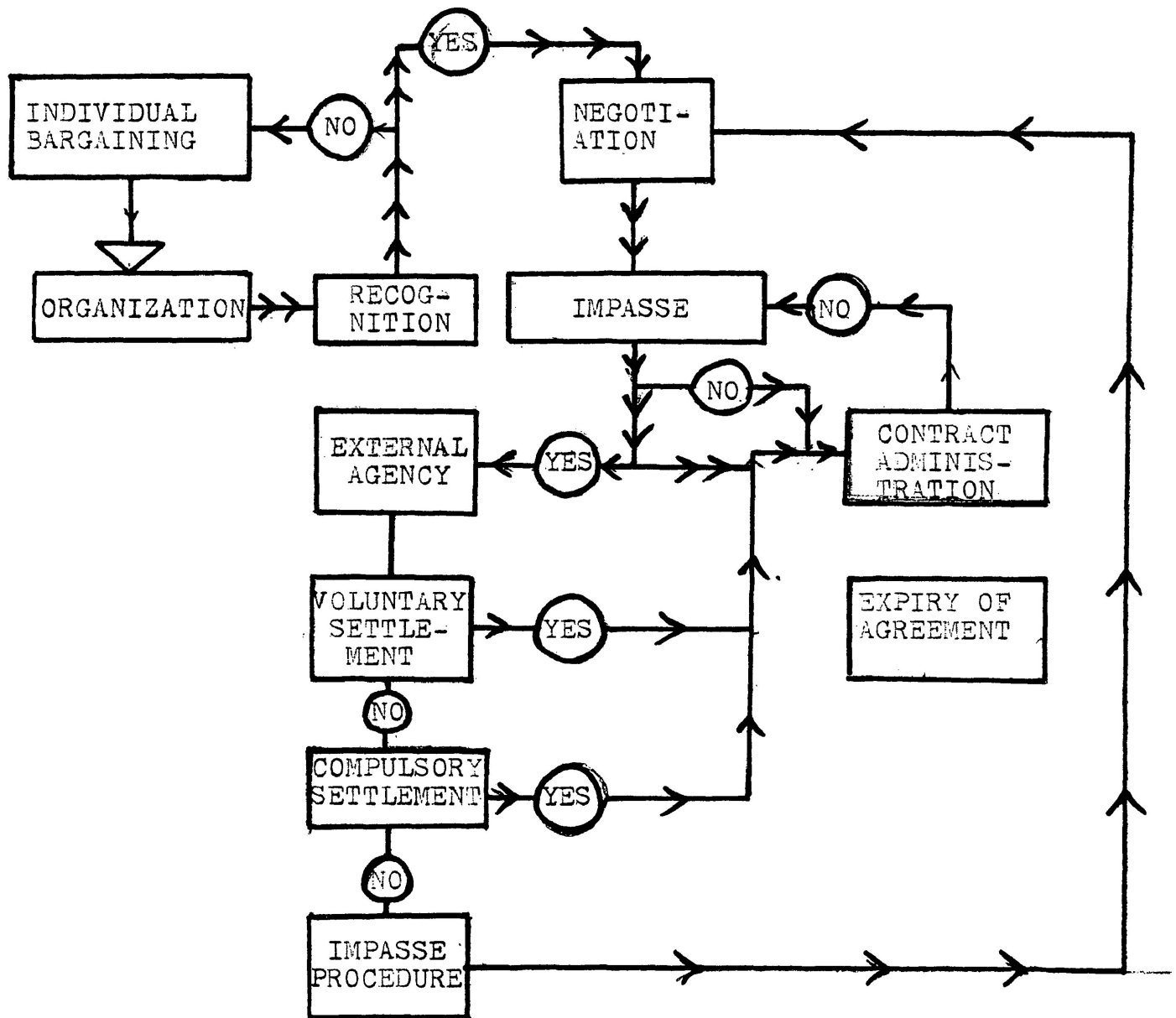


Figure 1.1 The Collective Bargaining Cycle¹⁶

Figure 1.2: A Schematic Presentation of an Industrial Relations System.¹⁹

Environmental Factors	affect	Parties of Interest	which interact through	Interaction Process	to produce Results
Ecol-ogical System		Enterprises-private, public and mixed or quasi-public Employees-managerial, supervisory, professional, technical, office, factory, etc.		The Labour Market	
Economic System		Employee Organizations-unions, employee associations, professional societies, etc.			
Political System		"Dependent Contractor" Organizations-Employer Organizations for lobbying, information, coordination, bargaining, etc.		Personnel Administration	Work Stoppage and Lockouts and/or Terms and Conditions of Work-market determined rates, employer practices collective agreement provisions and labour standards
Social and Cultural System		Legal Counsel and Consultants-in bargaining and otherwise		Collective Bargaining	
Constitutional System		Government- as custodian of the economy, determiner of the legal framework, dispute settler, employer, etc.			
Legal System		The Public Interest- is the right to association and to act collectively in continuous operation of essential services, etc.			

FEEDBACK

BASIC FLOW OF INFLUENCE

REVERSE FLOW OF INFLUENCE

Other concepts or perceptions that have a subconscious effect on the collective bargaining process include;

- A) a nations annual rate of growth of its economy as measured by the annual rate of change of the gross national product (GNP) and the annual number of employed workers
- B) the number of unemployed workers expressed as a percentage of the total civilian work force
- C) the present course of government policies in terms of trying to attain the goals of low inflation, low unemployment and consistent economic growth, as well as governments' attitude towards labour and big business
- D) time as a factor relating to socio-economic change (notably advancement in terms of technological change - the use of the microchip - and its association with unwelcome consequences such as higher unemployment, redundancy, de-skilling, declining pay differentials, inter-union disputes and new hazards at work;¹⁷ the strengthening of unionized workers - in terms of bargaining position and in terms of the numbers of unionized workers¹⁸ - particularly from the end of the 1950's until the late and often turbulent 1970's), the change from individual independence to a social state dominated by welfare payments and other costly social programs and growing uncertainty in terms of economic stability - vis-a-vis the growing dependence on deficit financing which has become popular amongst western nations.

How do each of these concepts or perceptions effect the collective bargaining process? In terms of measuring their effect, there is no methodology available that would allow us to make a firm and undeniable judgement as

to the specific effect that these concepts would have on the collective bargaining process. However, expansion and modification of the methods used by Paldam and Pederson and Ashenfelter and Johnson will allow for an analysis of breakdowns in the collective bargaining process, and then to provide for a comparative analysis of these results.

The aforementioned concepts directly affect the subconscious component of the collective bargaining process and most likely affect the attitudes of both sides as they prepare to enter into the collective bargaining process. Assuming that each of the eight countries function within the same industrial relations structure, as shown in Figure 1.2, it can easily be seen how an individual unions' position could be influenced by factors outside its direct relationship with its employer. For example, when a nationalized union is bargaining with its employer it is likely to be asking for a package of benefits and concessions that are representative of those given to other unions in a similar situation.

In Canada, members of the United Auto Workers unions in Oshawa, Oakville and Windsor will be looking for similar items from each of the Big Three automobile manufacturers - i.e. General Motors, Ford and Chrysler. In more recent

times they would be looking for each of the following when entering into the collective bargaining process;

- A) 5% or more increase in wages
- B) job security
- C) protection against technological advances as well as input into the utilization of these advances
- D) profit sharing
- E) better pension plans, and
- F) a better employee group benefit package

How do these workers arrive at their decision regarding what they should be asking for during the collective bargaining process? These decisions are arrived at by members of the union who analyse national trends such as inflation, economic growth and unemployment. The union will also analyse its position of strength against its weaknesses and considers the importance of that particular industry/service to a specific town, region, province, state or country. The union must also take into account the political directions that a particular governing political organization may take in the future. All of these aspects play an important role in determining the bargaining positions to be taken by a particular union.

The primary purpose of this study will be to examine the relationship that exists between the subconscious variables in the collective bargaining process, as well as their direct relationship on a nations socio-economic framework. The main thrust of the arguments utilized in this study

will come from the development of a macroeconometric model that will attempt to explain the relationship between man days lost due to strikes and/or lockouts - the break down of the collective bargaining process - and a nations' overall socio-economic performance - as measured by explanatory variables such as unemployment, real wages, growth in gross national product, etc.

This model will examine whether or not the explanatory variables have a significant effect on the collective bargaining process to be a determining factor in the employers' or unions' decision making process as to whether or not a strike or lockout is warranted. Undoubtedly, the structure of this model will make it difficult to establish specific criteria that will conform to the standards set forth by text-book econometricians, however as may be discovered in the following chapters, this model will have many practical applications as the model's results are compared to the various national socio-economic structures which affect the collective bargaining process.

One of the main hypothesis of this thesis revolves around the various social policies employed within the economic framework of the eight countries mentioned earlier in this chapter. Those countries which lean more towards government

participation in influencing wage contracts and in labour-management cooperation at the level of the workplace through appropriate policy measures will have equations that are not significant, while countries that lean more towards a controlled form of the free enterprise system - i.e. with some trade restrictions and bevy of foreign multi-national corporations who exhibit an uncooperative attitude towards labour²⁰ - will show a higher significance level for its equations. There will also be some countries that for some particular reason will not fit into its pre-determined category and this will prompt the need for additional study as to why there was non-comformity with the hypothesis.

This hypothesis believes that the eight countries being examined in this study can be accurately broken down into the following two categories:

I) Category A - Tripartite Industrial Relations System

1. Japan
2. Sweden
3. West Germany
4. Austria

II) Category B - Non-Tripartite Industrial Relations System

1. United States
2. Canada
3. Australia
4. United Kingdom

An examination of this hypothesis will be done in the following manner; the next chapter will provide a survey of

literature, an analysis of the two previous models, and a commentary on how and why this model differs from those; and an analysis of the distinction between the conscious and subconscious elements in the collective bargaining process.

Chapter three will continue with the specification of model and an analysis of the model variables. Chapter four will analyse the results and look at problems that may have existed with the model. Chapter five will be a second survey of literature that delves into the various socio-economic policies that are employed in each of these countries, including a historical perspective, and then will continue with an examination of how the results of the model coincide with the implementation of these various policies. Chapter six will more closely examine the differences between our hypothesis and the results that were actually obtained and will focus some attention on the relationship between the dependent variable and the explanatory variables. Chapter seven will focus on Canada and its poor state of affairs - in terms of labour-management-government relations - and will make several recommendations for both short and long-run improvements. Lastly, chapter eight will draw some overall conclusions about the relevance of this entire exercise.

Notes

In the past there has been one concept that has characterized labour-management relations, and that concept has been that workers should not have any input into the decisions of the firm even though all decisions have a direct impact on them.

In more recent times, particularly in some Western European nations, management has realized that workers have a key role to play in the present and future direction of the firm through their input into decisions at the level of the enterprise.

Companies and Governments must begin to realize that that welfare of the nation is far greater than the individual profitability of a few large firms.

Higher production costs due to unwarranted wage increases, result in the consumer paying a higher price than they actually should be for a particular product, and this excess becomes a consumer loss.

Sherman J. Maisel, Macroeconomics: Theories and Policies, New York: W.W. Norton and Company, 1982, p. 93.

Great Britain, Britain, and the United Kingdom will be used interchangeably throughout this thesis.

West Germany may be referred to as the Federal Republic of Germany, or F.R.G.

Everett Kassalow, "Industrial Conflict: The U.S. and Western Europe," in Benjamin Martin and Everett Kassalow, Labour Relations in Advanced Industrial Societies: Issues and Problems, Washington: Carnegie Endowment for International Peace, 1980, p. 58.

9. Ibid.

10. Since there are only limited statistics available on the number of contracts settled without some form of industrial conflict, it will be necessary to focus on strike activity as the measure of success for the collective bargaining process.

11. Martin Paldam and Peter Pederson, "The Macroeconomic Strike Model: A Survey of Seventeen Countries, 1948-1975," Industrial and Labour Relations Review 35 (July, 1982), p. 504.
12. Ibid.
13. Bruce Kaufman, "Determinants of Strikes in the U.S. 1900-1977," Industrial and Labour Relations Review 35 (July, 1982), pp. 478-484.
14. See Appendix V on adaptive expectations.
15. Use of the determinants of the collective bargaining process as proposed by Wallace Hendricks and Lawrence Kahn "Determinants of Bargaining Structure in U.S. Manufacturing Industries," Industrial and Labour Relations Review 35 (January, 1982) pp. 181-195, would only extend the model beyond its original purpose and would tend to make the model focus on the non-economic aspects of bargaining.
16. Gerald Phillips, Labour Relations and the Collective Bargaining Cycle, 2nd ed., Toronto: Butterworths, 1981, p. 10.
17. Greg Bamber, "Microchips and Industrial Relations," Industrial Relations Journal 11 (Nov./Dec., 1980), p. 9.
18. Ibid.
19. Gerald Phillips, p. 6.
20. Duane Kujawa, "Labour Relations of U.S. Multinationals," in Benjamin Martin and Everett Kassalow, p. 22. See results of the Shearer study.

CHAPTER II

The collective bargaining process is the main focal point of the relationship between an employer and a certified union. From this process develops the framework under which employer-union relations must operate for the duration of any mutually agreed upon contract.

However, how do unions and management cope with problems that exists with the collective bargaining process? There are several ways in which problems may be dealt with; the union has the option of work slowdowns, work shutdowns, deliberate absenteeism, continued negotiation with or without third party intervention or ultimately a complete withdrawal of services - a strike. Management has fewer options than labour, however management could use stalling tactics when resuming negotiations, continue negotiating with or without third party intervention, or they could prevent the workers from entering their place of work. - the employer could lockout the employees.

In practice the collective bargaining process is a psychological chess match where the employer and the union both plot independent strategies and make moves based on their perceptions

of their position of relative strength against the opposition. For example, power may stem from the manipulation of information²¹, - strikes occur because each party to the negotiations uses different variables in estimating the outcome of bargaining and because each is not fully aware of the opponents position²² - expertise, or traditional relationships between the parties. Relations may also be affected by the power one party has to reward, coerce or threaten the other.²³

Economists have begun to look at the study of the collective bargaining process and unions in terms of other social science disciplines. Psychology and social psychology are used to analyse individual and group behavior, such as the formation of unions by workers and the process of negotiations. Sociology is used principally to examine the structure and functioning of organizations, including labour unions.²⁴

From this, the dynamics of the collective bargaining process has become a leading area of behavioural research with the specific focus of attention being the contract or negotiating zone.²⁵ "Walton and McKersie, Stagner and Rosen, and others have distinguished between the parties preferred outcome and their tolerance limits or resistance points. Parties to bargaining start out with preferred outcomes and gear their initial offers to these preferences. As bargaining continues, the parties tolerance levels are revealed, offers are modified,

and concessions are made. Two general type of bargaining outcomes are possible, namely settlement and impasse, with the latter sometimes accompanied by a strike or lockout.²⁶"

The fact remains that the collective bargaining process is a socio-psychological process the utilizes economic information in arriving at decisions related to preference.

This process is a two-sided affair with a one-sided outlook. What is meant by this is that neither management nor labour trust one another enough to be fully open with the flow of information and the exchange of ideas. This means that both groups are individualistic and self-oriented as they approach their role in the collective bargaining process.

However the introduction of industrial relations systems and the more systematic study of industrial relations has led to a shift away from the common antagonistic bond that controls the relationship between employer and union. Economists like Beaumont and Gregory (46), Clegg et al (53), Timperley (95), and Collins (54) to name but a few, have noted that there has been a changing attitude amongst managers as they rethink the vital role that industrial relations can play within their firms.

"Two different employers interests have predominated in bringing about union recognition. In some industries, with

competitive product markets, employers have been interested in the assistance which trade unions could offer them in market control, at the very least in taking wages out of competition. In other, mainly large scale industries, on the other hand, the main motive has been to secure assistance in managerial control, in making and upholding rules to regulate work and wages for the sake of gaining employee consent and cooperation and avoiding costly strikes.²⁷"

Timperley attempts to discuss some of the key issues relevant to the management of industrial relations in organizational settings²⁸ and he believes that through managerial decisions and actions, leading to a concept of a desirable organization²⁹, could be regarded as both a managerial responsibility and organizational necessity.³⁰ Clegg et al discovered that most managers were broadly in favour of industrial democracy, and felt that almost all of them valued 'pragmatic' objectives which the majority believed could be met through direct forms of participation.³¹

Collins examined the role of industrial relations as an occupation and noted that management considered the role of personnel management/industrial relations as a profession³² or in the process of becoming one, and these individuals are viewed as "insiders" with an organization.³³ However, he also noted that these "professionals" were oriented to the

authority structure of their organizations and locked into the control system through the application of the line and staff concept³⁴, yet, the emphasis has shifted towards education and professionalism as this role develops into a key part of the organizations infrastructure.

Yet, industrial relations and their application varies from region to region, country to country and enterprise to enterprise. For example in some parts of Europe it is a community affair. The European Community affects national industrial relations through its legislative function, by its involving the trade unions and employer organizations, by its new institutions, through collective bargaining issues and through plans to change both company structure and the influence of workers on company decision-making.³⁵ Countries like the United Kingdom - which is an ascending³⁶ member of the European Community - and Japan utilize industry-wide negotiations but differ in the nature of their approaches. Countries like Canada, the U.S.A. and Australia still function under the polarized system of unit bargaining and therefore have poor strike records.

Even with industrial relations systems and the widespread use of the collective bargaining process there are still strikes and lockouts. Attitudes between union and management are

changing but slowly. Unions have some support for joint programs that are directly related to issues that they support - for example union support is fairly high for issues related to quality of work³⁷ - but lack support for the more traditional issues.³⁸ Without the unions complete support there remains room for industrial conflict to take roots and become a viable alternative to the process of negotiation.

The collective bargaining process encourages dialogue between both sides. This dialogue may be friendly or hostile, but it still provides for a means of communication that is essential if the workplace is to survive. This paper does not distinguish between private and public sector collective bargaining, but since the wage rate in manufacturing has been used it must be assumed that a case for collective bargaining in the private sector must be presented.³⁹

"Four claims are made for private sector collective bargaining. First, it is said to be a way to achieve industrial peace. This point was made as early as 1902 by the U.S.

Industrial Commission:

The chief advantage which comes from the practice of periodically determining the conditions of labour by collective bargaining directly between employers and employees is that thereby each side obtains a better understanding of the actual state of the

industry, of the conditions which confront the other side, and of motives which influence it. Most strikes and lockouts would not occur if each party understood exactly the position of the other.

Second, collective bargaining is a way of achieving industrial democracy, that is, participation by workers in their own governance. Third, unions that bargain collectively with employers represent workers in the political arena as well. And political representation through interest groups, is one of the most important elements that the individual can have. Governments at all levels act in large part in response to the demands made upon it by the groups to which its citizens belong. Fourth, and most important, as a result of a belief in the unequal bargaining power of employers and employees, collective bargaining is claimed to be a needed substitute for individual bargaining.^{40.}

So far the need for private sector collective bargaining⁴¹ and an adequate form of an industrial relations system have been established. An individual industrial relations system that promotes the free flowing exchange of information and ideas that will ease managements discontent with its employees and end the unions suspicion of management. Attention must now focus on clearly defining the difference between the conscious and subconscious elements of the collective bargaining process as well as an analysis of the two most popular⁴² macroeconomic strike models.

As has been pointed out in the introduction, the collective bargaining process can be broken down into two main components. Component one - the subconscious elements - focuses on the pre-negotiation stages and the information gathering process that the union and employer must go through. Component two-- the conscious elements - focuses on the development of negotiation preferences and the actual stages of negotiation, compromise, solution and ratification. Because of the assumption that strikes and/or lockouts occur as a result of a breakdown in Component Two, another assumption must be made that one purpose may in fact be to test the Hicksian accident theory of strikes.⁴³ This assumption must be made because the model attempts to identify variables that increase uncertainty for one or both sides in the collective bargaining process.⁴⁴

What this leads to is the fact that this type of macro-econometric model, as espoused by Ashenfelter and Johnson and expanded upon by Paldam and Pederson, must focus on the individual variables and how they lead to a critical breakdown in the collective bargaining process. In order to reduce the risk of a breakdown Phillips (32) has noted that preparation for bargaining requires an understanding of at least five vital topics:

1. the employing entity - those involved should be knowledgeable about the objectives, facilities,

2. strengths and weaknesses of the other side;
2. the existing agreement - both sides should do a thorough analysis of the strengths and weaknesses of an agreement;
3. benchmark settlements - both sides should be knowledgeable of precedents established by other unions, companies and industries;
4. present objectives and limits;
5. the opposing negotiators and the group they represent;⁴⁵

and in addition

6. economic conditions - know the national and regional trends of vital statistics such as unemployment, economic growth and inflation
7. social conditions - try and establish a network of information that will allow for the immediate interpretation of proposed government policies and new legislative measures that have been introduced since the last agreement.

By being better prepared for the negotiations both sides are more likely to attempt to get a compromise rather than develop an impasse. The seven components, as have been presented here, represent Component One of the collective bargaining process - the subconscious or indirect elements that have a vital role to play in the overall process. As one can clearly see Component One is a preparatory phase that concentrates on the gathering and producing of information relevant to the overall process.

A union and employer will take all the information that they have received and enter into head-to-head negotiations to arrive at a collective agreement. It is at this point that the subconscious elements give way to the conscious elements.

Conference Board Report #765 examines many of these elements from a corporate point of view.

In their study of 788 corporate enterprises it was discovered that competition within the industry and local labour market conditions and wage rates had the most important influences on wage and benefit targets.⁴⁶ National labour market conditions and wage rates, the inflation rate and major union settlements in other industries had little or no effect on wage and benefit targets.⁴⁷ This would indicate that in the U.S. and in U.S. owned foreign multi-national corporations the company would be compatible with the unions in that nationalistic policies and collective bargaining should be ignored in order to promote better relations at the level of the enterprise.

In a similar Conference Board report (118), a study of employee benefits noted that uniformity was becoming a major issue. Uniformity of treatment for all employees under the various benefit plans seem to have grown over the previous decade - 1964-1974. There had been a rise in noncontributory benefits such as health insurance, accident and sickness insurance, long-term disability, pension plans, life insurance, etc.⁴⁸ The two main reasons behind these trends were that companies now felt that it was a desirable policy goal, while unions

wanted to get more out of working, rather than just a compensation package based on wages.

Issues like employee benefits, technological change, job security, workers right to participation in management, etc., have become much more important issues in the collective bargaining process. Report #765 has shown that although wages were still an important issue, they were not as important as they once were. With the addition of these types of issues the collective bargaining process has become much more volatile since there is more at stake for both sides. Unions no longer strike for monetary issues but rather for issues that effect their own future well being.

Collective bargaining has become two dimensional; it is not only a short-term process (i.e. monetary issues) but it is also a long-term process that has implications on the future fiscal viability of the firm as well as its workforce. And with all that is at stake there are bound to be disagreements that lead both sides into industrial conflict which may include a strike or lockout.

Since this study focuses in some detail on a macroeconomic strike model it is necessary to examine the two principal models of this type and to differentiate them from the work that is being done in this study.

The model that pioneered the study of macroeconomic strike models was the model of Ashenfelter and Johnson.⁴⁹ In their model Ashenfelter and Johnson wanted to examine certain perceived theories of the firm, trade union behaviour, and bargaining in order to derive testable implications concerning the conditions under which labour disregarded the traditional theory that collective bargaining was a two-party affair but instead focused on collective bargaining as a three-party affair - management, the union leadership and the union rank and file.⁵⁰

Ashenfelter and Johnson also assumed that the union leadership was placed in a "no win" situation, and that they had only one of two alternatives; (i) signing an agreement which is less than the rank and file expects or (ii) incurring a strike.⁵¹ Ashenfelter and Johnson assumed that because the union leadership had to be placed in this situation that they could set up an "essentially political model of the function of a strike to examine the firm's choice between giving into the last union demand, which is the wage increase the rank and file finds acceptable as of the date of contract expiration, and "taking a strike" in order to obtain a lower settlement.⁵²"

In the Ashenfelter and Johnson model, the probability of a

strike was the dependent variable in the linear system and the unemployment rate, nominal wage rate, a distributed lag function of current and former real wage increases, time, and a lagged ratio between profits and wages were the explanatory variables. This equation was then reestimated by including a dummy variable to measure the effects of the Landrum-Griffith Act introduced in the U.S. in 1959. This model has been referred to as a political theory model of strikes. This model has also been designed with American industrial relations in mind and therefore would not necessarily be relevant in a more centralized industrial relations environment.⁵³

The results also indicate that although a high r-squared coefficient did result there was some positive autocorrelation as given by the Durban-Watson statistics. Because of the nature of the explanatory variables, one must assume some degree of multicollinearity. The Ashenfelter and Johnson model does set out to study the effect of a strike within a very limited environment and the results indicate that with the proper expansion and modifications a more realistic global model could be developed.

That was the goal of Paldam and Pederson. These authors attempted to expand on the theoretical foundations laid down by Ashenfelter and Johnson and attempted to create a model

that restricts the analysis of post-war strike functions to economic factors as explanatory variables. After the initial estimation had been completed, two additional variables were introduced to consider relevant social and political factors. The authors then apply this function to seventeen different countries, including the eight to be studied in this paper - although because of data problems these authors were unable to study West Germany and Austria.

The Paldam and Pederson model is first set-up with the number of conflicts (utilizing an index with national average set at 100) as the dependent variable and nominal wages in manufacturing, price increases for consumer goods, unemployment rate, real growth rate for Gross Factor Income, increases in real wages in manufacturing and changes in the net wage share, as the explanatory variables expressed in percentages. Paldam and Pederson then introduced the two dummy variables; (i) government composition (-1, 0, +1) and (ii) election years (1 for, 0 not).

The Paldam - Pederson model draws five main conclusions;

- "1. nominal wage changes have a superior overall explanatory power compared with real-wage changes;
2. the dominating signs on both nominal and real wage increases are positive;
3. the coefficient on the rate of unemployment is generally unstable
4. conflicts are more plentiful under left-wing than right-wing governments, at least in the short run;

- i. regressions using, as the dependent variable, number of conflicts (as opposed to man days lost or workers involved) produce the most significant and stable coefficients.⁵⁴"

However just like the Ashenfelter and Johnson model the Paldam - Pederson model is again burdened by correlation and multicollinearity problems. Three of the six variables are dependent upon wages in the manufacturing sector; and the principal statistics - i.e. the r-squared, the F-statistic and the Durban - Watson statistic are, in general, weak and/or inconclusive, particularly in regard to the eight countries that this paper will later study.

The other problem with both of these papers is that they are singular in their approach. Both papers focus on the relationship between wages and strikes in the two-dimensional framework of management versus labour. Both papers fail to regard government as an equal partner in industrial relations but rather they focus on government as a legislative outside entity that by virtue of policy implementations or formal legislation would have an external effect on the industrial relations system.

It is here that this paper greatly differs from the previous two - even though it may seem quite similiar structurally. This model was established to reflect a type of tripartisan

relationship that must exist between government - labour and business. The variables are set-up in such a manner that each party shares an interest in having knowledge of the nations vital economic statistics. Governments' economic goals and industrial relations institutions and policies appear to be more important in this context than elections and political policy alliances. Economic growth, unemployment and inflation are all variables that have a direct bearing on the attitudes of each of the three participants as they cope with the economy and deal with each other. Time and wages have a direct bearing as well, particularly in changing the structure of the organization and in focusing on the future.

However this model, although structurally similiar yet structurally dissimiliar, is utilized in a different manner when one considers the entire scope of this study. The model is not the singular element in this study. The model results will be used to interpret the internal domestic relationships that exist in each of the eight countries. A large part of this study will focus on the individual nations and the types of industrial relation policies that are being utilized as a means to promote tripartite cooperation.

This study will then examine industrial conflict as a function of the bargaining process and examine the role of Component

One in the collective bargaining process. The paper will also provide a historical briefing on the development of industrial relations institutions and policies for each of the eight countries and will relate these to the results obtained from the model. Therefore, the model in this study is only a means by which to achieve an end and it should be accepted on its own merits and contributions to this study.

Notes

21. C.J. Botherton and G.M. Stephenson, "Psychology in the Study of Industrial Relations," Industrial Relations Journal 6 (Autumn, 1975), p. 48.
22. Martin Mauro, "Strike as a Result of Imperfect Information," Industrial and Labour Relations Review 35 (July, 1982), p. 522.
23. C.J. Botherton and G.M. Stephenson, p. 48.
24. David Lewin and Peter Feuille, "Behavioral Research in Industrial Relations," Industrial and Labour Relations Review 36 (April, 1983), p. 345.
25. Ibid, p. 351.
26. Ibid.
27. Phil Beaumont and Mary Gregory, "The Role of Employers in Collective Bargaining in Britain," Industrial Relations Journal 11 (Nov./Dec., 1980), p. 48.
28. Stuart Timperley, "Organization Strategies and Industrial Relations," Industrial Relations Journal 11 (Nov./Dec., 1980), p. 38.
29. Ibid.
30. Ibid.
31. Chris Clegg et al, "Managers' Attitudes Towards Industrial Democracy," Industrial Relations Journal 9 (Autumn, 1978), p. 7.
32. R.G. Collins, "Industrial Relations as an Occupation," Industrial Relations Journal 8 (Spring, 1977) p. 46.
33. Ibid.
34. Ibid.
35. Ivor Roberts, "Industrial Relations and the European Community," Industrial Relations Journal 7 (Summer, 1976), p. 24.
36. Ibid.

37. Lee Dyer, David Lipsky, and Thomas Kochan, "Union Attitudes Towards Management Cooperation," Industrial Relations 16 (May, 1977), p. 171.
38. Ibid.
39. This paper recognizes that there are substantial differences in the response mechanisms that exist when comparing private and public sector collective bargaining. However, within the context of this analysis, the "Man Days Lost" variable contains losses incurred within both of these sectors. Without being able to distinguish the strike data between the two sectors there exists an empirical problem that cannot be overcome. Since, for the most part, the European and Japanese data does not distinguish between which sectors are on strike, the bulked data has to be used in order to formulate generalities. It is important to note that in most European nations and Japan collective bargaining is carried out within a nationalistic framework, and this contributed to the lack of statistical distinction that has been made between these two sectors.

However, the situation in Canada and the United States is quite different. In Canada and the United States there exists a form of Bilateral Monopoly, where the response to collective bargaining has been altered by a lack of demand pressure, as well as by the overbearing influence of federal government(s) policies. Policies which may limit or control the behavior of a public sector union. In Canada, there exists a public sector distinction between employees of federal or public enterprise and those who are directly employed by a specific government department. Because of these types of internal public sector distinctions, there will be different institutional arrangements which will have differing effects on a unions ability to strike or an employers right to lockout. In the United States many federal employees - such as Postal employees and Air Traffic Controllers - do not have any rights to strike. Therefore the American data is the least susceptible to criticism, and is the most accurate of the eight nations.

If this analysis had been able to distinguish between the number of man days lost in both of these sectors, the expected results would have differed significantly.

For example, the economic variables utilized in this study would have been more significant for the private sector than the public sector. It is also evident that including the public sector strike data has had a moderating effect on this study's results.

40. Harry Wellington and Ralph Winter, "The Limits of Collective Bargaining in Public Employment" in Richard Rowan, ed., Readings in Labour Economics and Labour Relations, Homewood: Richard B Irwin Incorporated, 1980, pp. 202-203.
41. The purpose of this paper makes it necessary to ignore the concerns of public sector bargaining.
42. Popularity in terms of the number of times that these models have been mentioned in the literature.
43. John Hicks, Theory of Wages, 2nd ed., London: Macmillan, 1964, p.146.
44. Martin Paldam and Peter Pederson, p. 505.
45. Gerald Phillips, pp. 154-155.
46. Managing Labour Relations, New York: Conference Board Report, 1978, p. 39.
47. Ibid.
48. Profile of Employee Benefits, New York: Conference Board Report, 1974, p.2.
49. Orley Ashenfelter and George Johnson, "Bargaining Theory, Trade Unions and Industrial Strike Activity," American Economic Review 59 (March, 1969) p.35.
50. Ibid, p. 36.
51. Ibid, p. 37.
52. Ibid.
53. Martin Paldam and Peter Pederson, p. 505.
54. Ibid, p. 517.

CHAPTER III

The fundamental objective of this econometric model is to establish whether or not a relationship exists between the variable that monitors the breakdown of the collective bargaining process - average annual man days lost per employee due to strikes and/or lockouts - and a country's overall economic performance. By analysing the resulting econometric statistics, one will be able to determine if the collective bargaining process is at all affected by that country's overall economic performance, in cooperation with the various social institutions being utilized.

To determine whether or not such a relationship does exist, one must first specify an econometric model that accurately reflects the goals of this study - a model with the right equation and an appropriate number of variables. Therefore, the criteria for analysing this relationship must be established.

It is inevitable that the collective bargaining process must at some point choose between one of the two options; a) to agree to a new contract or b) declare an impasse and utilize a strike or lockout as a form of obtaining concessions from the other side. Since the only data available for all the

countries to be studied was data that focused on industrial conflicts, this study will focus on the breakdowns on the collective bargaining process. The data comes from published International Labour Organization statistics⁵⁵ that focus directly on industrial conflict and the ILO titles "Man Days Lost Due to Strikes"⁵⁶ Strikes must be qualified as not only being a result of a breakdown in negotiations or disagreement over the implementation of an existing agreement, but also because of disagreement over issues such as technological changes, health and safety, shutdowns or government policies.

Access to these statistics will enable a study of the rate of occurrence of this type of conflict and to relate it to breakdowns in the collective bargaining process. The explanatory variables, which as a group, represent our estimation of the nation's economic performance, will be used to develop this critical relationship, and then, a comment on their contribution to industrial conflict. For example, if the economy is going through a period of boom and economic conditions are such that unemployment is at a low ebb in its cycle, then a union may choose to strike their employer, knowing that it may be difficult and/or costly for that employer to find an adequate supply of skilled labour to assume their positions. A second scenario could be that the union, after years of mediocre corporate performances, knows that the company(s) has to put together back-to-back strong fiscal periods, and realizing that it is their work

skills that have led to this corporate turnabout, now want higher wages, better benefits, including pensions and a general improvement in working conditions. The union feels that these demands are justified given the company's new found fiscal strength. These are only a few examples of how a union can evaluate economic performance both on the national and the local level prior to taking the position that a strike is necessary.

It is necessary to evaluate the importance of a nation's economic performance and its various labour-related socio-economic programs on the collective bargaining process, (or ultimately on the final decisions regarding the strength of one's position in the collective bargaining process), an econometric model that will allow for that purpose, must be established. As has been stated earlier, attention must be focused on breakdowns in the process rather than on successes because of the limited nature of available data. What this means, is that average annual man days lost per employed worker, will be the dependent variable in the equation, man days lost in terms of strikes and/or lock-outs that result from a breakdown in the collective bargaining process.

On the independent side of the equation, will be a combination of explanatory variables that best represent an accurate measure of a nations total economic performance. These explanatory variables are:

- . the real wage rate (wages) which represents the annual rate of change of deflated wages in the manufacturing sectors expressed as a percentage;
- . the annual unemployment rate as of January 1st of each year, and expressed as a percentage of all available workers (unemployment);
- . the total number of employed workers (employment) excluding those in the military services but including those directly involved in agriculture;
- . the expected annual year to year change in the price of goods and services (inflation) expressed as a percentage based on January 1st of each year;
- . the nominal annual rate of growth of the economy (growth) expressed as a percentage change in the Gross National Product;
- . the policy variable index (policy) which reflects the type of labour related socio-economic policies being used in the country as well as a measure of how that country's performance in attaining the traditional economic goals of low unemployment, lower inflation and a high rate of economic growth;
- . time (time) as a variable, measuring socio-economic change in terms of attitude changes and technological advances; and as time marches on all things must change...

Each of these explanatory variables will be used to explain why there have been breakdowns in the collective bargaining process that have led to industrial conflict.

Therefore, the equation can be expressed as follows:

$$Y_1 = A + BX_1 + BX_2 + BX_3 + BX_4 + BX_5 + BX_6 + BX_7$$

where Y_1 is the dependent variable

A is the constant

$B_1, B_2, B_3, \dots, B_7$ are the coefficients, and

$X_1, X_2, X_3, \dots, X_7$ are the explanatory variables.

Or, in terms of the model in this study,

$$MLP = A + B_1XZNEF + B_2XZRWR + B_3XZURP + B_4XZTEM + B_5XZPCG + B_6XZTime + B_7XZPVI$$

where

MLP is the dependent variable, man days lost due to strikes;

A is the constant;

B is the coefficient of estimation for the explanatory variable;

ENF is the inflation index;

RWR is the wage rate index;

VRP is the unemployment rate;

TEM is the total employment

PVI is the policy variable index;

Time is the time expressed in chronological order; and

PCG is the rate of growth in GNP.

Now that the equation has been illustrated, the focus will shift to providing detailed explanations as to why these specific variables were chosen. It will be necessary to provide some additional explanations of the mathematical calculations involved in converting some of these variables into a more useful form. Even though the main purpose of this study is an examination of breakdowns in the collective bargaining process, the emphasis has shifted away from direct involvement in this process and interest has grown in the socio-economic factors that are crucial to the development of specific opinions regarding

the possibility of a mutually acceptable agreement being worked out. As has been stated earlier, one must not be overly concerned with why the collective bargaining process breaks down, but rather be interested in developing the relationship between a nation's economic performance and its indirect effect on the collective bargaining process.

So the ultimate question becomes, which variables should be used in order to gauge economic performance. However, there are two underlying principles that must be adhered to when choosing the variables which will be used most effectively in the model;

- 1) In this study, the O.L.S. method will be used in order to derive results. One of the primary reasons for choosing this method, was the ease by which statistics could be analyzed, particularly with a limited number of explanatory variables. The explanatory variables were limited in order that a sufficient number of degrees of freedom would be left to make statistically significant judgements; and
- 2) since the success of any industrial relations system must be a tripartisan effort, one must include variables in the equation that accurately reflect this relationship. These explanatory variables may or may not effect each of the three participants in the same manner, however, each group will consider each of these explanatory variables when making policy decisions.

Explanations for each of these variables follow. Perhaps the most non-controversial of all current measures of economic performance is the annual rate of change in the Gross National Product. This statistic provides insight to all three of the parties as to the nation's economic stability and whether or

not present policy measures are being successful in expanding the economy. The measure chosen to show the market prices and measure the inflated change in GNP as the percentage change from January 1st of one year to January 1st of the next is

$$\text{percentage change in GNP} = \frac{\text{GNP} - \text{GNP}(-1)}{\text{GNP}(-1)} * 100$$

Another of the explanatory variables that always seems to be in the national spotlight is the national unemployment rate. Business and labour have developed a pessimistic attitude towards government policy and the overall state of the economy when unemployment is at a significantly high level. When unemployment is at a low level, there is always renewed optimism that things can only get better for each of the three parties. For the purpose of this study, unemployment has been expressed as the annual rate of change, expressed as a change from January 1st of one year to January 1st of the next.

In order for any economy to consistently expand year after year, there must be consistent growth in the Gross National Product and in the key sectors of the economy. When there is consistent growth, it means that businesses and government are expanding and creating more jobs for labour. One measure of this consistency is the total number of employed workers. The gross figure is being utilized, as opposed to an annual rate of change figure, to avoid chronic serial correlation between the two employment variables.

Since this model focuses on the breakdown of the collective bargaining process, it is important to analyse the two statistics that play an important role in the preparations prior to entering the collective bargaining process. The first of these statistics is the expected annual rate of inflation. The reason for choosing the expected annual rate of inflation, is based on the fact that labour is usually involved in negotiations that extend beyond the contractual obligations, and therefore, the decision making process is based on projections that extend over two or more periods. Therefore, an index has been developed that measures how labour would arrive at its projected figure for inflation, and the argument is based on the model of adaptive expectations, see Appendix V.

For simplicity, and to avoid a lengthy argument over a weighing scale, the assumption has been made that labour makes its decisions over two periods. This means that the variable equation was derived as follows:

STEP ONE: determine the annual rate of change in the Consumer Price Index and express this as a percentage

$$\text{Inflation} = \frac{\text{C.P.I.} - \text{C.P.I.}(-1)}{\text{C.P.I.}(-1)} * 100$$

STEP TWO: determine the expected annual rate of inflation for labour

$$\begin{array}{l} \text{Expected} \\ \text{Rate of} \\ \text{Inflation} \end{array} = \text{INF}(-1) + \frac{\text{INF} - \text{INF}(-1)}{\text{INF}(-1)} * 100$$

For labour, this figure would become the focal point of the wage increase that they would be asking for. One can be assured that the union would seek an annualized wage increase in excess of this figure.

As a direct by-product of the annual rate of inflation there is the real wage rate. The real wage rate represents the net effect of an increase in a worker's wage, (ie. the gross wage increase for that year minus that year's inflation rate). The real wage is calculated in two steps utilizing the average hourly rate of pay in the manufacturing sector, because although this sector may not have the highest percentage of unionized workers in a particular nation; it is this sector of the economy which is most associated with union activity.

