

**AN INVESTIGATION INTO THE DETERMINANTS OF UK
STRIKE ACTIVITY IN THE POST-WAR PERIOD: A
THEORETICAL AND EMPIRICAL ANALYSIS OF FOUR
SELECTED INDUSTRIES WITH LESSONS FOR
AGGREGATE STRIKE PATTERNS.**

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ABSTRACT

A major part of this study is a test and extension of the work of Durcan, McCarthy and Redman on post-war strike activity in the UK. It begins with an appraisal of their approach and conclusions. The model developed in Section I builds upon these but has at its core a concern with management and worker attitudes, and like the Durcan, McCarthy and Redman study, with the capacity to engage in strike activity. In Section II, the operational form of this model is developed and is then employed in Sections III and IV to account for variations in strike activity at the broad industry level, and in four detailed industry studies, metals, shipbuilding and marine engineering, motor vehicles and coal-mining. Sections II and IV constitute the main empirical tests of this model and of the factors hypothesised to have an influence on longer-term movements in the main dimensions of stoppage activity. The longer-term movements in strike activity at the industry level are argued to be linked to broader political and economic changes and particularly to phases of industrial growth and development and to movements in the elements of the industrial circuit of capital. Critically, the study emphasises the importance of managerial responses to changes in stages of industrial development and to contradictions in the industrial circuit of capital for increased volumes of strike activity.

The empirical results confirm the findings of other writers with regard to the limitations of economists' analyses of strikes but raise additional concerns about the usefulness and appropriateness of some of the variables they and writers such as Cronin have employed. Whilst the study confirms the role of aggregate economic influences, particularly since the early 1970s, the industry studies support the critical role of organisation in strikes, together with more localised and industry-specific factors, notably product market changes and the ways these are interpreted and acted upon by the parties. It is these product market factors and how managers in particular respond to them, together with the role of governments, which are seen as critical in their effects on strike activity, and which most clearly distinguish this study from other accounts of strikes. In the context of government, the study confirms recent work on the impact of legislation in reducing strike activity since the mid 1980s but suggests that policies followed by governments towards public corporations have had a more general impact on their industrial relations and strike patterns which have particular relevance to longer-term movements in strike activity. In addition, it identifies other, previously neglected factors which have affected the strike activity in each of the industries studied.

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INTRODUCTION

The original impetus for this study was the publication in 1983 of Durcan, McCarthy and Redman's work, *Strikes in Post-War Britain* (hereinafter referred to as DMR) which presented an analysis of aggregate strike activity for the period 1946 to 1973. The incentive to re-visit and re-appraise their work was prompted by the belief that it offered a particularly thoughtful and considered view of strike patterns which merited further analysis, and extension beyond its original period of study. A further consideration was the view that its analysis has not received the attention it deserved, its value being seen more in terms of its periodisation of strike activity (Hyman, 1987) and defence of the role of collective bargaining (Batstone, 1988a) than in its contribution to a greater understanding of the factors affecting strike patterns. In part this has been a consequence of its over-concern with dissecting strike statistics (Edwards, 1984), its methodology and its largely inductive, ad hoc explanatory approach. Whilst these are serious issues they do not negate the fact that DMR identified a number of important factors contributing to strike activity which could be examined further within a clearer framework which incorporated some predictive ability.

The main elements of DMR's approach, together with the main weaknesses and criticisms of their work, are discussed in more detail in Chapter 2. In the remainder of this Introduction the aim is to provide a further justification and defence of another study of strike activity and to give an overview and critical appraisal of previous studies of strikes and to establish the ways in which the current work builds upon and departs from these earlier studies.

In addition to extending and revisiting the work of DMR it is necessary to justify another study of aggregate and industry strike activity for a number of reasons. First, because a multitude of detailed and informed studies exist already and new data sources have produced a wealth of new material and studies to verify or reject causal factors at a workplace and bargaining unit level (Blanchflower and Cubbin, 1986,

Ingram et al. 1991, Metcalf et al. 1993, and Edwards, 1992 for a general survey). Second, in the context of declining strike activity in the UK and other 'developed economies' since the late 1970's, the issue of industrial conflict generally, and of strikes specifically is not viewed as an important issue in employee relations to the extent they were in the recent past. Third, and relatedly, increasing academic and practitioner concerns with HRM, organisation culture and new forms of employee involvement have tended to render the study of strikes rather passé. Furthermore, the prevailing ideology, which treats behaviour such as striking as increasingly deviant and aberrant when organisations are trying to build more consensual relations, would tend to dismiss studies of conflict as at best irrelevant and at worst threatening.

In justifying the current work it should be stressed that industrial relations, in common with other branches of the social sciences testify to the dangers of crystal ball gazing (see McCarthy, 1972 and more recently Leadbetter, 1987) and predictions of the inevitability of declining conflict are hardly new. The debate on the 'withering away of the strike' that followed the publication of Ross and Hartman's work and that which surrounded the 'end of ideology' (Bell, 1956) and 'incorporationist' theorists (Dahrendorf, 1959) generated arguments that have a familiar ring today. However, many would argue that the similarity ends there, stressing the real differences in economic and political conditions in advanced capitalist economies from those that existed in the 1950s and 1960s (Lash and Urry, 1987) and citing the increasing influence of Japan and Japanese techniques of production at the ideological level (e.g Wickens, 1986, Oliver and Wilkinson 1988), and the American experience in the 1980s as a system model for the new industrial relations (Kochan et al. 1986, Beaumont, 1987). Before turning to examine how a study of strikes might still have relevance in this new paradigm it must be stressed that strikes are not in decline everywhere and a further study might have considerable value in the context of newly industrialising countries (NIC's) and parts of Eastern Europe where they appear to be on the increase. As Edwards (1992) has noted;

Even if HRM eliminated conflict in the advanced capitalist nations, the global extent of a shift to commitment would be highly questionable. (p.365).

Within the context of 'developed' economies, HRM and 'new industrial relations' emerged out of the perceived need for managers in an increasingly competitive and uncertain world to be able to utilise a flexible workforce, divided between core and peripheral workers (Handy, 1984, Atkinson and Meager, 1985, 1986) with organisations seeking commitment from the former through attractive reward packages and individualistic strategies of employee involvement to adapt to the changing exigencies of markets. Moreover it is argued that the companies that embrace many of these elements are frequently more successful than others and that of these, it is non-union companies that are increasingly the role models for other companies, with attendant implications for trade union organisation and stoppages (Bassett, 1986, Beaumont, 1987). Although there is considerable debate over the extent to which many of these are truly novel developments (MacInnes, 1987), whether they constitute a strategic approach to HRM (Pollert, 1987, Hakim, 1990) and the extent to which some have been sustained, as well as theoretical and methodological questions surrounding certain research (Pollert, 1987, Guest 1990, 1991). There is little doubt many of these developments and trends have gathered pace, particularly within the UK in the second half of the 1980's (Millward et al. 1992). However, taken together they do not negate the value of studies of industrial conflict. As Gallie (1978) noted, such changes in the context of an industrial relations system can have very different effects at the level of social integration, and strikes still occur in most industries and regions in the UK (Edwards, 1991) and are increasing in some sectors, notably public services.

Of greater theoretical importance is the place of conflict within the employment relationship. Whilst co-operation and conflict may co-exist in the workplace (Edwards, 1986), conflict is structured into the employment relationship although debate exists as to the structural bases of conflict. This is not the same as saying that strikes are an ever present possibility within industrial relations (cf. Batstone et al. 1977, 1978), as conflict may express itself in different forms, and action such as striking may not be a credible or effective option for certain workers (Edwards and Scullion, 1982) but the nature of the employment relationship ensures that a basic conflict of interests exists, even though that may rarely manifest itself in open

conflict. If this point is accepted, organisations, their owners and managers have a generalised interest to minimise conflict or the threat of it, and so ways of reducing strike activity or preventing it are attractive to them. A study of strikes, by attempting to unravel their determinants, potentially offers managers a greater insight into strike processes and can generate policy options to help minimise strikes and their effects (e.g Metcalf et al., 1993).

It should also be stressed that recent initiatives in HRM in the UK have been introduced against a backcloth of high unemployment, declining trade union membership and a more restrictive legal framework, which have weakened workers' bargaining power and contributed to declining levels of strike activity (Brown and Wadwhani, 1990, Edwards, 1992). These contexts have clearly made it easier for managers to manage enterprises and implement change and pay less attention to the possible threat of industrial action. However, in the event that the contexts alter in the workers' favour more managers may again need to take the threat of strike action much more seriously, and studies which offer a greater understanding of causal factors in strike activity become of greater value. In this context the issue of managing change is particularly important. As it is unlikely that the requirement for organisations and their members continually to adapt and respond to market requirements will diminish in the near future, particular attention will need to be paid to how change is managed. Given the structural bases of conflict, if bargaining power changes, the willingness and ability of workers to challenge the substance and manner of work changes may increase and encourage managers to devote more attention to the processes by which changes are developed and implemented in order to avoid overt conflict arising.