STEP ONE: calculate the deflated annual wage rate (DWR.) by utilizing the manufacturing sector wage rate and dividing it by the consumer price index where 1980 = 100

$$\text{Deflated Wage Rate} = \frac{\text{Wage in Manufacturing Sector}}{\text{C. P. I.}} * \frac{100}{\text{C. P. I.}}$$

STEP TWO: determine the annual rate of change in real wages expressed as a percentage

$$\text{Percentage Change in Real Wages} = \frac{\text{D.W.R.} - \text{D.W.R.}(-1)}{\text{D.W.R.}(-1)} * 100$$

The welfare of the worker depends not on how much money he/she receives, but on the goods and services content of his/her money income, which depends on commodity prices. An increase in money income may or may not mean an increase in real income, depending

on the relative movements of prices and money wages.⁵⁷ If price movements exceed wage movements in an upward direction, - an event which occurred more than thirty times in the last twenty-five years, throughout seven of the eight countries being studied (the exception being West Germany) and more than twenty times during the last ten years-⁵⁸, the welfare of workers will be diminished in spite of the increase in money wages.⁵⁹

In reality, calculating the real well-being of the workers, requires an accurate measure of the cost of living, or failing that, of prices of goods and services purchased by wage earners. However, fully accurate measures of these prices are not available. A reasonable proxy used for this purpose is the consumer price index⁶⁰ (C.P.I.), which comes closest to being an index of goods and services paid for by workers.⁶¹ It is for these reasons that this has been included in the annual rate of change of real wages in the model.

Now that the study of the first five of the explanatory variables has been completed, attention must shift to the last two and most obscure of the explanatory variables. The first of these two variables is Time, and for the purpose of this study, Time has only been measured in terms of a chronological sequence being in 1955 and ending in 1981. But why include Time as an explanatory variable in the system? What has the last twenty-seven years brought forth that has a direct effect on economic performance? The answers are; 1) technological change,

2) aggression and war, 3) social change, 4) the formation of global alliances, 5) domestic changes and the development of new socio-economic policies, and 6) a better understanding of the importance of industrial relations systems.

One can look back and recall many happenings that may be used to emphasize the answer to the previous question. For example;

- 1) in terms of technological changes, there has been the development of the micro and mini computers and the impact that these have had upon everyone; in 1969 we put a man on the moon for the first time ever; in 1981 came the development of reuseable space craft;
- 2) aggression and war, in the 1960's it was the Vietnam War and the Middle East conflict, in the 1970's the Middle East war continued as well as many coups in weak and unstable South American and African nations, since 1955 there have been three Soviet invasions of other countries (1956 Hungary, 1968 Czechoslovakia, 1980 Afganistan) as well as a near crisis in Cuba;
- 3) social change in terms of a liberation into the realm of one's own sexuality, the ever increasing role of women in our society, the increased emphasis on education as a means by which everyone can improve their future, and the development of peace movements and anti nuclear movements;
- 4) the formation of global alliances, for example, there are three global alliances that affect economic activity and promote global segregation; 1) the Warsaw Pact Nations made up of the U.S.S.R. and its supporters; 2) the North Atlantic Treaty Organization - a military alliance designed to combat Soviet aggression; and 3) the European Economic Community which is an alliance of West European nations that tries to combat the economic problems faced by overpopulated and under resourced European nations;
- 5) domestic changes and the development of new socio-economic policies, - it would be unheard of for a democratic nation to have not undergone some form of domestic change over the last twenty-five years,

if not in the governing party, at least in terms of its leadership. There has been the development of many new socio-economic policies; for example, in Canada there was the adaptation of wage and price controls during the 1970's,⁶² in Germany it was the new Works Constitution Act in 1972 and the Co-determination Act of 1976,⁶³ in Sweden it was the 1976 L.O. Proposals;⁶⁴ and

- 6) the overall changing attitude of business, labour and government that cooperation and not confrontation is perhaps the best way by which problems can be solved. In countries like Sweden, Austria and West Germany, human relations theory long replaced human resources theory and it is only now that countries like Canada, Australia and the U.K. are moving more towards these ideas and principles.

These have been only but a few of the many events and a few of the many reasons as to why Time has been included as an explanatory variable in this model.

The second of the obscure variables is also the most unorthodox of all the variables in the equation. This variable directly reflects each member of the tripartisan entity, because it takes into account current government policy regarding the adaptation of beneficial labour related socio-economic programs, and integrates them with the more age old tradition of economic goal setting. It all sounds very complicated, but hopefully, the following explanation will be able to enlighten readers as to why this policy index was developed, and included in this model.

The one central theme that has returned throughout the explanation of the previous variables has been the tripartite relationship that exists between business, government and labour. However,

except for an occasional mention of a secondary relationship that may exist, a clear definition of the role of government in our model has not been provided. Government has a direct influence on every decision that labour and business makes through its policies, and the role of the government is very complex.

Most governments act in the following capacities;

- 1) economic policy maker - what is going to be exported and in what quantities? What is going to be imported and in what quantities? What type of domestic economic policy is going to be followed? Nationalistic, Capitalistic, Social-Democratic, or Communist! Are they going to interfere in the market, or are they going to let the market forces dictate supply and demand? What about interest rates? Money supply? Taxes?
- 2) social policy maker - what is the role of government in the society? the development of social welfare systems that promote industrial relations and tripartite co-operation;
- 3) the government as an employer;
- 4) the government as an intermediary to help settle disputes between business and labour through the use of conciliators or mediators; and
- 5) the government as legislator and lawmaker - developing new legislation that will help the country attain its socio-economic goals while not destroying the delicate equilibrium that keeps it in power.

In each of these capacities, the government must be aware that, in a democratic society, the threads to government are very thin and can snap at any moment in time, and this helps to contribute to this very complex relationship.

However, for this study's purpose, an attempt must be made to simplify matters by setting up a policy variable index that examines the role of the government in light of its socio-economic policies that contribute to the development of an industrial relations system, as well as in terms of measuring the effectiveness of governments in attaining the most fundamental of all economic goals.

These fundamental economic goals that are being referred to include:

- 1) a low rate of unemployment,
- 2) a low rate of inflation, and
- 3) modest annual economic growth.

Given today's overall economic situation with most "western" economies using some version of deficit financing and combining this with the continued adoption of advancing technology ⁶⁵ i.e. men being replaced by machinery, in order that nations may compete in the international market place; nations should be trying to obtain the following annual economic goals:

- 1) a 5.5% annual rate of unemployment
- 2) a 6.5% annual rate of inflation, and
- 3) a 3.0% annual rate of growth in GNP.

These goals are in no way unrealistic and are modest goals that each nation should be able to maintain over a long period of time. If a country has been able to achieve these goals, it will count for them and if they have been unable to achieve these goals, it will count against them.

The other component of this index looks at the type of labour-related socio-economic policies employed in a particular country; i.e. policies that make quality circles mandatory, incomes policies, wage policies, mandatory legislation or unofficial councils that control unions and management by enacting upon decisions to strike, and co-determination as a mandatory element in the industrial relations system. The eight countries in the model vary in terms of the stage that they are at in developing a viable industrial relations system, therefore a series of dummy variables has been used to rate where each country is at.

Dummy Variable one, reflects those countries whose main focus is the free-enterprise system and where the government does little to encourage the development of an industrial relations system. A country in this situation, would score a one under the heading IR3, which appears on the data pages in Appendix I. Dummy Variable two, reflects countries where through the use of legislative measures, and a general attitude of cooperation between business and labour, there exists an established foundation for the development of a workable industrial relations system. A country in this situation scores a one under the heading IR2. Dummy Variable three represents those countries where tripartite cooperation and co-determination are integral elements in a well established industrial relations system. These systems generally reduce the desire or need for industrial conflict. Nations in this situation score one under IR1.

Since this index must have some focal point, that relates it to the collective bargaining process and a nation's economic performance, the following weights have been placed on the three dummy variables;

- 1) IR1 x 1.0
- 2) IR2 x 0.5
- 3) IR3 x 0.0.

Next, adjustments were made to reflect a government's ability to meet the more traditional economic goals, as had been established earlier. In equation form, the index would be;

$$\text{Policy Variable} = 1 \times \text{IR1} + .5\text{IR2}^{66} + (.065 - (\text{INF}/100)) \\ \text{Index} \quad \quad \quad + (.055 - (\text{URP}/100)) + ((\text{PCG}/100) - .03)$$

where: IR1 and IR2 are the type of industrial relations system now in place in that particular nation;

INF is the annual rate of change in the consumer price index expressed as a percentage;

URP is the annual rate for unemployment, expressed as a percentage;

PCG is the percentage change in GNP⁶⁷.

All in all, and even though there may be some strong objections to the variables that have been included in this equation, one must agree that these variables and this equation best exemplify the principle relationships that are attempted to be established in this study.

Perhaps, the single most important element in the development of this study, has been the derivation of the equation. Given limited resources, an equation had to be developed that would conform to the ordinary least squares technique, and that would

provide a solid base from which meaningful results could be derived. Therefore, the topic utilizing the macroeconomic strike model was chosen to attempt to explain the indirect relationship that exists between economic performance and the collective bargaining process.

Thus, the equation was established using the fundamental principles of the O.L.S. approach;

$$Y_i = \quad + BX_i^{68} \quad \text{where } X_i = X_1, X_2, \dots, X_7$$

where Y_i , the dependent variable, would be the elements that represented the results of the collective bargaining process and X_i , the explanatory variables, which would be the variables that best modelled economic performance.

Once the equation has been properly examined, the following statistics will be examined in detail in Chapter Four in order that proper judgement could be passed on the merits of the equation;

1. R^2 : R-squared statistic or coefficient of multiple determination. R^2 is a measure commonly used to describe how well the sample regression line fits the observed data. Note that R^2 cannot be negative or greater than one, i.e. $0 \leq R^2 \leq 1$. A zero value of R^2 indicates the poorest fit, and a unit value the best fit that can be attained. $R^2 = 1 - (sse/sst) = 1 - (e_i^2 / y_i^2)$, that is the proportion of the variation of Y that can be attributed to the variation of X .⁶⁹
2. \bar{R}^2 : The adjusted r-squared statistic (or corrected R^2) provides for a correction factor where an irrelevant regressor has increased r-squared.⁷⁰
 $\bar{R}^2 = (R^2 - (k/n-1))((n-1)/(n-k-1))$ ⁷¹

- . T: T-statistic is a measure of the level of significance of each of the explanatory variables. If the value of the t-statistic lies outside the acceptance region,⁷² the hypothesis of no relationship between X and Y is to be rejected.⁷³
- . F: F-statistic is another way of testing the null hypothesis that $\beta = 0$. Since F equals the variance explained by the regression divided by the unexplained variance,⁷⁴ a series of tables are utilized to test the null hypothesis. If the value of the F-statistic is significantly low the null hypothesis is rejected.
- . D/W: The Durban-Watson statistic is a measure of the level of autocorrelation in the equation. If the D/W statistic is significantly close to two there will be no autocorrelation.

The "Sum of Residuals" test will allow for a test of bias in the estimators. If there is no bias, this will mean that the estimator is properly distributed around β .⁷⁵

Lastly, a visual examination of the plots of residuals will be done to ensure that the errors are random and uncorrelated.

With all of these results, one will be able to test the hypothesis relevant to the statistical significance of each of these equations/nations. This will allow for meaningful comments on the relationship between the various industrial relations institutions and economic policies in place in each of the nations.

The cumulative results of each of these tests will be used to determine the statistical significance of each of the equations. In examining an econometric model one cannot draw firm conclusions utilizing just one or two statistical indices. One

must analyse all the available information, and if, and only if, the indices point towards statistical significance, then, and only then can that model and its results be considered relevant.

Notes

55. See Appendix I for references for statistical data.
56. Man days lost refers to both strikes and lockouts.
57. Sylvia Ostry and Mahmood Zaidi, Labour Economics in Canada, 3rd ed., Toronto: MacMillan of Canada, 1979, p.230.
58. The net wage increase was negative due to inflation exceeding nominal wage increases.
59. Sylvia Ostry and Mahmood Zaidi, p. 230.
60. Ibid, p. 230.
61. Ibid.
62. Ibid, pp. 262-263.
63. Gerhard Leminsky, "Worker Participation: The German Experience," in Benjamin Martin and Everett Kassalow, pp. 146-154.
64. Rudolf Meidner, "Capital Formation Through Employee Investment: A Swedish Proposal," in Benjamin Martin and Everett Kassalow, pp. 161-171.
65. Chris Jecchinis, The Impact of Microelectronic Technology on Employment: A Survey of Current Research Studies in Selected West European Nations, Toronto: Ontario Ministry of Labour; Ontario Manpower Commission, July 1980, pp. 1-13.
66. The use of dummy variables required that a weight be put on the variable IR2.
67. The year to year change expressed as a percentage.
68. Jan Kmenta, Elements of Econometrics, New York: MacMillan Company, 1971, p. 201.
69. Ibid. pp. 232-233.
70. R.J. Wonnacott and T.H. Wonnacott, Econometrics, 2nd ed., New York: John Wiley and Sons, 1979, p. 181.

71. Ibid.
72. Jan Kmenta, p. 237.
73. Ibid.
74. R.J. Wonnacott and T.H. Wonnacott, p. 184.
75. Jan Kmenta, p. 156.

CHAPTER IV

An elaborate econometric model of this type may be able to provide some enlightened results, possibly even some results that will coincide with aspects of the hypothesis. The main purpose of this chapter will be to accurately relate the results of the model to the hypothesis, and the statistical limits that have been previously set forth. This chapter will analyse the various statistics individually. This has been done in order to emphasize the statistical strengths and weaknesses of each of the eight nations in a comparative manner.

Perhaps the most important of the six statistical results to be analysed will be the r-squared (R^2) statistic. Chapter one and two have set forth the premise that will enable a detailed study of this statistic; chapter one grouped the eight countries into two very distinct categories, those countries with equations that proved to be statistically significant (i.e. Canada, U.S.A., U.K. and Australia) and those countries whose equations lack statistical significance (i.e. West Germany, Japan, Austria and Sweden); and chapter two clarified the relationship between the subconscious elements - the explanatory variables - and the collective

bargaining process.

The equations can only be a partial measure of the total variance accounted for by the linear influence of the explanatory variables.⁷⁶ In particular there are many socio-economic factors which affect the collective bargaining process and which could have - if included in the model - been utilized to provide a large coefficient of multiple determination, R^2 . With all of this in mind, Table 4.1 provides the R^2 results for each of the eight countries.

<u>Country</u>	<u>R^2</u>
Australia	0.7881
Canada	0.6695
U.K.	0.5445
Japan	0.8363
Austria	0.3708
U.S.A.	0.3115
Sweden	0.4234
F.R.G.	0.0488

Table 4.1 Coefficient of Multiple Determination

Australia, Canada, the U.K., Austria, Sweden, and West Germany had results that coincided with the hypothesis. The U.S. and Japan had the most startling and least predictable results.

It had been anticipated that Japan with its quality circles and employer, loyalist unions, would not have labour disputes

that focused on purely economic issues but rather would have focused on more social issues like job security, (particularly in light of Japan's continuing dominance as the world's most highly technologically advanced manufacturing nation), safety, and equal representation in management decision-making. In Appendix II it was discovered that the average cost per employee, per year, of a strike (in constant 1980 U.S. dollars) over the last quarter century had been only \$6.41 which, for Japan, made it the fourth lowest amongst the eight countries and only 19.47% of Canada's trend setting rate of \$32.91. (For the most part it was the results of Appendix II that led to the hypothesis that was presented in Chapter One.)

By contrast, the United States with its open attitude towards the so called free enterprise system, should have labour disputes that focus on the more traditional issue of wages. However, the results show that such may not be the case for the U.S., or by contrast for Japan. Japan's R^2 value of 0.8363 was the highest amongst the eight nations while the U.S.'s R^2 value of 0.3115 was the second lowest. This is in direct contrast to the annualized cost per employee of a strike over the last quarter century which was \$21.67 for the U.S., and this was the second highest amongst the eight nations. One explanation offered for this situation is that Japanese workers were left behind in terms of wage increases despite Japan's remarkable economic success.

Sweden, Austria and Great Britain had results that, although not predicted - exactly - were not totally unexpected. A comparison of the R^2 statistic, with the results of Appendix II, show that Sweden and Austria had strike related costs that were very low when compared with the other eight countries, while Great Britain's cost was on the high side. The R^2 results show the same thing, Sweden and Austria are on the low side - below 0.5000 - while Great Britain is above 0.5000 and therefore on the high side. However these R^2 results are not overly conclusive to make specific inferences at this time.

The next group of statistics to be examined are the t-statistics. The t-statistics measure the significance of each of the explanatory variables in the equation. In the following table, the black numbers with asteriks, indicate those variables that are statistically significant, while the plain black numbers indicate those that are not. The benchmark value for this group of statistics, at the 90% significance level, was 1.729.⁷⁷

Countries	Constant	Inflation	Wages	Unemployment
Australia	-1.7480*	0.8483	2.0017*	-0.9484
Canada	0.8250	-0.8001	1.9459*	-1.8101*
U.K.	2.6550*	-0.7741	0.8084	-2.1563*
Japan	2.1807*	4.0911*	2.4548*	-3.2915*
Austria	-0.2123	-0.5284	0.2517	-2.0423*
U.S.A.	2.2999*	0.3298	1.9840*	-2.2838*
Sweden	-0.1902	-2.3660*	-1.0211	0.3286
F.R.G.	-0.0082	0	-0.2610	0.3727

Countries	Employment	Growth	Time	Policy
Australia	2.0801*	0.6906	-1.5471	1.9020*
Canada	-0.0115	2.1748*	0.0713*	-2.3411*
U.K.	-2.6239*	-0.7421	3.0243*	0.2797
Japan	-1.9744*	-1.2768	2.1271*	-0.3094
Austria	1.2159	-0.9332	-2.5232*	0.3014
U.S.A.	-1.7678*	1.0438	1.3367	-1.3738
Sweden	1.9260*	0.8751	-0.7804	-1.1487
F.R.G.	0.0777	0.1155	0.4999	-0.7367

Table 4.2 T-statistics

This means that the following explanatory variables were significant in each of these countries;

1. Australia - wages, employment and policy^x;
2. Canada - wages, unemployment, growth and policy;
3. U.K. - unemployment, employment and time;
4. Japan - inflation, wages, unemployment, employment and time;
5. Austria - unemployment and time;
6. Sweden - inflation and employment;
7. U.S.A. - wages, unemployment and employment;
8. F.R.G. - zero

Since there were seven explanatory variables in each equation, there are at least two insignificant variables in every countries equation. Only West Germany had an equation with zero significant explanatory variables, while there was at least two significant explanatory variables for each of the remaining seven nations. Of the seven explanatory variables

^x policy, in this case, refers to both economic and social policies that a government will utilize in order to obtain socio-economic stability.

39% were significant (i.e. twenty-two of fifty-six) and if you include the constant, 41% (twenty-six of sixty-four) were significant.

These results do not detract from the hypothesis but only further strengthen the commitment to persue valid explanations as to why these phenomenon occurred. The analysis continues by examining the individual countries; Japan had five significant explanatory variables, Canada four, the U.S., Great Britain and Australia had three each, while Sweden and Austria had two each. In terms of the explanatory variables, unemployment and employment were significant in five of the eight equations, wages in four, time in three, and policy and inflation in two and growth in only one.

Without having completely satisfactory t-statistic results, it is important to cross-check the validity of the explanatory variables. This was accomplished utilizing the following form:

$$Y_* = A + \beta X_*$$

where Y_* = man days lost per employee due to strikes -
dependant variable

A = constant

X_* = explanatory variable(s),

and this provided an additional fifty-six equations for consideration.

To analyse the significance of the t-statistics from these new equations a new benchmark value of 1.708⁷⁸ was established, given a 90% significance level and twenty-five degrees of freedom. Appendix III shows that nineteen of the explanatory variables were significant, and of these only six were repeats from the original analysis. This indicates a minimal degree of significance that will have to be more thoroughly analyzed later in this paper.

As had been discovered, each of the eight equations had at least two explanatory variables that are insignificant, and it is this circumstance that leads to the study of the adjusted r-squared statistic, \bar{R}^2 . The adjusted r-squared assumes that at least one of the equations regressors will be irrelevant, and then it makes the appropriate adjustment to the R^2 statistic to emphasize this fact. Since all of our equations have irrelevant regressors, the adjusted r-squareds have been presented in Table 4.3.

<u>Country</u>	<u>\bar{R}^2</u>
Australia	0.7101
Canada	0.5477
U.K.	0.3767
Japan	0.7760
Austria	0.1390
U.S.A.	0.0579
Sweden	0.2109
F.R.G.	-0.3017 ⁷⁹

Table 4.3 Adjusted R-squared Statistics

There have been changes that have occurred when the \bar{R}^2 results are compared to the R^2 results. As can be seen five of the eight countries still conform to the original hypothesis - Australia, Canada, Austria, Sweden and West Germany - while three countries - Japan, the U.K., and the U.S.A. - still do not conform. Since the adjusted r-squared statistic is always lower than the r-squared statistic, the movement of the U.K. could not have been unexpected; given the fact that the U.K. was only at 0.5445 for the r-squared analysis. However, the use of the adjusted r-squared result has done little to clarify the overall results.

The analysis will continue by examining two statistics that will allow for a more accurate assessment of the overall state of the equation(s). First, there is the F-statistic which is another alternative way of testing the null hypothesis that $\beta_i = 0$. If the value of the F-statistic is significantly low then one must accept the null hypothesis.⁸⁰ Secondly there is the Durban-Watson statistic which measures the effect of serial correlation amongst the regressors.

Country	F-statistic
Australia	10.0979*
Canada	5.4981*
U.K.	3.2447*
Japan	13.8693*
Austria	1.5998
U.S.A.	1.2281
Sweden	1.9929
F.R.G.	0.1392

Table 4.4 F-statistics

In the F-statistic analysis one must accept the hypothesis that $\beta = 0$ when the value of the F-statistic generated by the model exceeds the cut-off value, for F(7,19) at 95% significance, of 2.54.⁸¹ In terms of this model the null hypothesis would be accepted for Australia, Canada, Japan and the U.K. These results strongly coincide with the earlier R^2 results, and are an indication that there will be a fifty-fifty split in the number of statistically significant equations versus the number of statistically insignificant equations.

Next, there is the Durban-Watson statistic which analyses the degree of serial correlation in each of the equations, by establishing boundaries by which all results can be monitored. The Durban-Watson test has been widely used in econometric applications, in fact in all studies utilizing time-series the value of the Durban-Watson statistic is calculated when the equation is being estimated. The question then becomes, what action, if any, is to be taken in response to a particular outcome of the test? If no autoregression is indicated, one can retain the least squares estimation without fearing a loss of efficiency and bias of the estimated standard errors. However if the test indicates autoregression then there is some reason to be concerned.⁸² This Study's response is to re-estimate the equation⁸³ and

alternatively take a look at the specification of the regression model.⁸⁴ Finally, if the result of the test is inconclusive, one may or may not want to respond.

Given the statistical boundaries of $D_u = 1.974$ and $D_l = 0.925$ there will be no autoregression in the range 1.9741 to 2.0259⁸⁵ and the two inconclusive ranges will be 0.925 to 1.974⁸⁶ and 2.026 to 3.075.⁸⁷ In this model all but one of the equations

<u>Country</u>	<u>Durban-Watson</u>
Australia	2.1300
Canada	2.5896
U.K.	2.0147*
Japan	1.5025
Austria	2.3142
U.S.A.	1.7706
Sweden	2.3346
F.R.G.	2.1470

Table 4.5 Durban-Watson Statistics

was situated in the inconclusive range. Japan and the U.S.A. had positive autoregressive traits, while the other five countries exhibited negative autoregressive traits. Since most of the results are in the inconclusive range there are two options that can be selected - leave the results as they are, or choose to rerun the program attempting to correct for the autoregression that does exist. Since correcting for inconclusive amounts of autoregression would involve a lengthy reevaluation of previous results, the new results of the correction process have been included in Appendix IV.

However there is one rather startling point that must be made at this time. Utilizing the Cochrane-Orcutt first-order iterative technique as a means of correcting for inconclusive results, did not provide any new results. Once again all of the Durban-Watson statistics were inconclusive and although there were numerical changes, these results were not significant enough to warrant any restructuring of the previous statistical results.

In each equation there exists one of three possible relationships; 1) a positive relationship between the explanatory variables and the dependant variable; 2) a negative relationship between the same or 3) no relationship at all, meaning that the resulting t-statistic for that particular explanatory variable was zero. For example, if one closely examines Table 4.6, one quickly notices that the coefficient sign for wages and unemployment are opposite in every case. For each of the seven explanatory variables as well as the constant there are at least two each of Type A, and Type B relationships in every column, and at least three of the same in every row. This indicates that the relationship between the dependant variable and the explanatory variable varies depending on the country that is being studied.

Country	Constant	Inflation	Wages	Unemployment
Australia	-	+	+	-
Canada	+	-	+	-
U.K.	+	-	+	-
Japan	+	+	+	-
Austria	-	-	+	-
U.S.A.	+	+	+	-
Sweden	-	-	-	+
F.R.G.	-	ZERO	-	+

Country	Employment	Growth	Time	Policy
Australia	+	+	-	+
Canada	-	+	+	-
U.K.	-	-	+	+
Japan	-	-	+	-
Austria	+	-	-	+
U.S.A.	-	+	+	-
Sweden	+	+	-	-
F.R.G.	+	+	+	-

Table 4.6 Coefficient Sign for the Explanatory Variables and Constant

In the case of the expected rate of inflation, a positive relationship could be interpreted as follows; the larger the expected increase in the rate of inflation, then the higher the number of man days lost due to strikes, or as the expected rate of inflation continued to increase, in proportion to its own relationship with the actual rate of inflation, so, to, did the number of man days lost due to strikes. Where a negative

relationship exists one could interpret this to mean that as the expected rate of inflation decreases the number of man days lost due to strikes will increase. This indicates that workers in countries where this second type of relationship exists would be more apt to seek improvements in the non-monetary issues of a collective agreement. However, a more comprehensive study of the sign of the coefficients will have to await Chapter Six.

Finally there are two other items that merit consideration in this section of the chapter. First, there is the bias of the equations, and secondly a visual look at the plots of the residuals. The bias is the difference between the mean of the sampling distribution of a given estimator and the true value of the parameter;

$$\text{Bias} = E(\hat{\theta}) - \theta \quad 88$$

When the mean of the sampling distribution of a given estimator is larger than the true value of the parameter there is a positive or right-hand bias. When the opposite occurs there is a negative or left-hand bias.

<u>Country</u>	<u>Sum of Residuals</u>	<u>Biasness</u>
Australia	0.291 E-10	Right
Canada	-0.262 E-09	Left
U.K.	-0.582 E-10	Left
Japan	0.273 E-11	Right
Austria	Zero	None
U.S.A.	0.582 E-10	Right
Sweden	-0.582 E-10	Left
F.R.G.	0.728 E-11	Right

Talbe 4.7 Sum of Residuals

Table 4.7 provides the results for each of the equations. Only one of the eight equations had no bias, and that was Austria. The U.S.A., Australia, Japan and West Germany all had right-hand bias while Canada, the U.K. and Sweden all had negative or left-hand bias. With these very small results for the sum of residuals as well as the very small variances, knowledge of the bias leads one to believe that it really has no significant effect on the overall quality of the equations. Therefore it shall be assumed that the equations are somewhat efficient and for the most part free of harmful bias that could distort the results. Minimally efficient would best describe these equations.

The last result to be examined thoroughly is the plot of residuals - which have been reproduced in Figures 4.1 to 4.8. These plots will allow for an examination of specific years, particularly, to see if any of them are consistently different from the norm, and to offer specific explanation for such differences - in terms of historical or domestic events.

Since the residuals represent the difference between the actual and the fitted values generated by the equation(s), large shifts in the residuals or large differences generated, must be explained by focusing in on a particular event.

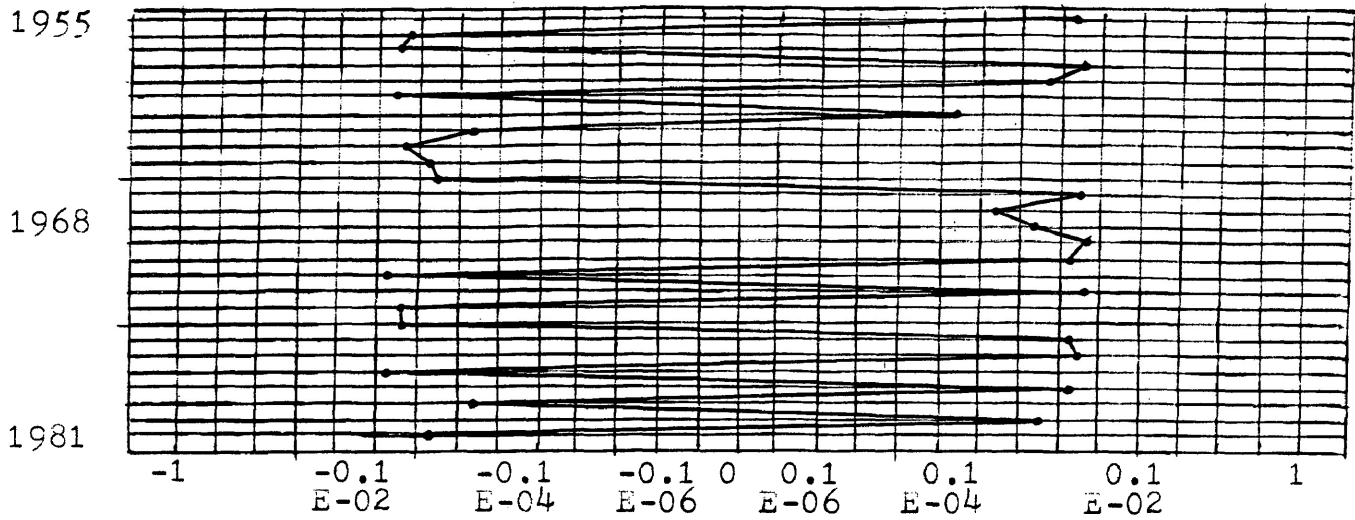


Figure 4.1: Plot of Residuals "A" - Canada.

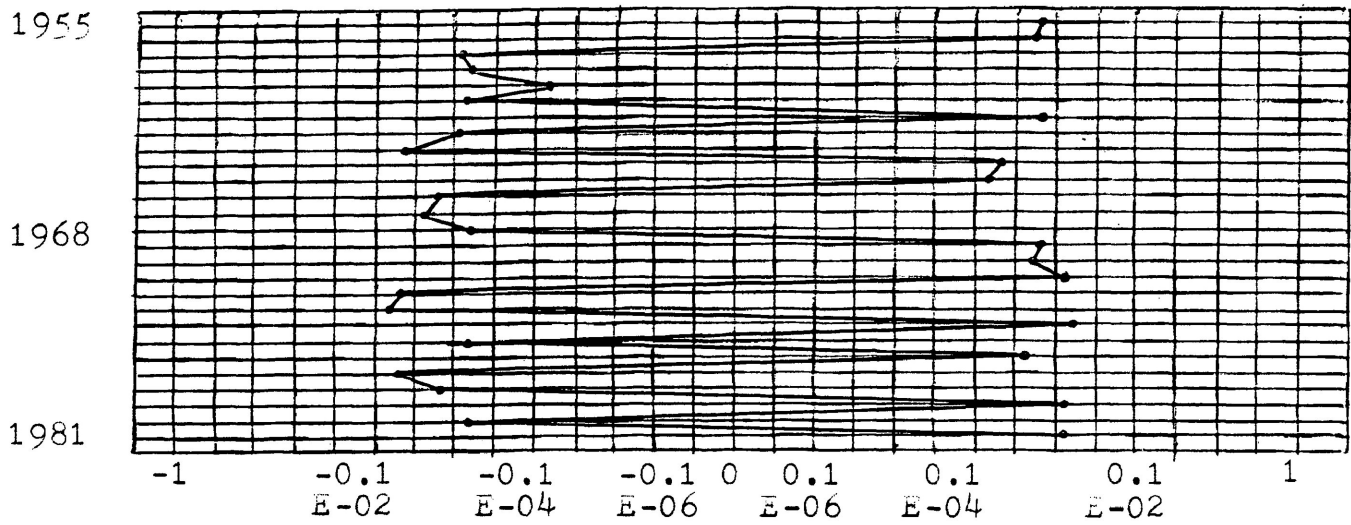


Figure 4.2: Plot of Residuals "B" - Australia.

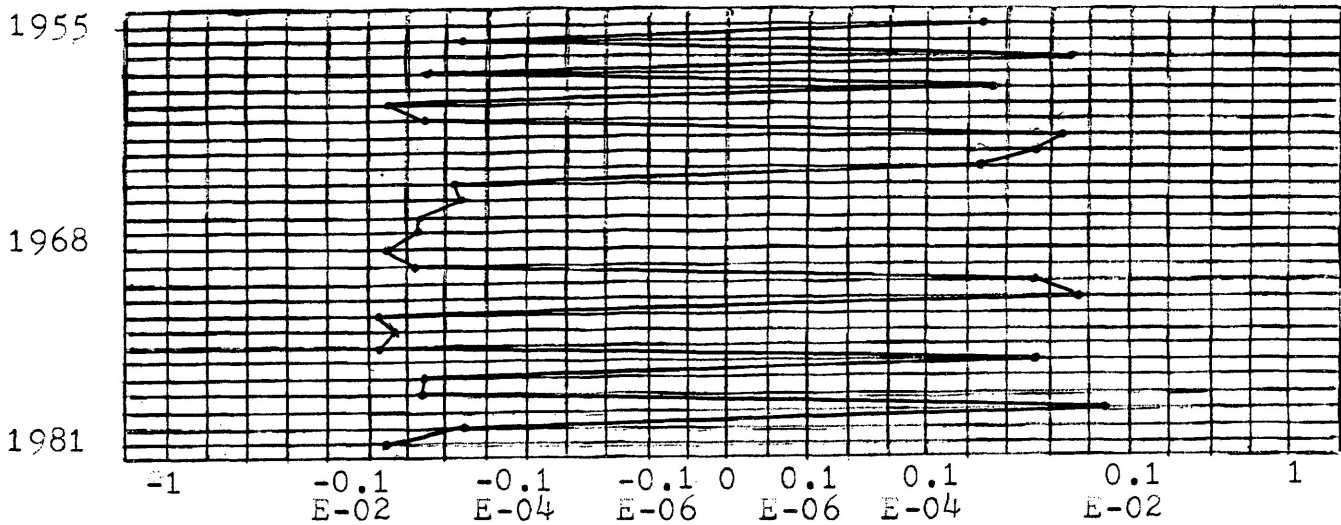


Figure 4.3: Plot of Residuals "C" - United Kingdom.

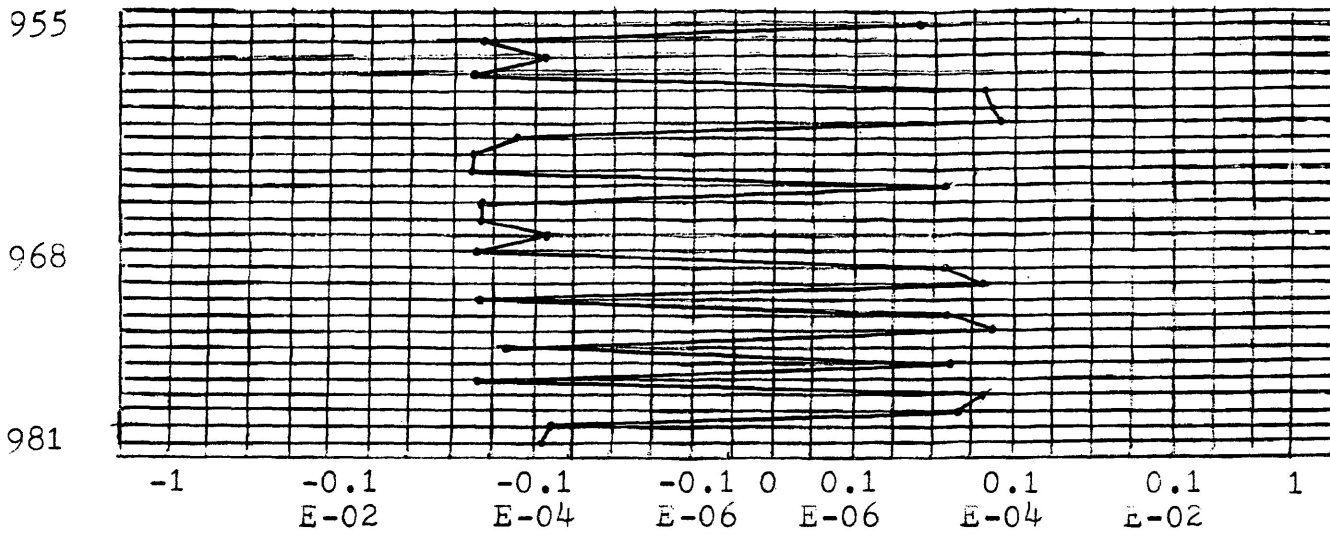


Figure 4.4: Plot of Residuals "D" - Japan.

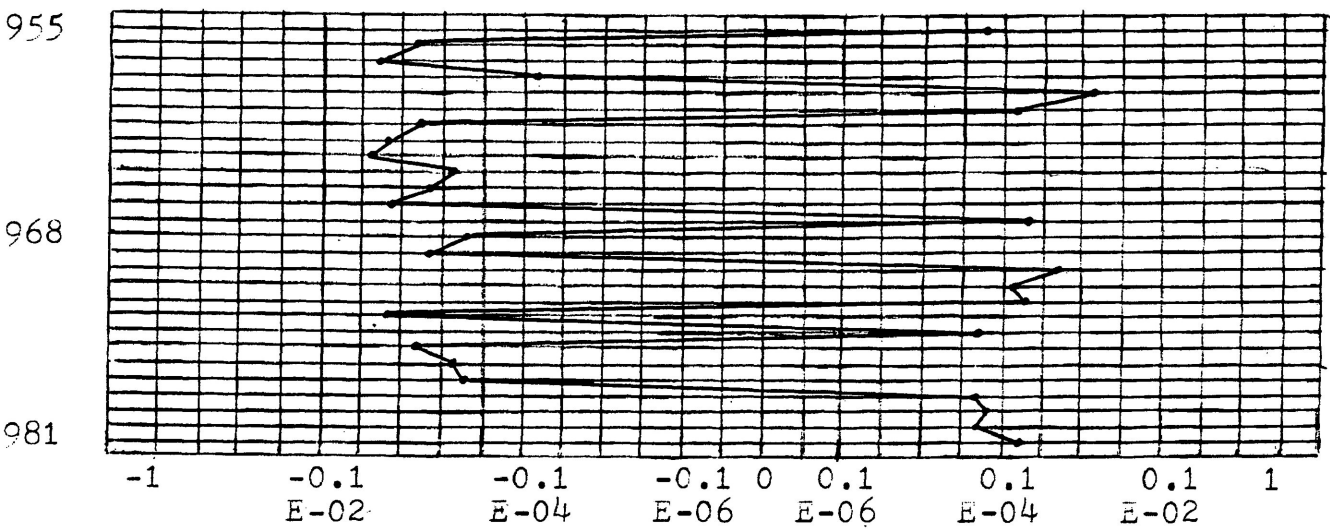


Figure 4.5: Plot of Residuals "E" - United States.

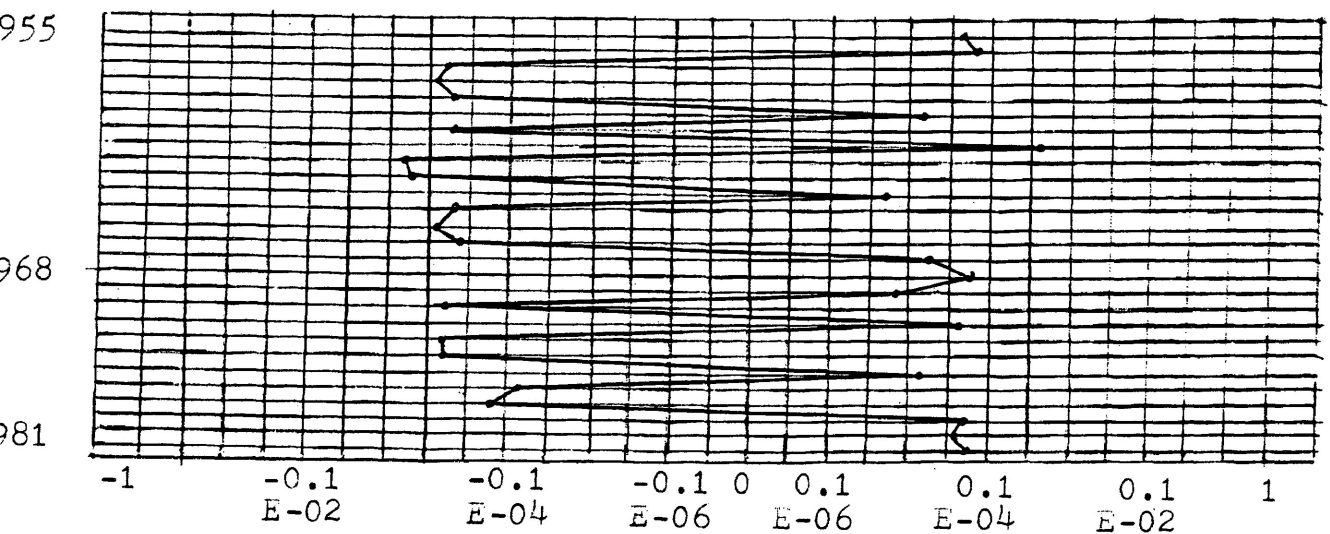


Figure 4.6: Plot of Residuals "F" - Austria.

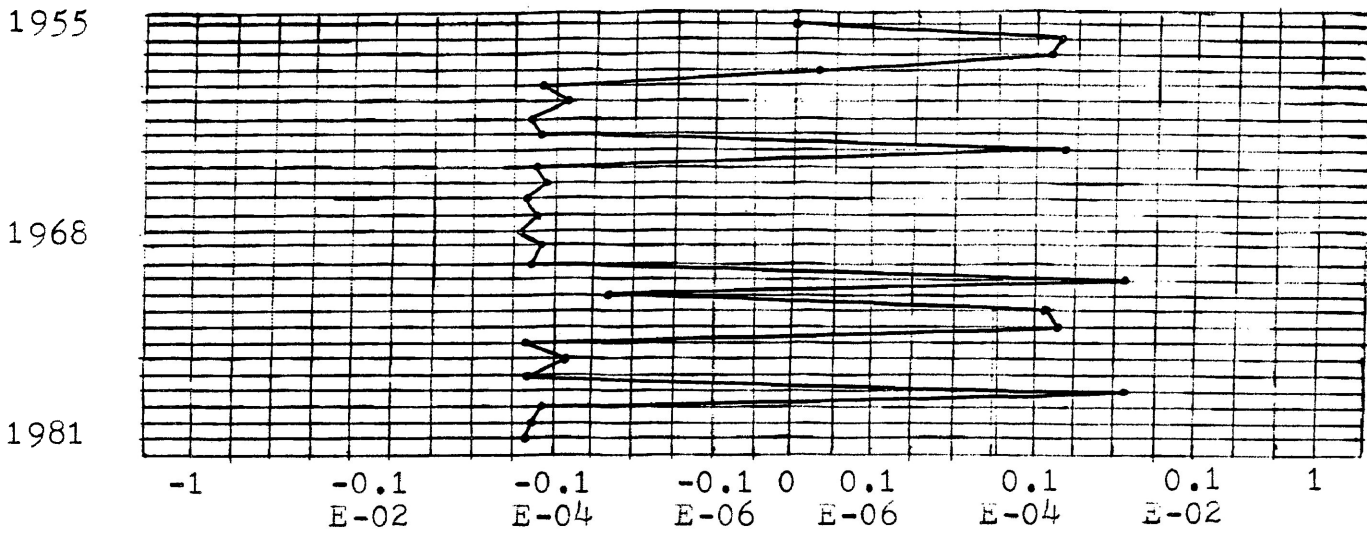


Figure 4.7: Plot of Residuals "G" - F.R.G.

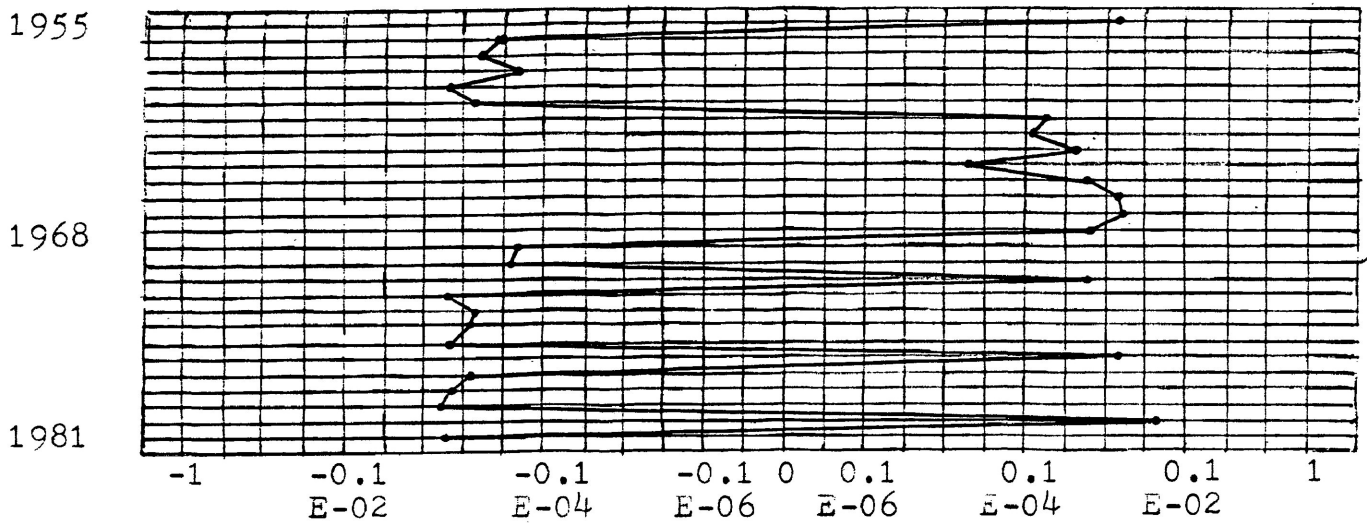


Figure 4.8: Plot of Residuals "H" - Sweden.

In most countries there was a distinct negative shift when the year 1973 was examined. This negative shift can be attributed to the 1973 Arab Oil Embargo of many western countries, in particular the United States.

It is important to note that even though the United States

was hardest hit by the 1973 Arab Oil Embargo, the country itself was faced with a domestic political crisis, from the Watergate Investigation, as well as from the withdrawal of its troops in Vietnam, and the inevitable result of having to admit defeat.

Sweden, the U.K., Canada, Australia and the U.S.A. experienced some large year to year changes in the size of residuals, while Japan, Austria and West Germany experienced more minimal shifts. In Chapter five some historical facts about the development of each individual nation's industrial relations system will be presented and will hopefully be able to provide more meaningful explanations as to why specific trends and/or abrupt changes happened amongst these nations.

Before commenting on the overall merit of the results, one must focus on some of the problems that exist with the model and with some of the explanatory variables. The most obvious problem in this model has been the problem of serial correlation. The problem exists because the successive observations are dependant to some extent; thus, with positive autocorrelation, the second (or some later) observation tends to resemble, or repeat, the first observation, and hence gives little new information. Therefore, they give less information and tend

(and other influences) than "n" independent observations would. Consequently the estimates would be less reliable.⁸⁹ Where there is negative autocorrelation the second observation would tend to be far apart from the first observation.⁹⁰

However, because of the nature of time-series data, as well as the fact that most of the observations would tend to resemble one another, there is a problem of positive autocorrelations, particularly, where man days lost, total employment, expected inflation, unemployment and the policy variable are concerned. There is a problem of negative autocorrelation for wages and growth, because of the inconsistency of the rate of change of both of these variables.

There are two solutions for correcting this problem; solution one might be to drop several of the first observations⁹¹ in order to eliminate the repetitions and the very small changes. This would not be a viable solution because it would reduce the degree of freedom to the point where the results could become statistically insignificant. The second solution might be to correct for the problem through the use of a first-order iterative process, as has been done through the use of the Cochrane-Orcutt iterative process⁹² - and recorded in Appendix IV.

Since the OLS regression procedure produced a small error structure⁹³ - a structure which appears to be random - and a small variance for each of its estimators it may still be quite efficient⁹⁴; and although there is another more sophisticated technique - GLS - that is more efficient, the improvement it provides over OLS may be quite small.⁹⁵ Therefore, it has been concluded that the OLS point estimates β and α are unbiased and the OLS point estimates may be relatively efficient⁹⁶, and serial correlation can be ruled out as being fatal to the results.

There are other structural problems that exist with the model. These include multicollinearity, heteroskedasticity and a problem with the specification of the model. The problem of multicollinearity exists because of linear dependence amongst the following explanatory variables; ⁹⁷

- a) unemployment and total employment,
- b) unemployment and the policy variable,
- c) inflation and the policy variable, and
- d) growth and the policy variable.

However, the multicollinearity amongst the explanatory variables has not significantly affected the estimation⁹⁸; specific estimates do not have large errors, the error structures are not highly correlated, and the sampling variances of the coefficients are also small. Therefore the structure of the equation and the use of the explanatory variables has substantially reduced the effect of multicollinearity on the

equation.

One of the explanations offered for a model that displays all the traits of multicollinearity but yet does not statistically reveal any fatal form of this disease, is the use of dummy variables. Although dummy variables have been used only to generate a portion of a specific index, the addition of this specific index - i.e. the policy variable index - may have eliminated some of the multicollinearity caused by a poor sample design that provides insufficient information to obtain precise estimates of the selective effects of all the independent variables in the model.⁹⁹

The problem of hetroskedasticity is a time series problem since the regressor X is often related to time (or X could even be time itself).¹⁰⁰ The use of time in the model makes the assumption that a constant variance is unjustified¹⁰¹ and one must also assume that the errors - e_i 's - are independent,¹⁰² since Y_i has been generated from the simple linear regression model:

$$Y_i = \alpha + \beta X_i + e_i \quad \text{where } X_i; i = 1, \dots, 7. \quad 103$$

It would no longer be appropriate to use the OLS technique, but instead a weighted least squares (WLS) technique¹⁰⁴ would have been more appropriate. Since this study was continued using the OLS technique, i.e. no correction was applied to

the model, a relationship must develop where as the variance increases the regressor also increases.¹⁰⁵

An attempt has been made to include all of the most important variables in this model. It must be acknowledged that some, related explanatory variables have been left out, due to the fact that their effect is reflected in other variables that have been included in the model. By excluding these variables, the degree of multicollinearity has been reduced, and the degrees of freedom, improved.

In the gathering of any type of statistical data there are always problems with how the data has been assembled. Each of the variables presents its own unique problems; for example, total employment does not include military personnel - does this mean that they are not employed? The policy variable index has been built on the basis of the traditional economic goals of society - but one may not agree with the assessment that has been provided in the previous chapter. Typically, the unemployment rate does not include those people who are out of work and not looking for a job - are these people not unemployed? Therefore, one can easily notice the many problems that exist in the assembly of statistical data.

Perhaps the two most statistically berated variables in the model would be the consumer price index (C.P.I.) and the man days lost due to strike (M.D.L.) numbers. Sylvia Ostry (31) has said that the C.P.I. has several limitations to its usefulness, most important of which are that it; (a) takes into account only at discrete intervals of time changes in the relative weights of different goods and services in people's budgets; (b) covers only a specific group of individuals and not all wage recipients; and (c) does not capture the effects of quality changes in the goods and services used. For these and other reasons, measurements of real wage changes have to be treated with a margin of error.¹⁰⁶ This would have a direct effect on three of the variables

- 1) real wages
- 2) expected inflation, and
- 3) policy variables,

since each of these is derived using some form of C.P.I.

Malcolm Fisher (108) had spent some time analysing the measurement of labour disputes, and he has arrived at some very interesting conclusions regarding the measurement of labour disputes. For example, in the United States strikes and lockouts are not distinguished¹⁰⁷, and a dispute is counted when six or more workers leave their job for one full day or shift¹⁰⁸, in the U.K. the minimum reporting size is for ten workers¹⁰⁹ and the same holds true for West Germany.¹¹⁰

In Canada stoppages of less than ten man days lost are not recorded.¹¹¹

In Austria, Japan and Sweden exact records of man days lost are kept and in Austria they are kept right to the hour,¹¹² (Fisher had no information on Australia since it had not joined the O.E.C.D. at the time his book was published). However it is easy to see how the results could be somewhat distorted when pertinent information is ignored when keeping statistics.

All models will have problems in either the structure of the model or the data collected for the explanatory variables. However none of the problems that have been openly discussed are serious enough to prevent one from obtaining some meaningful results.

After analysing this part of the results and providing some insight into the problems of a model of this type it may be repetitious to attempt to draw some meaningful conclusions regarding the results as they have been presented. There are four equations that have sufficient statistical strength to be accurate assessments of the subconscious role that economic performance has in the collective bargaining process. These equations are for the following countries; 1) Japan;

2) Australia; 3) Canada and 4) the U.K. There are also four equations that are statistically very weak and these represent; 1) West Germany; 2) U.S.A.; 3) Austria and 4) Sweden.

The results that have been obtained are useful in that they provide enough sufficient empirical evidence to proceed with a nation by nation analysis of the various socio-economic institutions that are in place. One will be able to accurately depict their effect on labour as it prepares to enter into the collective bargaining process armed with its important economic data. The next two chapters will focus on providing an analysis of these results and relating them to each of the eight nations and their own socio-economic framework.

Notes

76. G.G. Judge et al, Introduction to the Theory and Practice of Econometrics, New York: John Wiley and sons, 1982, pp. 145-148.
77. Ibid, p. 782.
78. Ibid.
79. F.R.G. has a negative \bar{R}^2 because the R^2 value is extremely small, and when the appropriate since
- $$\begin{aligned}\bar{R}^2 &= (R^2 - (k/n-1))((n-1)/(n-k-1)) \\ R^2 &= (0.0488 - (7/27-1))(27-1)/(27-7-1) \\ &= (0.0488 - 7/26)(26/19) \\ &= (0.0488 - 0.2692)(1.3684) \\ &= -0.2204 \times 1.3684 \\ &= -0.3016\end{aligned}$$
- adjustments have been made to the R^2 , the \bar{R}^2 becomes negative.
80. R.J. Wonnacott and T.H. Wonnacott, p. 184.
81. G.G. Judge et al, pp. 786-787.
82. Jan Kmenta, p. 296.
83. Ibid.
84. Ibid.
85. Ibid, p. 156.
86. G.G. Judge et al, p. 793.
87. Ibid.
88. Ibid.
89. R.J. Wonnacott and T.H. Wonnacott, p. 212.
90. G.G. Judge et al, pp. 435-473, and G.G. Judge et al, The theory and Practice of Econometrics, New York: John Wiley and Sons, 1980, pp. 170-242.
91. . Johnston, Econometric Methods, 2nd ed., New York: John Wiley and Sons, 1972, pp. 243-266.

92. G.G. Judge et al, pp. 435-473, and G.G. Judge et al, pp.170-242.
93. R.J. Wonnacott and T.H. Wonnacott, p. 213.
94. Ibid.
95. Ibid.
96. Ibid.
97. J. Johnston, pp. 159-168.
98. Ibid.
99. G.G. Judge et al, p. 465.
100. R.J. Wonnacott and T.H. Wonnacott, p. 194.
101. Ibid, p. 195.
102. Ibid.
103. Ibid.
104. Ibid.
105. Ibid, p. 195.
106. Sylvia Ostry and Mahmood Zaidi, p. 230.
107. Malcolm Fisher, Measurement of Labour Disputes and Their Economic Effects, Paris: Organization for Economic Coopération and Development, 1973, p. 128.
108. Ibid, p. 129.
109. Ibid, p. 125.
110. Ibid, p. 111.
111. Ibid, p. 104.
112. Ibid, p. 101.

CHAPTER V

Each country has utilized (or should have utilized) a specific plan when preparing to establish an industrial relations system; policy measures through labour related legislation, voluntary government initiated programs to help bridge the gap that exists between labour, management and government, and the initiation of continued studies to examine the role of each of the partners in the industrial relations system. These plans would allow nations to integrate economic policies with their primary inputs, labour (i.e. unions) and capital (i.e. management through financial control) to obtain realistic economic goals.

However, each nation maintains an overall approach to its own economy that can and does supercede the role that industrial relations can play. For example, the United States, with its more traditional capitalist system does not promote the formation of unions. In fact in many of the southern U.S. states there are workers who are struggling to acquire some of the basic rights that are taken for granted in many Western European nations. The United States economy (although extremely cyclical in nature) is based on the premise of promoting American products and companies through the occasional exploitation of less fortunate workers in other nations.

"American firms which operate in foreign countries usually premise their industrial-relation's policies on the base of values, assumptions, and habits they developed in the United States. They may or may not modify them in response to the different circumstances abroad. There are many instances in which American companies have successfully adopted their industrial relations to fit the environments of other advanced countries and many other instances where they failed to do so, often with costly consequences for the firm and for their representation of American values abroad.¹¹³

Many large American companies have developed multinational empires that can, and do try to limit the impact of unionism on the American based operation. The multinational is able to diminish the bargaining power of union when; (1) key labour relations decision makers within the firms are inaccessible and local subsidiaries lack autonomy; (2) the multinational can continue operations in one country if struck by a union in another and thus generate financial inflows enabling it to sustain a strike longer; (3) the multinational can engage in production switching and continue to meet market commitments and generate financial inflows regardless of a strike in any one country; and (4) the multinational export jobs and thus undermines union solidarity and effectiveness.¹¹⁴ These are a few of the reasons why the percentage of unionized workers in the United States for non-agricultural wage and salary earners in 1976 was between 28 - 29 percent.¹¹⁵

Australia	346.135	174.093	155.191	214.113	184.625	580.767	506.846	534.761	595.524
Canada	582.366	352.736	191.290	655.178	423.234	766.767	847.919	807.343	827.224
U.K.	309.405	198.925	106.257	156.837	131.547	577.202	472.751	524.977	338.018
Japan	63.521	29.087	98.419	68.411	83.415	113.439	57.141	85.29	14.003
Austria	28.132	35.081	78.58	22.635	50.608	14.685	1.131	7.908	3.373
U.S.A.	427.913	527.008	275.726	487.598	381.662	529.925	383.164	465.545	290.775
Sweden	62.071	0.451	4.58	25.111	14.846	58.097	26.636	42.367	553.871
F.R.G.	28.187	34.744	19.388	5.479	12.434	47.307	43.619	45.463	3.697

Table 5.1 Comparative International Strike Statistics for the Period 1955 - 1981

Country	1955-1957	1958-1960	1961-1963	1964-1966	1967-1969	1970-1972	1973-1975	1976-1978	1979-1981
Australia	226.188	118.539	136.503	177.604	246.828	457.699	710.387	425.72	615.748
Canada	285.222	344.392	197.376	435.21	736.473	710.937	958.829	769.675	803.33
U.K.	205.953	168.101	143.836	100.14	191.523	655.807	377.731	310.07	621.885
Japan	29.314	55.87	104.748	81.236	55.362	48.38	141.841	38.419	14.995
Austria	40.782	25.38	115.571	36.839	5.989	5.982	19.112	1.181	2.335
U.S.A.	403.150	570.676	253.492	335.975	587.261	591.145	413.355	400.091	311.075
Sweden	0.639	1.768	2.877	34.868	10.087	90.968	35.853	12.11	371.536
F.R.G.	46.361	12.03	29.73	3.044	8.512	58.038	21.729	65.354	8.897

Table 5.2 Comparative Three-Year International Strike Statistics for the Period 1955 - 1981

Source: ILO, Yearbook of Labour Statistics

The positive impact of the use of industrial relations systems is best exemplified in the Western European countries of Austria, Sweden and West Germany. A quick examination of Table 5.1 shows that, in terms of man days lost per thousand workers for the time period 1955 - 1981, these three countries have the best records for preventing industrial conflict.

A historical examination, of the implementation of the various forms of industrial relations policies in developing an effective overall industrial relations system, will be used to analyse the effectiveness of Sweden, West Germany and Austria in preventing industrial conflict. In these cases an ounce of prevention is worth a pound of cure.

Part A: A Historical Perspective Of The Development Of
Industrial Relations Institutions

As is well known, Sweden has highly developed institutions of industrial relations. The level of industrial conflict has shown dramatic changes over the years. In the beginning of this century Sweden had the highest relative levels of industrial conflict among western nations. In the post World War II period, however, Sweden has been renowned for industrial peace.¹¹⁶

With the exception of 1980, when man days lost per thousand

employees exceeded one-thousand, Sweden would of had the lowest twenty-seven year average of all eight countries at 23.756. Since 1980 was included in Sweden's twenty-seven year average of 62.071, this figure by itself would show Sweden's remarkable record of maintaining a low annual rate of industrial conflict.

Walter Korpi (27) has done an excellent job of documenting the historical development of the institutions essential to Sweden's above average industrial relations system. When industrialization began in Sweden during the 1870's unions also began to form. However employers were not receptive to unions and tried to crush them.¹¹⁷ Undaunted, employers also tried to use legislative measures to hinder the growth of unions, however union growth continued with industrial expansion.¹¹⁸ During the 1880's a number of nationwide union organizations formed, in 1889 the Social Democratic Workers Party was formed, and in 1898 the Swedish Confederation of Trade Unions, the LO was formed.¹¹⁹

During the next few years, the LO continued to support the Social Democratic Workers Party and in 1902 a general strike was staged to support demands for universal suffrage. This show of solidarity, along with continued support of national unions to split the unorganized employers, led to the formation

of the Swedish Employers' Confederation, the SAF, and this organization quickly began to flex its muscle through the use of strategic lockouts. Later, after the SAF had recognized the legitimacy of unions, the "December Compromise," in 1906, led to the SAF's formal recognition of the right of unionization and the LO's acceptance of managerial prerogatives at the work place.¹²⁰

The earlier formation of employers' associations along with an already developed collective bargaining process at the level of the work place, led to industry-wide agreements becoming commonplace. Through intervention from the state, the development of institutions for the handling of industrial conflict was enhanced.¹²¹ Mediation was provided through legislation in 1906 and amended in 1920¹²²; in 1915 the Swedish Supreme Court ruled that collective agreements were legally binding¹²³; in 1920 laws concerning arbitration were developed¹²⁴, and in 1928 new laws made the legal force of collective agreements explicit and created a labour court to adjudicate disputes in the area of industrial relations.¹²⁵

The LO opposed these laws by calling for nationwide protests. Even with these highly developed institutions for the regulation, prevention and containment of industrial conflict¹²⁶, industrial conflict continued to be a major problem through

the early 1930's and there had been nothing to indicate that a gradual decline would occur and this nation would become a nation dominated by industrial peace.

However industrial peace did occur and in a dramatic fashion. From 1935 - 1939 there was an average of 71 work shoppages¹²⁷ per year which was less than 30% of the average number of work stoppages per year that had occurred during the previous two decades. But, was there a logical explanation for this phenomenon?

The primary reason for this dramatic turn around seems to be related to the election, in 1932, of a Social Democratic government. During the 1930's political power became separated from economic power, and employers could no longer depend on government support. The SAF soon realized that compromise rather than conflict was the order for these times, since it was becoming evident that the governmental hold of the Social Democrats would be long lasting. Thus the SAF decided to seek an accomodation with the LO and the government and to act as a pressure group in influencing the political process.¹²⁸

A compromise between the Swedish labour movement and the representatives of the economic powerholders was gradually

worked out in the latter half of the 1930's, and was based on a formula of cooperation between labour and capital to achieve economic growth.¹²⁹ This compromise led to government stability, capitalist maturation, industrial development through favourable market conditions, and a government commitment to labour market neutrality. This led to the eventual signing of the 1938 "Main Agreement" between the LO and the SAF, and a whole new relationship between the two parties. This new course of action resulted in the centralization of decision making procedures within the LO, and in 1941, the introduction of an LO constitution.¹³⁰

In the 1950's, the decision making procedures in collective bargaining were further centralized when the use of advisory referendums on contract proposals fell into disuse, and membership consultations came to take place through indirect, representative channels only. The new pattern of centralized collective bargaining involved "frame agreements" between the LO and the SAF, which were introduced in the mid 1950's, and were a consequence of the new strategies.¹³¹ They came to be important in the so-called solidaristic wage policy of the LO, aiming, in principle, toward equal wages for similiar jobs, irrespective of the profitability of the firm, and especially towards improving the wage levels of low paid workers.¹³²

Another important element of the industrial relations system

in Sweden, has been the utilization of workers' representatives on company boards. This element of Sweden's industrial relations system was introduced through legislation, however, the extent of participation and the functions of participative bodies are negotiated between the parties concerned, through special bilateral agreements.¹³³

This law came into force in Sweden, on January 1, 1977, and it gave employees the right to move towards co-determination at all levels of decision making in the firm, and at a pace that they themselves desire. This Act, did not state in detail how this was to be accomplished, but it is an instrument for the union organization to decide, on the basis of their own capacities and conditions, where measures should be taken, what measures they should be, and when they should be applied.¹³⁴

These types of laws do not extend themselves in order to tie the hands of one side or the other. But rather, they extend the need for consultation and cooperation at the level of the enterprise. Through this new found cooperation at the level of the enterprise, both sides seemed to benefit.

"An independent study published in 1980 found that the Swedish experience in participation was positive. There were decreased costs of quality control, fewer and shorter stoppages, more reliable material handling, decreased costs of instructors, decreased turnovers, and decreased rationalization costs.¹³⁵"

The struggle for industrial peace is now a century old in Sweden, but yet it still suffers from the inevitable relapse of a general strike or an industry wide lockout as has been evidenced several times during the last quarter century. Sweden has struggled to maintain its record of industrial peace both as an example to the rest of the industrialized world and in order to maintain the strong values of Swedish society. The institutions for Sweden's industrial relations system have been developed over the last century in for the last fifty years have been redefined to look after the interests of all concerned parties. Labour-management and government have found political, economic and social peace through the maintenance of a strong and solidified industrial relations system.

The development of industrial relations in West Germany has taken a much different course than that of Sweden's. This is mainly due to the disruption of development during the Hitler era of 1933 - 1945 and the single mindedness of unions and industry. Trade unions had been established in Germany during the 1860's largely at the initiative of political movements of a socialist orientation and they continued to function until the end of the Weimar Republic in 1933.¹³⁶

Many distinctive features of contemporary German trade

unionism, and the development of worker participation schemes, have their roots in early labour organization.¹³⁷ In the period prior to World War I, Germany was an authoritarian monarchy and legislation was utilized to control unionism. Bismark initiated a program of social reforms (health and accident insurance and old age and disability pensions) to counteract the trend towards unionization. However, unions continued to grow and to strengthen their desire to collectively represent the workers.

Workers sought to protect their members through collective agreements, particularly in industries where advancing industrialization was having a detrimental impact on workers: in terms of safety conditions, overcrowding, and the poor conditions made worse by the capitalist cycles of boom and depression.¹³⁸ Strikes were utilized as a means to acquire better working conditions, and this led to the introduction of collective agreements in some German industries, prior to World War I. During World War I unions gained a legal representational status in important firms, devoted to public supply and war production, through white and blue-collar councils. Employers complied with the law as a means of reducing unrest and the spontaneous strikes caused by bad working conditions, in order that the government could achieve its expansionist goals.¹³⁹

After World War I, the introduction of a parliamentary system led to the instantaneous renewal of works councils. The new constitution recognized unions as the representatives of labour, and the collective bargaining agreement as the principle means to regulate wages and working conditions.¹⁴⁰ In 1920, works councils at the shop level were introduced by law, and in 1922, the law was amended so that the works council could appoint one or two members to company supervisory boards.¹⁴¹

Collective bargaining became a widespread practice during the inter-war period, along with compulsory arbitration by the secretary of state for labour, and labour courts. However, these changes were accompanied by severe conflict.¹⁴² Unions (or groups within the unions) opposed collective agreements because of their capitalistic overtones, and because they distrusted the basic premise of works councils. This lack of cooperation contributed to the onset of inflation, the Depression and mass unemployment, which in turn led Germans to turn to the Nazis to look for solutions to their problems.

The post World War II era and the revival of the West German economy, as well as the development of a strong sense of nationalism and global importance is a great story indeed: the rags to riches story of a country twice destined to become the worlds single dominant empire, and twice destroyed

by its own ignorance and greed, only to be able to rebuild itself into one of the most highly respected industrialized nations, is truly remarkable.

One of the major reasons for this remarkable turnabout has been the development of a tri-partite industrial relations system. After 1945, the basic premises of the Weimar program of industrial democracy were reintroduced including national planning, nationalization of key industries and worker participation.¹⁴³ Collective agreements were established to regulate wages and working conditions¹⁴⁴ and a better system of worker participation was instituted.

In 1949, the Federation of German Unions was founded and proceeded to deal with the difficult task of obtaining equal representation for workers at the level of the enterprise. Unions felt that capital had allied itself with Hitler during his regime and that equal representation was the only way to prevent a reoccurrence.

In 1951, unions gained a legislated worker participation plan in the coal and steel industries. This plan gave labour equal representation with capital on company supervisory boards, as well as an executive board member in charge of personnel and social problems, who could not be elected

without the approval of a majority of the labour representatives on the executive board. Worker participation, or codetermination, in the coal and steel companies became the outstanding innovation in the German industrial relations system.¹⁴⁵ Later, in 1952, works councils similar to those that existed during the Weimar period were established by law,¹⁴⁶ but, in industries other than coal and steel, unions only managed to achieve a one-third representation.¹⁴⁷

For the remainder of the 1950's and a majority of the 1960's recovery from the war became the only economic priority. Economic development initiated by the Marshall Plan and the reconstruction of the economy resulted in rapid growth, full employment and rising incomes.¹⁴⁸ Workers, via the collective bargaining process, were able to obtain substantial wage increases without reverting to strike action.

During the decade from 1966 - 1976 there were a number of positive changes that occurred that helped to improve the industrial relations system. A system of capital sharing was implemented in 1972 that would allow workers to influence general industrial policy without giving up a decentralized market economy.¹⁴⁹ However, since there has been some opposition to this proposal of capital sharing, it has not been a high priority with the Federal Republic.¹⁵⁰

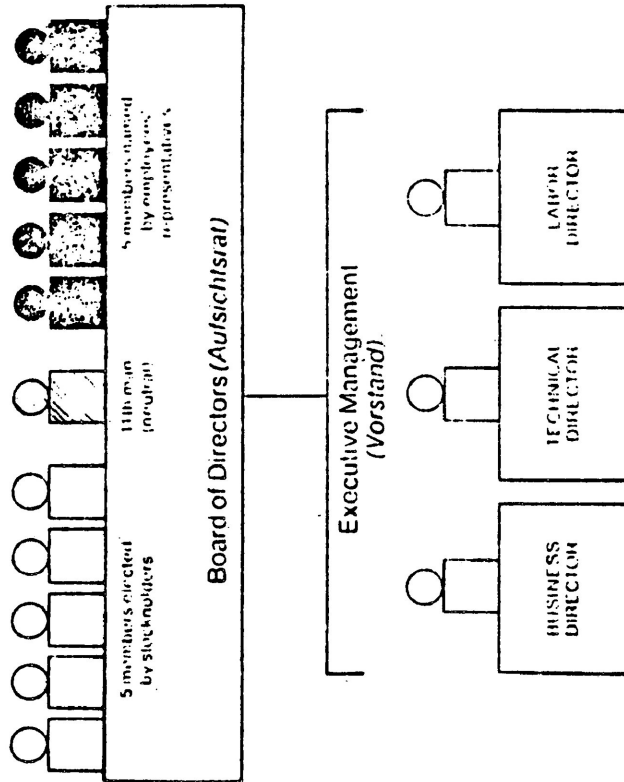
With the Federal Republic wavering under its own lack of economic stability the 1967 Act was enacted upon to " avert socially damaging conflict by inducing a change in behavior on the part of the main economic groups.¹⁵¹" The change had to be sought, moreover, only through the educative effect of the announcement of guidelines and the decision surrounding autonomy of the two "partners to the wage bargain" by laying down binding guidelines.¹⁵² This meant that the Federal Republic now had a form of wage policy to initiate some control over wages as a means to protect against economic instability.

In 1972 the Work Constitution Act provided substantial improvements for worker representation¹⁵³ at the company level. This meant that unions were much closer to where the economic decisions were being made, and this led to a substantial increase in the importance of the collective bargaining process, since strikes could be called on specific issues. This act required that a works council be established in private enterprises employing more than five workers. The number and size of the council varies depending on the size of the workforce. (see Graph 5.1 and Graph 5.2).

The works council has various codecision, consultation rights, vis-a-vis the employer, stipulated in the Works

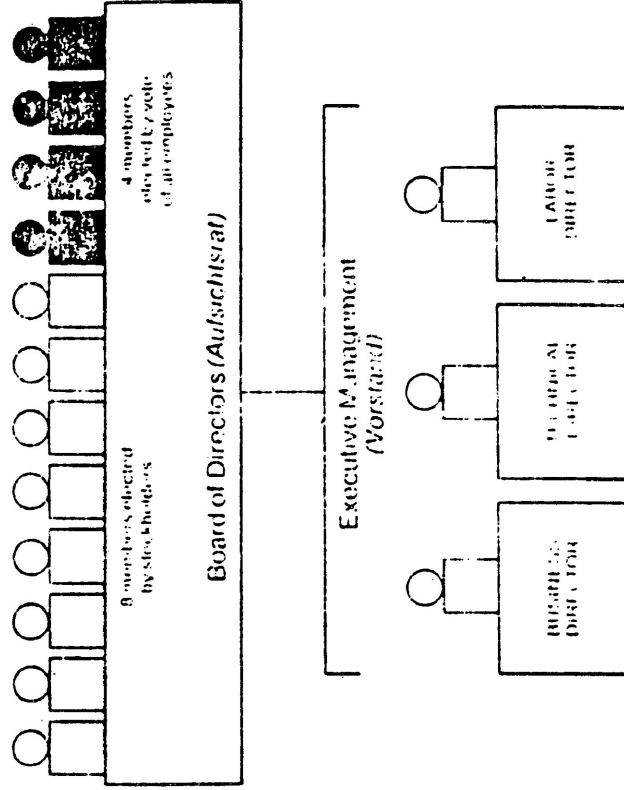
CO-DETERMINATION IN GERMAN COMPANIES (Before 1976)

In Coal, Iron & Steel Industries



These charts show how co-determination in the coal, iron and steel industries differs from labor's share in policy in all other enterprises, including service and consumer goods companies, such as banking, insurance, department stores, etc. In a coal, iron or steel company, labor controls half the board of directors and must approve the appointment

In all other enterprises

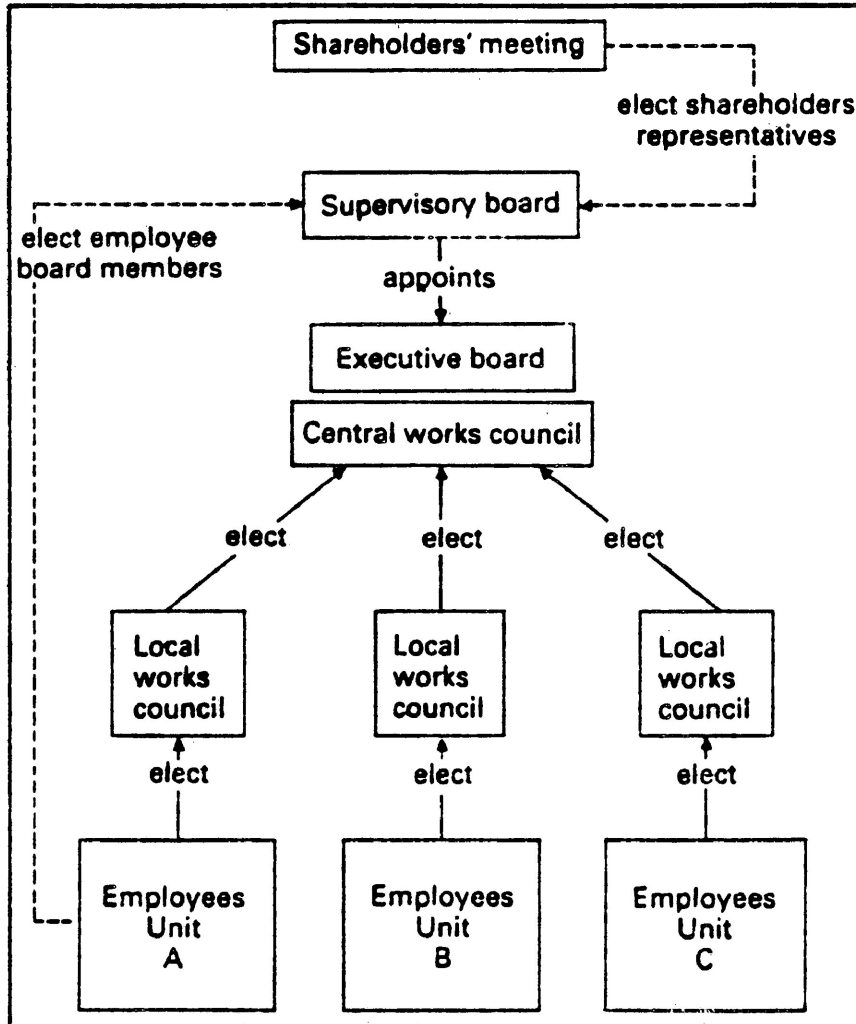


of the 11th member. Labor also has half the Labor Director, one of the three chief executives in company management. This is only in the coal, iron and steel industry is what labor wants to participate in other enterprises, where labor's influence now is limited to 4 seats on the 12 man Board of Directors.

Source: Embassy of the Federal Republic of Germany, Ottawa

Graph 5.2

GERMAN EMPLOYEE PARTICIPATION THROUGH WORKS COUNCILS AND SUPERVISORY BOARDS IN PRIVATE INDUSTRIES



Constitution Law. These rights are to be exercised, as stated in the law, in a spirit of "mutual trust" with the employer; action is to be avoided that might disturb industrial peace at the shop floor; cooperation between unions and employers is required; and the procedure of collective bargaining agreements is to be observed.¹⁵⁴

WORK COUNCIL RIGHTS
(LOWER LEVEL PARTICIPATION)

CONSULTATION

Manpower Planning
Dismissals
Work Procedure
Job Situation
Establishment Organization
Operation Changes
Protection of Labour

CO-DETERMINATION

Working Hours
Methods of Payment
Vacations
Social Amenities
Vocational Training
Establishment Order
Hirings, Transfers

Graph 5.3 Works Council Rights

Source: Facts About Germany

The above graph outlines areas where works councils have specific authorities or rights. If agreement is not reached or should a deadlock occur on any of these matters where the works council is entitled to codetermination, either side can bring the case before an internal joint arbitration or conciliation committee with an outside chairman. Where statutory rights are involved, the final decision lies with the labour court.¹⁵⁵

In 1976 the Mitbestimmung law once again changed the realm

of codetermination in West Germany (see Graph 5.4). This law provided a new emphasis for the collective bargaining process and other instruments by failing to give labour a fifty-fifty voice in controlling the companies. This law, although it did not disrupt all the institutions in place, was controversial. Employees viewed the law as being a step backwards and protested by walking out of the Fortieth Meeting on Concerted Action¹⁵⁶ essentially ending an already dead wage policy. In July of 1977 the German Employers Federation appealed to the Constitutional Court asking that the law be declared unconstitutional¹⁵⁷ but in the Spring of 1979 the court ruled that the Mitbestimmung Law was constitutional.

"Worker participation in Germany has demonstrated the capacity to find solutions to major organizational problems before they evolve into hardened stands by one side or the other. As a result of continuous contact and exposure to issues of common concern, representatives of labour and management have come to trust and cooperate with each other to much greater degree than was once thought possible. Overt conflict has, as a result, been held to a minimum to the benefit of all concerned."¹⁵⁸

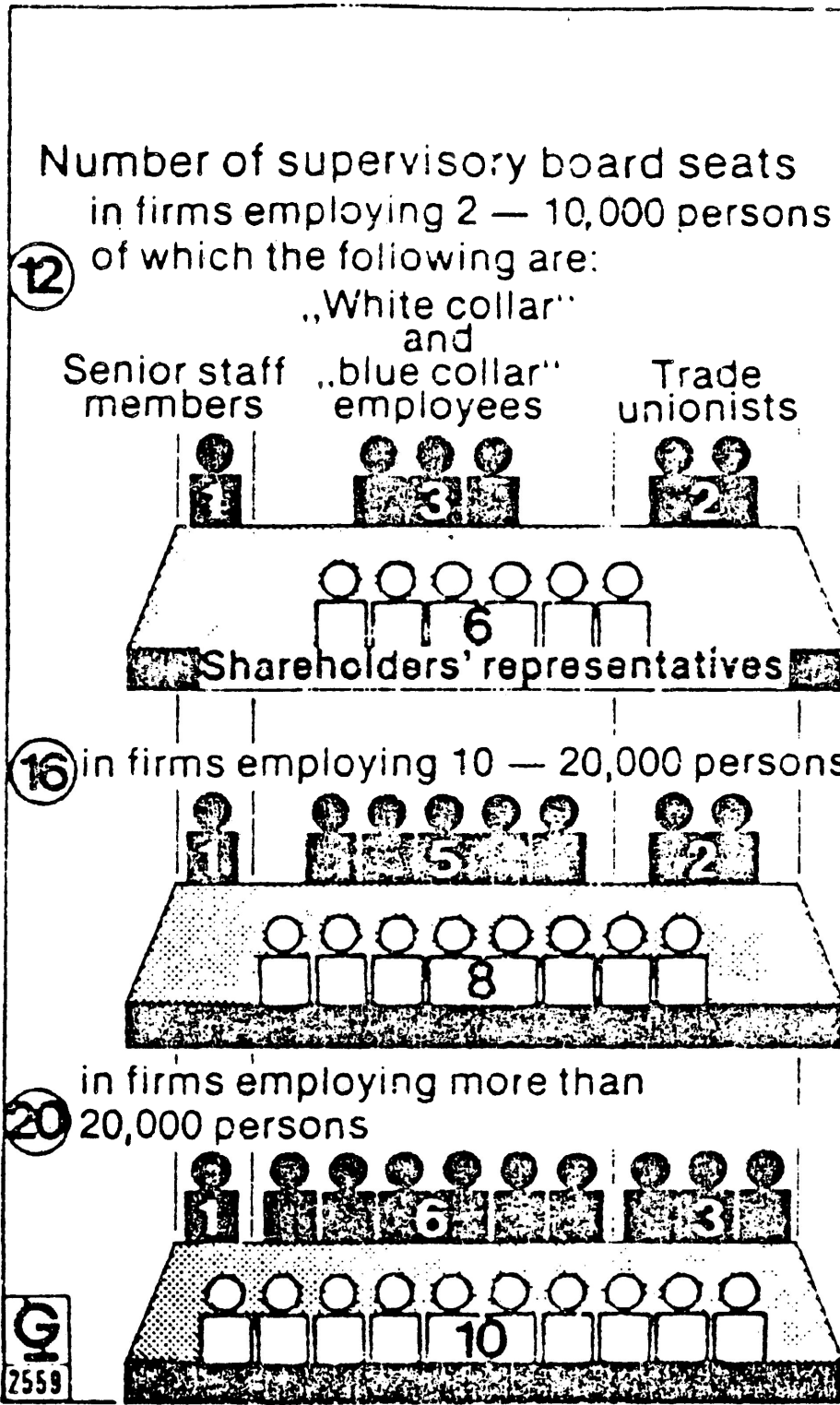
In 1975 Bernhard Wilpert (102) said

"very little is known about the consequences (ultimate humanistic or societal and philosophical goals) of codetermination. Aspects like 'self-realization' and 'societal-democratization' escape adequate operationalization."¹⁵⁹

Yet, the results from the previous chapter indicate that worker participation can have significant socio-economic consequences. Worker participation does control the number

CO-DETERMINATION IN GERMANY AFTER 1976

All Major Private Enterprises Except the Coal, Iron and Steel Industries Where Parity Representation Continues



Source: Social Report, Bonn

of man days lost through the collective bargaining process.