The issue of strike activity clearly has additional importance at the public policy level. Implicit in the discussion above has been the issue of the costs of strikes for the parties concerned, a point returned to below, but at the aggregate level these costs may well be far greater than the strike statistics themselves suggest. Although calculations based on working days lost have suggested that strikes have cost in total less than 0.1 % of working time between 1946 and 1973 (DMR, 1983) there has been

an increasing body of opinion which has believed that this seriously understated the extent of the true costs. This group became more influential in the 1970s and 1980s basing their argument on the view that, as well as involving costs for the parties directly involved, they imposed significant external costs on third parties, notably the general public through disruption and secondary action (Inns of Court Conservative and Unionist Society, 1958, Conservative Party 1968, DE 1983), and on the perception of the UK abroad thus affecting both inward and outward investment.

The issue of investment flows has assumed particular importance in recent years. The UK's ability to attract foreign investment has been brought into sharper focus in the context of European integration and its possible effect on inward investment partly explains the antagonism towards the Social Chapter from government and sections of industry. Furthermore, the market context facing many organisations places an even higher premium than in the past upon ensuring continuity of production, particularly where 'just-in-time' production systems are operating or being considered. Although the industrial relations climate is only one of a number of factors relevant in a decision to locate in a particular national or regional context, and frequently not the most important factor (Wickens, 1987), clearly a wish to avoid disruption to production has been a consideration for organisations in location decisions (Bassett, 1988).

At an organisational level, the assumed costs of industrial action have been a factor behind the emergence of 'no-strike' deals and the view generally that strikes are an inefficient means of achieving results (Gennard, 1981, Metcalf et al. 1993). Whilst this may be true in general, recent work suggests that strikes may often pay for workers (Metcalf et al. 1993) and that, as evidence from studies of the closed shop indicate, workers ability to pose a credible strike threat may ensure that pay is higher than it would otherwise have been (Stewart, 1987).

The issue of 'no-strike' deals merits further discussion. In important respects it reflects a focus amongst some economists that strikes are analogous to accidents (Hirsch and Addison, 1986, Kennan, 1986, and discussion below) and that the

provision of more accurate information shared between the parties should substantially reduce the likelihood of industrial action occurring. This would have more validity if strikes were random events distributed as such across the economy, but we know that strikes are heavily concentrated in certain sectors and regions and within these, in specific plants (Evans et al. 1978). Where a plant is experiencing around 700 strikes a year (as Chrysler's Ryton plant was in the late 1970s, Thoms and Donnelly, 1985), it would seem to be stretching credibility to view each of these as an accident. A more useful exercise, would be to appreciate the complexities of such situations in terms of context, culture, the structure and nature of workplace relations and the labour process, the role of management, unions and shop stewards in order to develop policies which may be of more lasting benefit to the organisation and the parties involved. The point here is that in such contexts, strikes are clearly perceived as 'paying', underpinned by relations of low trust (Fox, 1973, 1974, Waddington, 1987). Whilst a more open sharing of information might be expected to go some way towards establishing trust, in the short-term such an initiative is likely to be viewed with considerable suspicion (see Waddington's, 1987, description of the experiences at Ansell's brewery in the early 1980's). Assuming that it is possible to establish a climate of co-operation rather than conflict in such a situation, the ways forward demand a more considered understanding of the dynamics of the situation than that offered by 'accident' theorists and advocates of 'no-strike' deals.

These factors taken together do suggest that the significance of stoppages is considerably greater than their numerical importance, and the costs associated with them, would suggest. In addition, the increasing globalisation and hardening of product markets mean that the potential costs of industrial action are significantly higher than they have been in the past, further increasing the incentive to avoid industrial action (Kelly 1987).

A final impetus to undertake a further study of strike activity is the sense of dissatisfaction with existing studies of aggregate and industry strike patterns. The remainder of this Chapter is therefore devoted to a critical assessment of previous analyses of strikes, from which the main elements of an alternative approach are

developed. This argues overwhelmingly for a multi-disciplinary framework which recognises the importance of the attitudes of both employers and employees and which gives adequate regard to the role of effective organisation in shaping and mobilising action.

Given the enormous variety of studies on strike activity, what follows is not intended to be a comprehensive overview of individual studies. Rather, the focus is upon a selection of studies which emphasise the essential characteristics of approaches from specific disciplines. It begins with a critical assessment of accounts of strike activity developed by economists.

ECONOMIC APPROACHES

The starting point for economic analyses of strikes is considered to be Hicks's (1963) work. Hicks assumed that those involved in negotiations would be equally well informed about the other's willingness to concede (in Hicks's terms, the position and shape of the respective concession curves), and that in consequence no strike would take place. In the event that it did occur, this would be the result of an 'accident' (Addison and Siebert 1982) or the result of faulty negotiations as, *ex post*, all strikes are pareto inferior, although Hicks conceded that in the long-run strikes might occur simply to reinforce the credibility of a strike threat. The clear implication of this work is that if the parties adopt rational behaviour, strikes will not occur, they are a hazard of the collective bargaining process and do not pay. Those that do occur are therefore the result of irrationality on the part of one or both parties. At the level of theory this encounters a major problem. As Kaufman (1980) has shown, strikes can occur despite rational behaviour by both parties. Studies of negotiations have shown if either party moves too quickly towards an eventual settlement it may cause the other side to increase its demands and more generally the approach ignores many of the complexities and functions of the negotiating process (Stephenson and Brotherton 1987). In addition, strikes may be an important means of providing information, helping to revise expectations about pay and other demands very quickly, particularly as both sides may have an incentive to lie about the position of their respective concession curves.

Subsequent work, building upon Hicks' seminal work has focused upon strikes as 'accidents' (see below) and on strikes arising as a result of asymmetric information (Reder and Neumann 1980, Booth and Cressey 1989) where strikes are viewed as the result of rational actions in a world of asymmetric and imperfect information (Edwards 1992). Although the latter focus is a positive development on from Hicks, the work of accident theorists contains serious problems at both theoretical and empirical levels. In the first part of this Introduction it was stressed that if strikes were the result of accidents then they would be randomly distributed across industries (Geroski and Knight 1985, cf Hirsh and Addison 1986) and that empirically, they are heavily concentrated in a few plants in a small number of industries. Rather than suggesting that these plants have a high percentage of faulty negotiations or accidents, a more satisfactory inference might be that stoppages are seen as an 'accepted' part of industrial relations in these situations and as a legitimate and effective means of achieving objectives, at least in the short term. Additional problems encountered by these approaches and those of economists more generally include a frequent unwillingness to take account of the ability of groups to undertake strike activity (organisation) or the structure of collective bargaining. The importance therefore of trade unions, and divisions within and between them as well as changes in collective bargaining institutions are effectively ignored. Overall, in these approaches, if the parties adopt rational behaviour, it is difficult to see why strikes begin at all, and difficult to reconcile the observed pattern of strikes with the theories.

A second and highly influential approach offered by economists is the 'political' model developed by Ashenfelter and Johnson (1969). This approach follows Ross (1948) in assuming three parties in the bargaining process rather than the customary two, distinguishing between union leaders and the rank and file on the workers side, although in practice this distinction makes little difference to the model (Hirsh and Addison 1986). Unlike 'accident' approaches it is framed in terms of the probability of a stoppage occurring (Edwards 1979) which is assumed to depend on the union concession curve facing the firm. The firm is assumed to attempt to maximise the present value of its future profit stream and will choose the optimum trade-off between profits foregone during the strike and the increased costs after a strike so that

the firm calculates the profitability of a strike to itself. The model relies upon asymmetric information, rather than using different information to construct estimates of the other's concession curve (Mauro 1982). Furthermore, it always assumes that one party is irrational (Edwards 1979), that strikes are always caused by the union side, are solely concerned with wages and that one side attempts to maximise subject to given behaviour by the other. Overall, a strike is more likely, the higher the union's minimum acceptable percentage wage increase and the lower its rate of concession.

The Ashenfelter and Johnson approach has serious weaknesses at both a theoretical and operational level in addition to those noted above. Theoretically, it is unsatisfactory to reduce worker expectations to a concern solely with pay (as with other economists approaches) and to assume that all stoppages are concerned with this. More significantly the approach is located at a micro level, and arguably cannot be tested using aggregate data (Edwards 1978), as an aggregation problem may result which biases the coefficients. The operational forms of the model often differ substantially from the underlying theoretical formulations (Edwards 1978) where the variables employed can stand for a number of theoretical measures so that a significant identification problem arises. In addition the dependent variable employed is normally the number of stoppages and it is debatable whether this is the measure which is most appropriate to test given the theoretical formulation (DMR 1983). The independent variables are normally a lagged wages term together with those for aggregate unemployment, prices (unless real wages are used) and profits. Although the empirical tests have been very successful (Ashenfelter and Johnson 1969, Pencavel 1970, and for the variables but not the model by Knight 1972, Bean and Peel 1974, Shorey 1977) the results for Britain are not stable over time (DMR 1983) and are poor predictors of strike activity beyond the 1950-1967 sample period which they tend to examine (Moore and Pearce 1982), and for earlier periods (Cronin 1979). Indeed Snyder (1975) has argued that economic approaches generally only tend to work where institutions are stable. Overall, Pencavel's results and those of the Ashenfelter and Johnson model are sensitive to empirical specification and the sample period chosen.