Worker participation appears humanistic, in that it promotes dialogue and interplay between both parties at the level of the enterprise. It allows both parties an equal say in the planning and operation of the enterprise. If this idea is extended to the economy, worker participation helps the country maintain its economic goals and to promote cooperation at all levels.

This type of participation does not escape criticism, in that it offers no guarantees for the workers, and appears to be within reach of management influences. However, it allows unions a chance to exhibit a unique form of individualism, and it engages unions to better understand the concerns of the other party, and to maintain the best interests of both parties when striving to realize their own goals. This is a form of self-realization and operational humanism that Wilpert has ignored in his paper; although this paper has the benefit of an extra decade of hindsight.

The development of industrial relations in Austria has followed a course similar to that of West Germany, but with a more troublesome past. Austria was a nation dominated by a monarchy from the beginning of the nineteenth century until the beginning of World War I. This monarchy was known as the

Habsburg monarchy, and was characterized by the same type of autocratic society that had characterized Germany during that same era.

In fact, many times prior to 1945, Austria was directly influenced by the policy decisions of the German government. Prior to the industrial revolution, Austria had become a constitutional state based on German Legemony.¹⁶⁰ The constitution, drafted in 1867, tried to bridge the gap in philosophy between the German and the Magyar elements in the Austro-Hungarian Empire. However, the national identity of Austria continued to be its main social, economic and political problem until World War I, as various people tried to stke nationalistic claims to the lands known as Austria.¹⁶¹

The Habsburg Monarchy collapsed at the end of World War I from the pressure of the outside elements, but had left an indelible mark on the future development of the Austrian industrial relations system. In 1859, the Austrian Industrial Code was established and the Associations Act of 1867, provided for the free right of association for unionized workers,¹⁶² with the Social Democratic Party. In 1887 and 1888, the Workers Accident Insurance and the Workers Sickness Insurance Act were respectively introduced.¹⁶³ In 1907, under the pressure of approximately 400,000 unionized workers, universal suffrage was attained.¹⁶⁴ In the period after 1909, there was a

definite tendency toward industrial concentration and employers' organizations gathered strength.¹⁶⁵ These organizations stepped up their activities against unions through the use of strike-breaking organizations, "yellow-dog contracts" and "company unions" and a united bourgeois front against the Social Democrats in parliament.¹⁶⁶

Because of the threat of war and the principle of defending the motherland against takeover, the War Service Law superseded trade union laws on December 26, 1912¹⁶⁷; and on August 4, 1914 the Trade-Union Commission asked that union workers continue to remain involved in union activities even though their rights had been suspended.¹⁶⁸ During the war, industrial conflicts and strikes became a major domestic issue, particularly to protest food supplies.

During the inter-war era, Austria began to function as a democratic state and suffered through many growing pains. Hyperinflation during the early 1920's and the pressure from both the east and west, led to social and economic unrest. To help improve the domestic situation the Works Council Act was introduced in 1919.¹⁶⁹ However, the union was very skeptical about this legislation;

"The Works Council Act has frequently aroused the fear among the trade unions that now the works council will take over the functions that have been performed by trade unions.¹⁷⁰"

This distrust continued through the next decade and a half. By the end of 1922 relations between the works council and the trade unions were completely liquidated¹⁷¹, and in 1933 the labour movement finally collapsed.

"The development of the works councils in Austria was, therefore, largely determined by the trade unions. It moved along the lines of decreasing radicalism and increasing understanding of the responsibilities of the councils' position."¹⁷²

"...the Works Council Act threatened to destroy peace in industry and lead to many violent conflicts."¹⁷³

With this type of mistrust amongst the parties to the works councils', and even though there was moderate improvement in relations during 1921 and early 1922¹⁷⁴, the inevitable result would soon be the doom of this institution.

The Nazi Revolution and World War II ended unionism in Austria for more than a decade. But with the end of the war, Austria began the task of building a new identity and rebuilding a much divided country. The Works Council Act was reintroduced in Austria in 1947.¹⁷⁵ The Act was amended in 1957 and a whole new series of socio-economic policies were introduced to promote a total system of tripartite cooperation.¹⁷⁶ These policies were established in the form of a "Parity Commission for Wages and Prices." This committee was not based in law or legislation but is a voluntary organization that simply had as its original task the control of rising

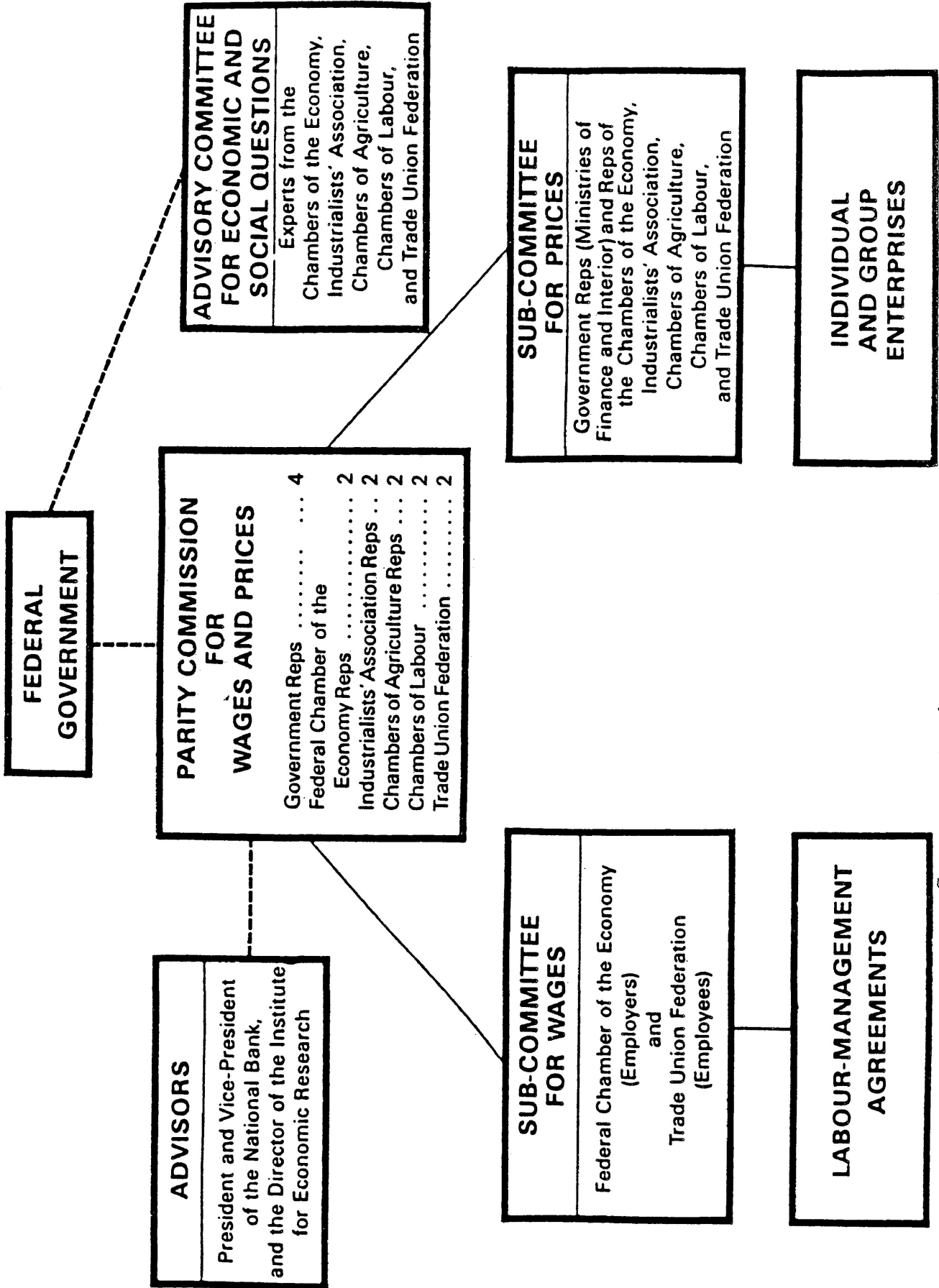
prices and wages.

The Parity Commission has two permanent sub-committees; the Sub-Committee for Wages and the Sub-Committee for Prices. The Sub-Committee for Wages has as its main task the approval or refusal of negotiation for a new collective agreement when such negotiations are applied for. With no legal power, this committee cannot dictate the content of a collective agreement, but it does influence the time frame for negotiation, and this helps to ensure a balanced and well-coordinated wage policy.

The Sub-Committee for Prices is a voluntary organization that depends on the influence of the parent body to ensure that all costs are controlled, and that only necessary cost increases are passed on to the consumers. This committee serves to help smooth over the impact of avoidable increases.

In 1963, the Advisory Committee for Economic and Social Question was introduced. This committee was introduced to cope with the increasing demands put upon the "Parity Commission" and to provide "the scientific basis for a really objective approach to economic policy, and to this end, it conducts studies into individual questions of economic policy, accompanying each study with a series of corresponding recommendations.¹⁷⁷"

AUSTRIA A MODEL FOR TRIPARTITE CO-OPERATION



Source: Chris Jecchinis, 1983

The overall economic success of Austria over the last quarter century can be attributed to the development of a fully integrated industrial relations system; co-determination at the industry level complemented by tripartite cooperation at the national level,¹⁷⁸ has helped Austria maintain a consistent growth level, very low unemployment and a moderately successful record of controlling inflation. Austria's unions, employers, and the SPÖ Government¹⁷⁹ have realized that a successful social partnership, steeped rich in history, is the only way to combat global and domestic economic turmoil.

Each of the three nations have a long history of policy and institutional development directly related to industrial relations. Even though, earlier attempts at developing these types of institutions were met with skepticism, mistrust, and industrial conflict; nationalistic interests prevailed and each nation managed to develop an ideology of open communication between the disinterested parties. Strikes and lockouts provided the leverage necessary to get both sides interested in the needs and desires of the other.

Governments realized that strikes and lockouts have a detrimental effect on the overall economic outlook, and through moral suasion and legislation, tried to minimize the negative effects of industrial conflict. Therefore, it became necessary

to restructure the socio-economic goals of the nation to include legislation and policy measures that would establish a viable industrial relations system that minimizes industrial conflict and promotes industrial peace via settlements through collective bargaining. Such is now the case in Sweden, Austria, and West Germany.

The historical development of industrial relations institutions in the other five nations, with the exception of Japan, has not been as thorough and time consuming as the previous three nations. Even though, union were recognized as agents for labour in these countries in the early twentieth century, little or nothing has been done to promote the improvement of relations between management, unions and government.

Canada and the United States are good examples of countries where little has been done to promote tripartite cooperation, and a better relationship between labour and management at the level of the enterprise. Japan has developed a more paternalistic system of cooperation between labour and management while continuing to abide by restrictions imposed upon it after World War II. Australia and Great Britain have utilized sporadic and inconsistent methods of applying the knowledge that they have attained through their association with nations that have good industrial relations systems, and through some forms of domestic experimentation, geared to

promote positive change in their industrial relations systems.

Japan has developed from a country dominated by agrarian activity just over a century ago, to the second largest industrialized nation in the world. Japan is the world's second largest national economy, with a G.N.P. in the 1970's, equivalent, partially as a result of a rapid appreciation of the yen, to almost one trillion five hundred billion dollars.¹⁸⁰ This development has occurred because of revolutionary labour reforms imposed on Japan by the seven year Allied occupation after World War II¹⁸¹, and has continued because of the positive rate of industrial growth that has been achieved since the 1950's.

Industrial development began in Japan in 1868 with the Meiji Restoration, which signalled Japan's transition from 250 years of self-imposed seclusion from the west, to an industrialized nation. This transition took nearly fifty years, and was achieved with direction from a highly centralized government, the concentration of capital in a few mammoth, privately-owned industrial and commercial conglomerates, and the development of a powerful military establishment.¹⁸²

The labour movement had its modest start in Japan, soon after the Sino-Japanese War (1894-1895), but this early attempt came to a quick end, mainly because of suppression by the government and partly because of a lack of experience.

on the part of workers and their leaders.¹⁸³ In 1912, the Friendly Society was begun by Bunji Suzuki, who professed to aim at the moral and cultural uplifting of workers.¹⁸⁴ Battling a climate intensely hostile to any kind of labour movement, this society and its philosophy expanded rapidly. In 1919, the Friendly Society decided to become a full fledged union agent, and in 1921, the Society became the Japanese Federation of Labour.¹⁸⁵

However, to the extent that Japan was expanding industrially, the country was also becoming more segregated as those who toiled during the pre-industrial times, persisted along side modern industrialization. Japan developed a dualistic economy, and therefore sharp differentials between the two sectors.

"For Japan's emerging industrial relations system, the consequences of this development pattern included: slow commitment of the labour force even though constantly growing with steady increases in population, to work in industrial occupations. Segmentation of labour markets for workers destined for employment in large enterprises and those in small and medium sized firms, including agriculture; and development of policies by modern large-scale employers to train and deploy work forces within their respective companies in view of the lack of available worker skills for many new types of work despite large surpluses of unskilled labour. These underlying market forces, in turn, meant strong employer opposition, with government backing, to "outside" influences, such as labour unions or even minimum state

regulation of working conditions. To attract and hold desirable workers, large-scale companies developed broad paternalistic welfare programs for their own employees, including housing, recreation, education, medical facilities and so on. In a continuing practice, wages in large companies were paid monthly on the basis of length of service rather than for the job or hourly or piece rates. Within this context, what labour unionism arose failed to gain legal recognition, tended to concentrate among small firms, and turned to ideologically inspired but internally divisive political action. Throughout the prewar era, organized labour remained weak and divided. Collective bargaining was established in only a few cases, the most notable being the maritime shipping industry.¹⁸⁶

Japan enjoyed a degree of political liberalism in the 1920's, and even though they joined the International Labour Organization in 1919, and the League of Nations in 1920 and government tried to foster legislation to grant basic trade unions rights, however conservative politicians, favourable to big business, blocked these attempts. At best, unionism was barely tolerated after passage of the Labour Disputes Mediation Act of 1926, although this was coupled with adoption of the repressive Public Peace Maintenance Law.¹⁸⁷

Japan's turn to militarism and ultranationalism coupled with the Manchurian Incident in 1931 and the invasion of China and World War II led to end of the labour movement by the end of the 1930's.¹⁸⁸ However, the militaristic government continued to support paternalism at the level of the enterprise

as a means of controlling labour mobility.

Japan was in virtual ruin after World War II, and under the control of the Allied Forces. The Allied Forces decided that Japan should be able to rebuild utilizing the American mold of free enterprise and market competition but also with labour unions that had guaranteed basic rights.¹⁸⁹ From 1945 to 1947 major pieces of legislation gave labour full rights to organize unions, conduct collective bargaining and carry on strikes and in April 1947 a new Constitution went into force embodying these rights.¹⁹⁰

"The ten years surrounding 1950 were the most eventful of the postwar Japanese labour movement. The sharp rise in membership from 1945 to 1948 was followed by a sharp fall after 1951.¹⁹¹ This was due to government issued orders and legislation that restricted the union rights of employees. The labour movement failed to regain its strength until 1957 after the formation of the Liberal Democratic Party in 1955 and the formation of the General Council of Trade Unions of Japan.¹⁹²

The election of the Liberal Democratic Party, which is still in power today, provided political stability. Japan's economy had returned to its prewar peak and had begun its takeoff and it was during the next quarter century that the labour movement once again regained its numerical strength. Four major unions formed over the next fifteen years and

remained unaffiliated with any national center. In 1957 unions began the "Spring Offensive" as a means of obtaining wage increases, and this has been relatively successful, and has been continued.

Industrial conflict that did arise in Japan in the period after 1957 had two main goals; a) wage increases or 2) improvement of general social conditions. Workers generally had everything they desired at the level of the enterprise, so strikes became protests against a rapidly growing population, inflation, urban congestion, and the like.¹⁹³

Rapid economic expansion has generally provided the Japanese labour movement with favourable conditions for its development, although it has not been an entirely unmixed blessing.¹⁹⁴

With this development, coupled with Japanese tradition, a very unique system of labour-management relations has developed.

The Japanese industrial relations system is based on "consensus decision-making." This system, which is not etched in legislation, enables the Japanese to seek a consensus on all proposed actions in a company.¹⁹⁵ Consensus allow each individual level of the company to express an opinion about a new proposal related to the company. Consensus is usually reached through a "ringi", a written proposal that can come from any

level of the company. The proposal is passed up and down the hierarchial line for everyone to consider and discuss.¹⁹⁶ And once everyone, at all levels, has agreed to the proposal, it can be swiftly implemented.¹⁹⁷

Tradition has also dictated a work structure that includes; a "lifetime job," separate unions for each company, and remuneration based on length of service, "loyalist" employees and employer who promotes cooperation.

The development of industrial relations institutions in Japan has followed a very unique course. Its development has been based on the philosophical ideologies of Japanese society. There has been little need for legislative measures on the part of government to ensure the rights of unionized workers. Japan's rapid economic development in the post World War II era coupled with its "paternalistic" corporations, meant that labour-relations in Japan would not develop in the same "traditional" way of other countries. However, Japan managed to develop a system that satisfies the needs of the type of society that has developed.

Great Britain is undoubtedly the most highly developed of the four remaining countries in terms of industrial relations. Great Britain has a long history for the development of

institutions and framework. Yet Great Britain has failed to introduce strong government measures that would promote a better system of cooperation between labour and management, yet through its association with the European Community, Britain has learned that a sound industrial relations can contribute to socio-economic stability.

Britain was the first country in the world to have an 'industrial revolution'. Thus, Britain was the first country to experience the social problems associated with increased industrialization particularly from the workers' point of view. The development of the factory system did nothing to improve conditions for the ordinary workers. Many tasks were laborious and did not require any skill. Employers were disinterested in the welfare of workers and concentrate solely on improving economies of scale and making profits. Prior to 1914 the only major developments that directly affected industrial relations in Britain were; 1) the Limited Liability Act of 1862 which allowed family businesses to change their legal status; 2) The Trade Union Act of 1871; 3) Arbitration Act of Mundella in 1872 which repealed the Arbitration Act of 1824; 4) the Conciliation Act of 1896; 5) Trade Disputes Act of 1906; and 6) Trade Union Act of 1913. These laws allowed unions to form, and offered them some specific legal immunities, but did little to encourage the "peacetime" development of

industrial relations.¹⁹⁹

World War I led Britain into the so-called modern industrial era. Old fashioned processes were scrapped and replaced by more modern equipment, but nothing had been done to improve the conditions for labourers, particularly in the field of industrial relations. Goodman (2) has said:

"The traditional system was based principally upon voluntary collective bargaining, implemented through non-legally enforceable agreements negotiated by a multiplicity of joint multi-union and multi-employer industry wide negotiation committees. Following the removal of legal obstacles to union organization in the 1870's, and the granting of specific legal immunities in 1906, the law relating to trade unions and collective bargaining in peacetime remained substantially unchanged until the 1971 Industrial Relations Act.²⁰⁰"

The traditional system was deemed to have had some advantages, in that it provided freedom for the parties, flexibility, and a sense of responsibility for upholding their own agreements. From 1926 - 1960, man days lost through strikes was generally low.²⁰¹

However, in 1964, at the end of the post-war boom, public concern about inflation and wages led to the introduction of a voluntary incomes' policy. However, the economic system worsened, and a Price and Incomes Act was passed, in 1966, in order to prevent economic chaos. This Act was abolished in 1970 by the new Conservative Government. In 1971 came the

Industrial Relations Act; again amended in 1974, and 1976 to the Trade Union and Labour Relations Act; that set forth legislation governing trade unions and employers, and provided a more explicit framework in which labour-management relations could operate. Included were laws regarding employment standards, conciliation, arbitration and mediation, the rights of unions and employers, etc.²⁰²

During the mid 1970's Britain had "Social Contract" arrangements, which were characterized by a lack of elaborate legal and administrative procedures. During this period there existed a Price Commission, that had been established in 1973, to ensure that any price increases were fully justified on the grounds of rises in costs, or, of the need to finance investment. These controls were set out in the Price Code, whose principles were to limit the extent to which prices may be increased on account of increased costs, and to secure reductions as a result of reduced costs; to reinforce the control of prices by control on profit margins while safeguarding and encouraging investment; and to reinforce the effect of competition, and to secure its full benefits in the general level of prices.²⁰³

However, there was no incomes commission. The "Social Contract" was based on an understanding reached amongst the social partners and the Government, which established

acceptable limits of income increases. It was left to the T.U.C. and the C.B.I. and their member organizations to adhere to the agreed limits, and to guide pay negotiations accordingly.²⁰⁴

Independent observers had been impressed by the relative success of the "social contract" in Britain, not only in contributing to the reduction of inflation, but also to the reduction of industrial conflict. From 1975 to 1977, inflation was cut from 26.3 percent in early 1975 to 12.9 percent in 1976. Workdays lost through strikes fell to 1.58 million in the first half of the 1976 from 3.91 million in 1975.²⁰⁵

The Government, in July of 1977, announced a guide to employers and employees dealing with the conduct of wage negotiations, and cost of living measures which were designed to improve the situation of low paid and fixed income group. Other measures included tax relief, increased child benefits and funding related to employment.²⁰⁶

Outside and economic observers were impressed with these measures. However, some trade unions, especially the low paid workers were not impressed, and did not feel that the Government could continue to check prices and reduce differentials. In early 1978, they defied the Government guidelines

and in a series of strikes brought an end to the "social contract" and contributed to the defeat of the Labour Government at the polls.²⁰⁷

In 1981, under extreme pressure as a result of continued economic recession, the Conservative Government - a government which had ended the "Social Contract" in 1978 after marked improvements and instituted a "hands-off" policy which ended all forms of effective tripartite cooperation²⁰⁸ - supported the plans of the Institute of Personnel Management of promoting employee participation with a series of guides designed to help industries introduce their own arrangements, voluntarily, or through special-union management arrangements.²⁰⁹

However, beyond 1981, Great Britain's inflation and unemployment rates skyrocketed, mainly because of Mrs. Thatcher's monetary policy, but also because of a lack of congruity in the development of industrial relations policy. Britain tried to adopt bits and pieces of the more successful institutions being used in other countries but failed to recognize that these institutions could not be transposed from one type of socio-economic climate into another; although many have tried only a few will succeed.

In Australia, the development of unions leading to industrial

relations institutions began in the mid nineteenth century, by 1900, six percent of the work force had been unionized, and union membership had followed the trend of economic activity, much as it had in the United States and the United Kingdom.²¹⁰

Unionization in Australia continued throughout most of the twentieth century, but growth was characterized by a number of peaks and valleys. Membership peaked at 47% in 1927, before declining to 35% in 1933. Membership then grew, until reaching 60% by the mid 1950's. It then declined to 50% in the early 1970's before rebounding to 57% by the end of the decade.

The development of national governing bodies and institutions had been much slower in Australia, than in many other nations. The Australian Council of Trade Unions was formed in 1927, and the Australian Council of Employer's Associations in 1942. This was partly due to the regional differences that existed in Australia, and partly because of the autonomy given to the "states" by the federal government.

The pre-1945 period of development parallels that of Britain. The main reason for this was the Commonwealth association that existed between the two nations. This meant that much of the legislation that was introduced in Australia during this time period had the aim and names as the British Acts. The Combination

Acts of 1824 and 1925; the Trade Union Act and Criminal Law Amendment Act of 1871; and the Trade Dispute Act of 1906, were all carbon copies of similiar British legislation.²¹¹

But as was the case in Great Britain little was done on the national level- even with a labour government at several intervals, most notably in 1916, when labour controlled the Federal Parliament and five of the six states- until after World War II. Industrial conflict rose until World War II, when it again rose to a new peak, and continued to increase steadily; with only a limited number of decreases; until 1950, where it again levelled off until the late 1960's and once again took off.

Australia, a country that has remained economically divided by agricultural activity versus manufacturing activity, should be a country with few problems at the level of the enterprise, but such has not been the case. Even though Australians are classified as easy going, and there has been little or no violence in the social and political arenas; "National and cultural homogeneity, comparative lack of poverty and entrenched privilege, the British tradition, and perhaps the Australian laziness and easy going character have all helped to keep violence to a minimum.²¹²" Yet, industrial conflict has been a problem. A problem that has been related to government

attempts to control unionism and unionist activities, since the "Australian attitude towards government is resentment at the use of authority over the individual."²¹³

The Australian government, in cooperation with the employers' association, has tried sporadic legislative measures to promote industrial peace. However, with the states have autonomy over major parts of their own jurisdiction, each state has attempted to develop laws that will help to maintain economic stability rather than industrial peace; the exception here is Tasmania where a works council Law has existed since 1920. Therefore, the federal government in Australia has been regulated to public sector legislation, and to ensure that the basic rights of employers and unions are maintained.

In more recent times, the Australian government has enacted legislation that coincides with the above goal: the institution of the Conciliation and Arbitration Commission and its' revision in the 1970's, the Trade Union Training Act, to train and retrain individuals, as well as in manpower planning and incomes policy in the traditional European sense.²¹⁴

However, like Britain, Australia has failed to initiate policies that would promote industrial peace in their own country, but have looked for an outside solution. But no solution has been found, and Australia must continue to depend on market

forces and the heavy hearts and greedy hands of capitalist corporations and dogmatic unions, for industrial peace.

Canada and the United States are nations that are quite similiar in their treatment of labour and the development of industrial relations institutions. Both Canada and the United States had early development of unions, Canada's coming mainly under the influence and direction of American unions. However legislation developed under the influence of British legislation, because Canada was a British Dominion.

This legislation was aimed, not at developing industrial relations institution, but rather, at maintaining the basic rights and freedoms of workers in an open environment. The earliest legislation was in 1872 and was essentially the same as earlier enactments by the British Parliament, legalizing trade unions and exempting them from criminal conspiracy charges.²¹⁵

Beginning in 1900, a series of federal acts, covering individual industries, and usually passed after a major labour dispute, established a basic principle of Canadian labour legislation. Conciliation by tripartite boards became a necessary conditions before a legal strike.²¹⁶ However, federal authority in the field of industrial relations was successfully challenged on constitutional grounds in 1925, leaving the

federal government with control over service industries enumerated in the British North American Act while the provinces assumed all other jurisprudence. Yet the provinces continued to uphold federal policy and provisions during the 1930's and after the war had ended and emergency powers expired in 1946, most provinces incorporated major features of the wartime order into their own labour relations acts.²¹⁷

Once bargaining rights had been determined, Canada followed the pattern typical of North America, there was little government intervention to establish terms and conditions of work, except to uphold the right of grievance procedures and conciliation.²¹⁸ And except for periods, of price and/or wage controls, the Canadian industrial relations system has been left to the whims of the market system and the discontent and mistrust - as shown below - of labour-management relations for the last forty years.

"A recent study prepared for Canada's Department of Labour by George Sayers Bain, Director of Industrial Relations Research Unit of the University of Warwick in England, has concluded that the hostility of Canadian employers to trade unionism helps to explain why industrial conflict in Canada has been consistently among the highest in the world. And the fact that trade unions in Canada feel that they must be on the guard constantly to protect the shaky rights they struggled to establish is also a factor in unions' suspicion of any government or management initiative to improve industrial relations."

Part of the problem of industrial conflict in

Canada is to be found in the intransigent and uncompromising attitudes of both labour and management, as well as in the unwillingness of the Federal and Provincial governments to introduce some necessary legislative and institutional reforms.²¹⁹

The labour movement in the United States has not been, at times politically effective, and this has contributed to a lack of government policies, at the federal/state level, to promote the development of more progressive institutions. The labour movement has lagged, at times, behind nationalist expansion and the industrial revolution in the United States and has not always been popular with the American public.

American labour unions had modest beginnings in the early nineteenth century and grew quite substantially in its early periods. Unions developed to ensure that the right of free-trade would not eliminate the right of an individual to work, particularly within the United States, where vast regional differences and a superbly designed transportation network meant lower costs of getting goods to market - i.e. the "American Way."²²⁰

But like Canada, the balance of power between the federal government and the states was divided, and this meant restrictions on labour relations for both levels. Therefore as unions grew and became more unpopular with management, the power of coercion that management had over labour continued to restrict

its effectiveness well into the twentieth century.

Then in the 1930's, as the United States was gripped by the wows of the "Great Depression" several laws were passed to deal with labour relations. In 1932, the Norris-La Guardia Act restricted the courts's use of the injunction and banned yellow-dog contracts. In 1935, the National Labour Relations (Wagner) Act was passed.²²¹

The Wagner Act made it illegal for management to refuse to bargain with recognized representatives of the workers. The Act made it illegal for companies to interfere with the workers right to organize, and therefore acted as encouragement for unions to organize. Thirdly, the Act established the National Labour Relations Board so that the exclusive representative of all workers was determined. After the law had been constitutionally upheld by the supreme Court, industry, who had earlier refused to obey the law, pushed to have the law changed saying that the act favoured unions over management.²²²

Within the end of World War II, opponents of the Wagner Act were able to achieve their goal, as in June of 1947, the Act was proceeded by the Taft-Hartley Act. This act placed more restrictions on labour and argued that "interference to some degree in the procedures and content of collective bargaining was essential in order to protect the rights of unions,

management, the public and individual members of society.²²³"

This law has remained the principle foundation for the development of industrial relations institutions in the United States; with the exception of the Landrum-Griffith Act of 1959, which protected unions members against corruption by insuring their right to vote²²⁴, and has insured that the American principle of allowing the market forces to determine wages and benefits between labour and management has been upheld; and this principle has been upheld, against the desire of labour, since 1947.

From this, it is easy to notice that there exists two distinct categories where industrial relations are concerned. There exists the "European-Ethnic" category, that has promoted tripartite cooperation with formal legislation, or through more informal channels, where government uses moral suasion to promote the development of a better industrial relations system.

The economic experience of the "European-Ethnic" - through its system of utilizing policies such as income and wage policies; works councils; consensus decision making; and mandatory worker participation - has enabled countries utilizing these policies to maintain a relatively low level of inflation, moderate levels of unemployment and a consistent record of economic growth, in terms of the year to year change in G.N.P.

The second system is the "Anglo-Saxon" system, which promotes limited involvement in the traditional relationship between labour and management, and allows the market forces to take their course. However, what the advocates of this system have failed to realize is that a strong industrial relations system promotes industrial peace, and with little or no disruptions in the economic system, it will grow and adapt much easier to changes. This inevitably means a stronger economy and a better chance of meeting the nations economic goals.

Part B: The Collective Bargaining System and How it Coincides
With the Model

The most basic right guaranteed in each of these eight nations, as a fundamental part of the industrial relations system, has been the guarantee of the unions right to bargain collectively with an employer. The union may bargain at the level of the enterprise, on a company by company basis; as is the case in Canada and the United States, and in some isolated instances in Japan, Australia, and Great Britain; on a industry-wide basis, which is the more popular choice in Japan, Austria, Australia, West Germany, and the United Kingdom, but is also utilized in some instances in Canada and the United States; or on a nation wide basis, which has been the case in Sweden. However, no matter how the union chooses to bargain with the employer, the rights to collective bargaining have been

legally established.

Collective bargaining at the level of the enterprise involves a series of one to one negotiations between the union and the employer. The objective is to establish an agreement that best suits the individual needs of both sides. Each party is concerned with the long-run viability of the plant, but yet wants to move ahead in obtaining a feasible compromise with the other side. In this situation, the union is placed at a disadvantage because it lacks the necessary information about the viability of the operation, and therefore it is forced to make its own assumptions. This is the most fragmented system of collective bargaining, and therefore strikes by a union bargaining at this level is unlikely to have significant national impact to warrant a quick settlement.

Collective bargaining on an industry wide level is perhaps, the best tool that both the union and its executive have. Because of an unusually large membership, a union of this type has more information to bargain with the employers association. There still remains problems with industry wide bargaining, in that it sometimes fails to take into account regional differences, and localized effects that a settlement or strike could have upon a particular region. This phenomenon has been most notable in the "Anglo-Saxon" nations.

In Japan, collective bargaining tends to begin at the industry level, particularly during the "Spring Offensive," but it usually shifts to key enterprises in each industry, and once an agreement is struck in those, it spreads rapidly, with adjustments geared to the circumstances of each firm, to all companies in that industry.²²⁵ In West Germany, the process of collective bargaining has been well established in a legal framework that deals with industrial relations, and this system promotes bargaining on an industry wide level, because each industry and enterprise is covered under these laws. The "European-Ethnic" based nations have integrated industry wide bargaining into the industrial relations system, and therefore, there is less industrial conflict resulting from this procedure.

In Sweden, national unions and employers' associations, in each branch, negotiated settlements prior to 1950. However since 1950, centralization has taken place. Collective bargaining between the national unions and the employers' associations, has been superceded by active inference, in this process, by the LO and the SAF.²²⁶ These two top organizations now negotiate the general issues, and the national unions and the employers' associations, then try to agree on their specific issues.²²⁷ This system has the general support of the employers organization but only reluctant support from the union.

Therefore depending on the nation, the collective bargaining process, in conjunction with the policies and institutions of the industrial relations system utilized, will have a direct bearing on the probability of a breakdown in these talks.

The following illustrates the collective bargaining system used in each nation:

- Australia - enterprise and industry-wide negotiations but tend to rely on enterprise level negotiations;
- Canada - enterprise and industry-wide negotiations but tend to rely on enterprise level negotiations;
- U.K. - enterprise and industry-wide negotiations but there is a trend towards more industry-wide negotiations;
- U.S.A. - enterprise and industry-wide negotiations but tend to rely on enterprise level negotiations;
- Japan - industry-wide negotiations that are brought back to full key enterprises and then altered to deal with regional differences;
- F.R.G. - industry-wide but within the legal framework developed;
- Austria - industry-wide but within the institutional framework developed;
- Sweden - national negotiations that are general and then passed to the industry level for the development of specifics.

The data indicates that industry-wide and nation-wide negotiations that have been developed with a specific legal or

institutional framework, is more conducive to obtaining a settlement without industrial conflict. Without industrial conflict, a nation's economy should be spared the inevitable suffering that coincides with conflict, and therefore should perform better on a domestic and comparative international basis. As well, in Sweden, Austria, West Germany, and Japan, economic issues are going to be less of a factor in negotiations, where more emphasis may be placed on benefits that effect each individual worker - pensions, group health and life insurance, job security, safety, and workers participation in management - rather than issues of national concern such as unemployment and inflation.

Therefore, there will be a more conscious effort on the part of unions and management to obtain a viable consensus, and to negotiate with both parties interests at heart, and therefore avoid the single-minded mentality that exists amongst the partners in Canada, the U.S., the U.K., and Australia.

As expected, with the exception of Japan and the United States, the hypothesis set forth in Chapter One does correspond to the development and application of industrial relations systems in the nations that have been studied and include Australia, Austria, Canada, Great Britain, Sweden and West Germany.

In Sweden, Austria and West Germany there exists a long history of cooperative development of their industrial relations systems. In the late nineteenth century and the early twentieth century these three countries had established a rather simple form of industrial relations system that would act as the forerunner for each of their present day systems, but, yet a system which introduced industrial relations based on mutualistic traditions.

These simplistic systems had works councils as their primary attribute. As early as 1920 works councils had legal representation in the shops and plants of West Germany and Austria. This type of legislation was a direct result of the growth of unions during the industrial revolution and in direct response to how the other two parties - i.e. management and government - wanted to respond to the ever growing popularity of unions.

Governments in these three nations felt a strong desire to maximize economic growth and economic potential so it became their responsibility to ensure that labour was in some way protected from the wrath of the greedy capitalist entrepreneur. This meant that government had to, and did introduce legislation that provided unions with the legal right of formation and the right to bargain collectively, and to have any resulting

agreement be legally binding on both sides. This occurred in each of these countries prior to the outbreak of World War I.

The changes that happened both domestically and globally during the period from the outbreak of World War I to the end of World War II, forced each government to reevaluate its goals once the war had ended. These nations quickly realized that economic growth and political stability could be achieved by extending institutions to include labour and management in a cooperative milieu. These traditions have continued, notwithstanding some disruptions and some evidence of discontent, to the present time. They have etched themselves into the backbone of each of these nations and are, in some way, directly responsible for the record of industrial peace and economic consistency that these three nations have.

Table 5.1 has shown that these three countries, along with Japan, have relatively few man days lost per thousand workers per year during the last quarter century. The results of the model - Tables 4.1 to 4.7 - prove that these four nations, through the development of an industrial relations system, have been able to maintain economic growth and industrial peace in tandem.

Japan's r-squared statistic for the model was 0.8363, the F-statistic was 13.8693. The adjusted r-squared statistic was 0.7760 and five of the seven t-statistics were significant. Put back into the context of the model, these statistics indicate that the collective bargaining process focuses on the traditional issue of economic performance and therefore wages are a central issue in collective bargaining.

"In actual bargaining, initial demands and counter-demands are likely to be far apart as well as numerous. However, by the time they are settled, as in the "Spring Offensive," they usually dwindle down to a few key wage issues, such as the "base-up" (which is a flat sum or percentage increase in to total wage bill of an enterprise), starting wages for new school graduates, and annual or semi-annual wage bonuses.²²⁸"

One reason for this "narrow" set of bargaining issue is that the basic labour agreement and money settlements are treated separately. Basic labour agreements set forth the general rights and obligations of each party and procedures for bargaining and administration, covering in detail such matters as management perogatives, union recognition, membership eligibility, dues check-off, union security, union officers, no-strike pledges, negotiations, working hours and work conditions. While the law limits duration of agreements to three

years, they tend to be renewed almost perfunctorily, and with little change.²²⁹ In this respect, wage and money benefits may be reopened and renegotiated at any time.

It is for these reasons that the emphasis in Japan has been on wage increases and money benefits during the collective bargaining process, while more traditional union issues are dealt with through the process of consensus decision making. Therefore, Japan's equation should show a good fit and statistical significance when analyzing the model's results and comparing them to the institutions and legal framework presently being used. It should be noted that Japan is the exception, in terms of those nations classified as "European-Ethnic."

The "Anglo-Saxon" nations have a very poor record of controlling industrial peace. These four nations are amongst the worst, statistically, in the capitalist world. Only Italy has a worse strike record than Canada over the past quarter century, while each of these four nations - the lowest of which is Great Britain - are all at least four times higher, than the highest numbers for the other four nations.

These four nations - i.e. Australia, Canada, Great Britain, and the United States - had provided a minimum legal framework during the nineteenth century, that allowed workers the

basic right of unionization, as well as some rights to political association and the right to conciliation and arbitration. However, with their commitment to the laisse-faire capitalist economy, the political establishment permitted the exploitation of workers in general, and unionized workers in particular, where they had survived the traumas of the union busting techniques employed by management.

The political process also did little to promote the development of a workable industrial relations system geared to industrial peace and social progress. Since - with the exception of Great Britain - powers were split between the two levels of government - i.e. the federal and state levels. The state and the federal government normally followed a similar course of action; and although the state had the legal jurisdiction over labour relations in each of these nations, with only a few exceptions, a policy was adopted that extended the rights of unions to protection in a rather perfunctary manner. This meant that the policy of allowing market forces to determine wages and wage structures between unions and employers was readily accepted.

The course of industrial relations remained relatively unchanged in the Anglo-Saxon nations for nearly a half century. Of course there were additions to the legal system that

sometimes clarified old, antiquated laws, yet, there were also a number of important additions that provided for a further extension of the rights of all three parties to the industrial relations system. However, talk about change became more prevalent during the turbulent 1970's, especially in Great Britain, Canada, and Australia.

However, there has been little positive change resulting from "the 1970's crises in industrial peace" in these nations. Most nations reverted to studying the problem, however, these studies turned out to be little more than a government charade to satisfy the needs of unions in public, while privately continuing their support for "Big Business" and the free enterprise system. That is why, even today, the "Anglo-Saxon" attitude towards industrial relations still prevails in these nations.

For these reasons, along with the extensive use of enterprise level collective bargaining, countries like Australia, Canada, and the United States should have equations that show statistical significance. Two of the three countries do, the exception being the United States. Australia has an r-squared statistic of 0.7881, an adjusted r-squared of 0.7101, an F-statistic of 10.0979, and four significant t-statistics. Canada, on the other hand, has an r-squared statistic of 0.6695, an adjusted r-squared of 0.5477, an F-statistic of 5.4981, and four significant t-statistics. This means that the

hypothesis is correct for these two nations, and that economic performance, which is the underlying factor in the collective bargaining process, is significant in creating industrial conflict.

So what has happened to the United States. The statistics - an r-squared of 0.3115, an adjusted r-squared of 0.0579, an F-statistic of 1.2281 - all indicate that economic performance is not a significant underlying factor in the collective bargaining process. However, all the previous literature that has been studied indicates that this should indeed be the case.

"Collective bargaining, the process whereby unions and management negotiate the terms of an agreement that is binding upon and acceptable to both parties, is one of, it not the most important aspect of labour relations in the United States. 230"

"Collective bargaining agreements spell out who is covered by the agreement and for how long. A system of internal jurisprudence or a grievance procedure is set up. The contract enumerates certain rights of management, called the management prerogative clauses, which describe the powers of management with no subject to union interference. Union protection clauses, such as the union-shop provision are included. The contract deals directly with bread and butter issues: wages, hours, and fringe benefits such as pensions and health and welfare insurance. The contract also defines the terms of job security. For many workers this is the important section of the contract, as it includes provisions concerning procedures for hiring,

promotion, laying off, discharge and reemployment. Finally, the contract covers incidental items dealing with working conditions: heating, lighting, sanitation and protective clothing, if necessary. These are the broad categories of provisions one finds in a typical union-management agreement. 231.

"But whatever the hopes for some within the labour movement for other goals to be sought in collective bargaining, the major sources of concern in collective bargaining still are money and job security issues. Thus, unions are continually pressing for wage increases, sometimes protected against inflation by wage escalation clauses. 232."

These statements may help to enlighten the situation as it applies to the United States. This author concedes that the most important aspect of the industrial relation system in the United States has been, and still is the collective bargaining process. The collective bargaining process allows both union and management to obtain and legally secured rights that are important to them. The system employed in the United States seems no different than each of the other three "Anglo-Saxon" nations, so why the statistical differences.

There are two possible explanations as to why this has occurred. One reason lies in the fact that the size of membership in American unions has been on the decline. Labour Statistics show that although union membership increased from 1960 to

1976 by 3.585 million but that the actual percentage of unionized workers has decreased by 3.3 percent from 23.6 to 20.3 percent. The labour force for the same period was up 24.775 million and this means that the percent rate of unionization was only 14.47%.²³³ This shows a decrease in the continuing importance of unions in the United States and this probably had, to some extent, weakened the power that they once may have had.

Another explanation may lie with the workers themselves. Prior to the mid 1970's, American workers, in general, and unionized workers, in particular, had the highest per capita income in the world, but since then, have fallen behind several of the other highly industrialized nations of Western Europe; and therefore felt it was necessary to change their focus from the continuing issue of wages and monetary benefits, to other less traditional issues. As was noted earlier, job security has become an increasingly more important issue for unions, as has the fringe benefits.

"Workers are striving to expand fringes: improved retirement systems, sometimes starting earlier often with cost-of-living escalation clauses; better health plans, including dental insurance; new procedures, more time off work, including more holidays and vacations, and shorter work weeks; higher premium pay for working more hours than scheduled; tighter controls over the work

places to prevent accidents and improve health and safety;... 234"

These may be only two of a number of explanations and prior assumptions, that may be utilized in reasoning, why there is a large statistical difference between the United States and the other "Anglo-Saxon" nations. However, to actually be able to pinpoint the reason(s) would be impossible given the social, political and economic scope of a country like the United States.

In this chapter, the historical development of the industrial relations institutions of each of the eight countries has been fully explored. This perspective has been applied to the results of the model to see if a direct relationship did exist. It can be said that those countries who promote tripartite cooperation and exhibit codetermination in their management techniques have a much better record of industrial peace and are less likely to be influenced by outside factors, when entering into the collective bargaining process.

In countries, where they still rely on the market to determine wages, and continue to exhibit a "hands-off" government policy, there will undoubtedly be more industrial conflict. Cooperation, codetermination and consultation are not promoted by government and management, while unions are left, to determine from outside

influences, to make a number of key decisions regarding what they should or should not be asking for from the employer when the collective bargaining process begins.

In the "European-Ethnic" nations, there is no subconscious mode to the collective bargaining process. This is due to the fact that all aspects of labour-management relations are discussed, and openly pursued in an atmosphere of cooperation. However, the same cannot be said of the "Anglo-Saxon" nations.

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CHAPTER VI

In conjunction with the nation by nation analysis that has just been completed, attention must now shift to an analysis of the individual explanatory variables and their effect on the dependent variable. This chapter will analyse the explanatory variables that were statistically significant in each of the eight nations, and then will do a comparative analysis of results from older studies.

Table 6.1 recaps those explanatory variables that were statistically significant in each of these eight nations. Appendix VII provides additional information with regard to the other studies, many of which have different time frames, that have utilized man days lost as the dependent variables, while analysing the relationship between economic performance and strike activity. The studies that utilized man days lost provide an excellent point of reference for this study.

Perhaps the most effecient way to focus on the significant explanatory variables is to continue with a nation by nation, and then a variable by variable analysis. Since West Germany had no significant explanatory variables, it will be ignored

Country	Constant	Wages	Inflation	Unemployment
Australia	-1.7480	2.0017	XXXX	XXXX
Canada	XXXX	1.9459	XXXX	-1.8101
U.K.	2.6550	XXXX	XXXX	-2.1563
Japan	2.1807	2.4548	4.0911	-3.2915
Austria	XXXX	XXXX	XXXX	-2.0423
U.S.A.	2.2999	1.9840	XXXX	-2.2838
Sweden	XXXX	XXXX	-2.3660	XXXX
F.R.G.	XXXX	XXXX	XXXX	XXXX

Country	Employment	Growth	Time	Policy
Australia	2.0801	XXXX	XXXX	1.9020
Canada	XXXX	2.1748	XXXX	-2.3411
U.K.	-2.6239	XXXX	3.0243	XXXX
Japan	-1.9744	XXXX	2.1271	XXXX
Austria	XXXX	XXXX	-2.5233	XXXX
U.S.A.	-1.7678	XXXX	XXXX	XXXX
Sweden	1.9260	XXXX	XXXX	XXXX
F.R.G.	XXXX	XXXX	XXXX	XXXX

Table 6.1 The Statistically Significant T-statistics

for the purposes of this chapter.

The first nation to have its explanatory variables analysed is Sweden. In the initial analysis, the significant explanatory variables were inflation at -2.3660 , as well as employment at 1.9260 . With the sign of the coefficient being negative for inflation, one of two relationships exists at all times; 1) as inflation increases, man days lost due to strikes is decreasing or 2) as inflation is decreasing, man days lost due to strikes is increasing. The tendency in Sweden is, when inflation increases unions are more likely to reach an agreeable solution with their employer and avoid a strike. However, when inflation is decreasing unions are more likely to strike based on the premise that they can attain a much better settlement in real wages while experiencing a lower opportunity cost. However, this is an unproven explanation.

Where employment in Sweden is concerned, the sign of the coefficient of this explanatory variable was positive. This meant that as employment increases, man days lost due to strikes also increase and as employment decreases man days lost also decreases. This is to say that unions are more likely to strike at levels closer to full employment because the risk of losing their job has diminished. since the

number of qualified people to takeover their position is limited. Rees, has made the point that the propensity to strike increases in periods of rising employment.²³⁵

The negative relationship for inflation is very hard to explain, however there does exist a data problem with the original series that when corrected may shed some light on the Swedish equation. In any series of this kind, several large conflicts can dominate²³⁶, and such has been the case with Sweden. When the large conflicts are removed from the series - i.e. 1966, 1971, 1975 and 1980 - and replaced with the number 1.0, and the series is rerun, the results strongly coincide with what should have been expected from Sweden. Appendix VI shows that there were no longer any explanatory variables that were statistically significant, and the strength of all the other statistics had decreased significantly.

This result would be more in line with a nation, that had an overall average of man days lost due to strikes in the period 1955 - 1981 of 23.756 when 1980 had been removed, and 9.397 when 1966, 1971, 1975 and 1980 had been removed from the series. This verifies the fact that large conflicts can dominate and alter the statistical significance of the results in a nation, particularly in a nation not prone to a significant number of strikes. In reality, these four years represented nearly 85%

of the cumulative mans days lost due to strikes over the past twenty-seven years.

However, the same point can be made for each of the other seven nations, with the exception of Canada, who has remained consistently high throughout the last quarter century. If the worst four years are removed from the series for each of the other countries the differences are as follows:

- 1) Australia - total man days lost²³⁷ down from 9346 to 6311 or fram an average of 346.135 to 274.392
- 2) Austria - total man days lost down from 760 to 287 or from an average of 28.132 to 12.492
- 3) Japan - total man days lost down from 1715 to 1122 or from an average of 63.521 to 48.763
- 4) F.R.G. - total man days lost down from 761 to 314 or from an average of 28.187 to 13.650
- 5) U.K. - total man days lost down from 8354 to 5015 or from an average of 309.405 to 218.049
- 6) U.S.A. - total man days lost down from 11554 to 8413 or from an average of 427.913 to 365.788.

Only in the case of Austria and West Germany would the diferences be significant enough from dropping the four observations, for the series to merit an additional rerun. But since West Germany already lacks any form of significance, it will be necessary only to examine Austria at some future point.

In Australia, the same relationship exists between employment and man days lost as existed in Sweden. The sign of the

coefficient of this significant variable is positive, and this is the type of relationship that had been expected. An increase in employment would bring about a resulting increase in man days lost and visa versa. Australia has two other explanatory variables that are significant. One is the policy index and the other is wages. The sign of the coefficient for both these variables is positive. A previous Australian study, by Bentley and Hughes, did not discover any level of significance from their analysis for the time periods that they studied, and they also used the assumption that wages were no longer very important issue with unions. This, they said, is primarily due to the relaxed nature of the Australian economy.

But why would the sign of the coefficient be positive?

Translating this, the relationship could be explained as follows, as the level of real wages increased, the number of man days lost would also increase, and as the level of real wages decreased, the number of man days lost would also decrease. This trend would not seem possible. Would workers go on strikes after having received higher wages?

One possible explanation for this relationship lies in the fact that wage increases, normally occur based on activity that has occurred in a previous period or on a projection of what is going to occur in a future period. So as wages increased

based on these projections, the striking employees on strike are looking for the difference in what they had asked for and what they had actually received. This relates to the time-lag theory of wage increases.

Canada is very unique, Canada has four explanatory variables that are significant, and two of these variables directly contradict each other. The sign of the coefficient for the explanatory variable "growth" is positive. This implies that as economic growth increases, the number of man days lost also increases, or as growth decreases, man days lost also decreases. But this is in direct contrast to the relationship that exists with the policy variable. Since it has been assumed that this policy variable focuses on economic objectives, a negative sign for the coefficient means that strikes are occurring because the economic objectives are not being met and do not occur when they are being met. This has been the actual case in Canada. Nation-wide, strikes are called to protest economic conditions- normally high inflation and high unemployment - and in direct response to government policy measures - particularly wage and price controls which have been utilized in Canada on several occasions.

The unemployment statistic has counterparts from previous studies. The Vanderkamp and Walsh studies found that the

relationship between unemployment and man days lost was indeed negative in Canada.²³⁸ What this means is that as the rate of unemployment increases, the number of man days lost decreases, and when the rate of unemployment decreases, man days lost increases. Yet, this was indeed the case in four other countries, including; Great Britain, Japan, Austria, and the United States, all of whom also had negative signs on the coefficient for their unemployment variable.

Evidence from Ashenfelter and Johnson, Skeels, Snyder (1975 and 1977) and Edwards, indicates that this relationship has existed in the United States since shortly after World War II. A study by Pencavel, in the United Kingdom, also indicated the same results.²³⁹

What about Okun's Law? Okun's Law, simply put, states that a fairly regular relationship exists between lost output (the gap between the actual and potential output) and the rate of unemployment. Okun's Law takes the form:

$$\frac{Q^* - Q}{Q^*} = F(U - U^*)$$

where $\frac{Q^* - Q}{Q^*}$ is the gap between the potential and the actual output, and where $(U - U^*)$ is the percentage excess of unemployment. What this really means is that a one percent unemployment rate in excess of the full employment rate, can mean between two and three percent loss in real GNP.²⁴⁰

Therefore, as unemployment continues to rise above the full employment rate, the rate of growth of the economy begins to lose some of its potential and therefore growth slows down. With high unemployment, unions are less likely to gamble with their future since the economy cannot endure substantial union settlements, and the company may not feel the need to offer higher settlements because of the almost immediate availability of workers. Therefore, this relationship should be theoretically negative, and is negative for the significant variables in this model.

There is still one more significant explanatory variable to be studied in Canada and that is the wage variable. The wage variable was also significant in Australia, Japan and the United States. The explanation provided for Australia, although weak, is the only explanation that this study has to offer. Labour theory would indicate that this relationship should be negative, particularly since there are no lagged variables in this model. When wages increase, the number of man days lost should decrease. This would indicate that labour would have received a positive increase in "real" wages and therefore have not lost ground to prices.

An American study by P.K. Edwards indicated that the relationship between real wages and man days lost was indeed negative

for the time period 1946 - 1972.²⁴¹ One might however be able to reason that the following scenario has occurred, although this must be done speculatively since there is no theoretical basis, since 1970. Workers began to receive substantial wage increases during the 1970's, particularly in manufacturing. Each year as the union received an increase in wages, it in turn decided to ask for more. So the union developed this insatiable appetite for large wage increases, and by increasing their demands to levels unacceptable to their employer, they were inevitably, placed in the position of having to strike in order to gain substantial yearly wage increases. There may be some statistical merit in what has been ascribed, since the largest real wages increases occurred for each of these countries during the 1970's - i.e. Japan, 7.6% average increase per year during the '70's; U.S.A., 0.29%; Australia, 2.61%; and Canada, 2.12% - these same countries also experienced their worst decade for strike activity, as well as their worst individual three year record for the entire period being studied - Japan 85.29 man days lost per one thousand employees during the 1970's and 141.841, nearly 2.5 times the twenty-seven year average, for 1973 - 1975; U.S.A. 456.545 during the 1970's, and 591.145 from 1973 - 1975; and Canada 807.343 during the 1970's, and 958.829 from 1973 - 1975. This would certainly indicate that a much more logical reason does exist for these statistics.

The wage and the unemployment variables have already been

explored in the cases of Great Britain, Japan and the United States. Therefore emphasis must shift towards the unexplained variables from each of these countries.

In Japan and Great Britain the explanatory variables time and employment, have the same sign for the coefficient. Employment is also similar in sign for the coefficient to that of the United States.

The first variable to be analyzed is time. Both the U.K. and Japan have a positive coefficient for this variable. What this means is that as time has progressed the number of man days lost due to strike has also increased. In general this has been true for both Great Britain and Japan. Statistics show that average number of man days lost due to strikes increased, on average, from the 1960's to the 1970's. In Japan in the 1960's the average number of man days lost per year was 83.415 per one thousand employees and during the 1970's this figure increased to 85.29. In Great Britain, the figure for the 1960's was 131.547, however, during the 1970's it soared to 524.977. This provides a strong indication as to why this positive relationship did exist.

Another reason focuses on the relationship between the a priori assumption related to this variable and union activity. In

Great Britain for instance, the rate of introduction of technological change has become a very contentious issue for labour. The traditional position of the union has changed from emphasizing wage increases to obtaining concessions on areas such as job security and fringe benefits. As has been witnessed by the 1984 - 1985 coal miners strike, over job security and wages, the unions are quite willing to take a hardline on issues like this, as their attitude shifts more towards self-preservation.

In Japan, decisions regarding the implementation of work related changes are made through a consensus process which is negotiated on a three-year basis. But as had been pointed out in an earlier chapter, even though Japanese corporations have been quite profitable over the last quarter century, these profits have not always been turned over to the workers. Therefore the "Spring Offensive" has become a weapon whereby labour has been able to obtain money benefits - i.e. wages, bonuses, etc., and as Japanese corporations have become more profitable, particularly during the 1970's, strikes were utilized by unions to get at those profits.

In Japan, Great Britain and the United States there was a negative relationship between employment and man days lost. This would reflect the position of the traditional economist.

Since employment is increasing, then man days lost due to strikes are decreasing. When employment is decreasing, man days lost due to strikes is increasing. This implies that as unions are losing their jobs to technology, recession, etc., they would be willing to withdraw their services as a means to obtain leverage in bargaining to retain this position. The counter-theory of this is that as employment increases, the general population is glad to be engaged in employment, unions are increasing in numbers, or they should be, and no one really wants to rock the boat. However this argument is weak, and this author favours the position that unions gather strength as an economy is approaching full employment since the number of skilled and semi-skilled workers available has greatly diminished.

There are only two significant explanatory variables that must be discussed in this section. The first of these variables is inflation in Japan, and the sign of the coefficient for this variable is positive, as well, the t-statistic is quite significant at 4.0911. But this is what should have been expected of Japan, given the present industrial relations institutions. The Japanese unions bargain with their employer utilizing a two tiered system. On the first level is the annual negotiations that focus on wage and money benefits. On the second level are the tri-annual negotiations that deal

with all other issues pertaining to the operation of the plants and factories. Therefore money is an annual issue with the Japanese unions and employers.

Along with the assumption that unions utilize consumer price indices or other types of inflationary indexes in helping to determine the level of nominal wage increases, the relationship should be positive in that, high levels of inflation bring about industrial conflict as unions try to obtain high nominal wage increases in order to compensate.

The second of these variables is time in Austria. The sign of the coefficient for this variable is negative, meaning that as time has increased - i.e. moved ahead in a chronological series - the number of man days lost due to strikes has correspondingly decreased. This has been the case when the statistics for the 1960's and 1970's are analyzed. Throughout the 1960's the average number of man days lost per one thousand employees was 50.608, however, during the 1970's this figure had fallen off by more than 80% and was now at 7.908. And during the early part of the 1980's - I.E. 1980 - 1981 - this figure had fallen to 3.373, thus, showing that a strong negative relationship between time and mandays lost should exist.

Austria, as a nation is in the same situation as Sweden and

West Germany. The four largest strikes in the series account for 55% of the total man days lost during the twenty-seven year period. Therefore it was decided to rerun the original model, but that these four strikes would be ignored, in order that a much better composite picture could be drawn. Remarkably the same results occurred as had earlier occurred with Sweden. There were no longer any significant t-statistics but the other statistics - including the F-statistic, r-squared and adjusted r-squared - had increased slightly, and was in direct contrast to the Swedish results.

From the results for Sweden and Austria, for this additional analysis, the new statistics indicate that the variables dropped from the series, were of importance. Since the t-statistics generally decreased from poor to extremely bad in almost all cases, the original set of statistics should be considered a more accurate indicator of the true relationship between the explanatory variables and the dependent variable, even though the adjusted statistics correspond much better with the hypothesis.

One final analysis was conducted to test if the same relationship existed in West Germany. After all, the four largest strikes during the last twenty-seven years represent fifty-two percent of total man days lost during that same period.

However the results in West Germany were quite different when the model was rerun after dropping the four worst years in terms of man days lost and substituting them with 1.0. The r-squared, adjusted r-squared and the F-statistic all improved dramatically. The number of significant explanatory variables increased from zero to two; a positive relationship for unemployment, which is contrary to conventional theory, and a negative relationship for time; the structure of the covariance matrix improved, thus proving that this particular equation was highly multicollinear.

What does all this mean for the analysis that has taken place? By analysing the individual relationships amongst the various significant explanatory variables and the dependent variable, the following comments can be made regarding their importance to this study.

It can generally be said that the "Anglo-Saxon" group of countries had more significant explanatory variables, meaning that the emphasis prior to entering into the collective bargaining process was still on economic conditions/variables. This means that, in general, wages remain the key issue in the collective bargaining process. In fact the t-statistics for the explanatory wage variable in Australia, Canada and the United States were significant, while in the U.K. it was not.

In terms of the explanatory variables, twelve of the twenty-eight were significant at ninety percent, in the "Anglo-Saxon" nations. While in the "European-Ethnic" nations, nine of the twenty-eight explanatory variables were significant, however five of these could be attributed to Japan, which turned out to be the statistical exception in this group. Japan was the only country in this group where the wage variable was significant. This can be attributed to the fact that there is an annualized system of collective bargaining that focuses only on wage and money benefits. Almost all strike activity in Japan can be attributed to the "Spring Offensive," a time of year when workers negotiate for their wage and money increases.

The development of a fully integrated tripartite system of cooperative industrial relations, which includes measures of consultation and codetermination which exist in the "European-Ethnic" system, has had several effects on this model. Since this type of system acts as a "buffer" to limit industrial conflict, through works councils and worker participation in management at the level of the enterprise, many of the traditional disagreements between workers and employers regarding working conditions, health and safety programs, introduction of technological change and therefore issues related to job security, can all be discussed at the level of the enterprise, and a compromise can be reached prior to both sides entering

into the formal process of collective bargaining.

In all of these countries, whether the system is formal through legislation or informal through voluntary guidelines, the government has played an active role in encouraging better labour-management relations as part of a much broader socio-economic plan. This tends to limit industrial conflict because the government has wide powers of moral suasion over all groups within their legal jurisdiction.

The focus of employers and unions in the collective bargaining process has turned away from the more traditional issue of wages. Unions and employers tend to focus on issues related to work place participation, benefits and job security. Both parties in these countries recognize that the rewards for compromise far exceed the costs of conflict.

Therefore, it is expected that the following explanatory variables would not be significant in the "European-Ethnic"; (1) wages and (2) government policy. In the case of the four "European-Ethnic" countries, government policy is of no real significance in explaining industrial conflict, since government policy is geared to industrial peace and economic stability.

This leads to the conclusion, that in countries dominated by the "Anglo-Saxon ideology, the level of significance of the explanatory variables is much higher in comparison to the "European-Ethnic" ideology. In countries where a fully developed and socially well-integrated industrial relations policy exists, the dependance on economic variables as factors in the collective bargaining has been greatly reduced. While, in general, these nations have far less industrial conflict and are progressing much further ahead, economically and socially than the "Anglo-Saxon" nations.

The last point to be made in this chapter focuses on the Hicksian "Accident Theory of Strikes." It is apparent that this theory is quite applicable in Canada, Australia, Great Britain and the U.S.A. It appears that strikes in these nations occur for reasons related to a breakdown in the collective bargaining process. Since the collective bargaining is the only formal industrial relations institution in place in each of these countries, strikes occur as a result of faulty negotiations where the demands of one side cannot be met by the other, or are in excess of what the other side wants to provide.

Hicks (13) made the following points about trade unions, negotiations and employers:

"There is a general presumption that it will be possible to get more favourable terms by negotiating than by striking. The reason why an employer is prepared to pay higher wages than he would otherwise have done, as a result of Trade Union pressure, is that it pays him to offer a certain amount of "Danegeld" to buy off the loss which would follow from a strike. Once a strike has begun, all he can buy off is the remainder of the strike; the loss incurred as a result of the stoppage has already taken place.....to fight out to the bitter end, only means going back upon the employer's terms..... Weapons grow rusty if unused, and a union which never strikes, may lose the ability to organise a formidable strike, so that its threats become less effective. The most able Trade Union leadership will embark on strikes occasionally, not so much to secure greater gains upon that occasion (which are not likely to result) but in order to keep their weapon burnished for future use, and to keep employers thoroughly conscious of the Union's power.....Under a system of collective bargaining, some strikes are more or less inevitable for this reason; but nevertheless, the majority of actual strikes are doubtless the result of faulty negotiation. If there is a considerable divergence of opinion between the employer and the Union representatives about the length of time the men will hold out rather than accept a given set of terms, then the Union may refuse to go below a certain level, because its leaders believe that they can induce the employer to consent to it by refusing to take anything else; while the employer may refuse to concede it, because he does not believe the Union can hold out long enough for concession to be worth his while. Under such circumstances, a deadlock is inevitable, and a strike will ensue; but it arises that the divergence of estimates, and from no other cause. Any means which enables either side to appreciate better the position of the other will make settlement easier; Adequate knowledge will always make a settlement possible. The danger lies in ignorance by one side of the other's dispositions, and in hasty breaking-off of negotiations."²⁴²

Hick's analysis suggests that the collective bargaining process is the key to limiting industrial conflict. Lacking perfect information, if the negotiations were carried on in an atmosphere of mutual trust and mutualistic goals, industrial conflict can be substantially reduced. This has most definitely been the case in the four European-Ethnic nations.

In four Anglo Saxon nations, where the collective bargaining process has been maintained as a forum to express diverging opinions about all issues related to employer-employee relationship, the accident theory of strikes is relevant. Since the majority of information utilized in the collective bargaining process comes from outside the firm, i.e. from interpretation of socio-economic trends, rather than from a cooperative exchange of pertinent information, there will undoubtedly be disagreements that lead to a breakdown of the process and strikes.

One other point of relevance made by Hicks, is that unions strike to maintain the strength of their organizational abilities. This may help to explain why strikes occur in the "European-Ethnic" nations, or why in some years, strike numbers in terms of man days lost are much higher than average. It will be necessary to illustrate this point by example. In 1980, the LO in Sweden called for a national one-day strike to protest proposed changes to the national accord, and this one-day strike accounted for almost ninety-five percent of the

four million man days lost in 1980. These four million days accounted for more than one half of the total man days lost in Sweden over the last twenty-seven years. This shows that unions do utilize their organizational abilities to strike as a means of keeping the government and employers conscious of their strength.

Thus, it must be said that the Hicksian "Accident Theory of Strikes" will be of vital importance when industrial conflict is analyzed as a function of a breakdown in the collective bargaining process.

Notes

235. Albert Rees, "Industrial Conflict and Business Fluctuations," Journal of Political Economy 60 (October, 1952), pp. 371-382.
236. John W. Skeels, "Measures of U.S. Strike Activity," Industrial and Labour Relations Review 24 (July, 1971), p. 524.
237. This figure is the total number of man days lost per one thousand employed individuals over the last twenty-seven years.
238. Martin Paldam and Peter Pederson, p. 507.
239. Ibid.
240. Sherman Maisel, p.446.
241. P.K. Edwards, "Time Series Regression Models of Strike Activity: A Reconsideration with American Data," British Journal of Industrial Relations (November, 1978), pp. 320-324.
242. John Hicks, pp. 144-147.

CHAPTER VII

The present state of industrial relations in Canada is not conducive to industrial peace, labour management cooperation and economic growth when compared to the systems that have developed in certain Western European countries. The measures of economic performance utilized in this study, indicate that Canada's annual rate of inflation, unemployment and consistency of growth in G.N.P. over the past two decades, lags far behind those of Western European nations who have developed industrial relations systems which are geared more to cooperation than confrontation-nations like Sweden, Norway, the Netherlands, Denmark, Austria and West Germany.

Part of the reason why Canadian industrial relations has not developed in the same manner as the aforementioned nations, has to do with Canada's relative youth as a self governing nation, as well as Canada's close ties to its British heritage and American ally. Because of the very nature of these close ties; in terms of social and legislative developments, as well as economic institutions; Canada's political system and industrial relations institutions have developed within the context of being a British Dominion and having its constitution drafted in Great Britain and imposed on Canada in 1867. American influ-

ence has been over the development of Canada's economy with the focus being on the industrialization of Canada, in order that that U.S. could obtain much needed resources, and through its direct influence on the early development of Canadian Unions.

Combined with this was Canada's role prior to the 1850's, as an agricultural nation. This meant that the development of trade unionism was comparatively slow until well into the nineteenth century. The extreme specialization in agriculture and allied primary industries, the prevalence of domestic production in many fields, the small and scattered population, the limited industrial and urban development, and inadequate facilities of transportation and communication, all served to limit sharply the scope of labour organization.²⁴³

Unionism developed more rapidly in Canada during the 1850's to early 1870's. It was encouraged by rapid progress of the trade union movement in Great Britain and the United States. Much of the leadership and direction came from American unionists and from skilled workers from Britain who had previous union experience.²⁴⁴

During the next fifteen years, several attempts were made to organize a national body of trade unions which would promote the objectives of trade unionism. However there

were several disjointed attempts during the 1870's, most notably the formation of the Canadian Labour Union in 1873. However this union was principally an Ontario based union and therefore it lacked adequate strength to survive the serious depression and unemployment of the mid 1870's.²⁴⁵

In 1883 the Knights of Labour - the first effective American Labour Congress - held an assembly in Toronto for the purpose of establishing an overall Canadian Labour Federation. Out of this came the short lived Canadian Labour Congress, however a new federation was established on a permanent basis in 1886 - the same year of the American Federation of Labour, AFL, was also established - and the new organization met annually from 1887 to 1891 as the Dominion Trades and Labour Congress. In 1892 it assumed the name Trades and Labour Congress of Canada (TLC) and continued to be known as the TLC until the "Merger of 1956".²⁴⁶

During this same period the first major statutes of importance were also enacted by the federal parliament. The Trade Unions Act and the Criminal Law Amendment Act were both passed in 1872, the year that meant the full beginning of legality for "Combination of Workingmen" (unions, collective bargaining and strike action).²⁴⁷ They comprised essentially the same legislation as the British government had passed earlier, with special clauses to meet Canadian requirements. The most

important provisions were those defining trade unions as legitimate voluntary associations and exempting them from charges of criminal conspiracy. Following Britain's lead also, a number of provinces enacted legislation designed to settle industrial disputes. Ontario passed an act in 1873 which provided for local boards of conciliation to be set up on agreement between employers and workers. The provinces of Nova Scotia, Quebec and British Columbia followed suit within a few years. Most of these soon became inoperative or were repealed. A notable exception was the Quebec Trade Disputes Act of 1901, which remained in force until 1964.²⁴⁸

During the period prior to 1900, strikes focused mainly on work related issues; particularly daily working hours of work, and health and safety conditions of the work place. However, the impact of strikes could easily be controlled through management tactics such as injunctions, yellow-dog contracts, and the use of strike breaking organizations and the government continued to remain outside the realm of the relationship between union and employer.

But the trade unions remained a relatively immature, weak and disreputed part of the Canadian business scene. Part of the union's many problems came as a result of union conflict in the United States. Almost as soon as the TLC was organized

it had to face the issue of "dual unionism." The AFL, at its founding convention in 1886, had adopted the principle of exclusion jurisdiction of its member unions over workers in specific industries or trades, and elimination of any organizations that competed with its affiliates. From the outset AFL exerted pressure on the TLC to follow the same policy in Canada.²⁴⁹ The friction which had developed in the United States between the AFL and the Knights of Labour reached its peak in Canada in 1902, when the TLC amended its constitution to exclude from membership national and international unions of the AFL, and refused representation to any city central labour organization that did not have a charter from the TLC. This meant exclusion of the district trade assemblies of the Knights of Labour, which were still organized in a number of cities, and exclusion from TLC ranks of a number of purely Canadian unions.²⁵⁰

Yet almost immediately after their expulsion in 1902, the Knights of Labour rebounded and were instrumental in the formation of the National Trade and Labour Congress. This organization consisted of various labour groups who were strongly opposed to the rigid policy adopted by the TLC, which they interpreted as one of subservience to the AFL.²⁵¹ In 1908 it changed its name to the Canadian Federation of Labour, or CFL.

opposition arose to the TLC in Western Canada. In the early 1900's, left-wing revolutionaries from the United States, organized several unions in British Columbia and Alberta, particularly amongst loggers, miners and railway workers. This new organization has some early temporary success in winning away affiliates from the TLC, however, they soon lost ground, after engaging in several bitter, long strikes that were condemned by a special government investigating committee, as well as by the TLC.

From these historical events it can be easily seen how the early development of unions and government related policies, in Canada, were influenced by Britain and the United States. Prior to 1900, the Americans had strongly influenced the formation of unions in Canada, while the British had provided the legal framework within which all future legislation and industrial relations institutions would develop.

However, it is important to remember that as industrialization continued to promote expansion in all sectors of the economy, unions, governments and employers had to develop initiatives that would allow Canada to develop as a self-governing independent nation, able to cope with its own internal matters. Yet, the government failed to do the types of things that would have allowed for a "made in Canada" industrial

relations system. In conjunction with this, unions continued to depend on the American unions for leadership and advise, and this could not be beneficial to Canada as a whole.

"Rapid industrialization and economic growth, in many countries, including Canada, were accompanied by disruptive social changes, widening inequalities in income, growing concentrations in wealth, and indulgence in conspicuous display. Unionism for the first time was becoming a mass movement in a real sense, with unskilled and semi-skilled labour becoming organized into broad "industrial type" unions on a national scale.²⁵³ Yet during 1900 - 1913, numerous strikes of large magnitude and long duration accompanied these developments, and, in the face of intransigent resistance from employers and governments in many cases, generated widespread violence.²⁵⁴"

According to the Labour Gazette, there were fourteen large strikes in widely separate localities across Canada during the period from 1901 to 1913, in which one or more of the following occurred: riots and "mob violence"; extensive property damage; personal injuries, and in two cases death; reading of the Riot Act or proclamation of martial law; and armed intervention by militia or regular military force.²⁵⁵

A specially favourable combination of circumstances made

possible an unusually rapid rate of economic growth from the mid 1890's to 1913. Immigration, population growth and capital investment reached record levels, while the manufacturing sector more than doubled its output under the stimulus of the mass migration of, and the settlement of, the prairies and the building of two transcontinental railways. Inflation and a continual lag of wages behind prices accompanied these developments.²⁵⁶

Organized labour in Canada underwent a process of rapid growth and change during this period.²⁵⁷ The general economic climate in Canada was favourable to union expansion, and the TLC enjoyed indirect support in money and organization personnel from the international headquarters of its main affiliates.²⁵⁸ By 1921, following the period of rapid industrial growth; labour shortages, inflation and serious wage-price lags during World War I and the immediate post war period, the total membership of the TLC attained a peak that it was not to reach again until well into World War II.²⁵⁹

During the period between 1900 and 1927, prior to the beginning of economic havoc for most capitalist economies, the Government entered into the field of dispute settlements, a field that would continue to preoccupy the minds of Canadian Governments for decades to come. In 1900, Parliament passed the Conciliation Act which authorized the Minister of Labour

to appoint conciliation boards to help settle disputes when requested to do so by either of the parties involved. In 1903, the Railway Disputes Act was introduced to provide the right of conciliation to both parties. This act provided for a three-man board, one nominee chosen by each party to the dispute and a chairman chosen by these two. Where problems arose, the Minister of Labour was empowered to appoint members to the board. In 1906 these Acts were combined to form the Conciliation and Labour Act, but one year later was succeeded by the Industrial Disputes Investigation Act of 1907, which applied to disputes involving employers of ten or more persons engaged in mining, transport, communication and public utilities. The Act remained the backbone of Canadian industrial disputes legislation until well after World War II.²⁶⁰

The period after the war brought about the creation of a third major union the OBU or One Big Union. The OBU proclaimed the doctrine of the Industrial Workers of the World. The OBU launched a program to organize workers by industries rather than by trades. The organization was catapulted into national prominence when the Winnipeg General strike broke out during the organizational meetings. The general strike gained widespread support from many Western labour organizations including several important Councils to the TLC, which joined forces with the OBU. However, after peaking with some 41,500 members in

1919 the organization some began a long decline amidst strong opposition from federal and provincial authorities as well as from the TLC.²⁶¹

During this period the CFL experienced a number of ups and downs. It gained strength with the aim of promoting the cause for nationalism, but soon lost what it had gained when the Knights of Labour assemblies dissolved. However, during the 1920's the fear of radicalism in the CBU and conservatism in the TLC, led another temporary revival in the CFL and a new peak in membership during 1923. Thereafter the federation shared in the general decline of union membership and bargaining power in Canada.²⁶²

In 1921, there was some evidence of the Anglo-Francophone split, even in the labour movement. The organization, Confederation des Travailleurs Catholiques du Canada was formed in the province of Quebec, but the majority of Catholics in Quebec were still affiliated with either the R.C. and CFL, later the FLC of ACCL and from 1940 on between the FLC and CCL.

In 1927, the CFL and the OBU along with the Canadian Brotherhood of Railway Workers came together to form the All-Canadian Congress of Labour, (ACCL). The ACCL experienced the same pattern of growth as the other major unions with early acceleration in membership and then the latter decline with the depression.

Prior to the partial economic resurgence of the 1920's, Canada's unions still depended on its American affiliation for much of its guidance. The TLC was still dominated by its international affiliates, and continued to struggle for recognition from employers and government. As World War I ended and the transition back to a "normal" society began there was mounting unrest. Unrest due to the inflationary spiral, accompanied by lagging wages, widespread suspicion of wartime profiteering and the use of emergency wartime legislation to restrict union activities. These led to widespread agitation and conflict.

However, strike activity, government interventionism, and formal federal legislation declined during the decade of "eternal optimism" the 1920's. Strike activity declined for two reasons; 1) the strike wave of 1919 - 1920 was followed by the severe depression and unemployment in 1920 - 1921²⁶³ and this was of concern to unionist; and 2) the TLC became more dominated by international affiliates of the AFL.²⁶⁴ During the 1920's Canada became more "Americanized" in terms of foreign ownership.

Along with this foreign ownership came the policies of the major employer organization in the U.S.A. The organizations carried out a well financed and coordinated "open-shop" campaign against unions, and this influenced employer policy in Canada.²⁶⁵ In both countries there was a large scale rural to urban

migration and, in Canada, heavy immigration, with sharpened competition for jobs. At the same time, the major expansion on output and employment in both countries during the 1920's occurred in new and largely unorganized industries and/or in older industries that had successfully resisted effective unionization. There was also a major expansion of personnel employed in a wide range of white-collar, clerical sales, and service jobs. And finally, there were the absolescent and ineffective organizational structures of the dominant trade union bodies, the AFL in the U.S.A. and its counterpart the TLC in Canada. Dominated by a conservative craft union leadership and ideology, they were unable or unwilling to organize effective unions in more dynamic and rapidly growing sectors of the economy.²⁶⁶

This seemed to be the real end of the British influence over the development of any industrial relations institutions in Canada. Although the British North American Act still allowed for some aspects of legislative control; which were not utilized since the late nineteenth century and were formally abolished in 1981 when Canada received its own constitution; the British never formally exercised their legal right to interfere in matters of concern to Canada. This meant that the era of American domination of union philosophy, employment opportunities, and later, industrial relations legislation had begun.

During the decade prior to the "Great Depression," the Industrial Disputes Investigation Act (I.D.I.) was successfully challenged in the courts and the Privy Council, in 1925, on the grounds that the federal constitution did not guarantee the federal absolute jurisdiction over such matters. The Canadian Parliament accordingly amended the act to make it apply to disputes coming under federal jurisdiction. The amendment also provided that the I.D.I. could extend to operations within the jurisdiction of any province that passed enabling legislation. Provincial governments acted accordingly. Between 1925 and 1932, all provinces, except Prince Edward Island, passed new laws allowing the I.D.I. Act to be brought into force within their respective jurisdictions.²⁶⁷

Figures for the 1920's and 1930's show the general state of affairs of union activity in Canada during that time. Total union membership declined by 1.7% during the period 1920-1929, and rose by only 1.2% during the 1930's.²⁶⁸ These figures are not surprising, given that unions tend to lose strength in their numbers during times of economic depression, which was definitely the case during the 1930's. It can also be said that the conservative policies of the AFL and the TLC during the 1920's, were not conducive to industrial conflict.

The 1940's would be the most dominant, in terms of the numbers of new members that joined the American controlled unions, however

the 1930's will be the most remembered for the introduction in the U.S.A. of the Wagner Act, and the delayed effect that this Act had upon Canada. The Wagner Act of 1935 firmly established the well-known principles of guaranteeing workers the freedom to organize into unions of their own choosing, free from employer interference or attack; of establishing labour relations boards to investigate complaints of unfair labour practices, to prosecute offenders, and to conduct supervised elections to decide certification of unions representing the majority of workers in appropriate bargaining units; and of requiring recognition and bargaining by employers with properly certified unions. Notably absent from the Act were measures to aid unions and employers to negotiate agreements, to regulate the contents of agreements, or to restrict the use of strikes or lockouts.²⁶⁹

"Government industrial relations policy in Canada, under pressure from organized labour and its supporters, followed slowly and reluctantly along the path charted in the U.S.A. The legislatures of most provinces, during the latter 1930's, passed new labour statutes which varied widely in content and application. Most of them retained in moderate form, the restrictions of the I.D.I. Act and a few added some provision of the Wagner Act, such as freedom of association and collective bargaining on the majority principle. Various gaps and ambiguities in such legislation, however, lack of proper machinery to enforce it, rendered most provincial labour statutes ineffective. The

federal government limited itself to amending the Criminal Code to prohibit the employers from discharging workers solely for reasons of union activity.²⁷⁰"

In 1939, an official survey by A.E. Grauer provided:

"The hostile attitude of many employers to collective bargaining has defeated the chief purpose of unions in organizing to bring about greater equality in bargaining power.....Analysis of strikes and lockouts in Canada for six yearsshows that a considerable number of strikes and a substantial loss of working time has been occasioned by disputes over recognition of unions or dismissals for union activity; and that industrial disputes resulting from these causes have increased rather than diminished in recent years.²⁷¹"

This statement shows that even though the legal framework for industrial relations had been well-established, employers still failed in many cases to recognize the basic guaranteed right of workers to have a union. This meant that unions had to continue their struggle for recognition, while obtaining few concessions, well into the 1940's.