A further weakness is that operationally, the empirical tests normally employ a time trend which is significant and strongly related to strike activity. As Mayhew (1979) has argued, this may be telling us little other than that stoppages increase over time particularly in view of the contribution this term makes in conjunction with seasonal dummies to both aggregate and certain industry results of stoppage numbers in Pencavel's work and in subsequent tests (Pencavel 1970, DMR 1983).

Pre-dating the Ashenfelter and Johnson work, but along with Hicks providing the basis for much of the theoretical basis for economists approaches is the work of Rees (1952) on the relationship between strikes and the business cycle. Much of the recent work on strikes as a result of asymmetric information originate from this perspective and have undergone something of a revival in recent years with the availability of data on individual negotiations in Britain and the USA (Gramm 1986, 1987, McConnell 1989, Vrooman 1989, all North American studies cited in Edwards, 1992) (Booth and Cressey 1990, Ingram et al. 1991). In its original formulation Rees argued that strikes would vary with the business cycle, (as would the number of bargaining units and the scope of strikes) being greater in number at the peaks of cycles because at these points the expectations of workers and employers would be furthest apart. Mayhew (1979) has further argued that the cycle would also affect those variables determining the size of the original demands of the parties and the forcefulness with which they would stick to their original positions. In themselves these factors would not explain why strikes occur if perfect knowledge existed, in order to underline the importance of imperfect knowledge the approach has to show that the likelihood of mistakes arising would be greater in boom periods than in recessions, an explanation for which has been offered by Mayhew (1979).

As with the other approaches Rees's work suffers from a reductionist view of worker concerns and a failure to take adequate account of worker organisation, although its focus on stoppage numbers is arguably more appropriate than other measures of strikes and it has the advantage of emphasising the importance of the structure of collective bargaining and the attitudes of the parties to the machinery. The major study of Rees's work has been that of Mayhew (1979) using CBI business forecasts

which gives considerable support to the underlying approach. However, recent work has cast doubt on aspects of a business cycle approach to strike activity. In most formulations movements in business activity are proxied by means of an unemployment term, but as Brown (1973) has shown (also Brown and Nolan 1988) this does not capture the cost of job loss to those in employment, although alternative formulations of this cost have been developed and applied with some success in the USA (Schor and Bowles 1987). Similar problems have also beset the use of profit terms in the operational forms of the approach (Ingram et al. 1991) but further refinement of this and other variables coupled with micro-level data have shed considerable light on contributory factors in strike dimensions at this level (see summary in Edwards 1992, p.369) and ensure continued interest in these approaches.

The final economic approach considered here is that which focuses upon the labour contract. This approach has developed from 'transaction cost economics' (Williamson 1984, 1987) and attempts to model the conditions which will influence the observance or non-observance of contracts and the extent to which individuals have an incentive to act opportunistically. As Edwards (1992) has argued this approach has the merit of avoiding viewing conflict as 'accidental' as it links more with sociological concerns of conflict being structured into the employment relationship as well as placing stress upon conflict as a result of imperfect information. A further benefit is that it addresses issues at the heart of the employment relationship and the factors affecting contract obligations and compliance.

Currently, only a limited number of studies have used the approach to analyse strikes (Robertson 1990) but it has potential for further studies of workplace strikes and conflict more generally. At a theoretical level it retains the weakness of other economic approaches in viewing conflict as always initiated by workers, and although incorporating aspects of the social organisation of work in contrast to other economists accounts, the nature of the employment relationship is incomplete and misunderstood (Edwards 1992). As Edwards has argued further there is a tendency to stress a managerial concern for efficiency with little acknowledgement that conflict could be more basic than the concept of opportunism could allow.

In summary, economic approaches offer an insight into the determinants of short-run variations in strike activity and a plausible account of why strikes occur rather than their being alterations in the original positions of the parties. However, their tendency to view strikes as general phenomena, and limited attention to trade union organisation and collective bargaining ensures that their value lies more in having identified a number of background variables which influence the attitudes and expectations of the parties to the negotiations and possibly their frequency (DMR 1983), but only in situations where workers have the organisation (ability) to translate grievances arising from economic factors into action.

INSTITUTIONAL APPROACHES

The analyses of strike activity in the 'institutionalist' tradition have a number of distinguishing characteristics. Overall, their focus is more on the form that strikes take rather than their frequency (Kelly and Nicholson 1980), and this in turn is the result of the primacy placed upon the structure and system of collective bargaining in explaining strike patterns. This concentration on collective bargaining as a means of containing conflict as well as its form has been a feature of analyses of stoppages since Knowles' (1952) work. Knowles stressed the importance of general economic factors in accounting for short-run strike movements but argued that these were less pronounced in the UK than the USA due much to the development of effective joint industrial machinery in the UK. However, it was in his study of inter-industry differences in stoppage activity where the efficacy of collective bargaining machinery was emphasised, particularly in the case of textiles and transport. Similarly the work of Ross and Hartman (1960) stressed the importance of collective bargaining structures on long-run strike patterns and this work, together with that of Turner et al. (1967) had a significant influence upon the thinking and recommendations of the Donovan Commission's view of Britain's strike problem. One member of the Commission, Hugh Clegg, subsequently developed a theoretical rationale for Donovan's view on strikes which also encapsulates most of the salient elements of the institutional approach (Clegg 1976). This work is examined in more detail below.

Although Clegg (1976) was not exclusively concerned with strikes he devoted a chapter to strike patterns and their link with the structure of collective bargaining in six countries. Given the particular institutionalist interest in strike form, Clegg focused mainly upon size, length and status of strikes (whether official or unofficial, constitutional or unconstitutional) as well as their frequency. From an examination of strike patterns in the six countries he concluded that the strike pattern was closely associated with the structure of collective bargaining and that the nature and level of bargaining was the major determinant of strike numbers, size, locus (plant, industry) and status over the long-run. According to Clegg, short-run variations in these dimensions owed more to economic and political factors, notably changes in real incomes, the operation of incomes policies and links between trade unions and the government (the latter a central element of Ross and Hartman's work), although in his later work (Clegg 1979) these are expanded to include unemployment, inflation and trade union growth.

The approach is refined further in a revision of his major work (Clegg 1979) and applied to the industry level. One development of note is the link between the causes of stoppages and the level of bargaining. Thus, in studies of pay stoppages, he suggests a link between bargaining levels and the nature of the payments system, with the former determining;

the points at which pressure for pay increases can be most effectively applied and therefore exerts an influence over the pattern of strikes (Clegg 1979, p.272).

Although he conceded that in certain industries piecework exerted an independent influence upon stoppages. He then applied this to account for strike activity in coal mining and three other strike prone industries of the 1950's and 1960's, citing the effectiveness of the 1966 National Powerloading Agreement and the district agreements which preceded it as contributing significantly to the decline in strike activity within the industry.

Clegg's work offers a long run theory of strike patterns which focuses upon a selection of variables but stresses the system of collective bargaining as the main explanatory factor. Its generality making it sufficiently flexible to be applied at different levels of aggregation, a feature of other 'institutionalist' accounts of strike patterns (DMR 1983). However, a number of significant problems arise with Clegg's approach, specifically its empirical validity and its status as a theory.

At a general level it is a structural explanation of stoppages with little account of workers as actors in the drama, and by ignoring attitudes and consciousness omits some of the most important insights of sociologists in this area (see below). In its concern with long-run movements it also comes close to being a single factor explanation of strike patterns, particularly at the aggregate level, and others have doubted its status as a theory on the grounds that it does not produce clear refutable hypotheses. This latter criticism is less valid. In his (1976) work, Clegg outlines some of the implications of his work which in principle are testable. Where Clegg's critics have a point is in arguing that the tests of his theory are difficult because it views collective bargaining as the key factor in accounting for strike patterns only when the economy is stable, Clegg himself cites the period 1950-1965. Beyond this point short-run factors are assumed to have dominated (which are not part of the theory) and swamp the effects of collective bargaining so that the sample size for longitudinal testing of the approach is limited. A further problem of Clegg's approach is its inability to acknowledge, and therefore account for, strike waves which are viewed either as 'discontinuities' or the result of institutional breakdown.

Two further problems remain with Clegg's work. First, his emphasis upon collective bargaining procedures and procedural reform gives insufficient attention to the role of substantive issues. As DMR (1983) have argued, the reform of procedures without an attempt to address the underlying sources of conflict (assumed to be substantive issues) might have little effect upon reducing levels of strike activity. Second, correlation is not causation, and merely identifying a relationship does not tell us the direction of that relationship.

SOCIOLOGICAL APPROACHES

In contrast to the approaches discussed above, sociologists have tended to focus more directly upon industrial conflict rather than strikes per se (Eldridge 1968, Edwards and Scullion 1982), and with variations in strike proneness between industries, firms, workgroups, regions or nations (Hyman 1984). However, in contrast to the work of psychologists, where the concern is frequently with the perceptions the parties hold of each other (Waddington 1987) sociological studies tend to be united by a focus upon worker attitudes and consciousness; differences in the propensity to conflict of groups of workers and the relationship between these and aspects of the social and organisational structure (Kelly and Nicholson 1980). In spite of these unifying themes, these approaches (summarised by Hyman 1984) differ significantly in the factors they identify as causing strikes or accounting for variations in strike proneness. The remainder of this section concentrates on three sets of concerns for sociologists which have particular relevance for the current study.

Workers, Jobs and Communities

One important strand in sociological work on strikes has been the focus upon worker characteristics and community integration, most associated with Kerr and Siegal (1954). According to Kerr and Siegal, different types of worker have different strike propensities because of variations in the communities in which they live. Groups with a high propensity to strike are seen as constituting an isolated mass. This term has been the subject of much discussion and criticism since their study (see below), but for Kerr and Siegal it referred to workers who constituted a largely homogeneous and undifferentiated group who, because of living in separate communities with their own codes and social standards, failed to integrate into the wider society and remained isolated from other workers and social superiors, (In Lockwood's (1966) terms, such workers represent the 'traditional proletarian' holding a power model of society). In contrast, workers living and working in socially and industrially integrated towns were assumed to be less strike prone.

Kerr and Siegal argued further that the character of the job 'determines by selection and conditioning the kinds of worker employed and their attitudes and that these in

turn cause conflict or peace'. Thus, 'if a job is physically difficult and unpleasant and fosters an independent spirit it will draw tough, unconstant, combative and virile workers and they will be inclined to strike'. Although they stressed the role of background factors influencing the behaviour of individuals in individual industries they argued that the bulk of the differences in industrial strike propensities were due to the nature of the industrial environment and its tendency to direct workers into isolated masses or integrate them into the wider community. The emphasis throughout is upon the ways in which the community shapes workers collective consciousness and their attitudes towards striking (Cronin 1979).

A similar emphasis is discernible in Lockwood's (1966) typology of workers, where work and community relationships are seen to generate particular forms of social consciousness and affect the propensity to engage in conflict, an approach which later found expression in the 'Affluent Worker' studies (Goldthorpe et al. 1968).

Although extremely influential, and superficially plausible the Kerr and Siegal work has encountered many problems at theoretical, operational and empirical levels. First, theoretically it is a structural analysis which sees human behaviour as mechanically determined by the social structure, a fixed pattern of behaviour is called forth by a particular structural situation (Hyman 1984). This necessarily leads to a neglect of the ways in which the workplace may have an impact on attitudes and behaviour (Daniel 1969). In addition, by constituting a single factor explanation of strike activity it does scant justice to the complexity of social reality (Hyman 1984), ignoring all the influences on attitudes and behaviour which derive from the wider society.

Operationally, one of the problems in testing the approach has been modelling the concept of an 'isolated mass' (Edwards 1977) although recent work has made some progress with a degree of support for the thesis (Church et al. 1991). However, it is empirically that the approach reveals its major weaknesses. First, whilst it was developed to account for cross-sectional strike patterns, when applied to stoppages over time, the analysis is less convincing. Whereas the approach is static as social

structures change relatively slowly, the inter-industry propensity to strike is not. Second, despite its attempt to explain why groups such as mineworkers and dockers have been traditionally strike-prone it is notable that miners were not noticeably more strike prone than other groups before 1920, dockers only increased their militancy after 1945 and industrial strike-proneness varies between regions (Knowles 1952). Third, it is difficult to see how the concept of an 'isolated mass' and the approach generally can be reconciled with the evidence on the increasing militancy of teachers and other public sector workers.

It is also notable that these problems apply more generally to a number of sociological studies of industrial strike activity. Largely structuralist approaches that have examined the role of technology (Walker and Guest 1957, Chinoy 1955) and organisational structure (Gouldner 1954), have frequently viewed these factors as determining behaviour and become little more than single factor explanations of complex phenomena. This is not to argue that these factors are not important in explanations of strike activity, rather that they need to be seen alongside other influences and within the broader organisational and societal context in which they are situated.

Labour Process Approaches

Since the publication of Braverman's (1974) work sociologists have increasingly turned their attention to analysis of the labour process (Nichols and Beynon 1977, Burawoy 1979, 1985, Wood 1982, Thompson 1983, 1990). The link with patterns of conflict is more recent, principally the work of Gordon, Edwards and Reich (1982) for the USA, and at a micro-level, Edwards and Scullion (1982) for the UK, and it is the latter work which provides the focus for discussion here.

Edwards and Scullion examined the labour process in factories covering four industries and the forms of conflict associated with each. Their central point is that although conflict is structured into the labour process (the process by which labour power is translated into effort) it may remain implicit rather than expressed in an overt form by workers. They then attempted to ascertain the extent of conflict, latent

and manifest through an examination of underlying worker attitudes. Edwards and Scullion found that forms of conflict (e.g strikes, overtime bans, turnover, absenteeism) varied according to the control exercised by workers over the labour process, and in there significance between different contexts. In terms of strike activity they argued that their significance needed to be understood in the context of the struggle for control as a whole and that strikes could not be treated in isolation from this. In some factories a lack of collective awareness and the location of the frontier of control meant that certain sanctions did not and could not exist (Blackburn and Mann 1979). In contrast to the view of the 'toolbox theory of sanctions' (Batstone et al. 1977, 1978), they argued that this was only relevant in very specific work situations, and that the ability to deploy such sanctions rested upon the structure of the situation at any moment in time. The importance of their work therefore, lies in the elevation of the labour process as providing a grounded explanation of why particular sanctions occur in some settings and how these relate to the notion of conflict.

The elevation of the role of the labour process is an important development in understanding the context in which forms of conflict emerge, although there is a danger that this again comes close to a single factor explanation of conflict. Furthermore, Edwards (1981, 1986) has argued that the labour process is relatively autonomous so that product and labour market factors do not determine the nature and form of the labour process that will develop. Indeed, Edwards and Scullion go to some lengths to play down the role of product market factors, despite the fact that in at least one of the factories they studied (the large metals factory) their own evidence appears to confirm the importance of such factors. This evidence may offer some support to the view advanced by Kelly (1982, 1985) that the labour process needs to be located within the broader circuit of capital and that whilst organisations have an interest in control and extracting surplus value, they are also concerned with realising it. Kelly suggests that when contradictions within the elements of the full circuit of capital become severe, for example when the labour process becomes a barrier to realisation and accumulation, product markets may exert a very significant impact upon the labour process. This point is returned to in the following chapters but it is

argued that it is these contradictions and changes to the labour process that derive from these that are likely to generate high levels of conflict, by challenging and undermining established patterns of indulgency and control. The relative autonomy of the labour process may only be a valid notion when external forces are not sufficiently problematic, or perceived as being so by management, to threaten profitability and future expansion. Two further points are relevant here. Lash (1983) has argued that there is little account of the role of technology in influencing the nature of the labour process and the frontier of control in the factories they study which would be valuable in terms of the relationship between product markets and the labour process. A final concern is that it is open to question whether the forms of conflict they consider are all forms of conflict, and whether it is valid or valuable to treat factory discipline, accidents and the allocation of labour as comparable to strikes even accepting that their meaning and significance differs between contexts.

Although sociological studies have frequently been concerned with conflict generally and when they have considered strikes, with a cross-sectional firm or industry level focus, sociologists have done an important service in identifying the bases of conflict and the role of attitudes and organisation as well as the wider context in helping to shape these. The specific studies of strikes within this tradition have major failings, particularly the structuralist accounts, but clearly identify factors which, in conjunction with others may offer a broader understanding of the key factors influencing strike activity.

POLITICAL ECONOMY/HISTORICAL APPROACHES

Political economy approaches developed in the 1970s as a counter to institutional approaches in particular, seeing the latter as focusing upon variables that mediated the effects of more fundamental factors (Edwards 1992). The latter were seen as broader political factors, compromises between employers, trade unions and the state. For the purpose of brevity, this section concentrates upon the work of Korpi and Shalev (1979), and, as an exemplar of the historical approach, the work of Cronin (1979).

Korpi and Shalev provide a cross country explanation of strike trends since the turn

of this century. Their model derives from the experience of Sweden, although it is applied to eighteen countries in all. The essence of the Korpi and Shalev thesis is that where the working class gains strength in the industrial and political spheres and with the election of a stable socialist government (or after many years of such governments, Korpi 1983), the strike weapon is exchanged for the pursuit of their long term interests in the political arena. When such developments occur, they therefore predict a 'withering away' of the strike (Hirsch and Addison 1986). The approach is then applied, and subsequently refined, to other countries, categorised in terms of the level of working class mobilisation and the degree of leftist political representation with some success in twelve of the countries in their sample, although with some serious anomalies, notably West Germany where low strike rates are associated with no political incorporation of the labour movement.