The outbreak of World War II and the implementation of emergency wartime measures allowed the government to invoke great changes upon the industrial relations scene. The I.D.I. Act was extended to include compulsory conciliation and "cooling-off" provisions. Yet, this did not deter industrial conflict. There was an unusually high incidence of strikes in Canada during the early years of the war.²⁷² Strikes reached a new peak in 1943 in number

and in total workers involved. Most of these were of short duration, and the major issue in the vast majority of them was that of union recognition in the face of strong and widespread opposition from employers.²⁷³ This could be attributed to outmoded labour legislation, with its inadequate provisions for union recognition, collective bargaining and dispute settlement.

However, there were two trends that were common during the war years: (1) the strength of all unions continued to grow, and (2) government continued to introduce new legislation that could cope with growing industrial relations turmoil.

In 1940, the ACCL formed an alliance with seven Congress for Industrial Organizations, (CIO), international unions to form the Canadian Congress of Labour (CCL). The TLC and CCL both continued to expand during the wartime and post war eras. Fostered by full employment, rapid economic expansion, inflation and rising productivity, the affiliated unions continued to expand their organizations and win wage increases and other tangible gains for their members. Yet, there were growing pains caused by the shift in power bases in both of these unions, particularly in the CCL.²⁷⁴ This was to culminate for the CCL in 1951. But these growing pains also enabled the CTCC to grow, particularly because of rapid industrial expansion and urbanization in Quebec during the same period.²⁷⁵

During the wartime period the government utilized its emergency

legislative powers to invoke several measures that greatly affected industrial relations. Special measures were invoked to impose wage ceilings, job freezes, and compulsory transfer or allocation of labour essential industries. Other measures included recognition of the right to join unions, encouragement of collective bargaining and compulsory conciliation of disputes. In this rather piecemeal fashion, a labour code of "sorts" had developed on a nationwide basis by 1942.²⁷⁶

With the peak in industrial conflict in 1943, more emergency measures were imposed including curbs and delays on union's freedom of action without giving them effective protection from employers. The national War Labour Board was also established to investigate the industrial relations crisis, and the Board managed to uncover a variety of opinions regarding what to do about the crisis. Later in that year, P.C. 1003 was passed. This measure superceded previous legislation invoked during the war emergency, and brought the labour code more into line with the American pattern. It included the main principles of the Wagner Act and established much of the same type of machinery to enforce it: guarantees of labour's right to organize; selection of units appropriate for collective bargaining; certification of bargaining agents; compulsory collective bargaining; and labour relations boards to investigate and correct unfair labour practices. At the same time it retained in amended form, the procedures derived from the I.D.I. Act

for preventing or settling disputes: compulsory conciliation of disputes and compulsory delay of strikes or lockouts pending investigation; intervention of a conciliation officer at the first stage of a dispute, and failing settlement, the establishment of a tripartite conciliation board. It also provided for compulsory arbitration of disputes that were not otherwise settled where agreements were in force.²⁷⁷

With an increase in industrial conflict in the two years immediately preceding World War II, Parliament, after official termination of the wartime emergency, passed a new statute, the Industrial Relations and Disputes Investigation Act (IRDIA) that retained most of the principles and procedures of P.C. 1003, as previously outlined. It had, however, only limited powers over federal protective jurisdiction. The provinces, therefore, with the exception of Prince Edward Island, passed new labour relations acts likewise modelled largely on P.C. 1003.²⁷⁸

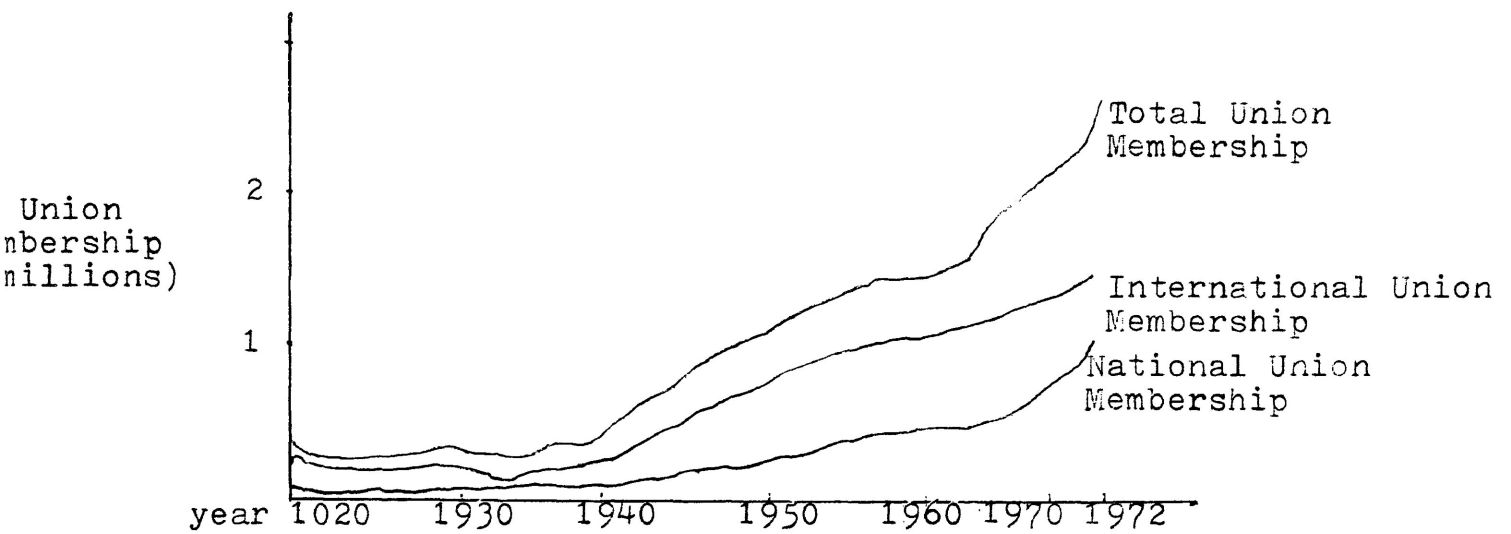
Since 1948, government industrial relations policy in Canada has been represented by eleven different authorities. The federal government's jurisdiction covers a little over five percent of the non-agricultural labour force, and the ten provincial governments are responsible for almost ninety-five percent. With very few exceptions, voluntary conciliation in Saskatchewan, Quebec, and Prince Edward Island where there are restrictions

on union's freedom to negotiate closed shop agreements;²⁷⁹
Canada has had a uniform national labour code.²⁸⁰

Industrial relations in Canada has not undergone any significant changes since the mid 1950's. The legal framework has remained the same over the last four decades with the exception of minor alterations to the provincial statutes, alterations that focused mainly on the settlement of disputes, and the addition of portions of the IRDIA to the Canada Labour Code in 1966.

From the union's point of view, there have been three items of importance since the late 1940's; (1) the trend in growth has been more towards national unions rather than international unions; (2) in 1956, the dualism of Canadian unions was minimized with the formation of the Canadian Labour Congress; and (3) industrial conflict has continued to be a major concern in Canada, particularly in the 1970's.

Chaison and Rose (52) have illustrated the major growth patterns of unions in Canada. Focusing on the period 1925 - 1972, they noted that aggregate union membership rose from 374,000 to 2,388,000 workers (or 638%). Correspondingly, the unionized component of the non-agricultural labour force more than doubled, rising to thirty-three percent.²⁸¹

Graph 7.1 Union Membership in Canada 1920 - 1972²⁸²

Period	Total Union Membership	International Unions	National Unions
1920-1929	- 1.7%	- 1.9%	+ 7.5%
1930-1939	+ 1.2%	- 0.7%	+ 7.1%
1940-1949	+12.0%	+13.6%	+11.0%
1950-1959	+ 4.0%	+ 4.2%	+ 8.6%
1960-1969	+ 4.0%	+ 3.3%	+ 6.3%
1970-1972	+ 8.2%	+ 2.6%	+18.2%
1920-1945	+ 2.6%	+ 2.3%	+ 8.5%
1945-1972	+ 4.9%	+ 4.6%	+ 6.9%

Table 7.1 Average Annual Rate of Membership Growth²⁸³

The most significant trend noticed by Chaison and Rose, was the pace of unionization for both international and national unions after 1940, but in particular the growth pattern of national unions in the period after 1950.

The trend towards national unions, has continued to be a major influence on Canadian industrial relations. The national unions are more militant in terms of obtaining desired concessions from their employer. The national unions appear to be more interested in their goals as they apply to Canada and not some international body largely controlled by Americans.

During the past 10-15 years, most attention given to international unions in Canada has been negative. The most fundamental criticism of international unions has been their alleged unwillingness to consider Canada's special needs or political realities.²⁸⁴ Perhaps the most notable move to create a national union is the attempt by the Canadian wing of the United Auto Worker to break away and form a national union for its Canadian workers.

Even today as nationalistic ideologies and talk of a sovereign state abound, Canada has yet to find a "made in Canada" industrial relations policy. Canadian governments have provided the basic legal framework for industrial relations based on British Heritage and American affiliations, however, unions have failed to fully utilize the scope of the legal framework for self-advance-

ment, while employers have continued to bask in the limelight of laws geared towards their survival. Government has, in its infamous wisdom, always looked out for big business before it looked out for the ordinary person.

Nothing could be more truthful when one looks at the implementation of wage and price controls in 1975 - 1976 and later wage controls in 1981 - 1982. Governments tended to emphasize the control of wages, while large companies continued to make absurd amounts of profit. The government stressed wage controls as means to control inflation. The mandate of wage and price controls in 1975 - 1976 was supposed to be dualistic, however, as one looks back, these controls were definitely more geared towards wages than prices.

In response to the development of trade unions, the employers have responded by bonding together, in order that they can more effectively represent their own interests. There is no one management organization which speaks for all employers. There is the Canadian Chamber of Commerce, the Canadian Manufacturers Association and numerous industry associations, but none of these speak authoritatively for all employers.²⁸⁵

There are a number of reasons as to why employers have formed associations for the purpose of collective bargaining, but the one common denominator, is the desire to avoid or eliminate

power deficiencies within their companies.²⁸⁶ Phillips describes the specific reasons for these types of associations:

- (1) to reduce competition between companies based on wage difference; the association has the power to negotiate uniform standards and thus eliminate labour costs as a competitive item;
- (2) to discourage "whimpering" practices; the association can prevent unions from settling with the employer with the weakest bargaining position, and then trying to extend these terms to other employers;
- (3) to discourage ruinous disputes; since a dispute must affect all operations, the potential adverse effects become much easier to recognize;
- (4) convenience; an employer association can negotiate master agreements with the unions representing each group of workers, providing employers with the security of an established agreement whenever they need a particular type of employee;
- (5) to provide specialized negotiations; an employer association can employ full-time negotiations of a much higher calibre than any individual firm could employ.²⁸⁷

These associations normally exist to carry out their activities in the following ways:

- (1) the lobbying association
- (2) the education association
- (3) the consultative association
- (4) the negotiating association
- (5) the administrative association
- (6) the mutual aid association.²⁸⁸

Employer's associations become accredited in one of three ways.

The "extreme" scheme is similar to the process which applies to

union certification: the association has to win majority support of the employers in a particular type of contracting, in a specified industrial sector and in a defined geographic area. Once this is accomplished, the accredited association would assume the right to bargain on behalf of all contractors within a particular trade sector and geographic area regardless of whether they were unionized or were members of the association. The "conservative" scheme gives an accredited association the right to represent its own members, only. The "compromise" scheme permits an accredited association to bargain on behalf of all contractors who were unionized at the time of accreditation or after accreditation has been granted.²⁸⁹

In 1968 the Task Force Report on Labour Relations recommended that support be given to the idea that an accreditation for an employer association be established along the lines of existing union certification procedures. The Report then goes on to clarify its position:

"First, once accredited, an employer association would be granted exclusive bargaining rights for all firms within the appropriate bargaining unit. Second, it should be made clear that any employer association accreditation plan would apply only to unionized firms dealing with the same union or group of unions. Third, consistent with what has been said about union security, the association would be granted this security in the form of an automatic employer-association-agency shop after the negotiation of its first collective agreement, unless the association was able to negotiate a more stringent form of security with the union or unions involved."²⁹⁰

The introduction of measures of this type would have been consistent with the trend towards improved labour-management relations. However, as with most government reports, little has been done, except an extension of the basic rights of association to employer groups in the construction industry, to promote the positive effects of employer organizations in all sectors of the economy, and under both levels of jurisdiction.

One reason has been that problems in such an association are unavoidable. The main problem has been that employers are reluctant to give up their rights to make individual decisions. Therefore, most associations permit members to opt out of certain agreements. Few things are binding in any legal sense. Another problem is that individual members may attempt to obtain some degree of control over their weaker competitors. Finally, these associations are voluntary and therefore policing of constitution or codes of ethics is very difficult.²⁹¹

Therefore the role of the employer association has been minimized, not only through its own inefficiencies, but because of a lack of guarantees from governments. The formation of employer associations to do something other than lobby for changes, would be a first step in establishing a fully integrated industrial relations system. The mandatory use of employer

organizations could be utilized as a first step to promoting industry-wide bargaining rather than unit bargaining, which is still the principle association between labour and management in this country.

Government should have realized the value of this type of association from the 1968 Task Force Report and should have implemented a plan to introduce employer associations, and this might have prevented the major outbursts in industrial conflict that occurred during the 1970's. But governments have always maintained that their role should remain the same, "the outside influence."

In Canada, government, has over the past seventy years, accepted the principle of correction rather than prevention as being the underlying basis of the industrial relations system. Canada's legal framework - as has been quite extensively documented in this chapter - has developed around the ideology of correcting or helping to correct potential industrial relations problems.

Most of the major legislation enacted, such as:

- (1) 1907 - Industrial Disputes Investigation Act which provided for federal government intervention in a labour dispute on the application of either party to the dispute, and for the appointment of a tripartite board to hold hearings and recommend terms of settlement²⁹²

(2) 1943 - P.C. 1003 was passed which provided a conciliation procedure for disputes and compulsory arbitration of disputes that were not otherwise settled where agreements were in force.²⁹³

that focused on industrial relations, invariably assumed that the nature of labour-management relations were such that conflict was inevitable. Therefore governments have continued to support corrective methods rather than the adaptation of preventive measures.

For the most part, the adaptation of preventive measures would be a controversial decision on the part of the party in power - be it the Conservatives or the Liberals. It would be seen as a measure in support of Labour and the New Democratic Party. Preventive measures, for the most part, are geared to allowing unions more rights at the level of the enterprise. Institutions like works councils, consensus decision-making, co-determination, and parity commissions on prices and wages are viewed as being pro-labour.

This means that the adaptation of such policies by a Conservative Government would be seen as "biting the hand that feeds you." Conservatives have long depended on the support of large Canadian and multi-national corporations for a majority of their monetary and public support. Even adaptation of such policies by the Liberals, a party which has, in Canada, always been more center of right, could be detrimental because the

middle income and lower middle class people who make up the bulk of support, may construe these actions as "selling-out" to labour.

Therefore, no matter how badly Canada's economy continues to flounder, there is not likely to be wide sweeping changes in government policy or legislature that would have any significant positive effects on the industrial relations. The reasons being:

- (1) it is viewed by the two major political parties, the two parties that have held the balance of power since Confederation, as being a form of political genocide. Instituting new arrangements would hurt where it counts the most, in terms of political support from influential sectors in this country;
- (2) in order to institute any form of industrial relations change, the government would have an overall extremely outdated legal framework which still believes, against all the positive data that has been received from the West European nations, that correction is far more viable than prevention;
- (3) the attitude of management and labour is not conducive to change. Management still exhibits a hostile attitude towards trade unionism, while trade unions view any type of government or management initiative with grave suspicions, which invariably leads to a breakdown in communications between the three parties.

Without implementing changes to the legal framework and instituting a government policy geared towards educating all Canadians to the benefits of a cooperative industrial relations

system, the system in place will continue to play havoc with an already weak economy. Joan Robinson said it best when predicting the inevitable failure of capitalist economies:

"If we are to enjoy continue near full-employment, without changing the institutions and habits of industrial bargaining, we shall suffer from inflation. It is neither the fault of the trade unions, fulfilling their proper function of demanding a fair share in rising profits, nor of businessmen trying to preserve profits by raising prices when costs go up. It is the fault of an economic system inappropriate to the development of an economy. This seems to be the dawning at last on official opinion.²⁹⁴"

It is evident that Canadian government, business and labour have failed to recognize the problems inherent in continuing with their path of allowing market forces, for the most part, to dictate wages and prices. The upward spiral of wages, as demanded by trade unions, has had the same inevitable effect on prices. These rising prices have stagnated the economy by contributing to higher unemployment, and lately, higher interest rates and low investment, which has meant limited annual growth in the economy.

Therefore a whole new series of institutions and programs, not unlike the present systems of West Germany, Austria, and Sweden, must be initiated, if Canada is to begin a full scale economic revival based on low unemployment, continued low

inflation, much lower interest rates to spurn on investment, and a consistent, five to ten year, record of three or more percent, growth in the Gross National Product. The Canadian Government should discontinue its wasteful policy of studying everything to death through the use of "Royal Commissions," but rather the Canadian Government should act while all hope is still only fading and had not completely disappeared.

The next few pages provide several useful questions that should be asked when looking into the future fo Canadian industrial relations, as well as some "Off-the-Wall" suggestions as to how the problem could be rectified.

What about the future for industrial relations in Canada? How is government going to cope with the social demands of labour as they evaluate their positions in terms of social policy, labour reforms and Canadian nationalism? How can the government effectively implement a "made in Canada" industrial relations policy that will help to ease the problems caused by the cyclical nature of the Canadian economy? How can the government maintain a high level of investment and an atmosphere conducive to "Big Business" if it shows any level of favouritism towards labour? How will employers and unions cope with the task of implementing high technology equipment in order to compete in domestic and international markets?

How will unions cope with the task of developing nationalistic unions and strengthen the positions of unions in Canada.

These are but a few of the many questions that are now facing all three parties to the industrial relations system, as they struggle to cope with each other in light of the many socio-economic problems facing Canada, both now and in the future. Perhaps the most drastic, but yet most effective, method of accomplishing socio-economic stability through the use of industrial relations institutions, would be to eliminate all of Canada's previous ties to the British/American system of industrial relations.

Perhaps to convene a meeting of the eleven leaders of our country, the principles of the CLC, the Canadian Manufacturers Association, other major unions and employer organizations, as well as experts in the field of industrial relations, which would make recommendations to rid Canada of the many cobwebs that exist in the present legal framework, and replace it with a system that provides uniform benefits to unions and employers and falls within the context of rebuilding Canada's once dominant economy.

Canada should adopt mandatory legislation, similiar to that which is used in Germany, that would promote worker

participation at the level of the enterprise, without exception and provide for a fifty-fifty split with no favouritism shown towards management. The government could use new tax and withholding tax measures to allow for a more even distribution of income and profits between the employers and the union. This distribution must, however, continue to promote investment in Canada.

The government must maintain the rights to unionism, and, if necessary, make it mandatory for all workers to be unionized. It should also increase the role of enterprise level collective bargaining regarding items like health and safety, hours of work, shifts, shift differentials, holiday time, vacation pay, etc. It should promote agreements that focus on these types of issues, and that would for periods of three to five years. A second agreement would be developed that could deal with wages, pensions, group benefits, and job security and would run for a time period that was mutually agreed upon by the two sides to the bargaining. The government must also maintain the provisions for third party intervention, and allow for binding arbitration of issues that focus on the future security and viability of an operation. This legislation would encompass issues such as the use of technological change at the level of the enterprise and would ensure the protection of workers jobs.

In this context a holistic approach to socio-economic improvement has been developed through the use of several industrial relations programs. However, much more study would be needed to test the viability of implementing such drastic changes to the socio-economic balance of Canadian society. However, given Canada's history of dealing with problems concerning industrial relations, it can be said that Canada has failed miserably in implementing any form of positive change that would be beneficial to all levels of society.

Canada's industrial relations system is based solely on the dualistic ideologies of the British and American systems. It is about time that Canada focused on shaking this stagnated enigma and move ahead to a more cooperative system that could be easily maintained and well-blended with the economic goals of the country.

This history of industrial relations development in Canada shows little more than a token appreciation of the rights of workers. Canadians should, at all levels, recognize that people are our most vital resource, and therefore should be treated in the same manner as the rich women in Britain treat their precious poodles, with "kid gloves". Canada has failed dismally in the past, in terms of developing and implementing a viable industrial relations policy, and this has caught up to

all Canadians due to the costs associated with industrial conflict and a poor economic record over the past decade. It is time Canada altered her motherhood policies and develop a more mutualistic tripartite approach to industrial relations.

Notes

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245. Ibid, p. 14.
246. Ibid, p. 15.
247. Claude D'Acoust and Francois Delorme, "The Origin of the Freedom of Association and of the Right to Strike in Canada," Relations Industrielles 36 (Number 4, 1981), p. 895.
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249. Ibid, p. 16.
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273. Ibid.
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275. Ibid, p. 37.
276. Ibid, p. 122.
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278. Ibid, p. 124.
279. Ibid, p. 125.
280. Ibid, p. 124.
281. Gary Chaison and Joseph Rose, p. 531.
282. Ibid, p. 532.
283. Ibid, p. 534.
284. Mark Thompson and Albert Blum, "International Unionism in Canada: The Move to Local Control," Industrial Relations 22 (Winter, 1983), p. 71.
285. A.W.J. Craig and H.J. Waisglass, "Collective Bargaining Perspectives," Relations Industrielles 23 (October, 1968), p. 574.

286. Gerald Phillips, p. 92.
287. Ibid, pp. 95, 98.
288. Ibid, p. 98.
289. Ibid, p. 99.
290. Canadian Industrial Relations: The Report of the Task Force on Labour Relations, Ottawa: Queen's Printer, 1968, p. 160.
291. Gerald Phillips, p. 98.
292. Ibid, p. 64.
293. Ibid, p. 65.
294. Robert Kuttner, The Economic Illusion: False Choices Between Prosperity and Social Justice, Boston: Houghton Mifflin Company, 1984, p. 136.

CONCLUSIONS

There has been some controversy over the use of the type of statistical model that has been developed and utilized throughout this study. Snyder makes the point that these types of models, the type used here and by authors such as Rees, Ashenfelter and Johnson, Skeels and Vanderkamp, are theoretically incomplete and therefore misspecified.²⁹⁵ In particular, these models neglect labour's organizational capacity to press its demands and to influence the political environment in which industrial relations occur as potentially important determinants of strike fluctuations.²⁹⁶

However, for the purpose of looking at the relationship between economic performance and strike activity, these models are more than satisfactory. The problem with analyzing these models, is that economists tend to look beyond the basic purpose of the model and try to relate what their results indicate to some theoretical base. Authors utilizing this type of model should avoid trying to build too much theory into the model because it detracts from the model's usefulness.

Another problem with these types of models is that the author is normally trying to obtain meaningful results for

one country in particular, and therefore structures the assumptions to help in obtaining these results. By building a model that can be utilized in analyzing several nations, the author has provided a comparative basis from which to draw meaningful conclusions.

The purpose of this paper has been to develop a model, which when removing the theoretical implications of the negotiation process in collective bargaining, can be applied to all nations, as a measure of the relationship between economic performances and industrial conflict. It is important to remember that this model has been developed within the context of a tripartisan relationship, that should exist in every country as a means of developing and maintaining a successful industrial relations system; a tripartite relationship between labour, management and government.

Each of the explanatory variables utilized in the model, reflects this tripartisan relationship, as each is interpreted, and acted upon by each party to the relationship. Each party focuses on issues, and makes decisions based on how they interpret a particular trend which will have a direct bearing of their future.

For example, the unemployment statistic is important to all three parties in the following manner. If unemployment is low, that generally means that unions are going to be more militant, since there is a lack of qualified people available in the

short run, and the economy will be benefitting from an increase in aggregate demand because of the number of people working. In the case of high unemployment, union strength is restricted, employers are concerned about decreasing aggregate demand and possible production cut-backs, while government is concerned about plugging the holes that are causing leaks in the economic system.

This model focused on the pre-negotiation stages of the collective bargaining process, but limits itself to examining the effects that economic data can have on the process. Phillips has shown that the collective bargaining process is a very complex and systematic exchange of all ideas relevant to the work place. This paper has suggested that the traditional position taken by Phillips can be amended to include relevant social and economic variables.

The results of the model indicate that this type of model can be applied to nations that lack a formal system of mutualistic industrial relations institutions. In countries like Canada, the U.S.A., the United Kingdom and Australia, this type of model has positive implications. The main reason is that the collective bargaining process functions as the only formal industrial relations institution, and therefore the ability of labour, management and government to de-emphasize industrial conflict has been greatly reduced.

The type of collective bargaining process employed in these countries has been assumed to be of the type described by Phillips and illustrated in Figure 1.1. The pre-negotiation information to be collected by all parties to the negotiation process has been described in Chapter Two. By limiting the role of the collective bargaining process, by utilizing these two assumptions, the effectiveness of the model increases. Since the analysis of potential economic trends as well as the evaluation of present and proposed changes to the basic social programs, are a necessary part of the collective bargaining process, the pre-negotiation stage has assumed a new and more meaningful role.

The model performed well in explaining the relationship between industrial conflict and economic performance, particularly in Canada, Australia, Great Britain and Japan where there existed a significant relationship. In Canada, Australia and Great Britain, a lack of formalized industrial relations institutions, as well as a long history of poor labour-management relations, have directly contributed to the dependence on outside variables as a means of formulating opinions prior to entering into the collective bargaining process.

In Japan, the formalized system of industrial relations institutions have left the Japanese workers with monetary issues

as their only annual concern. The long standing tradition of "paternalistic" employers and consensus decision making on all issues related to the work place, has meant that monetary issues are the only real concern in collective bargaining.

The model performed poorly in the other four countries, the most surprising of which was the United States. The institutional developments in the United States have been the most ineffective of any of the eight countries. Governments in the United States have always endorsed policies that have directly supported "Big Business," and that includes policy decisions related to the work place.

The model performed poorly in terms of the overall goodness of fit and the statistical significance of the equation, but yet there were three significantly significant variables, the most important of which was the wage variable. With the wage variable being significantly related to industrial conflict, it is realized that money is still the most significant factor in the collective bargaining process for American workers.

There is little to explain the reason why the U.S.A. equation lacked statistical significance. Perhaps the only viable reason lies in the fact that of all workers employed in the United States, less than thirty percent are unionized, and

with the strength of the American economy, historically speaking, it is much better at weathering the effects of walk-outs by unionized workers.

The model performed poorly in Sweden, Austria, and West Germany for a number of reasons, the least of which has been interpreted as misspecification of the explanatory variables. In nations with as complex a system of socio-economic relations as exists in each of these countries, more emphasis could have been placed on developing a model that reflected the effects of those formal/informal arrangements.

In Appendix VII, a series of articles have been highlighted that provide a variety of analyses of the relationship between strike activity and economic performance. In the more complex articles, authors apply theories of utility, propensity theories and mathematical functions to derive variables which they relate to strike activity. Yet, most of these articles do arrive at one important conclusion, and that is, when strike frequency is used as the dependent variable, the results tend to be more significant and the coefficients more stable.

Another contributing factor to the results of the model, has been the historical development of industrial relations institutions. All eight nations provide a basic legal framework

that provides for union rights, collective bargaining, employer associations and a basic labour code related to health and safety and minimum wages. However, four countries go beyond this realm and utilize past historical developments, that show a mutualistic tradition in industrial relations, in refining and further developing their present day systems.

The idea of consensus decision making in Japan has arisen out of early paternalistic relationships that existed during the inter-war period. Companies provided a vast amount of benefits to their employees in return for their loyal and permanent employment. The works council in West Germany and Austria can be traced back to the Weimar Republic, and both were implemented around 1920. The Swedish system has been developing since the 1930's, when the Social Democrats began their incredible streak as governing party. This reign has continued in association with strong support from the labour movement.

In each of these four countries, the utilization of a cooperative industrial relations system has allowed these particular nations to more effectively weather the storms caused by the cyclical nature of the world's economy. With very few domestic economic problems, these countries have been free to concentrate on improving the general social status of their nations, as well as refining industrial relations systems to focus on the ever changing world of the work place.

Cooperation at all levels has provided a backdrop for industrial peace, although strikes do occur, they are not as frequent or as damaging as their counterparts in the "Anglo-Saxon" nations. Strikes normally focus on social issues in countries like Sweden, Austria and West Germany and are normally utilized as a demonstrative form of protest. In Japan strikes, most of which occur during the "Spring Offensive," are directly related to monetary issues.

Yet, in each of these countries, the historical development of mutualistic and cooperative industrial relations institutions has been the overriding factor in maintaining- over the last quarter century- industrial peace.

The lack of a fully developed legal framework and a strong reliance on "Big Business" as the backbone of their particular economies, has directly contributed to the problems of industrial conflict that exists in Australia, Great Britain, Canada and the United States. The dependence on the collective bargaining system, where both sides distrust and are suspicious of one another, directly contributes to industrial conflict. There has been no attempt by either side to cooperate at the level of the enterprise, and where sporadic attempts have been tried, they have failed because of the lingering unfavourable climate that exists in these nations.

Therefore, it would be easy to see how a significant relationship could exist between economic performance, as an indirect element in the collective bargaining process, and man days lost. Since the collective bargaining process is central to industrial relations in the Anglo-Saxon nations, each side must prepare thoroughly prior to entering into negotiations. This will undoubtedly include an analysis of the socio-economic trends of that nation, and how the union perceives its position of strength against the employer and visa-versa. This information will be essential in establishing targets that may or may not lead to an impasse, and strikes or lockouts.

The process of collective bargaining is important in the "European-Ethnic" nations. However with continual consultation on issues affecting the work place and the development of more cooperative attitudes, the collective bargaining process in these nations becomes a place where the issues are reconciled and made binding upon both sides.

In terms of Canada, it is evident that the present system has failed and failed miserably. Evidenced by a poor economic record and a high rate of industrial conflict, it would be most appropriate to initiate changes in Canada's legal framework in order to help develop a mutualistic system of industrial relations. A system that is far overdue in Canada. But such a system to

develop successfully, requires not only reforms in the legal framework, but also a change of attitudes through an appropriate educational system.

"Finally, it is not a coincidence that an increasing number of prominent economists and industrial relations experts have started to propound the establishment of incomes policies based on tripartite cooperation as well as the gradual introduction of participative bodies at the industry level, but the collective realization that conventional fiscal and monetary policies and the institution of collective bargaining alone can no longer cope with the pressing problems of stagflation and the anticipated acceleration of technological change.

In a recent rethinking over incomes policy and industrial democracy as antidotes to conflict and instability, vindicates those in the minority who in the early years of the last decade, were warning the policy makers and the other interested parties of the impending crisis and the need for innovative solutions. It is only hoped that the collective warnings and recommendations will not remain unheeded this time."²⁹⁷

In general, the following summary statements can be made about this study: in terms of the collective bargaining process, there appears to exist a relationship between economic performance and break-downs in the process. However, the degree of this relationship varies based on the level of development of "collective" industrial relations institutions.

It has become clear that those countries which utilize a co-

operative system rather than the more traditional adversarial system, experience less industrial conflict as expressed in strike/lockout activity. This is primarily due to the fact that many of the issues that one could expect to be contentious during the normal process of collective bargaining, have been discussed and resolved at the level of the enterprise, i.e. contentious issues that would be related to the quality of working life rather than to monetary issues. This is the case in all four of the "European-Ethnic" nations. However, in Japan, the minimal amount of strike activity that does occur has been related to the "Spring Offensive", (1967 - 1976), where monetary benefits were the only issues at stake, and were subject to intensive collective bargaining.

In Austria, West Germany and Sweden, strike activity has been utilized as a means of social protest as well as in the Hicksian manner of maintaining proper organizational capacities. Since the government plays a more active role in industrial relations and working conditions in each of the three countries, the power of legislative action has been utilized as a means of promoting more cooperation at the level of the enterprise, and as a means of monitoring these actions through specific government agencies that are responsible for socio-economic policies. By monitoring industrial relations through government agencies, national goals are easily obtained and maintained over a long period of time.

In general, the West European system of legislation which is based on mutualistic traditions, has been the most successful means of controlling or limiting industrial conflict. The industrial relations system has developed and matured through a legal framework which has always maintained the best interests of the nation at heart. Manpower and incomes policies, mandatory participative policies, and in the case of Austria, a "parity commission", have all ensured that management, labour, and government reduce the incidents of industrial conflict.

On the other hand, the Japanese system of paternalistic employers, loyalist unions and government cooperation, has led to the development perhaps of the most advanced private enterprise system in the world today. This system has integrated the traditions of Japanese society with the widespread use of technology to ensure economic success. The paternalistic employers, have provided Japanese workers with all the necessary benefits which maintain an above average quality of working life, including the right to participation in decision making, health benefits, various insurances, medical facilities, gymnasiums for sport activities, and even subsidized housing. Therefore, monetary issues, especially in the "Spring Offensive" years, was and still is the only area of the entire industrial relations system where the collective bargaining process may break down. Yet, on the whole, it has been generally conceded that the Japanese system of industrial relations has contributed considerably to industrial

peace.

We may conclude therefore, that in general, the relationship between economic performance and break downs in the collective bargaining process, is much weaker in Austria, West Germany and Sweden. These three nations, have established legal frameworks which control, monitor and influence the industrial relations institutions in place. They help to ensure that cooperation and stability have become the trademark of each industrial relations system, and that collective bargaining functions as a system of ratification rather than tribulation. The very nature of this relationship, has greatly reduced the dependence on monitoring economic variables when preparing to enter the collective bargaining process. This has meant that countries with cooperative industrial relations systems, are less likely to experience industrial conflict as a result of a breakdown in the collective bargaining process.

It has become clear, that countries which exhibit non-cooperative traits, and an over reliance on the traditional collective bargaining process (as a singular element in an industrial relations system), experience more industrial conflict than those nations which have developed cooperative institutions. This is primarily due to the overbearing reliance on the collective bargaining process, as the only real means to solve problems

related to labour-management confrontation.

In Great Britain, the United States, Canada, and Australia, governments have maintained, more or less a "hands-off" policy where labour-management relations are concerned; the exception in this group is Australia, where there exists a system of compulsory arbitration, yet, this system did not reduce, as had been hoped, industrial conflict. The governments of these nations are content to allow market forces and the collective bargaining process determine wages, and when these processes are unable to determine wages without industrial conflict, there exists provision for corrective and not preventive measures.

In the four "Anglo-Saxon" nations, the relationship between economic performance and break downs in the collective bargaining process is much stronger. The only exception being the United States, where there exists a strong relationship between the rate of change in real wages and strike/lockout activity. Canada, Australia, and the United Kingdom all exhibit a stronger dependence on economic variables because of the non-cooperative nature of their industrial relations institutions. Management and labour, in these nations, have co-existed in an adversarial atmosphere; and this, which has been, combined with the continuing reliance on the collective

bargaining process has meant that there is some dependence on economic variables when preparing for negotiations. Labour has realized that management's traditional positions may not change, so they must continue to focus on the more traditional issues of wages. Therefore, it becomes essential for the union to utilize and properly interpret the various economic indicators that are available to them.

Industrial conflict, in most cases occurs when management does not agree with the union's viewpoint, and is not willing to compromise its position in order to obtain a more feasible contract for both parties. Since none of the governments in the aforementioned nations promotes cooperation through their legal frameworks, strike or lockout activity becomes a means by which the two parties to the collective bargaining process attempt to reinforce their positions. But industrial conflict is considered by many as a rather frivolous exercise, which is costly to everyone, and that it should be recognized as such. It is obvious that the system begs for substantial improvements.

In retrospect, a non-cooperative legal framework and an antagonistic attitude amongst the key players in the "Anglo-Saxon" industrial relations system, has led to a dependence on monitoring economic variables when preparing to enter into the collective bargaining process. This has meant that those

nations that have failed to recognize, and act upon the development of more cooperative industrial relations institutions, continue to experience a high degree of industrial conflict.

In terms of the United States, the strong relationship between the rate of change of real wages and strike/lockout activity, suggests that a strong link exists between monetary issues and a unions propensity to strike. American unions have continually persued wage increases as the principle issue during collective bargaining, although the emphasis over the last ten years has begun to slowing shift to more non-traditional issues that are related to the future well-being of union members, over the majority of the last quarter century.

Finally, the econometric model utilized in this study appears to have served its' purpose. It has allowed for a detailed study of industrial relations institutions in each of the eight nations. From this, the previous conclusions regarding the relationship between strike activity and economic performance were clearly drawn and hopefully well illustrated.

If one refers back to the hypothesis which was presented in Chapter One, and compares it to the final results, only Japan does not conform, while the other seven nations appear to have fallen into place.

Notes

295. David Snyder, "Early North American Strikes: A Re-interpretation," Industrial and Labour Relations Review 30 (April, 1977), p. 325.
296. Ibid, pp. 325-326.
297. Chris Jecchinis, Tripartite Cooperation and Consensus in Incomes Policies and the Fight Against Stagflation: Certain European Experiences and the Prospects for Canada, Montreal: Canadian Industrial Relations Association, 1980, p. 395.

APPENDIX I

The following tables provide all the empirical data that was utilized in the computerized econometric model which has formed the quantitative base for this thesis.

The majority of data was taken from the following sources:

1. 1982 Yearbook of Labour Statistics, International Labour Organization 1982, 42nd issue;
2. 1972 Yearbook of Labour Statistics, International Labour Organization 1972, 32nd issue;
3. 1966 Yearbook of Labour Statistics, International Labour Organization 1966, 26th issue;
4. 1960 Yearbook of Labour Statistics, International Labour Organization 1960, 20th issue;
5. 1984 International Financial Statistics, International Monetary Fund, Volume 37 Number 3 March, 1984;
6. 1983 Yearbook of International Financial Statistics, International Monetary Fund, Volume 36, 1983.

Where gaps existed in the data, a floating average method of interpolating these statistics utilized, or other available data such that when remedial mathematical techniques were applied, one was able to find the appropriate figures. Explanations of these happenings have been made at the bottom of each of the applicable tables.