Batstone (1984, 1988a), in a detailed critique of the work suggests that it is flawed in a number of crucial respects. First, that there is little account of the strength of employers and their organisations which is a significant omission in the context of Sweden. Second, despite its claims to be a marxist analysis, it begins from conflict within the production process which is then effectively ignored in the remainder of the work and more seriously from the perspective of the focus of their analysis, there is no account of the nature of the state in capitalist economies. Third, in their empirical work, Batstone suggests that the classification of countries in terms of the level of working class representation is weak, as well as producing some strange 'bedfellows' within each category (Edwards 1983). Furthermore, the analysis for most countries is for the period of Keynesian policy domination, 1946-1974 and suggests that this as well as the impact of war needs to be given some consideration. In addition Batstone argues that the indicators they use to test the theory are not entirely satisfactory. Finally, and most damaging is the view that Korpi and Shalev's empirical data do not support their argument (Batstone 1984, Hirsch and Addison 1986). Even in the case of Sweden the decline in strike activity preceded the election of a socialist government, which as Batstone suggests lends support to the 'institutionalist' thesis rather than their own.

The work of Cronin (1979), has been one of the most important and influential studies of strike activity in recent years and differs in important respects from the previous studies considered here. First, it is an analysis of strikes covering a period of over a century, second, it is a study by a historian and uses as its central focus an historical model of strike activity. Third, it explicitly rejects the view that the history of strikes is one of even development, rather one of strike waves as more characteristic of historical development in Britain.

The cornerstone of Cronin's approach is the use of the concept of long waves in economic development spanning 40-50 years (Kondratieff 1935), with 20-25 years of expansion followed by 20-25 years of slow growth. He argues that it is this uneven character of economic growth that underlies the unevenness of industrial conflict. The effects of this are that workers are confronted with a different complex of problems and grievances at each major economic shift, stimulating a remaking of their consciousness and forms of collective organisation every two to three decades. As a result, strikes change in their incidence, form and context over time and these changes are linked to the nature of the market economy. The resulting strike waves are the manifestation of the new attitudes and strategies produced by the impact of long waves of economic growth on the working class. In essence, Cronin's approach has three components; the uneven character of economic growth and development, the desire/willingness of workers to engage in strike action, and the ability to engage in action, the 'resources of organisation' (Cronin 1979).

More precisely, strike waves are seen as occurring at the end of either phase of a long wave during a short term upswing, with major waves in 1889-92, 1910-13, 1919-20, 1957-62, and 1968-72, periods when both strikes and the number of strikers are high. Recent work by Screpanti (1987) has produced evidence for five countries supporting the concept of strike waves but with timings different to those identified by Cronin. His work suggests that strike waves occur at around the same time in these countries and correspond to downturns in the Kondratieff cycles. Further work attempting to connect long waves with historical reconstructions of key conjunctures in Germany (Boll 1989) and Britain (Cronin 1989) has recently been undertaken with

some success.

Before critically assessing Cronin's work it must be stressed that it raises serious questions about the value of accounts which rely solely upon short-term determinants of strike activity. Furthermore, and in light of Screpanti's work it casts doubt upon the value of aggregate strike explanations which rely upon nation-specific factors and finally, it suggests that the 1980s marked the end of a cycle of growth and decline rather than an inevitable trend towards the withering away of the strike (Edwards 1992). These points notwithstanding a great deal of scepticism surrounds Cronin and other advocates of a strike wave approach. As Edwards (1992) has argued,

'long waves are deep structural features of capitalism, and the linkages between them and specific actions such as strikes are likely to be very complex' (1992, p.364-5).

A further issue is that by utilising the Kondratieff work the theoretical framework only allows for at most, three observations of long waves and five observations of strike waves, and that the years in between the waves vary from five to thirty-seven years. Cronin also appears to be unclear about the role that employers play within the model. In contrast to the work of Mayhew (1979), there is no real statement of the behaviour of firms in the face of changes in the desire and ability of workers to engage in conflict. A more severe problem is that whilst Cronin emphasises that strike activity leads to growth in union membership, his theoretical model stresses the prior importance of union organisation in enhancing the ability of workers to engage in such action. Finally, it is not clear from Cronin's work why grievances are pursued in the industrial sphere and not in the political arena, a view that strongly contradicts the Korpi and Shalev approach outlined above. He also has little to say about what happens in between strike waves, most notably in the period from 1921-1950 which includes not only the general strike but also the period 1944-46 which witnessed an unprecedented increase in stoppage numbers albeit concentrated in coal-mining.

EXPLANATIONS OF STRIKE ACTIVITY: SOME GENERAL POINTS

The aim of this section is to summarise a number of key conclusions arising from studies of strike activity and to introduce elements of our own approach which will be developed further in subsequent chapters.

Most of the studies surveyed have had a specific focus, to account for strike patterns or strike numbers, to explain short-run variations or long-run trends, and/or to examine stoppages across industries, regions or countries. Partly as a result of the studies' different objectives and emphases there are few areas of consensus. However, it is generally accepted that economic factors play a significant part in accounting for short term variations in strike activity (Knowles 1952, Ross and Hartman 1960, Clegg 1976, Ashenfelter and Johnson 1969, Pencavel 1970, Mayhew 1979) and in inter-industry differences in the propensity to strike (Cronin 1979). It is also increasingly recognised that Governments play an important role in strike incidence and patterns in the short and long run (Turner et al. 1972, Clegg 1976, Hibbs 1978, Shorter and Tilly 1974, Korpi and Shalev 1979, Cronin 1979, DMR, 1983). A more negative conclusion is that to do justice to the complexity of social life explanations which rely on single factors are unsatisfactory.

The review also suggests that an examination of strike activity needs to take account of a number of additional factors. In particular the attitudes of the parties in industrial relations and the factors affecting these, particularly in the short-run. This involves not just an appreciation of the desires of workers (Cronin 1979), but also employers (Mayhew 1979), and necessitates drawing on the work of sociologists, economists and political scientists in identifying the structural bases of attitudes and the potential changes that may alter these and trigger grievances. A further element needed is a means to channel and activate grievances, the role of worker organisation to turn a willingness to strike into an ability to do so (Shorter and Tilly 1974, Cronin 1979, Edwards and Scullion 1982, Edwards 1982, 1983). Finally, some account of collective bargaining institutions in affecting both the opportunity to negotiate and the form that strikes may take. In the long-run an approach also needs to be sensitive to broader changes in social, economic, technological and occupational factors as well

as institutional changes. This leaves open the potential for wide disagreement on exactly what factors affect the elements we have identified but it does construct the essential elements of an explanation of stoppages. Such an approach also supports Cronin's view that at the outset what is required 'must be above all multi-dimensional, encompassing factors that affect the attitudes and desires of workers and those that affect their ability to translate consciousness into action' (Cronin, 1979 p. 38).

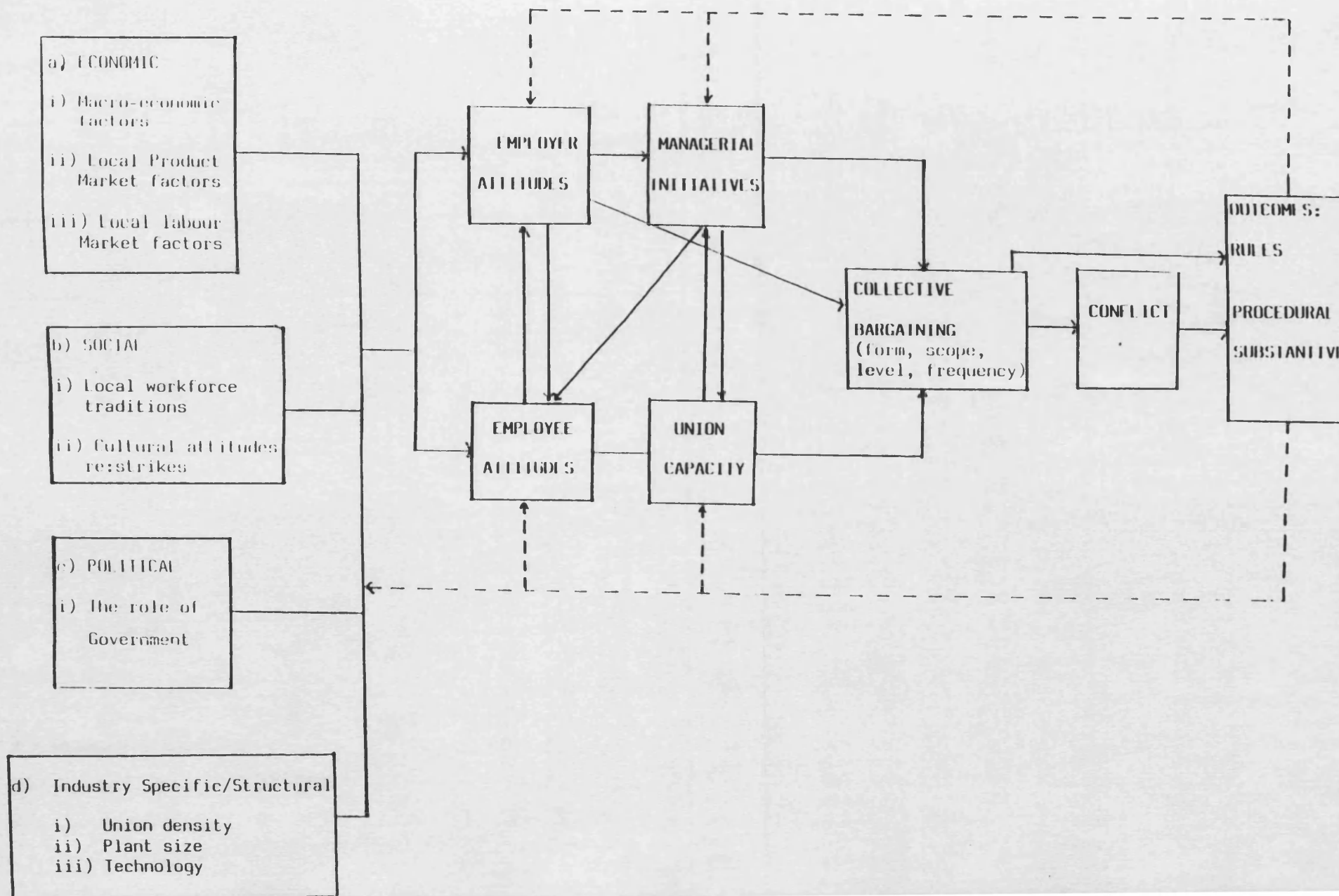
THE DURCAN McCARTHY AND REDMAN STUDY

The Durcan McCarthy and Redman study, is the most recent and, we would argue, the most refined work on strike activity to have emerged from within the 'institutionalist' perspective and both modifies and extends earlier approaches within this tradition. Underlying the study is a framework which borrows heavily from 'systems' approaches in analysing the main dimensions of strikes, although nowhere in the work is this made explicit. Our interpretation of their underlying approach is presented in figure 1 overleaf.

In this section the main methodological approach adopted by DMR is summarised together with the central conclusions of their work, drawing comparisons with earlier 'institutionalist' works. This is followed by a brief synopsis of this study's main concerns with their work before outlining the approach adopted here, developing a model which retains the essential elements of DMR but which, it is suggested, provides a more detailed theoretical framework for analysing strike activity and for testing their general conclusions.

The DMR study is an attempt to explain patterns of strike activity over the period 1946-1973. Their methodology divides up the period into four qualitatively distinct sub-periods and examines trends at the aggregate level by recourse to changes in the three basic dimensions of strike activity - number of stoppages, workers involved and working days lost. This is followed by an analysis of the industrial distribution of strike activity and aspects such as reported cause, regional distribution, duration, size, percentage known to be official and the significance of major stoppages in each sub-period. This constitutes the first part of their work and is essentially a descriptive account of strike patterns.

PRECIPITATING INFLUENCES



The second part of their study is a search for explanations of strikes. DMR begin by examining macroeconomic factors and their association with strike activity but argue that their generality makes them unsatisfactory variables. They conclude that:

The solution would seem to be to combine data at a less aggregated level with a more flexible approach that allows for the interpretation of a wider range of explanatory variables...(so that)...it should be possible to reach more meaningful conclusions regarding the relationship between strikes and changes in the economic environment (p.238).

Macroeconomic variables are therefore seen as background factors which influence strike activity through a number of intermediary variables. To identify these, DMR examine the strike patterns of the three most strike-prone industries in the post-war period in terms of the numbers of stoppages and the more general role of government. The explanatory variables derived from these analyses interact with the macroeconomic factors giving a model which, they argue, accounts for changing strike activity in the post-war period.

The DMR approach is therefore to move from the aggregate to the industry level in searching for explanations of aggregate strike totals and variations in these. Our interpretation of the main variables they employ and their relationship to strikes is formally presented overleaf.

$$S = f[EA, SS, M, P, L, MI, G, B]$$

Where:

S = Number of stoppages in period t

EA = Employee attitudes

SS = Existence of effective shop steward systems

M = Macroeconomic factors

P = Local product market factors

L = Local labour market factors

MI = Managerial initiatives

G = Government initiatives

B = Bargaining structures

Although the approach is developed largely to examine strike numbers, the same variables are assumed to influence other dimensions of strikes including size, workers involved, and length, working days lost. However, the form that strikes take is assumed to be largely determined by the bargaining structures prevailing at the time.

$$S = f[B]$$

Where:

S = Strike form: size, official/unofficial

B = Bargaining structures: notably the level at which bargaining occurs.

The approach adopted is both loose and flexible. Although it is developed to account for changing strike patterns at the aggregate level, it can be argued that the properties of looseness and flexibility allow it to be used at lower levels of aggregation and that this was intended by DMR. The following is a brief summary of their main conclusions.

- a) That strikes develop when union members and officials are capable of undertaking them. With stress placed upon the development of effective shop steward systems (see above). Indeed, the growth of worker solidarity and shop steward systems are seen to;

Provide the final or precipitating condition for strikes....more general factors are not sufficient to bring about a crucial upward movement in strike activity (1983 p.413).

- b) That given (a), any explanation of strikes must rely on a 'multiplicity of factors', but the form they take is affected by the shape and form of existing bargaining structures (see the specification of their approach above).
- c) That the volume and distribution of total strike activity is influenced by the net effect of general economic conditions, product and labour market situations and localised influences including the form and level of unionisation.
- d) That government policy must form part of a satisfactory explanation of strike patterns. DMR argue that "in many ways it is in the analysis of the role of government which most clearly distinguishes this study from its predecessors". Significantly, they stress that government policies be seen as independent variables, not as reactions to economic stimuli. Their rationale being that governments can react to economic factors in different ways and:

because the form and scope of government intervention are complex and varied (p.419-20).

- e) That the interaction of bargaining machinery, substantive terms and conditions are crucial in explaining strike activity.

DMR therefore offer a set of broad conclusions from their detailed analysis of changing strike patterns in the post-war period to 1973. In addition, they also

highlight contrasts between themselves and other writers in the 'institutionalist' tradition. These are developed in more detail in the section on 'bargaining structures' in the development of the theoretical model but some brief points can be made here. First, there is a significant difference between DMR and writers such as Clegg on the effectiveness of procedures for containing conflict. Clegg (1976) suggests that effective procedures would help to resolve conflicts quickly and reduce the likelihood of strikes occurring. In contrast DMR argue that such procedural changes are unlikely to reduce conflict per se unless the sources of such conflict are tackled at the same time (1983 p.424) by which they seem to mean substantive changes. Thus, institutional reforms may only alter the form and not the incidence of strike activity. In this context DMR highlight a point made in the introduction that 'institutionalist' approaches have frequently placed too much emphasis upon procedural reform to the detriment of substantive issues when examining the incidence and resolution of conflict.

The DMR work is also important in its elevation of the role of government as a decisive factor in the post-war strike pattern. Government is seen to be significant through its involvement in conflict resolution, conciliation mediation and arbitration, legislation and judicial decision making in the sphere of employee relations and through the operation of incomes policies. Other aspects of government influence are largely ignored although DMR do examine the effects of changes in income tax on strike activity as a test of Turner et al (1972).

SOME GENERAL COMMENTS

The model developed in the next two Chapters is derived from DMR and, though it departs from their work in significant respects, retains the essential elements of their approach. Before doing so, however, it is necessary to highlight certain areas where this work takes issue with and differs from that of DMR.

The account of strike patterns offered by DMR is essentially a part descriptive, part analytical study of past events utilising an enormous number of ex post variables. The lack of any coherent explicit theoretical framework does not permit us to analyse

why strikes occur, or why they occur rather than there being alterations in the original positions of the parties, leading to compromise solutions short of a stoppage (Ashenfelter and Johnson 1969). In particular, whilst worker attitudes are accorded an important role within their work, at no point are these examined in detail and remain vague and undefined. The end result is an account of strike patterns which is intuitively plausible but has no predictive ability and is not rigorously testable.

A second issue concerns the choice of industries. DMR focussed on the three most strike prone industries, in terms of strikes per thousand workers, in the post war period, Coal-mining, docks and motor vehicles. They are therefore atypical of the strike experience of the rest of the economy and raise questions about the extent to which it is possible to account for aggregate changes in strike activity on the basis of these industries. If coal-mining is excluded from the aggregate totals, strike activity in motor vehicles and the docks together account for around a quarter of workers involved, 23% of working days lost and only 16% of the number of net stoppages in their period. A further problem with these industries is that, at least for the bulk of the post war period, they are characterised by strong, well developed workplace trade unionism and bargaining (cf. Zeitlin 1985), which makes it difficult to use them in support of some of their conclusions. It also suggests that industries with contrasting shopfloor trade union presence might provide a better basis for testing these conclusions and their approach generally. A final consideration regarding their choice of industries is that they are each relatively homogeneous in that industry-level data apply to a similar set of organisations. Where industries are heterogeneous groupings, the use of such industry-level data are less valuable and may obscure significant changes at the level of individual enterprises. The industry-level variables are valuable in the context of the industries they choose but present difficulties in areas like engineering which encompasses a wide range of product groupings.

Thirdly, there is no account in DMR of employer and managerial attitudes which is difficult to justify in view of the importance placed on the role of managerial initiatives. In the model developed here employer attitudes along with those of workers are accorded a central role and in the following chapter we outline the main

factors liable to influence these.