AUSTRALIA

MAN DAYS LOST IN THOUSANDS OF DAYS	GNP IN BILLIONS OF CURRENCY	UNEMPLOYMENT RATE EXPRESSED IN AN ANNUAL PERCENT	TOTAL EMPLOYMENT IN THOUSANDS OF PEOPLE	WAGE RATE IN CURRENT DOLLARS
1050.8	38.56	1.5 * ¹	3675 * ²	0.64 * ³
901.6	41.02	1.5 *	3891 *	0.65 *
1010.8	43.21	1.5 *	4020 *	0.67 *
1121.4	45.61	1.5 *	4097 *	0.70 *
630.2	46.76	1.5 *	4108 *	0.72 *
439.9	47.51	1.5 *	4158 *	0.73 *
365.0	51.76	1.5 *	4239 *	0.76 *
725.1	54.54	1.5 *	4429 *	0.80 *
606.8	54.11	1.5 *	4028 *	0.82 *
508.8	57.77	1.6 *	4146 *	0.98 *
581.6	61.59	1.4	4272 *	1.19
911.4	65.27	1.3	4495.6	1.27
815.9	69.13	1.5	4628.0	1.33
732.1	71.06	1.6	4760.6	1.40
705.3	75.26	1.5	4880.4	1.48
1079.5	80.39	1.5	5001.4	1.57
1958.0	86.34	1.4	5150.9	1.66
2393.7	90.59	1.6	5329.2	1.79
3068.0	95.54	2.0	5424.5	2.04
2010.3	98.80	2.6	5609.9	2.20
2634.7	104.80	2.3	5783.0	2.58
6292.5	106.00	2.7	5855.2	3.44
3509.9	108.22	4.9	5841.3	3.82
3799.4	111.99	4.8	5897.8	4.33
1641.8	113.01	5.7	5995.4	4.79
2130.8	116.85	6.3	5969.6	5.11
3964.4	120.34	6.2	6041.5	5.66
3320.2	122.61	6.1	6246.7	6.37
4192.2	127.81	6.8	6356.3	6.70

AUSTRALIA

YEAR	C.P.I. 1980 = 100	POPULATION IN MILLIONS OF PEOPLE	EXCHANGE RATE IN TERMS OF U.S.A.	1R1	1R2	1R3
1953	21.4	8.85 ⁴	1.1210	0	0	1
1954	22.0	8.99	1.1120	0	0	1
1955	22.2	9.20	1.1185	0	0	1
1956	22.8	9.43	1.1120	0	0	1
1957	24.2	9.64	1.1205	0	0	1
1958	24.4	9.84	1.1185	0	0	1
1959	24.0	10.06	1.1175	0	0	1
1960	26.4	10.28	1.1190	0	0	1
1961	26.8	10.55	1.1205	0	0	1
1962	27.0	10.74	1.1185	0	0	1
1963	27.8	10.95	1.1160	0	0	1
1964	28.8	11.17	1.1140	0	0	1
1965	29.4	11.39	1.1185	0	0	1
1966	30.4	11.60	1.1140	0	0	1
1967	31.4	11.80	1.1210	0	0	1
1968	32.3	12.01	1.1100	0	0	1
1969	33.7	12.26	1.1180	0	0	1
1970	35.3	12.51	1.1150	0	0	1
1971	37.5	12.94	1.1910	0	0	1
1972	40.3	13.18	1.2750	0	0	1
1973	45.2	13.38	1.4880	0	0	1
1974	53.0	13.60	1.3270	0	0	1
1975	61.7	13.77	1.2571	0	0	1
1976	70.2	13.92	1.0864	0	0	1
1977	76.6	14.07	1.1414	0	0	1
1978	82.0	14.25	1.1505	0	0	1
1979	89.8	14.42	1.1055	0	0	1
1980	100.0	14.62	1.1807	0	0	1
1981	109.2	14.86	1.1279	0	0	1

AUSTRIA

MAN DAYS LOST IN THOUSANDS OF DAYS	GNP IN BILLIONS OF CURRENCY	UNEMPLOYMENT RATE EXPRESSED IN AN ANNUAL PERCENT	TOTAL EMPLOYMENT IN THOUSANDS OF PEOPLE	WAGE RATE IN CURRENT DOLLARS
38.1	275.39	9.0	1884.0	8.26
51.3	301.01	7.9	1940.3	8.65
58.0	332.92	5.5	2031.8	9.06
153.4	355.80	5.3	2114.6	9.50
45.6	377.56	4.9	2145.2	10.01
48.7	391.39	5.3	2186.8	10.59
50.5	402.51	4.8	2196.2	11.40
68.8	437.43	4.6	2228.2	12.80
113.9	461.66	3.5	2270.8	13.96
647.7	473.88	2.7	2298.9	15.62
34.0	493.49	2.9	2295.5	17.14
35.4	522.13	2.7	2312.2	18.62
151.3	537.34	2.7	2332.9	20.29
71.4	567.66	2.5	2352.5	22.70
16.4	584.73	2.7	2325.0	24.62
6.7	610.88	2.9	2297.2	26.02
18.5	647.52	2.8	2313.3	28.50
26.6	692.34	2.4	2344.3	30.19
3.7	727.73	2.1	2405.6	35.79
15.1	772.93	1.9	2984	37.51
160.1	810.70	1.6	3015	42.74
7.2	842.65	1.5	3023	49.49
5.5	839.62	2.0	2969	59.43
0.6	878.04	2.0	2977	64.16
0.01	916.32	1.8	3015	70.49
10.2	921.06	2.1	3055	75.46
0.8	965.05	2.0	3094	79.63
17.0	995.93	1.9	3105	85.58
4.0	996.38	2.4	3147	91.60

AUSTRIA

YEAR	C.P.I. 1980 = 100	POPULATION IN MILLIONS OF PEOPLE	EXCHANGE RATE IN TERMS OF U.S.A.	1R1	1R2	1R3
POLICY VARIABLES						
1953	30.0	6.93	26.080	0	1	0
1954	31.1	6.94	26.080	0	1	0
1955	32.2	6.95	26.080	0	1	0
1956	33.5	6.95	26.080	0	1	0
1957	34.9	6.97	26.050	1	0	0
1958	35.1	6.99	25.970	1	0	0
1959	36.4	7.01	26.030	1	0	0
1960	37.3	7.05	26.040	1	0	0
1961	39.2	7.09	25.870	1	0	0
1962	40.6	7.13	25.870	1	0	0
1963	42.0	7.17	25.870	1	0	0
1964	43.4	7.22	25.870	1	0	0
1965	45.9	7.25	25.890	1	0	0
1966	47.3	7.29	25.910	1	0	0
1967	48.8	7.32	25.880	1	0	0
1968	50.2	7.36	25.880	1	0	0
1969	51.7	7.39	25.880	1	0	0
1970	54.3	7.43	25.880	1	0	0
1971	57.7	7.46	23.710	1	0	0
1972	62.0	7.49	23.140	1	0	0
1973	67.0	7.53	19.850	1	0	0
1974	73.4	7.53	17.130	1	0	0
1975	78.2	7.52	18.510	1	0	0
1976	82.5	7.51	16.768	1	0	0
1977	86.9	7.52	15.135	1	0	0
1978	91.5	7.51	13.367	1	0	0
1979	95.6	7.51	12.431	1	0	0
1980	100.0	7.51	13.809	1	0	0
1981	105.6	7.51	15.885	1	0	0

CANADA

MAN DAYS LOST IN THOUSANDS OF DAYS	GNP IN BILLIONS OF CURRENCY	UNEMPLOYMENT RATE EXPRESSED IN AN ANNUAL PERCENT	TOTAL EMPLOYMENT IN THOUSANDS OF PEOPLE	WAGE RATE IN CURRENT DOLLARS
1324.7	90.81	5.3	5260	1.36
1475.2	89.69	7.2	5258	1.41
1875.4	98.19	6.6	5378	1.45
1246.0	106.48	5.6	5602	1.52
1634.9	108.99	7.3	5746	1.61
2872.3	111.51	10.2	5722	1.66
2386.7	115.74	8.7	5878	1.72
738.7	119.08	7.0	5902	1.79
1335.1	122.46	7.1	6055	1.83
1417.9	130.81	5.9	6225	1.88
917.14	137.55	5.5	6375	1.95
1580.6	146.78	4.7	6609	2.02
2349.9	156.56	3.9	6862	2.12
5178.2	167.43	3.6	7152	2.25
3974.8	172.92	4.1	7379	2.40
5082.7	182.88	4.8	7537	2.58
7751.9	192.22	4.7	7780	2.79
6542.5	197.84	5.9	7879	3.01
2866.6	211.30	6.4	8079	3.28
7753.5	224.27	6.3	8191	3.54
5776.1	241.19	5.6	8598	3.85
9221.9	249.84	5.4	8951	4.37
10909	252.80	6.9	9284	5.06
11610	266.77	7.1	9479	5.76
3307.9	272.39	8.1	9648	6.38
7392.8	282.30	8.4	9972	6.84
7834.2	290.49	7.5	10369	7.44
8975.4	291.87	7.5	10655	8.19
8878.5	300.98	7.6	10933	9.17

CANADA

YEAR	C.P.I. 1980 = 100	POPULATION IN MILLIONS OF PEOPLE	EXCHANGE RATE IN TERMS OF U.S.A.	1R1	1R2	1R3
				POLICY VARIABLES		
1953	28.4	14.98	0.9744	0	0	1
1954	28.9	15.33	0.9663	0	0	1
1955	29.1	15.74	0.9991	0	0	1
1956	30.1	16.12	0.9597	0	0	1
1957	30.7	16.68	0.9847	0	0	1
1958	31.2	17.12	0.9641	0	0	1
1959	31.8	17.52	0.9528	0	0	1
1960	32.2	17.91	0.9960	0	0	1
1961	32.4	18.27	1.0434	0	0	1
1962	32.8	18.61	1.0772	0	0	1
1963	33.4	18.96	1.0806	0	0	1
1964	34.3	19.33	1.0738	0	0	1
1965	35.4	19.68	1.0750	0	0	1
1966	36.9	20.05	1.0838	0	0	1
1967	38.4	20.41	1.0806	0	0	1
1968	39.7	20.73	1.0728	0	0	1
1969	41.5	21.03	1.0728	0	0	1
1970	43.3	21.32	1.0112	0	0	1
1971	44.7	21.59	1.0022	0	0	1
1972	46.9	21.83	0.9956	0	0	1
1973	51.2	22.07	0.9958	0	0	1
1974	59.1	22.40	0.9912	0	0	1
1975	65.4	22.73	1.0164	0	0	1
1976	71.6	23.03	1.0092	0	0	1
1977	76.7	23.28	1.0944	0	0	1
1978	81.6	23.49	1.1860	0	0	1
1979	90.0	23.70	1.1681	0	0	1
1980	100.0	23.96	1.1947	0	0	1
1981	110.1	24.34	1.1859	0	0	1

JAPAN

MAN DAYS LOST IN THOUSANDS OF DAYS	GNP IN BILLIONS OF CURRENCY	UNEMPLOYMENT RATE EXPRESSED IN AN ANNUAL PERCENT	TOTAL EMPLOYMENT IN THOUSANDS OF PEOPLE	WAGE RATE IN CURRENT DOLLARS
1341.2	29,077	1.1	39120	15322/48.4 ^e
927.8	30,776	1.5	39620	16309/48.5
1033.3	33,496	1.6	40880	16717/48.4
1098.3	35,937	1.5	41720	18348/50.2
1556.8	38,614	1.2	42840	19259/50.2
1279.4	40,781	1.3	43120	19180/50.2
1215.9	44,406	1.3	43700	20792/50.5
4912.2	50,327	1.0	44610	22630/47.8
6149.9	57,612	0.8	45180	24786/47.0
5400.4	61,657	0.9	45740	27256/45.8
2770.4	68,109	0.9	46130	30204/45.5
3165.3	77,060	0.8	46730	33089/45.2
5669.4	85,731	0.8	47480	36106/44.3
2741.7	94,843	0.9	48470	40510/44.6
1830.0	105,085	1.3	49200	45568/44.8
2840.9	118,446	1.2	50020	52699/44.6
3633.6	133,004	1.1	50400	61755/43.9
3914.8	146,121	1.2	50940	71447/43.3
6028.7	152,972	1.2	51140	81010/42.6
5146.7	166,694	1.4	51260	100586/42.3
4603.8	181,395	1.3	52590	122545/42.0
9662.9	179,145	1.4	52370	154967/40.0
8015.8	183,480	1.9	52230	177213/38.8
3253.7	193,231	2.0	52710	200242/40.2
1518.5	203,482	2.0	53420	219620/40.3
1357.5	213,897	2.2	54080	235378/40.6
930.3	225,085	2.1	54790	247909/41.1
1001.2	235,834	2.0	55360	263386/41.2
553.7	244,878	2.2	55810	279096/41.0

JAPAN

YEAR	C.P.I. 1980 = 100	POPULATION IN MILLIONS OF PEOPLE	EXCHANGE RATE IN TERMS OF U.S.A.	1R1	1R2	1R3
POLICY VARIABLES						
1953	24.3	87.45	360.80	0	0	1
1954	25.4	88.76	360.80	0	0	1
1955	25.7	89.82	360.80	0	0	1
1956	27.1	90.76	360.80	0	0	1
1957	28.7	91.56	359.66	0	0	1
1958	28.3	92.39	359.70	0	0	1
1959	29.1	93.29	359.20	0	0	1
1960	30.8	94.10	358.22	0	0	1
1961	33.2	94.95	361.77	0	0	1
1962	34.4	95.83	358.20	0	0	1
1963	35.9	96.81	361.95	0	0	1
1964	37.5	97.83	358.30	0	0	1
1965	38.1	98.88	360.90	0	0	1
1966	40.0	99.79	362.47	0	0	1
1967	42.3	100.83	361.91	0	0	1
1968	44.5	101.96	357.70	0	1	0
1969	46.6	103.17	357.80	0	1	0
1970	50.0	104.34	357.65	0	1	0
1971	52.6	105.70	314.80	0	1	0
1972	55.4	107.19	302.00	0	1	0
1973	62.0	108.71	280.00	0	1	0
1974	74.8	110.16	300.95	0	1	0
1975	80.6	111.57	305.15	0	1	0
1976	85.7	112.77	292.80	1	0	0
1977	90.6	113.86	240.00	1	0	0
1978	94.8	114.90	194.60	1	0	0
1979	97.2	115.87	239.70	1	0	0
1980	100.0	116.78	203.00	1	0	0
1981	102.6	117.65	219.90	1	0	0

SWEDEN

MAN DYAS LOST IN THOUSANDS OF DAYS	GNP IN BILLIONS OF CURRENCY	UNEMPLOYMENT RATE EXPRESSED IN AN ANNUAL PERCENT	TOTAL EMPLOYMENT IN THOUSANDS OF PEOPLE	WAGE RATE IN CURRENT DOLLARS
26.2	211.72	2.8	3712 * ⁶	4.11
7.7	224.15	2.6	3707 *	4.29
3.9	230.72	2.5	3705 *	4.46
1.6	238.81	1.5	3708 *	5.04
1.6	244.14	1.9	2707 *	5.34
0.08	251.20	2.5	3709 *	5.67
1.18	264.05	2.0	3715 *	5.93
18.5	272.84	1.4	3727 *	6.32
2.1	287.33	1.2	3739 *	6.82
5.0	298.42	1.5	3675	7.39
25.0	316.17	1.7	3727	7.91
34.0	337.71	1.6	3653	8.57
4.1	350.62	1.2	3692	9.45
351.6	357.96	1.6	3733	10.26
0.4	370.01	2.1	3695	11.10
1.2	383.49	2.2	3737	11.83
112.4	402.69	1.9	3768	12.85
155.7	428.76	1.5	3854	14.28
839.0	432.10	2.5	3860	15.79
10.51	441.43	2.0	3862	16.76
11.8	458.60	1.9	3879	18.19
57.6	478.44	1.5	3962	20.30
365.5	488.98	1.4	4062	23.79
24.7	494.72	1.2	4088	27.01
87.2	484.94	1.2	4099	29.22
37.1	491.40	1.6	4115	32.31
28.7	512.45	1.5	4180	35.75
4478.5	522.47	1.4	4232	39.30
209.1	518.90	1.9	4225	42.87

SWEDEN

YEAR	C.P.I. 1980 = 100	POPULATION IN MILLIONS OF PEOPLE	EXCHANGE RATE IN TERMS OF U.S.A.	1R1	1R2	1R3
				POLICY VARIABLES		
1953	21.0	7.19	5.1800	1	0	0
1954	21.1	7.23	5.1800	1	0	0
1955	22.0	7.26	5.1800	1	0	0
1956	23.1	7.32	5.1800	1	0	0
1957	24.2	7.37	5.1800	1	0	0
1958	24.8	7.42	5.1730	1	0	0
1959	25.1	7.45	5.1810	1	0	0
1960	26.4	7.48	5.1800	1	0	0
1961	27.3	7.52	5.1850	1	0	0
1962	28.5	7.56	5.1880	1	0	0
1963	28.9	7.60	5.2000	1	0	0
1964	30.2	7.66	5.1480	1	0	0
1965	32.0	7.73	5.1800	1	0	0
1966	34.1	7.81	5.1800	1	0	0
1967	35.8	7.87	5.1650	1	0	0
1968	36.6	7.91	5.1800	1	0	0
1969	37.9	7.97	5.1700	1	0	0
1970	39.8	8.04	5.1700	1	0	0
1971	42.9	8.10	4.8650	1	0	0
1972	46.0	8.12	4.7430	1	0	0
1973	49.3	8.14	4.5875	1	0	0
1974	53.4	8.16	4.0805	1	0	0
1975	61.3	8.19	4.3855	1	0	0
1976	68.4	8.22	4.1265	1	0	0
1977	75.7	8.25	4.6695	1	0	0
1978	83.3	8.28	4.2955	1	0	0
1979	89.9	8.29	4.1465	1	0	0
1980	100.0	8.31	4.3728	1	0	0
1981	109.8	8.32	5.5710	1	0	0

UNITED KINGDOM

MAN DAYS LOST IN THOUSANDS OF DAYS	GNP IN BILLIONS OF CURRENCY	UNEMPLOYMENT RATE EXPRESSED IN AN ANNUAL PERCENT	TOTAL EMPLOYMENT IN THOUSANDS OF PEOPLE	WAGE RATE IN CURRENT DOLLARS
2184	117.00	1.7	22363	0.196
2457	121.39	1.4	22721	0.212
3781	125.88	1.1	23053	0.231
2083	128.02	1.2	23111	0.247
8412	130.51	1.5	23128	0.261
3462	130.50	2.0	22990	0.265
5270	135.57	2.2	23300	0.281
3024	141.92	1.6	23711	0.303
3046	146.71	1.5	24046	0.317
5798	147.95	2.1	24772	0.354
1755	153.98	2.6	24794	0.370
2277	162.16	1.8	25076	0.398
2925	166.18	1.6	25327	0.438
2398	169.65	1.6	25476	0.462
2787	174.10	2.5	25065	0.483
4690	181.53	2.6	24883	0.516
6846	184.32	2.6	24904	0.559
10980	188.29	2.7	24709	0.644
13551	193.30	3.6	24329	0.720
23909	197.60	3.8	24020	0.821
7197	211.97	2.7	24610	0.929
14750	209.73	2.7	24714	1.116
6012	208.41	4.1	24647	1.399
3284	215.93	5.7	24452	1.559
10142	218.70	6.2	24499	1.687
9405	226.76	6.1	24625	1.949
29474	230.54	5.7	24776	2.275
11964	226.18	7.4	24367	2.664
4266	221.37	11.4	23054	2.934

UNITED KINGDOM

YEAR	C.P.I. 1980 = 100	POPULATION IN MILLIONS OF PEOPLE	EXCHANGE RATE IN TERMS OF U.S.A.	1R1	1R2	1R3
1953	14.5	50.86	2.8112 ⁷	0	0	1
1954	14.7	51.05	2.7850	0	0	1
1955	15.2	51.20	2.8038	0	0	1
1956	16.2	51.41	2.7856	0	0	1
1957	16.8	51.63	2.8594	0	0	1
1958	17.5	51.84	2.8025	0	0	1
1959	17.8	52.13	2.8000	0	0	1
1960	18.0	52.35	2.8038	0	0	1
1961	18.6	52.81	2.8081	0	0	1
1962	19.3	53.27	1.8025	0	0	1
1963	19.7	53.54	2.7966	0	0	1
1964	20.4	53.85	2.7901	0	0	1
1965	21.4	54.18	2.8028	0	0	1
1966	22.4	54.50	2.7902	0	0	1
1967	23.1	54.80	2.4063	0	0	1
1968	24.0	55.05	2.3844	0	0	1
1969	25.3	55.27	2.4007	0	0	1
1970	27.1	55.42	2.3937	0	0	1
1971	29.7	55.61	2.5525	0	0	1
1972	32.2	55.78	2.3481	0	0	1
1973	34.5	55.91	2.3232	0	0	1
1974	39.6	55.92	2.3485	0	0	1
1975	50.3	55.90	2.0235	0	0	1
1976	57.7	55.85	1.7024	0	0	1
1977	65.7	55.84	1.9060	0	0	1
1978	72.9	55.88	2.0345	0	0	1
1979	83.9	55.95	2.2240	0	0	1
1980	100.0	55.83	2.3850	0	0	1
1981	111.9	55.83	1.9080	0	0	1

UNITED STATES OF AMERICA

MAN DAYS LOST IN THOUSANDS OF DAYS	GNP IN BILLIONS OF CURRENCY	UNEMPLOYMENT RATE EXPRESSED IN AN ANNUAL PERCENT	TOTAL EMPLOYMENT IN THOUSANDS OF PEOPLE	WAGE RATE IN CURRENT DOLLARS
28300	1112.6	2.9	62213	1.77
22600	1099.2	5.6	61238	1.81
28200	1173.1	4.4	63193	1.88
33100	1198.3	4.2	64979	1.98
16500	1220.0	4.3	65011	2.07
23900	1214.9	6.8	63996	2.13
69000	1287.7	5.5	65581	2.22
19100	1315.3	5.6	66681	2.26
16300	1349.9	6.7	66796	2.32
18600	1427.9	5.5	66702	2.39
16100	1485.3	5.7	67762	2.46
22900	1563.7	5.2	69305	2.53
23300	1658.1	4.5	71088	2.61
25400	1757.1	3.8	72895	2.72
42100	1804.5	3.8	74372	2.83
49000	1887.9	3.6	75920	3.01
42869	1940.5	3.5	77902	3.19
66414	1936.9	4.9	78627	3.36
47417	2002.6	5.9	79120	3.56
27066	2115.9	5.6	82153	3.70
27948	2237.9	4.9	85064	3.94
47991	2223.7	5.6	86794	4.24
31237	2197.4	8.5	85846	4.53
37859	2316.3	7.7	88752	4.86
35822	2443.8	7.1	92019	5.25
36922	2566.8	6.1	96048	5.69
34754	2639.6	5.8	98824	6.16
33289	2631.7	7.1	99303	6.66
24730	2700.9	7.6	100397	7.25

UNITED STATES OF AMERICA

YEAR	C.P.I. 1980 = 100	POPULATION IN MILLIONS OF PEOPLE	EXCHANGE RATE IN TERMS OF U.S.A.	1R1	1R2	1R3
1953	32.9	160.18		0	0	1
1954	33.3	163.03		0	0	1
1955	34.1	165.93		0	0	1
1956	35.1	168.90		0	0	1
1957	36.3	171.98		0	0	1
1958	37.0	174.88		0	0	1
1959	37.8	177.83		0	0	1
1960	38.5	180.68		0	0	1
1961	38.8	183.69		0	0	1
1962	39.5	186.54		0	0	1
1963	40.1	189.24		0	0	1
1964	40.7	191.89		0	0	1
1965	41.6	194.30		0	0	1
1966	43.0	196.56		0	0	1
1967	44.3	198.71		0	0	1
1968	46.2	200.71		0	0	1
1969	48.6	202.68		0	0	1
1970	51.2	205.05		0	0	1
1971	53.7	207.66		0	0	1
1972	56.0	209.90		0	0	1
1973	59.2	211.91		0	0	1
1974	64.4	213.85		0	0	1
1975	70.4	215.97		0	0	1
1976	74.1	218.04		0	0	1
1977	78.4	220.24		0	0	1
1978	84.2	222.59		0	0	1
1979	91.5	225.06		0	0	1
1980	100.0	227.66		0	0	1
1981	109.4	229.81		0	0	1

WEST GERMANY

MAN DAYS LOST IN THOUSANDS OF DAYS	GNP IN BILLIONS OF CURRENCY	UNEMPLOYMENT RATE EXPRESSED IN AN ANNUAL PERCENT	TOTAL EMPLOYMENT IN THOUSANDS OF PEOPLE	WAGE RATE IN CURRENT DOLLARS
1488.2	408.0	7.5	25443 * ⁸	1.80
1586.5	438.4	7.0	25541 *	1.84
856.8	491.1	5.1	25646 *	1.96
1580.2	526.9	4.0	25733 *	2.14
1071.8	556.7	3.4	24213	2.34
782.3	577.5	3.5	24354	2.49
61.8	619.6	2.4	24559	2.62
37.7	720.0	1.2	25954	2.90
60.9	754.9	0.8	26248	3.09
450.9	788.5	0.7	26382	3.23
1846.0	812.9	0.8	26455	3.46
167.0	866.9	0.7	26523	3.74
48.5	914.1	0.6	26699	4.12
27.1	938.3	0.7	26601	4.42
398.6	937.8	2.1	25803	4.60
25.2	995.3	1.5	25865	4.79
249.2	1070.1	0.8	26337	5.28
93.2	1124.0	0.7	26705	5.96
4483.7	1159.9	0.8	26673	6.66
66.0	1207.9	1.1	26125	7.24
563.1	1262.9	1.2	26201	8.03
1051.3	1268.7	2.6	25688	8.94
68.7	1248.9	4.7	24798	9.69
533.7	1318.2	4.6	24556	10.35
23.7	1354.7	4.5	24511	11.14
4281.3	1401.6	4.3	24700	11.73
483.1	1457.5	3.8	25041	12.36
128.4	1484.1	3.8	25302	13.18
58.4	1481.3	5.5	25145	13.92

WEST GERMANY

YEAR	C.P.I. 1980 = 100	POPULATION IN MILLIONS OF PEOPLE	EXCHANGE RATE IN TERMS OF U.S.A.	1R1	1R2	1R3
				POLICY VARIABLES		
1953	36.2	51.38	4.2000	0	1	0
1954	36.2	51.87	4.1998	0	1	0
1955	36.9	52.37	4.2152	0	1	0
1956	38.1	53.00	4.1986	0	1	0
1957	39.2	53.65	4.2017	0	1	0
1958	40.6	54.29	4.1775	0	1	0
1959	41.1	54.88	4.1700	0	1	0
1960	42.1	55.43	4.1710	0	1	0
1961	43.9	56.18	3.9965	0	1	0
1962	45.7	56.94	3.9980	0	1	0
1963	47.0	57.59	3.9752	0	1	0
1964	48.4	58.27	3.9770	0	1	0
1965	50.1	59.01	4.0056	0	1	0
1966	52.0	59.50	3.9773	0	1	0
1967	52.6	59.87	3.9990	0	1	0
1968	53.6	60.17	3.9995	0	1	0
1969	55.9	60.44	3.6899	0	1	0
1970	60.1	60.71	3.6480	0	1	0
1971	64.8	61.29	3.2685	0	1	0
1972	68.3	61.67	3.2015	1	0	0
1973	72.8	61.97	2.7030	1	0	0
1974	77.7	62.04	2.4095	1	0	0
1975	82.4	61.83	2.6223	1	0	0
1976	85.2	61.51	2.3625	1	0	0
1977	88.3	61.40	2.1050	1	0	0
1978	92.0	61.31	1.8280	1	0	0
1979	95.7	61.44	1.7315	1	0	0
1980	100.0	61.56	1.9590	1	0	0
1981	104.2	61.67	2.2548	1	0	0

Notes

The asteriked figure unemployment has been calculated by using a ten year floating average.

The asteriked total employment figure was calculated as a fixed multiple of total employment in manufacturing. This ratio has remained constant over the last quarter century.

The asteriked figure wage rate was derived by taking the wages per week in manufacturing and dividing this by the hours per week worked in manufacturing.

The Australian currency is expressed in terms of U.S. dollars per Australian dollar.

The average wage rate in Japan has been calculated by taking the wages per week in manufacturing and dividing this by the hours per week worked in manufacturing.

The asteriked Total Employment figure for Sweden has been calculated using a ten year floating average.

The British exchange rate is expressed in terms of U.S. dollars per Brithish pound.

8. The asteriked Total Employment figure in West Germany has been calculated using a ten year floating average.

APPENDIX II

This appendix provides the cost analysis data for the eight countries. This first table provides the annual cost of a strike in actual U.S. dollars. Table II. 2 provides the annual cost of a strike in constant 1980 American dollars, while Table II. 3, which is the basis of our hypothesis in Chapter One, details the average annual cost per employee of a strike in constant 1980 dollars.

Table II. 3 has two averages calculated, an average over the entire time period of this study - 27 years - and one for the last 25 years. It is noticed that, with the exception of Austria, the twenty-five year average is marginally higher than the 27 year average.

APPENDIX TABLE II. 1.

To calculate monetary cost' to a nation of a strike in actual \$
 man days lost (wages rate 8) = yearly cost of strike
 yearly cost of strike/exchange rate = cost in U.S. \$

('000's omitted)

Year	Aus.	Austria	Canada	Japan	Sweden	U.K.	U.S.A.	W. Germ.
955	6060	161	22326	7913	28	19591	424128	3187
956	6983	447	15788	8901	12	11466	524304	6443
957	4067	140	21385	13285	13	50223	273240	4775
958	2873	159	39565	10872	.70	20569	407256	3730
959	2480	177	34468	11150	11	33171	1225440	311
960	5193	271	10621	51937	181	20552	345328	210
961	4460	492	18733	71719	22	21692	302528	377
962	4455	3129	19797	71777	57	46017	355632	2914
963	6179	180	13240	40648	304	14528	316848	12854
964	10315	204	23787	51737	453	20228	463496	1256
965	9710	949	37074	102427	60	28726	486504	399
966	9134	500	86001	54962	5571	24730	552704	241
967	9361	50	70624	41146	6.9	25913	953144	3585
968	15050	54	97788	75075	22	46163	1179920	242
969	29071	163	161281	114286	2235	73498	1094017	2853
970	38220	248	155798	144490	3440	135409	1785208	1218
971	59633	45	75054	291345	21785	199232	1350436	73089
972	45111	196	220549	324549	297	368732	801154	1194
973	80918	2757	178654	383791	374	124264	880921	13383
974	229796	166	325260	995136	2292	309269	1627855	31205
975	134840	141	434471	959814	15862	136153	1132029	2031
976	142982	18	530118	442818	1293	669727	1471958	18705
977	71810	.37	154272	275842	4365	260886	1504624	1003
978	100217	461	341091	323539	2232	298345	1680689	219779
979	198446	41	399188	187282	1980	1193013	1712677	27588
980	199771	843	492231	251627	322000	608120	1773638	6911
981	253441	185	549226	137123	12873	191051	1434340	2884

APPENDIX TABLE II. 2.

Cost of a strike in constant 1980 \$ (utilizing previous
chart information, '000's omitted)

Year	Aus.	Austria	Canada	Japan	Sweden	U.K.	U.S.A.	W. Germ
955	27297	500	76722	30790	127	128888	1243777	8637
956	30627	1334	52452	32845	52	70778	1493744	16911
957	16805	401	69658	46289	54	298946	752727	12181
958	11774	453	126811	38417	1.8	117537	1100692	9187
959	10333	486	108390	38316	44	186354	3241905	757
960	19670	727	32984	168627	686	114178	896956	499
961	16642	1255	57818	216021	81	116624	779711	859
962	165500	7862	60357	208654	200	238430	900334	6376
963	22227	429	39641	113226	1052	73746	790145	27349
964	35816	470	69350	137965	1500	99157	1138811	2595
965	33027	2068	104729	269937	188	134234	1169481	796
966	30046	1057	233065	137405	16337	110402	1285358	463
967	29812	102	183917	97271	19	112177	2151567	6816
968	46594	108	246317	168708	60	192346	2553939	451
969	86264	315	388629	245249	5897	290506	2251064	5104
970	109972	457	359811	288980	8643	499664	3486734	2027
971	159021	78	167906	553888	50781	670815	2514778	112792
972	111938	316	470254	585193	646	1145130	1430632	1748
973	179022	4115	348934	619018	759	360186	1488042	18383
974	432596	226	550355	1330396	4292	780982	2527725	40161
975	218541	180	664329	1190837	25876	270682	1607996	2465
976	203678	212	740388	516707	1890	120844	1986478	21954
977	93747	.43	201137	304461	5766	397087	1919036	1136
978	122216	504	418003	341286	2679	409252	1996068	238890
979	220987	43	443542	192676	2202	1421946	1871778	28828
980	199771	843	492231	251627	322000	608120	1773638	6911
981	232089	175	498843	133648	11724	170734	1311097	2768
	<u>2717012</u>	<u>25032</u>	<u>7176873</u>	<u>8266337</u>	<u>463558</u>	<u>9139745</u>	<u>45654123</u>	<u>579744</u>
	27	27	27	27	27	27	27	27
	100630	927	265810	306161	17169	338509	1690897	21472

APPENDIX TABLE II. 3.

Cost of a strike per employee in constant 1980 U.S. dollars

Aus.	Austria	Canada	Japan	Sweden	U.K.	U.S.A.	W. Germ
6.7903	0.2461	14.2659	0.7532	0.0343	5.5909	19.6822	0.3368
7.4755	0.6309	9.3631	0.7873	0.0140	3.0625	22.9881	0.6572
4.0908	0.1869	12.1229	1.0805	0.0146	12.9257	11.5785	0.5031
2.8316	0.2072	22.1620	0.8909	0.0008	5.1125	17.1994	0.3772
2.4376	0.2213	18.4399	0.8778	0.0118	7.9980	49.4336	0.0308
4.4412	0.3263	5.5887	3.7800	0.1841	4.8154	13.4514	0.0192
4.1316	0.5527	9.5488	4.7813	0.0217	4.8500	11.6730	0.0327
3.9797	3.4199	9.6959	4.5617	0.0544	9.6250	13.4979	0.2418
5.2029	0.1869	6.2182	2.4545	0.2823	2.9743	11.6606	1.0338
7.9669	0.2033	10.4933	2.9524	0.4106	3.9543	16.4319	0.0978
7.1363	0.8865	15.2622	5.6621	0.0509	5.3000	16.4512	0.0298
6.3114	0.4493	32.5874	2.8348	4.3764	4.3336	17.6330	0.1741
6.1085	0.0439	24.9244	1.9771	0.0051	4.4754	28.9298	0.2642
9.3162	0.0470	32.6810	3.3728	0.0161	7.7300	33.6399	0.0174
16.7474	0.1362	49.9523	4.8661	1.5650	11.6650	28.8961	0.1938
20.6357	0.1949	45.6671	5.6729	2.2426	20.2219	44.0689	0.0759
29.3153	0.0324	20.7830	10.8308	13.1557	27.5726	30.6109	4.2287
19.9537	0.1059	57.4111	11.4162	0.1673	47.6740	17.4142	0.0669
30.9566	1.3648	40.5832	11.7706	0.1957	14.6358	17.4932	0.7016
73.8824	0.0748	61.4853	25.4038	1.0838	31.6008	29.1233	1.5634
37.4131	0.0606	71.5563	22.7999	6.3703	10.9824	18.7312	0.0994
34.5346	0.0712	78.1082	9.8028	0.4623	4.9421	22.3823	0.8940
15.6365	0.0001	20.8415	5.6994	1.4067	16.2083	20.8548	0.0463
20.4731	0.1650	41.9177	6.3108	0.6510	16.6194	20.7820	9.6717
36.5782	0.0139	42.7758	3.5166	0.5268	57.3921	18.9405	1.1512
31.9802	0.2715	46.1972	4.5388	76.0870	24.9567	17.8609	0.2731
36.5132	0.0556	45.6273	2.3947	2.7749	7.4058	13.0591	0.1101
<u>463.5252</u>	<u>9.9517</u>	<u>846.2656</u>	<u>161.7898</u>	<u>112.1657</u>	<u>374.6148</u>	<u>584.4669</u>	<u>22.892</u>
27	27	27	27	27	27	27	27
= 17.1676	0.3686	31.3432	5.9922	4.1543	13.8746	21.6469	0.8479
<u>449.2575</u>	<u>9.0747</u>	<u>822.6366</u>	<u>160.2493</u>	<u>112.1174</u>	<u>365.9614</u>	<u>541.7966</u>	<u>21.898</u>
25	25	25	25	25	25	25	25
Average cost over the last quarter century:							
\$17.97	\$0.36	\$32.91	\$6.41	\$4.48	\$14.64	\$21.67	\$0.88

APPENDIX III

The primary purpose of this Appendix will be to provide a closer examination of the statistical results obtained when the dependant variable was set-up in a singular equation system utilizing each of the explanatory variables as a singular independent regressor.

The equation was established as follows

$$Y_* = A + \beta X_*$$

where Y_* is the dependant variable

A is the constant

β is the coefficient of estimation, and

X_* is the explanatory variable

Since this system has been established to test the statistical significance of the explanatory variables, interest lies only in making a comparison of the t-statistics being the above equation (called T - 2) and the original equation system (called T - 1).

The following tables provide the means to make the comparisons, however it is important to note that the benchmark t-statistic was this second series was 1.708. Those explanatory variables that are significant will be marked in red.

Australia

Variable	T - 1	T - 2
Inflation	0.8483	4.2467*
Wages	2.0017*	-0.0515
Unemployment	-0.9484	3.3931*
Employment	2.0801*	6.0391*
Growth	0.6906	-1.7109*
Time	-1.5471	5.0861*
Policy	1.9020*	-5.8473*

Canada

Variable	T - 1	T - 2
Inflation	-0.8001	5.1130*
Wages	1.9459	-0.0424
Unemployment	-1.8101*	-0.0267
Employment	-0.0115	4.7914*
Growth	2.1748*	-1.2757
Time	0.0713	4.8125*
Policy	-2.3411*	-3.7543*

United Kingdom

Variable	T - 1	T - 2
Inflation	-0.7741	1.3138
Wages	0.8084	0.3973
Unemployment	-2.1563*	1.6432
Employment	-2.6239*	0.3466
Growth	-0.7421	-1.2432
Time	3.0243*	2.8928*
Policy	0.2797	2.2655*

Japan

Variable	T - 1	T - 2
Inflation	4.0911*	4.0462*
Wages	2.4548*	3.8323*
Unemployment	-3.2915*	-2.4196*
Employment	-1.9744*	0.1167
Growth	-1.2768	0.1822
Time	2.1271*	-0.0411
Policy	-0.2094	-1.5246

Austria

Variable	T - 1	T - 2
Inflation	-0.2123	-0.4232
Wages	0.2517	0.8488
Unemployment	-2.0423*	0.7257
Employment	1.2159	-1.5548
Growth	-0.9332	-0.1366
Time	-2.5233*	-1.9621*
Policy	0.3014	0.0263

United States of America

Variable	T - 1	T - 2
Inflation	0.3298	-0.2146
Wages	1.9840*	0.9388
Unemployment	-2.2858*	1.4465
Employment	-1.7678*	-0.5748
Growth	1.0438	-0.1903
Time	1.3367	-0.4668
Policy	-1.3738	0.3004

Sweden			West Germany		
Variable	T - 1	T - 2	Variable	T - 1	T - 2
Inflation	-2.3660*	0.6483	Inflation	0.0000	0.0000
Wages	-1.0211	-1.9269*	Wages	-0.2610	-0.5643
Unemployment	0.3286	0.5271	Unemployment	0.3727	0.4688
Employment	1.9260*	2.3567*	Employment	0.0777	0.2024
Growth	0.8751	-0.9730	Growth	0.1155	-0.4385
Time	-0.7804	1.8891*	Time	0.4999	0.3182
Policy	-1.1487	-1.6915	Policy	-0.7367	0.1329

As one can clearly see, only eighteen of the fifty-six explanatory variables were significant utilizing the T - 2 system. However of these nineteen, only nine were repeats from the first run. This means that an additional 1% of the explanatory variables have some significance which brings our total from both runs to 5% (39% T - 1 + 1% T - 2)

	Inflation	Wages	Unemployment	Employment
Australia	Second	First	Second	Both
Canada	Second	First	First	Second
U.K.	Neither	Neither	First	First
Japan	Both	Both	Both	First
Austria	Neither	Neither	First	Neither
U.S.A.	Neither	First	First	First
Sweden	First	Second	Neither	Both
West Germany	Neither	Neither	Neither	Neither

	Growth	Time	Policy	Percent
Australia	Second	Second	Both	Both = 16%
Canada	First	Second	Both	Second = 18%
U.K.	Neither	Both	Second	First = 23%
Japan	Neither	First	Neither	Neither = 43%
Austria	Neither	Both	Neither	
U.S.A.	Neither	Neither	Neither	
Sweden	Neither	Second	Neither	
West Germany	Neither	Neither	Neither	

Table . 9 Comparative Analysis for T-statistics

The comparison points out some problems in the models that will be discussed in Chapter Five, and it coincides with the hypothesis in that Austria, Sweden and West Germany as well as the United States, have very weak explanatory variables in terms of their statistical significance, while the remaining four countries with the possible exception of Great Britain which is borderline, all have relatively strong explanatory variables.

APPENDIX IV

In Kmenta (21) the comment was made that one can choose to do one of two things with Durban-Watson statistical results that are inconclusive. One could leave them alone or choose to correct for the problem. In the case of this paper it has been chosen to correct for the problem by utilizing the Cochrane-Orcutt iterative process.

In general, since neither the order of the autocorrelation structure nor the value(s) of the parameter(s) is known, the generalized least-squares estimates cannot be computed directly. They may, however, be approximated by one of the various methods available. Since the stated intention of this paper is to use the Cochrane-Orcutt method, this illustration which provides a meaningful explanation as to how it will be used.

$$\begin{array}{ll}
 \text{If } Y_t = \alpha + \beta X_t + \mu_t & t = 1, 2, \dots, n \\
 \mu_t = \rho \mu_{t-1} + \varepsilon_t & |\rho| < 1 \quad E(\varepsilon_t) = 0 \\
 E(\varepsilon_t \varepsilon_{t+s}) = \sigma_\varepsilon^2 & \text{For all } t \text{ and } s = 0 \\
 \text{and } E(\varepsilon_t \varepsilon_{t+s}) = 0 & \text{For all } t \text{ and } s \neq 0
 \end{array}$$

If the relation is transformed,

$$Y_t - \rho Y_{t-1} = (1-\rho)\alpha + (X_t - \rho X_{t-1})\beta + \varepsilon_t$$

which has a scalar dispersion matrix. Denoting estimates of α , β and ρ by a , b , and r the sum of squared residuals is given by

where the summation can run from 1 to n if one is given X_0, Y_0 , but otherwise must be restricted to the range 2 to n . The direct minimization of the above equation with respect to a , b , and r leads to nonlinear equations, so that analytic expressions for a , b , and r cannot be obtained.

One method of approximating the values of a , b , and r which minimizes the sum of squares is the Cochrane-Orcutt iterative process. Starting with arbitrary values for r , say r_1 , minimizes the sum of squares with respect to the parameters a and b , obtaining values a_1 and b_1 . Then keeping a and b fixed at a_1, b_1 , minimize the sum of squares with respect to r_1 obtaining a new value r_2 and keeping this fixed in turn minimize once again with to a and b obtaining new values a_2 and b_2 . Continue this way until successive estimates differ by arbitrarily small amounts. Once the iterations converge a completely new set of statistical results is obtained. This new set of statistical results was the primary reason for choosing this convergence method.

The next step will be to compare the results of the seven equations that had to be corrected using the Cochrane-Orcutt methods with the results from the previous original set of results. These results will be tabled over the next few pages.