A fourth area concerns the union capacity variable. Whilst it has been stressed by many writers that organisation plays a significant role in strike activity (Batstone et al 1977, 1978, Edwards 1983) this association is not universally accepted (Turner et al 1967). Indeed McCarthy (McCarthy and Parker 1968) in evidence to the Donovan Commission emphasised that shop stewards frequently served to dampen down conflict and often supported management interests. Similarly, recent work on the 'bureaucratisation' of shop stewards (Terry 1978, Hyman 1979) would suggest that the relationship between stewards and strike activity is contrary to that assumed by DMR. This is not to argue that DMR are wrong in their analysis of the role of shop stewards in strikes, rather that they accept too readily a positive association between the two, ignoring the difficulties and ambiguity of the steward role.

A final consideration is the elevation by DMR of the role of government as the major factor accounting for overall movements in strike activity. It is the contention of this work that the sphere of government influence on strike activity is broader and more significant than DMR suggest and that this influence has increased greatly in the post-war period. This view is based on the direct and indirect effects of policies additional to those employed by DMR. First, much of the post-war period has been marked by the pursuit of Keynesian demand management policies operating partly through changes in taxation, affecting workers' real wages and thereby firms' product demand with attendant effects on specific industries and sectors of the economy. Second, as a result of the above the period has witnessed a great increase in the State's influence within the economy and as a major employer of labour to the extent that government actions have a significant effect on the economy and the economic well-being of millions of individuals who depend on it directly for their livelihoods. Third, there is the impact of government policies in more recent times through privatisation programmes and the influence of competitive pressures generally, which impinges upon the more contentious issue of the impact of the state in changing or influencing attitudes. In this context there is a need to consider whether the political complexion of the government of the day has an influence on stoppages. Whilst

DMR largely ignored this, others (Pencavel 1970, Cronin 1979) have found it to be statistically significant. Finally, there is the question of the extent to which government initiatives can be seen as independent variables affecting strike activity, rather than as responses to the perceived problems of industrial relations and strike activity in particular. A consideration of this and the other points will now be considered in detail in the next section where our theoretical approach is outlined and developed.

SECTION I

THE THEORETICAL MODEL

THEORETICAL MODEL: AN OVERVIEW

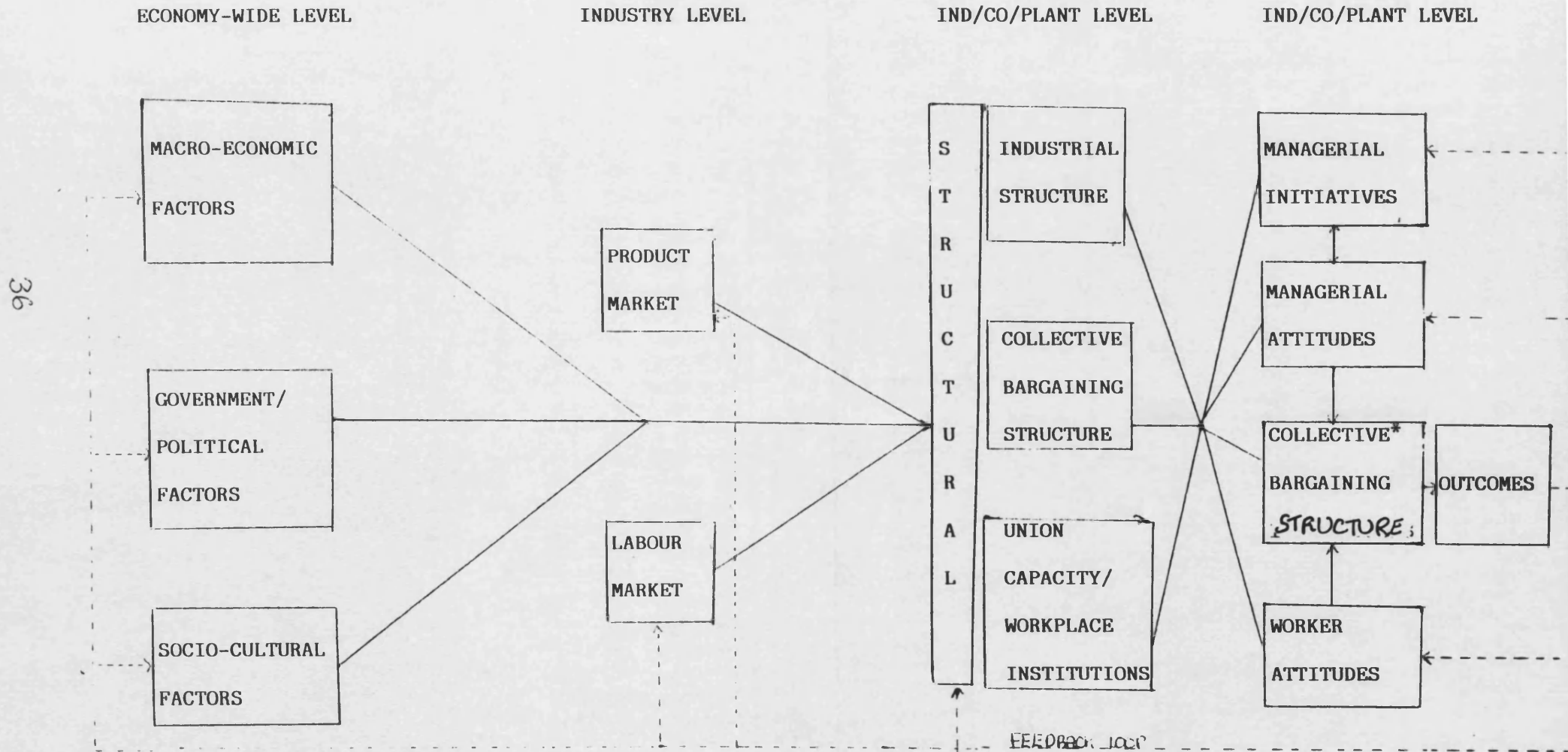
In the introduction it was stressed that an adequate account of, and explanation for, strike activity must draw upon a range of disciplines in order to give appropriate consideration to the attitudes of the parties involved in any possible industrial confrontation. It was further argued that it was necessary to give sufficient attention to the role of organisation in any account of strike activity so that as well as the willingness to undertake (or resist) industrial action, the ability to engage in (or resist it) also needs to be considered.

The theoretical approach developed in the following chapters draws heavily on the review of competing theories but owes its main debt to the work of Durcan, McCarthy and Redman. The model has as its core a systems framework but in contrast to many such approaches, elevates to a central position the role of worker and employer/managerial attitudes. A diagrammatical representation of the approach is presented in the figure overleaf. The approach is drawn to illustrate the role of external influences, broader economic, political as well as local labour and product market factors which will affect attitudes and actions through the mediating influences of structure, organisation and, critically, the ways in which these are acted upon or anticipated by managers and other actors, government and trade unions.

The approach contends that variations in strike activity are the result of a complex interplay of factors. The willingness of workers to engage in strike action involves at least a rudimentary appreciation of the costs and benefits of doing so and the likelihood of success, which will be affected by the strength and impact of external factors, the resources available to them (their ability to do so) and an appreciation of the power and resources of management. The willingness and ability of employers/managers to 'take a strike' or resist, will similarly be affected by movements in broad and localised factors as these can be expected to affect the power resources at their disposal. The main elements held to be of major concern to workers and employers/managers are discussed in the two attitudes sections that follow, together with union organisation and the role of broader influences that exert a potential impact on those attitudes (willingness) and organisation (ability).

FIGURE 1

THEORETICAL MODEL UNDERLYING PRESENT WORK



* Collective bargaining as in the structural variables, but separated out to indicate interaction with attitudes.

THEORETICAL MODEL

WORKER ATTITUDES

The aim of this section is to locate our approach to worker attitudes within a broader theoretical framework. It should be stressed at the outset that many writers would object to our formulation on the grounds that worker attitudes derived from actual behaviour do not reflect workers true attitudes and interests (see discussion of radical writers in Batstone 1984) although psychological work suggests that attitudes may be determined by behaviour (Bem 1970, Kiesler et al 1969). This is an important point with significance for the present work but accepting the difficulties of identifying workers 'true' interests a formulation based upon perceived interests is developed which addresses itself to elements within this radical perspective.

This section details the main elements of worker attitudes from work carried out in the UK in the post-war period. A major difficulty with this approach is that little large-scale survey evidence exists for the periods apart from the pioneering work of Runciman (1966), and the subsequent attempt by Daniel (1975) to replicate this study. However, this large-scale evidence has been supplemented by a number of valuable plant-level studies (Lupton 1962, Goldthorpe et al 1968, Beynon 1973, Gallie 1978) and by broader studies of working-class attitudes and consciousness (Mann 1973, Blackburn and Mann 1979, Beynon and Blackburn 1972, Gallie 1983).

Our interpretation of the literature suggests three main factors which can be sub-divided into seven which are likely to be of importance to the bulk of workers with which this study is concerned. Firstly, job security and job rights (Goldthorpe et al 1968, Beynon 1973, Blackburn and Mann 1979), secondly, actual and relative earnings growth, as well as the level and stability of earnings (Goldthorpe et al 1968, Turner et al 1967, Beynon 1973, Brown and Sisson 1975). Finally, broad socio-cultural factors (Gallie 1978, 1983) in influencing attitudes and workers' willingness to engage in industrial action.