<u>Country</u>	<u>T-1 R²</u>	<u>C/O R²</u>
Australia	0.7881	0.8302
Canada	0.6695	0.8351
Japan	0.8363	0.7763
Austria	0.3708	0.4588
U.S.A.	0.3115	0.3033
Sweden	0.4234	0.5346
<u>West Germany</u>	<u>0.0488</u>	<u>0.1241</u>

Table IV. 1 Comparing the Coefficients of Multiple Determination

<u>Country</u>	<u>T-1 \bar{R}^2</u>	<u>C/O \bar{R}^2</u>
Australia	0.7101	0.7646
Canada	0.5477	0.7710
Japan	0.7760	0.6893
Austria	0.1390	0.2483
U.S.A.	0.0579	0.0323
Sweden	0.2109	0.3536
<u>West Germany</u>	<u>-0.3017</u>	<u>-0.2165</u>

Table IV. 2 Comparing the Adjusted R-Squared Statistics

Australia

Variable	T-1 T's	C/O T's
Inflation	0.8483	0.6267
Wages	2.0017*	1.7989*
Unemployment	-0.9484	-1.2330
Employment	2.0801*	1.8471*
Growth	0.6906	0.7586
Time	-1.5471	-1.1761
Policy	1.9020*	-2.1184*

Canada

Variable	T-1 T's	C/O T's
Inflation	-0.8001	-1.5961
Wages	1.9459*	3.3384*
Unemployment	-1.8108*	-3.2109*
Employment	-0.0115	0.5173
Growth	2.1748*	2.6452*
Time	0.0713	-0.4422
Policy	-2.3411*	-3.4362*

Japan

Variable	T-1 T's	C/O T's
Inflation	4.0911*	3.8933*
Wages	2.4548*	2.0366*
Unemployment	-3.2915*	-3.2015*
Employment	-1.9744*	-1.5455
Growth	-1.2768	-1.3952
Time	2.1271*	1.7954*
Policy	-0.3094	-0.6970

Austria

Variable	T-1 T's	C/O T's
Inflation	-0.5284	-1.0311
Wages	0.2517	0.3950
Unemployment	-2.0423*	-2.4251*
Employment	1.2159	1.5321
Growth	-0.9332	-0.6298
Time	-2.5233*	-2.9542*
Policy	0.3014	-0.1235

U.S.A.

Variable	T-1 T's	C/O T's
Inflation	0.3298	0.2463
Wages	1.9840*	2.0151*
Unemployment	-2.2838*	-2.2028*
Employment	-1.7678*	-1.6756
Growth	1.0438	1.0393
Time	1.3367	1.1497
Policy	-1.3738	-1.4195

Sweden

Variable	T-1 T's	C/O T's
Inflation	-2.3660*	-2.9182*
Wages	-1.0211	-1.0271
Unemployment	0.3286	-0.5415
Employment	1.9260*	2.2945*
Growth	0.8751	0.2340
Time	-0.7804	0.0142
Policy	-1.1487	-0.8394

West Germany			
Variable	T-1	T's	C/0 T's
Inflation	0.0000		1.2983
Wages	-0.2610		-0.2158
Unemployment	0.3727		-0.8796
Employment	0.0777		-0.9906
Growth	0.1155		-0.2053
Time	0.4999		1.1943
Policy	-0.7367		-0.9614

Table IV. 3 T-statistic Comparisons

Country	T-1 F's	C/0 F's
Australia	10.0979*	12.5693*
Canada	5.4981*	13.0239*
Japan	13.8693*	8.9219*
Austria	1.5998	2.1800
U.S.A.	1.2281	1.1193
Sweden	1.9929	2.9536*
West Germany	0.1392	0.3644

Table IV. 4 Comparing the F-statistics

Country	T-1 D/W's	C/o D/W's
Australia	2.1300	2.0361
Canada	2.5896	2.5240
Japan	1.5025	1.8135
Austria	2.3142	2.1290
U.S.A.	1.7706	1.8983
Sweden	2.3346	2.1599
West Germany	2.1470	2.2504

Table IV. 5 Durban-Watson statistics

Tables IV.1 to IV.5 provides us with the following results regarding the use of the Cochrane-Orcutt iterative process;

1. even though there were many numerical differences between some of the statistics, there were only a limited number of noticeable changes; a) the F-statistic for Sweden was significant after the use of the C/O process, b) the number of significant t-statistics decreased by one - employment in the U.S.A. - and there were no new t-statistics
2. the relationship between the dependant variable and seven of the explanatory variables changed - these were probably do to the fact that the first observation had to be dropped in order to complete the C/O process
3. the C/O process was able to converge for each of the seven equations in a relatively short number of iterations, however the resulting statistics still showed inconclusive results for the Durban-Watson, which would lead on to believe that the results obtained by the original equations will suffice for the purpose of this paper.

All of these facts and statistics bring the inevitable conclusion that perhaps one could have taken the other of Kmenta's suggestion and accepted the original results by choosing not to do anything.

1

The decrease of one significant t-stastic corresponds to the slight decrease in the significance level of the explanatory variable, and a corresponding increase in the cut-off point for the t-statistic.

Appendix V

Adaptive Expectations

Adaptive expectations are based on the idea that expected future values depend on some weighing of past values. Decision units form their expectations from past experience in accordance with some logical rules. They may for example assume that income has been changing and believe it will continue to change along a specific path.¹

"An example of adaptive expectations can be found in estimates of how past income effects the expected lifetime income from which decisions to consume are made. Some models may show that expected disposable income is a weighing average of a limited number of past levels

$$YD^e = W_1 YD_0 + W_2 YD_{-1} + W_3 YD_{-2} \text{ where } YD \text{ is} \\ \text{expected disposable income.}$$

$$\text{If } YD^e = .7YD_0 + .2YD_{-1} + .1YD_{-2} \text{ then}$$

this equation says that expected disposable income depends on disposable income of the current and past two periods, with most of the weighing coming from the current period."²

If one were to apply adaptive expectations to price theory in a similar manner, then, if prices have increased by six percent in 1980, twelve percent in 1981 and nine percent in 1982, and if the expected weights were 0.75 for 1982,

0.15 for 1981 and 0.10 for 1980, one would expect the price level to be;

$$P_t^e = \lambda_1 P_t + \lambda_2 P_{t-1} + \lambda_3 P_{t-2} \quad \text{where } \lambda_1 + \lambda_2 + \lambda_3 = 1$$

$$P_t^e = .75(.09) + .15(.12) + .10(.06)$$

$$= .0675 + .018 + .006$$

$$= .0699 \text{ or } 6.99\%$$

If one wanted to show the adaptive price expectations model in mathematical notation, then

$$P_t^e = P_{t-1} \left(1 + \left[\lambda \frac{\Delta P_{t-1}}{P_{t-2}} + (1-\lambda) \frac{\Delta P_{t-1}^e}{P_{t-2}} \right] \right)$$

Which is the expected nominal price level and if one wanted to measure the expected rate of change

$$\frac{\Delta P_t^e}{P_{t-1}} = \lambda \frac{\Delta P_{t-1}}{P_{t-2}} + (1-\lambda) \frac{\Delta P_{t-1}^e}{P_{t-2}}$$

where λ is the weights and $0 < \lambda < 1$ and $\sum_{i=1}^n$ weights equal one $\frac{\Delta P_{t-1}}{P_{t-2}}$ is the actual rate of change of prices, and

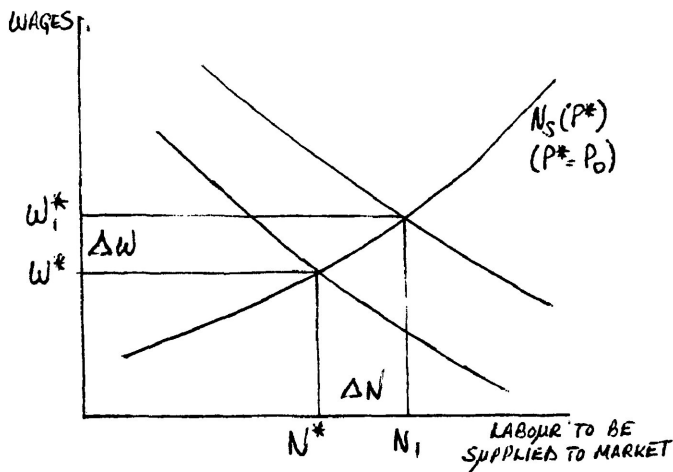
$$\frac{\Delta P_{t-1}^e}{P_{t-2}}$$

is the expected rate of change of prices

In the case of adaptive expectations, the longer the value of λ , the more information is said to be available in the model.

Expectations theory has been principally utilized when considering how wages are determined using price expectations. One can diagrammatically represent adaptive price expectation in the determination of wages in the labour market. It is important to note that if one compares Figure V. 2 with

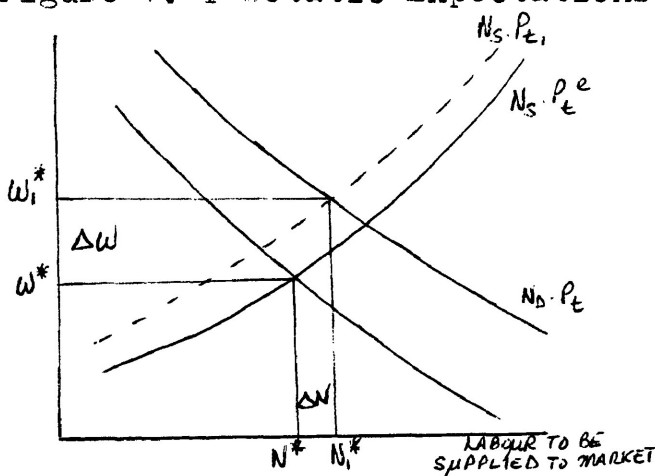
Figure V. 1, which is the static price expectations in the determination of wages in the labour market, that the change from W^* to W_1^* is smaller in the static expectations diagram, and the change from N^* to N_1^* is much greater in the static expectation diagram. This leads to the conclusion that



- where N_S = labour supply curve
- N_D = labour Demand curve
- P^* = expected price level
- P_0 = Actual price from previous period
- W^* = wage level
- N^* = labour market equilibrium

If price increases, then the MP, also increases. This leads N_D to shift to N_{D_1} however nothing has happened to N_S because $P^* = P_0$.

Figure V. 1 Static Expectations in the Labour Market



- P_{t^e} = expected price level
- P_{t1} = actual price level

In this case labour is able to react to an increase in prices by shifting its supply curve upwards in anticipation of the increased prices.

Figure V. 2. Adaptive Expectations in the Labour Market

therefore, the method, the variables and the manner in which the hypothesis in this study have been dealt with coincide with many of the previous works done on similiar topics.

Notes

Sherman Maisel, Macroeconomics: Theories and Policies,
New York: W.W. Norton and Company, 1982,
pp. 132-133.

2. Ibid.

APPENDIX VI

This Appendix has the results of two additional models that were used to verify information that has been utilized in developing arguments in Chapter Six.

Model I - utilizes the same data as the original model, however the time series has been changed to correspond with Pederson and Paldam's results of analyses relating number of strikes to real-wage increase, unemployment model (1) for the period 1956 - 1975. It is important to note that Pederson and Paldam experienced data problems with Austria and West Germany and therefore have no results for these two countries; and that they used number of conflicts as their dependent variable rather than man days lost. The Pederson and Paldam equation was structured as follows;

$$\text{Equation } C_n = \text{Constant} + b_1 u + b_2 \dot{\bar{w}}$$

where u = rate of unemployment
 $\dot{\bar{w}}$ = real wage rate

the results from their model of the remaining six countries are as follows:

Country C_n	(t-statistics in parenthesis)			\bar{R}^2	DW
	Constant	+ $b_1 u$	+ $b_2 \dot{\bar{w}}$		
Australia	11.83 (6.0)	-1.40 (1.5)	.79 (2.5)	.19	.95
Canada	8.93 (1.0)	.52 (0.4)	.04 (0.0)	-.11	.23
U.K.	10.09 (8.7)	-.38 (0.7)	.48 (2.8)	.24	1.41

Country	C_n	Constant	+ $b_1 u$	+ b_2	\bar{R}^2	DW
Japan		19.70 (2.2)	-4.87 (1.0)	.00 (0.0)	-.05	.32
U.S.A.		14.03 (6.7)	-.49 (1.4)	-1.06 (2.6)	.22	.37
Sweden		17.20 (1.2)	-2.69 (0.4)	-.83 (0.5)	.02	.81

Table VI. 1 Results of pederson - Paldam Model

The results, from rerunning the model with this new time frame, are as follows:

Country	Constant	Inflation	Wages	Unemployment
Australia	-2.0954	1.2244	2.5492	-1.0480
Canada	-1.8607	-0.6097	-0.7536	0.5720
U.K.	3.8627	-0.6527	2.1863	0.3342
Japan	1.8463	2.9218	-1.4824	-2.7163
Austria	-0.1927	0.3444	0.0865	-2.3084
U.S.A.	1.1650	0.1806	1.4869	-1.6871
Sweden	0.8557	-2.4876	1.6815	0.2299
F.R.G.	-0.5725	3.5336	0.4689	1.2001

Table VI. 2 T-statistics for time period 1956 - 1975

Model II - restructures the data from West Germany, Sweden and Austria under the assumption that the results from the original model - although statistically accurate - have been distorted by a number of large industrial disputes that have occurred during the last quarter century. This part had been made earlier in Chapter Five and again in Chapter Six, when it was noted that by removing several of the large figures from the series, results could be obtained that more accurately reflected the institutions and widespread use of industrial

relations in countries like Sweden and Austria.

Statistics	Original Model	Adjusted Model
R - Squared	0.423375	0.339537
Adjusted R - Squared	0.210935	0.092608
F - Statistic	1.99291	1.39538
Durban - Watson Statistic	2.3346	1.9791
Sum of Residuals	-0.582077 E-10	-0.181899 E-10
T-statistics		
Contant	-0.190201	-1.65773
Inflation	-2.36596	-0.584919
Wages	-1.02113	1.13354
Unemployment	0.328599	-0.473492
Employment	1.92595	1.01956
Growth	-0.875070	-1.52814
Time	-0.780367	1.23832
Policy	-1.14872	1.43805

Table VI. 1 Comparative Results for Sweden

Statistic	Original Model	Adjusted Model
R - Squared	0.370837	0.441876
Adjusted R - Squared	0.139039	0.236251
F - Statistic	1.59983	2.14895
Durban - Watson Statistic	2.3142	2.5028
Sum of Residuals	0.000000 E+00	0.136424 E-11
T-statistics		
Constant	-0.212300	-0.367755
Inflation	-0.528357	-0.41588
Wages	0.251693	0.797699
Unemployment	-2.04236	0.488822
Employment	1.21593	0.707821
Growth	-0.933232	0.196631
Time	-2.52332	-0.964201
Policy	0.301405	0.298018

Table VI. 2 Comparative Results for Austria

Statistics	Original Model	Adjusted Model
R - Squared	0.048787	0.517561
Adjusted R - Squared	-0.301660	0.339821
F - Statistic	0.139214	2.91189
Durban - Watson Statistics	0.727596 E-11	-0.909495 E-12
Sum of Residuals	2.1470	1.9926
T-Statistics		
Constant	-0.008160	-1.11108
Inflation	0.000000 E+00	0.000000 E+00
Wages	-0.261013	1.01971
Unemployment	0.372698	2.00458
Employment	0.077666	1.15534
Growth	0.115477	-1.27614
Time	0.499918	-3.00780
Policy	-0.736680	1.61414

Table VI. 3 Comparative Results for West Germany

APPENDIX VII

The purpose of the appendix is to provide additional information regarding several of the previous models that have been conducted for Canada, the United States, Australia and Great Britian and utilize frequency via number of conflicts or alternatively man days lost as the dependent variable. The principle focus will be on studies that includes relative information on man days lost as the dependent variable.

Canada:

1. Vanderkamp (96) aimed to provide a systematic explanation of the time pattern of industrial conflict in Canada between 1901 and 1966. Vanderkamp utilizes time-loss as his measure of strike activity because it is the most meaningful measure from an economic viewpoint.¹"

Vanderkamp says that a theoretical indeterminacy exists when trying to utilize bargaining theory in such an analysis² and therefore a more traditional cost analysis approach must be utilized, particularly because the cost of a strike can have great effects on a firm.

Vanderkamp also makes the point that the bargaining process has a dual purpose; 1) to influence the other party's perception of your own utility function, and 2) to communicate your perception of the other party's utility function.³ The author's main focal point is that a strike will have a greater disutility on a firm when economic activity is low.

To prove this, Vanderkamp established the following equations

$$1) Th_{t-1} = Y_t \quad \text{Where } Y_t = \text{constant dollar GNP}$$

$$2) Th_{t-1} = Y_{t-1} + P_{t+1} + WD + C$$

Where P_{t+1} is the rate of change in prices

WD is the war dummy variable

C is the constant

Since the focus has been on the post World War II era the statistical results of that equation have been reproduced - (t-statistic in parenthesis) =

$$\begin{aligned} Y_{t-1} &-- 0.0021 (0.0013) \\ P_{t+1} &-- 0.0078 (0.0048) \\ C &-- 1.4372 (0.4426) \\ R^2 &-- 0.5007 \end{aligned}$$

Vanderkamp concludes that for the time period 1946 - 1966 that at least fifty percent of the variance time-loss measure is left unexplained by these two variables; the aggregate cost of strikes, as measured by time-loss has not increased over time; and the weak statistical relationship shows that economic activity may be statistically significant in explaining strike activity but that is is not the dominating influence as suggested by some earlier studies.

2. Walsh (97) wanted to re-examine the Canadian industrial dispute experience over the 1952 - 1972 period using three separate measures of strike activity; frequency, duration and size and then developing a relationship with economic conditions.

Walsh's equation was structured as follows:

$$SM_t = a_0 + a_1 + u_t^{-2} + a_2 P_t^0 + a_3 W_t^0 + a_4 PI_{t-1} + a_5 t$$

Where SM = the particular strike index

U = the unemployment rate

P = the year to year change in the Consumer Price Index

W = the year to year percentage change in average weekly wages and salaries in the industrial composite

PI = the year to year percentage change in total after-tax corporate profits

t = time in years (1952 = 1)

Strike Measure	Constant	U_t^{-2}	P_t	W_t
Time Loss (Th)	-0.0017 (-0.0260)	0.9570 (0.8876)	0.0565 (2.6577)	0.0089 (0.5469)
Average Duration	23.1810 (5.3890)	6.2273 (0.0853)	1.0903 (0.7569)	0.2900 (0.2642)
Average Size	144.1899 (1.0205)	-2110.0945 (-0.5046)	45.3021 (0.9574)	49.3472 (1.3688)
Number of Strikes	11.7722 (3.7655)	361.0157 (6.8044)	5.3328 (5.0938)	-3.3155 (-4.1564)

Strike Measure	PI_{t-1}	t	R^2	D.W.
Time loss (Th)	-0.0030 (-1.5338)	0.0010 (0.1853)	0.6737	2.1606
Average Duration	-0.2838 (-2.1187)	-0.6045 (-1.6516)	0.4294	1.6441
Average Size	2.3374 (0.5313)	-3.8303 (-0.3186)	0.4664	1.7271
Number of Strikes	-0.2139 (-2.1977)	2.6909 (10.1168)	0.9591	2.2339

Table VII. 1 Regression Analysis of Strike Activity and Economic Conditions, Canada, 1952 - 1972.

In concluding Walsh states "Overall, these regressions support the position that each of the main dimension of strike activity differ in their degree of responsiveness to the pattern of aggregate economic activity the relationship between time-loss measures of strike activity is relatively weak."

United States:

1. Edwards (61) examines two very distinct approaches: the first predicts strike activity from economic variables such as the unemployment rate and the rate of change of real wages and the second criticizes the approach for failing to take account of certain institutional parameters' which set the framework within which economic factors operate.

Edwards utilizes the number of strikes in a year as his dependent variable and uses two business cycle indices

known as trough and peak; changes in prices, nominal and real wages rate changes as the independent variables. The results indicate a much better R^2 for the periods 1900 - 1939 and 1946 - 1972 and a significance level for all variable at the 5% t-statistic level.

However, Edwards results gain some minimal strength when a variable index is added to look at the ratio of trade unionists to non-agricultural workers, however when the political variables are added the model suffers are far as the total amount of variance explained by the regressors, and most of the t-statistics in both time periods became insignificant.

In his conclusions, Edwards makes the following statements: "the results show that, although strike frequency seems to be quite strongly related to economic conditions. The strength and direction of economic variables fluctuates."

2. Skeels (89) intended in his article to study the inter-relationships among the various measures of strike activity. Skeels wanted to reduce disparity that existed by examining the eight most common measures of strike activity on a quarterly basis during recent years, 1952 - 1968.

The eight measures utilized in the study are:

- a) number of strike beginning in a quarter;
- b) number of workers involved in strikes beginning in a quarter;
- c) percentage of workers in total labour force involved in strikes beginning in a quarter;
- d) number of strikes in progress in a quarter;
- e) number of workers involved in strikes in progress in a quarter;
- f) percentage of workers involved in strikes in progress in a quarter;
- g) man-days idle;
- h) percent of available man-days idle.

Skeels then structured his equation with the measure of strikes as the dependent variable and the following explanatory variables:

- 1) economic variables - unemployment, output, price and earnings and there were three measures of output tested
 - a) real GNP
 - b) an index of unfilled orders, and
 - c) an inventory-sales ratio

two measures of unemployment:

- a) rate of unemployment
- b) rate of layoffs

and two price indexes:

- a) consumer price index and
- b) profit rates

2) political variables of which there were three:

- a) political party in power in Congress
- b) presidential election year, and
- c) party of the President

3) public attitude variable which separated the pre and post Landrum - Griffith Act years,

4) Seasonal variables which measured the likelihood of a strike in warmer rather than colder weather, and

5) a trend variable which can be viewed as a learning function of the bargaining process or as institutional accomodation.

Regression Coefficient (t-values)

Strike Measure	E _a	E _b	E _c	P _a	P _c	Q ₁
Number of Strikes beginning	0.005 (4.58)	-0.046 (-2.31)	0.023 (2.55)	0.009 (0.25)	0.053 (2.29)	0.086 (3.24)
Number of Workers Involved - beginning	0.019 (4.35)	0.074 (0.92)	0.029 (0.77)	0.302 (2.02)	-0.008 (-0.09)	-0.114 (-1.07)
Percentage of Workers Involved - beginning	0.019 (4.51)	0.075 (0.92)	0.029 (0.79)	0.317 (2.14)	-0.005 (-0.06)	-0.105 (-0.99)
Number of Strikes in progress	0.004 (4.19)	-0.069 (-3.57)	0.017 (1.96)	-0.043 (-1.20)	0.056 (2.48)	-0.105 (-4.11)
Number of Workers Involved - in progress	0.019 (4.19)	0.009 (0.11)	-0.026 (-0.66)	0.391 (2.45)	-0.136 (-1.36)	-0.361 (-3.16)
Percentage of Workers Involved - in progress	0.020 (4.27)	0.011 (0.13)	-0.024 (-0.61)	0.406 (2.53)	-0.129 (-1.28)	-0.350 (-3.05)
Man-Days Idle	0.017 (2.83)	-0.043 (-0.38)	-0.044 (-0.83)	0.408 (1.92)	-0.250 (-1.89)	-0.524 (-3.46)
Man-Days Idle as %age of available work time	0.014 (2.26)	-0.053 (-0.46)	-0.040 (-0.75)	0.397 (1.84)	-0.202 (1.50)	-0.500 (-3.25)
Man-Days Idle per worker	0.014 (2.61)	-0.045 (-0.44)	-0.040 (-0.85)	0.351 (1.84)	-0.229 (-1.92)	-0.469 (-3.44)

Strike Measure	Regression Coefficient (t-values)				R ²	a
	Q ₂	Q ₃	A	T		
Number of Strikes beginning	0.576 (19.57)	0.514 (15.22)	0.180 (3.63)	-0.030 (-5.28)	0.945	4.89
Number of Workers Involved - beginning	0.617 (5.21)	0.631 (4.64)	0.640 (3.22)	-0.107 (-4.79)	0.713	-1.33
Percentage of workers Involved - beginning	0.610 (5.19)	0.618 (4.58)	0.666 (3.37)	-0.114 (5.12)	0.726	-8.01
Number of Strikes in progress	0.336 (11.83)	0.367 (11.24)	0.274 (5.73)	-0.025 (-4.60)	0.931	5.98
Number of Workers Involved - in progress	0.289 (2.28)	0.398 (2.74)	0.892 (4.19)	-0.111 (-4.64)	0.689	-0.52
Percentage of Workers Involved - in progress	0.284 (2.23)	0.386 (2.64)	0.920 (4.30)	-0.118 (-4.88)	0.675	-7.17
Man-Days Idle	0.198 (1.17)	0.330 (1.71)	0.996 (3.53)	-0.100 (-3.15)	0.590	2.63
Man-Days Idle as %age of available work time	0.203 (1.19)	0.338 (1.72)	1.029 (3.59)	-0.093 (-2.88)	0.555	-6.25
Man-Days Idle per worker	0.153 (1.01)	0.267 (1.54)	0.861 (3.39)	-0.083 (-2.91)	0.567	1.83

Table VII. 2 Regression Coefficients for Determinants of Various Strike Measures United States, 1952 - 1968.¹⁰

Skeels concludes "statistically, number of strikes, both a flow and a stock, is different from other measures of strike activity. Its responsiveness to the independent variables used in this study was much higher than that of other measures examined. The significant explanatory variables differed somewhat. This trading should be no surprise, since number of strikes is a measure of decision making about strikes while the other measures are to a greater or lesser extent indexes of strike impact - all are variants of how many employees are involved and how long."¹¹

Australia:

1) Bentley and Hughes (38) have tried to show whether or not the cyclical nature of the economy has any profound effect on strike activity. The authors point out that the nature of business fluctuations has been much smaller in Australia. Then in the United States for the post-Keynesian period 1949 - 1961, many due to the fact that these fluctuations were centered around a much fuller level of employment in Australia.

The nature of wage settlements in Australia has been diminished by the environment of compulsory arbitration that does exist, and therefore unions cannot be coerced into wage settlements, which is something that can and does happen in the United States. The dependent variable in their equation is the frequency of strikes since both Rees and Forchheimer found that this statistic lended itself "fairly distinctly to the cyclical pattern¹²" Although, they do make some comments about the relationship between man days lost and the cyclical nature of the economy later in the paper.

The explanatory variables used in the Bentley and Hughes equation(s) are: unemployment, and changes in unemployment, and two control variables, a time trend and seasonal dummies. The result of this estimation is provided in Table VII. 3 where;

- a is the constant
- b is unemployment
- c is change in unemployment
- d is time
- e is seasonal variables representing first three quarters
- SD is seasonal variables for all four quarters

Sector	Regression Coefficients (t-statistics)						
	a	b	c	d	e ₁	e ₂	e ₃
1. A - C	121.5 xxx	-46.2 (5.47)	-26.1 (1.26)	3.7 (16.33)	14.9 (1.26)	11.2 (0.95)	43.8 (3.71)
2 -	257.7 xxx	-28.2 (2.97)	23.9 (1.03)	-3.4 (13.56)	8.6 (0.65)	6.5 (0.49)	37.5 (2.83)
3. A -	26.5 xxx	-25.1 (6.29)	-14.0 (1.40)	xxx xxx	8.9 (1.54)	3.6 (0.62)	19.8 (3.41)
4.	17.2 xxx	-17.7 (3.08)	1.2 (0.09)	xxx xxx	-0.9 (0.11)	7.2 (0.86)	33.9 (4.05)
5. A - C Quarterly	2.598 xxx	-0.188 (1.13)	1.067 (2.88)	-0.013 (3.28)	xxx xxx	xxx xxx	xxx xxx
6. A - C Semi - Annual	2.703 xxx	-0.316 (1.53)	0.813 (3.27)	-0.024 (2.71)	xxx xxx	xxx xxx	xxx xxx
7. A - C Annual	3.405 xxx	-0.717 (2.60)	0.379 (1.45)	-0.053 (2.19)	xxx xxx	xxx xxx	xxx xxx
8. A - C	7.23 xxx	-2.61 (3.99)	2.73 (1.84)	xxx xxx	1.50 (1.68)	0.56 (0.63)	1.75 (1.93)
9.	278.18 xxx	-25.12 (1.58)	xxx xxx	-3.45 (8.21)	-1.21 (0.05)	28.05 (1.24)	34.72 (1.54)
10.	28.67 xxx	-18.69 (1.68)	xxx xxx	xxx xxx	-11.06 (0.68)	13.96 (0.86)	22.66 (1.39)

Regression Coefficients (t-statistics)						
Sector	SD ₁	SD ₂	SD ₃	SD ₄	R ²	DW
1. A - C	xxx	xxx	xxx	xxx	0.83	1.24
	xxx	xxx	xxx	xxx	xxx	xxx
	xxx	xxx	xxx	xxx	0.80	0.78
	xxx	xxx	xxx	xxx	xxx	xxx
3. A -	xxx	xxx	xxx	xxx	0.48	1.40
	xxx	xxx	xxx	xxx	xxx	xxx
4.	xxx	xxx	xxx	xxx	0.34	1.16
	xxx	xxx	xxx	xxx	xxx	xxx
5. A - C	3.567	4.016	4.164	2.849	0.73	1.75
Quarterly	(5.64)	(6.36)	(6.30)	(4.59)	xxx	xxx
6. A - C	1.928	1.096	1.346	0.772	0.73	1.91
Semi - Annual	(3.84)	(2.19)	(2.33)	(1.62)	xxx	xxx
7. A - C	xxx	xxx	xxx	xxx	0.62	2.21
Annual	xxx	xxx	xxx	xxx	xxx	xxx
8. A - C	4.14	6.13	5.07	6.09	0.44	1.75
	(1.57)	(2.33)	(1.86)	(1.37)	xxx	xxx
9.	xxx	xxx	xxx	xxx	0.58	1.41
	xxx	xxx	xxx	xxx	xxx	xxx
10.	xxx	xxx	xxx	xxx	0.11	1.47
	xxx	xxx	xxx	xxx	xxx	xxx

where A - C is non-coal enterprises
C is coal enterprises

and # 1 - 4 frequency regressions
5 - 7 non-coal duration regressions
8 - 10 are employee loss regressions

Table VII. 3 Regression Coefficients for Determinants of Various Strike Measures for Australia 1952 - 1968.¹⁵

In their conclusions Bentley and Hughes make the following statements: where time loss has been used, "our regressions did yield negative coefficients between unemployment and magnitude, but the t-values and coefficients were not large enough to inspire confidence in the estimates¹⁴" However their results for the frequency statistic were more or less what they had expected because the level of statistical significance was much higher and therefore corresponded to the previous studies.

Great Britian (U.K.):

1. Shorey (87) has decided to examine the statistical relationship between strike frequency and several surely theoretical variables. Shorey develops a model to explain variations through time in the probability, $P(S)_t^e$, that a single bargaining unit, i , will experience a strike.¹⁵ It is assumed that all strikes result from the breakdown of negotiation which directly or indirectly are concerned with wages.¹⁶

The strike probability will, on the demand side vary positively with the frequency of wage claims and the size of the claims workers submit. On the supply side it will vary negatively with the costs of strike action for either side, positively with the extent or recent external militancy and negatively with the size of the offers employers make during negotiations.¹⁷

The three principal determinants of the frequency of negotiations and the size of workers' wage claims at any point in time are: recent changes in the amount of effort required of workers, the extent to which established wage differentials have recently been distured, and the current rate of change of prices. On the supply side, employers' wage offers vary with the rate of change of productivity and conditions in local labour markets. Strike costs for workers are related to their foregone earnings per unit of strike time, the costs of job mobility, the extent of their expenditure commitments and their expectations of strike duration. Employers' strike costs are related to the firm's foregone earnings per unit of strike time and their expectations of strike duration.¹⁸

Therefore the functional relationship that emerges is

$$P(S)_t^i = F(A, K, LM, WD, P, FEE, FEW, CJM, ECW, DURW, DURE, EM)_t^i$$

Where $A_t^i = F_1$ = level of effort of workers

$K_t^i = F_2$ = increases in productivity

$LM_t^i = F_3$ = state of labour markets

$WD_t^i = F_4$ = recent disturbances to established differentials

$P_t^i = F_5$ = recent changes in prices

$FEE_t^i = F_6$ = firms foregone earnings per strike day

$FEW_t^i = F_7$ = workers foregone earnings per strike day

$ECW_t^i = F_8$ = expenditure commitment of workers

$CJM_t^i = F_9 =$ costs of job mobility

$DURW_t^i = F_{10} =$ workers' expected strike durations

$DURE_t^i = F_{11} =$ employers' expected strike durations

$EM_t^i = F_{12} =$ extent of recent external militancy

and $F_1 F_4 F_{12} > 0$

$F_2 F_3 F_6 F_7 F_8 F_9 F_{10} F_{11} < 0$

$F_5 \geq 0$

The theoretical model was transformed in the following operational equation

$$SOM_t = b_0 + b_1 \left(\frac{\hat{\lambda}}{p} \right)_t + b_2 W_{t-1} + b_3 P_{t-1} + b_4 \dot{k}_t + b_5 U_t + b_6 t + b_7 WB_t + b_8 Y_1 + b_9 Y_2 + b_{10} S_{t-1} + b_{11} SD_{t-1} + e_t$$

where: level of activity became $\left(\frac{\hat{\lambda}}{p} \right)_t$, the level of profit; disturbance to differentials became W_{t-1} , put average wage rate changes; state of labour markets became U , national unemployment rate; changes in productivity became \dot{k}_t , the rate of change of labour productivity; prices change became P_t , rate of change in retail prices; foregone earnings by employer became $\hat{\lambda}$, rate of change of money profits; foregone earnings by workers expenditure became Y_1 and Y_2 , expenditure in quarters one and two leading to vacations and then Christmas; expected strike duration became SD_{t-1} , a common factor for both sides; and extent of military frequency became S_{t-1} , the level of total non-mining strike frequency in the previous quarter.

Since the main thrust of this paper focuses on the post World War II era, the only results that will be reported deal with period from 1946 - 1966. The r-squared for this model was 0.89 and the t-statistics - in brackets - were significant at the 95% level for six of the seven explanatory variables.

$$\begin{aligned} \text{Results were } SOM_t = & -291.7 + 81.8Y_1 + 158.1 \frac{\hat{\lambda}}{p} - 18.2W_{t-1} \\ & (5.2) \quad (7.3) \quad (5.4) \quad (2.3) \\ & + 12.9P_{t-1} + 1.2P_t + 0.48SOM_{t-1} + e_t \\ & (1.8) \quad (2.2) \quad (5.3) \end{aligned}$$

The model showed very good statistical results, even though the author does make you aware of the problem of autocorrelation. However, the development of an econometric model based on theoretical implications can cause many difficulties in interpretation. This is a very unique example of how one author has tried to utilize theoretical implications to formulate a model, and perhaps at some later point these types of assumptions could be integrated into a three-level collective bargaining process model.

2. Davies (58) has essentially extended the analysis of Shorey and others. The purpose of his paper was to develop a model of the collective bargaining process that incorporated a more precise theoretical specification of those variables which play a key explanatory role in the strike decision. The author later incorporates the effects of incomes policies into the model with the view of producing a more precise and comprehensive specification of the latter's impact on strike activity¹⁹, and then he wanted to extend the model beyond the 1969-1971 strike wave to be able to measure these effects.

Davies model looks at the probability of a strike as being a function of the unions initial demand, managements initial offer and the bargaining attitude of both sides. Unions wage demands will be a function of the excess demand for labour, the expected rate of price inflation, workers current wage expectations, and the level of profits. Wage expectations will be a function of current settlements and the rate of erosion of net take home pay.

This model was then applied to the British economy and was tested against strike frequency data from 1966-1975. The results obtained were sufficient in that they showed the significance of supply and demand in the labour market and the importance of perception to labour prior to entering into the collective bargaining process. The statistical results for most of the variables in this model were significant.

Multi-Nation Studies

1. Snyder (90) in this paper has decided to challenge the earlier works of authors such as Ashenfelter and Johnson, Rees, Skeels and Vanderkamp for the notion that strikes result from economic forces. In this paper Snyder challenges economic explanations of strike activity and wants to expand upon the theoretical notions of such models.

This model is developed and applied for two time periods, 1900 - 1948 and 1949 - 1971. Since this study only focuses on the post World War II time period, only these results will be analyzed. Snyder also utilizes two strike indices, frequency and number of worker involved in the U.S. and adds man days lost for Canada.

The Synder equation, which utilizes many of the assumptions that have been seen in Shorey and Davies, as well as number of socio-political assumptions about the United States, is as follows:

$$S_t = b_0 + b_1 U_t + b_2 W_{t-1} + b_3 M_t + b_4 P_t + b_5 D_t + b_6 T + e_t$$

where U_t = unemployment indicator of labour tightness

W_{t-1} = wage change specification

M_t = union membership as percentage of civilian labour force

P_t = party of President)

D_t = percent Democrats in Congress)

T = linear time trend)

L_t = percent Liberals in Parliament)

WD_t = war dummy variable)

in the
United States

Regression Coefficients (standard errors)
United States of America

Equation	U_t	W_{t-1}	M_t	P_t	D_t	T	R^2	D/W
Number of strikes	-512.3 (109.2)	-542.6 (206.1)	-222.4 (346.0)	-645.6 (474.2)	-64.3 (33.6)	-80.7 (128.3)	.693	1.99
100's of workers involved	-343.1 (127.9)	-848.9 (241.3)	379.7 (405.1)	41.6 (555.2)	-36.7 (39.3)	98.4 (150.3)	.528	2.03

Regression Coefficients (standard errors)

Canada

Equation	U_t	W_{t-1}	M_t	L_t	WD_t	T	R^2	D/W
Number of Strikes	- 19.2 (17.6)	- 67.5 (26.5)	32.8 (14.9)	1.10 (1.08)	-	19.2 (4.1)	.949	1.97
'000's of workers involved	- 9.94 (26.41)	- 64.6 (31.0)	37.6 (22.3)	1.20 (1.61)	-	4.4 (6.1)	.674	2.07
'000's of man days lost	348.6 (497.8)	-1568.6 (746.7)	1246.5 (420.4)	45.0 (30.5)	-	-63.8 (115.8)	.706	1.71

Table VII. 4 Estimated Regression Coefficients for Economic, Organizational and Political Determinants of the Number of Strikes, Workers Involved and Man Days Lost for Canada and United States by O.L.S. Estimation for 1949 - 1971.²⁰

This paper again shows that strike frequency, even when applied to a theoretical framework, provides the best results. If t-statistics were to be tested here, one would quickly notice that only wages is significant in Canada for all three examples, and that the sign of the coefficient would be negative in all three cases. And it is the man days lost model that is most significant for this study.

2. Hibbs (66) in his model utilizes the same premise as this study in that strikes are measured by man days lost. Although the main intention of the Hibbs paper is the development of a number of theoretically plausible statistical models to explain short term fluctuations in strike volumes.²¹ For the purpose of the study Hibbs' strike volume index will be analyzed as well as his examination of post World War II strike trends.

Hibbs' strike volume (SV) is

$$\begin{aligned}
 \text{SV} &= \text{Man days lost per 1000 wage and salary workers}^{22} = \text{Frequency} \times \text{Duration} \times \text{Size} \\
 &= \frac{\text{Strikes}}{1000 \text{ workers}} \times \frac{\text{Man days lost}}{\text{Striker}} \times \frac{\text{Strikers}}{\text{Strike}},
 \end{aligned}$$

and this is the same statistic that can be found in Table 5.1 and 5.2 of this study. Hibbs' says that this volume would be useful in developing the statistical models to explain short-run post war fluctuations²³ because what is needed is a single²⁴ series that capture the act damage or impact of strikes.

Hibbs study of the ten countries, five of which are in this study indicates that between 1950 and 1969 the level of industrial conflict, as measured by his strike volume, has been declining. However any assumptions or explanations that Hibbs has offered for the trends must be considered obsolete given the trends that developed during the 1970's and earlier 1980's.

This Appendix has offered some insight into the many articles that have been written into the relationship between strikes, economic activity and the collective bargaining process. The simplistic model developed for this purposes of this study has been constructed along the lines of Ashenfelter and Johnson, Pederson and Paldam, Vanderkamp, Walsh, Skeels and Bentley and Hughes. This model has neglected the theoretical implications that several variables could have on the formation of one variable being utilized to explain a particular relationship.

It is important to note that the theoretical explanations and assumptions do allow for a more logical development of the reasoning for this particular analysis in the context that one equation must be universally applied to eight different countries. The theoretical assumptions and explanations that have been utilized in the models by Shorey, Davies, Hibbs, Snyder, etc have all been applied to one particular country and could not be applied to another country without significant modifications.

Notes

- John Vanderkamp, "Economic Activity and Strikes in Canada," Industrial Relations 9 (February, 1970), p. 215.
2. Ibid.
 3. Ibid, p. 218.
 4. Ibid, p. 228.
 5. William Walsh, "Economic Conditions and Strike Activity in Canada," Industrial Relations 14 (February, 1975), p. 45.
 6. Ibid, p. 53.
 7. P.K. Edwards, "Time Series Regression Models of Strike Activity: A Reconsideration with American Data," British Journal of Industrial Relations (November, 1978), p. 320.
 8. Ibid, p. 330.
 9. John Skeels, "Measures of U.S. Strike Activity," Industrial and Labour Relations Review 24 (July, 1971), p. 521.
 10. Ibid, p. 522.
 11. Ibid, p. 524.
 12. Phillip Bentley and Barry Hughes, "Cyclical Influences on Strike Activity: The Australian Record, 1952-1968," Australian Economic Papers 9 (Number 2, 1970), p. 150.
 13. Ibid, pp. 160,162,165.
 14. Ibid, p. 164.
 15. John Shorey, "Time Series Analysis of Strike Frequency," British Journal of Industrial Relations 15 (March, 1977), p. 63.
 16. Ibid.

17. Ibid.
18. Ibid, pp. 63-64.
19. Robert Davies, "Economic Activity, Incomes Policy and Strikes: A Quantitative Analysis," British Journal of Industrial Relations 17 (July, 1979), p. 205.
20. David Snyder, "Early North American Strikes: A Reinterpretation," Industrial and Labour Relations Review 30 (April, 1977), pp. 335,339.
21. Douglas Hibbs, "Industrial Conflict in Advanced Industrial Societies," American Political Science Review 70 (December, 1976), p. 1033.
22. Ibid, p. 1035.
23. Ibid.
24. Ibid.

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