The first factors identified as influencing worker attitudes are job security and job rights, these have traditionally been associated with craft workers and others, who via apprenticeship and closed shops could maintain skill levels, but which have been viewed as increasingly important for many workers. This view has been inferred from two main developments in the post-war period, firstly the growth in public sector employment where a degree of job security has existed, and secondly what Goldthorpe (1978) has termed the 'realisation of citizenship', where rights have extended into the sphere of production in the form of job property rights and which have been reinforced by the legislation of the 1970's. Goldthorpe argued that these factors have been further reinforced by the view that workers have expectations that they will not be exposed to such things as unemployment. Plant-level studies confirm this view. In Beynon's (1973) study the idea that the job embodied certain property rights was frequently argued. Similarly, Blackburn and Mann (1979) found widespread evidence of the importance of such 'rights' within their sample of manual workers.

Additional support for the importance of job security for workers comes from Cronin (1979), where it forms a significant part of his explanation of strike patterns in the UK up to the late 1960's. He argues that the experience of the inter-war years and their associated levels of unemployment heavily influenced worker expectations for much of the 1950's and 1960's. Cronin's work highlights a number of points for the present work. First, worker attitudes are dynamic, the post-depression mentality of the immediate post-war period gave way to demands inspired of a confidence that problems of unemployment were a thing of the past. Second, his account suggests that the relationship of job security to strike activity is difficult to assess. The general argument (Cronin 1979) is that fear of unemployment will tend to reduce levels of strike activity, but it can be plausibly argued, that if workers have experienced high levels of employment for prolonged periods of time, then an increase in unemployment which threatens such security may be resisted as workers retain the willingness to combat such threats to job security - the experience of the late 1960's and early 1970's might support this. In addition, at the industry level, an industry with rising unemployment may experience worker resistance, if levels of

unemployment outside the industry are relatively low, falling or rising less quickly, on the grounds that alternative job opportunities are available to workers - with general skills - in the event of redundancy from their present employment.

The second set of factors identified concern earnings, their level, stability and rates of change. A useful starting point is Lockwood's (1966) description of the 'privatised worker', whose social consciousness is said to encourage a 'pecuniary' model of society where workers have low job and enterprise involvement, isolation from workmates and where work and workmates do not constitute central life interests (Dubin 1956). For such employees, work is a deprivation performed mainly for extrinsic rewards and 'money-mindness' - the calculated exchange of labour power for maximum pay being the main motive for staying in a job (1966 p. 256). The worker is wage-oriented at work, frequently joining a trade union though for largely instrumental reasons, and consumption oriented at home. The 'privatised' worker is seen as more characteristic of workers in the future, and forms the major focus of the 'affluent' worker studies and of some sociological studies of inflation (see Goldthorpe 1978). The 'affluent worker' studies permit a greater insight into this group of workers and highlight the importance of 'prior orientations to work'. The workers in the Luton study were in high paying jobs, frequently having moved to them from more interesting but less well paid positions and that they had moved because of their 'prior orientations to work' - in the case of the 'privatised' worker, an instrumental orientation, although other workers would possess other orientations (Watson 1980). Later work has suggested individuals may possess a variety of different orientations and that a number of major orientations can exist simultaneously (Blackburn and Mann 1979). Subsequent work by Blackburn and Mann has also found, evidence of a dual consciousness among manual workers and Daniel (1973) has suggested that workers behave differently in 'work contexts' and 'bargaining contexts' (see also Beynon and Blackburn 1972, Wedderburn and Crompton 1972) and more generally that they have different priorities at different times and in different contexts. The significance of dualism is examined further in the section on union capacity in light of evidence (Beynon 1973, Batstone et al 1977) that shop stewards play a crucial role in fostering the development of a specifically 'factory consciousness'.

Overall, criticisms of Goldthorpe et al. have not detracted from the value of the concept of orientations, rather that these appear to be more complex than they suggested, although instrumentality may tend to dominate considerations at work.

In summary, the post-war period has seen the growth of workers, mainly manual and low-grade white collar who possess predominantly instrumental orientations to work (White and Trevor 1983 for evidence of instrumentalism of white collar workers). This instrumentalism and associated pecuniary consciousness is both opportunistic and calculative and is reinforced by an employment relationship that gives little discretion, encouraging low trust responses to employers (Fox 1973, 1974), it emphasises the importance of financial rewards as the predominant rationale for work in order to satisfy demands in the non-work sphere. For such workers it would seem likely that as well as levels of reward they are also concerned with pay levels relative to others and the relationship between reward and effort, these are examined below.

The importance of relative pay is illustrated by references to comparability made by those in negotiations, and by the stability of relative pay of different groups of workers over very long periods of time (Phelps Brown and Browne 1962, Routh 1984). Part of the explanation for this is that wages are indicators of status and comparability essential to fair treatment (Shorey 1977). However, as Brown and Sisson (1975) show in engineering, comparisons are generally made with reference to internally comparable groups rather than with other industries and even when they are not, the reference groups of manual workers are frequently restricted (Runciman, 1966, Adams, 1975, Daniel, 1975, Willman, 1982) to immediate comparisons. Runciman's work in particular is worth considering further. His work offered some support for the 'Affluent worker' conclusions in citing a greater home-centredness among the working class but that in general feelings of relative deprivation in relation to class were low in magnitude and frequency even amongst those close to the bottom of the social structure and that reference groups were closely circumscribed at all levels of society except under some abnormal external stimulus resulting in a marked divergence between relative deprivation and actual inequality. It appears from Runciman's work that it was not the extent of hardship that evoked militancy but

disappointed expectations of improvements or threats to accepted standards, suggesting that workers goals are largely defensive (Crouch 1982). Workers concerns appeared to be governed more by a resentment of narrow inequalities, the cultivation of modest ambitions and the preservations of small differentials rather than by attitudes to public policy or the social structure as such.

From a different perspective equity theory offers support to work in the relative deprivation tradition. Not only does it reinforce the view that it is close referents that matter but suggests that equity is one of a number of norms governing the distribution of rewards in social relationships. In many studies of rewards, equity and equality emerge as major considerations, with white-collar workers generally concerned with equity, blue-collar workers with need (Willman 1982).

Subsequent work to discover whether attitudes had undergone significant changes in the period since Runciman's work was undertaken in the 1970s. The research suggested that working people still continued to frame comparisons in relation to those much like themselves although this was combined with 'an expanded sense of the possibilities of pecuniary gain for themselves and people of their sort' (Cronin 1984). Daniel (1975) found little evidence of either a growing sense of relative deprivation or a widening of reference groups, although Gallie (1983) suggests that this result was achieved by excluding skilled workers from the sample. The second by Harrop (1979) undertaken in the period 1976-7 showed a continuing intolerance towards inequality with increased pay seen as the route most likely to alleviate this. Significantly as Cronin has shown 'a variety of studies....showed that instrumental and pecuniary orientations....were becoming more widespread among extremely traditional groups like dockers and shipbuilders' (Hill 1976, Brown and Brannen 1970). Overall, whilst little appeared to have changed since Runciman's work a greater emphasis on instrumentality seemed to have emerged as 'the means by which working people sought to improve their standards and status individually and collectively' (Cronin 1984 p.201, also evidence from British Social Attitudes surveys throughout the 1980s, e.g Jowell et al. 1987).

Finally in this section on earnings we have drawn attention to the importance of the stability of earnings for workers in affecting attitudes. Much of the evidence on this derives from the study of the motor industry undertaken by Turner et al (1967). The authors argued that a significant factor in the strike frequency of the industry was the instability of earnings and was a factor behind the move by Chrysler and British Leyland to adopt measured daywork (MDW) in the early 1970's. Many of the problems of instability derived from the nature of production within the industry and particularly the interdependence of workers so that strikes, shortages of parts etc would mean periodic lay-offs. Its relationship to strike activity can be explained partly as a response to the expectation that managements should make work available and to the fact that fluctuating earnings make savings difficult and specifically long-term savings commitments, a point which MDW tried, unsuccessfully, to rectify.

One area of particular relevance to the examination of worker attitudes is the relationship between wage and effort which is linked to the issue of control. For Lockwood (1966), 'the calculative exchange of labour power for maximum pay is the predominant motive for staying in the job' (1966 p.256). Similarly, the work of Goldthorpe et al. (1968), Fox (1973, 1974), Batstone et al. (1977, 1978) and Blackburn and Mann (1979) point to a 'calculative' approach to work on the part of workers. Fox's work in particular suggests that the very nature of work coupled with an awareness of interests that diverge from those of management will encourage forms of behaviour similar to those of Lockwood's 'privatised' worker. Thus, workers in low discretion, low-trust relationships, with a calculative view of their organisation will have a fairly clear appreciation of the wage-effort relationship or 'implicit contract' (Watson 1980) which exists between themselves and their organisation and are likely to have a heightened awareness of any alterations to the relationship as may occur.

The concept of an effort bargain was first advanced by Behrend (1958) and subsequently developed further by Baldamus (1961). For Baldamus, the labour contract, how much of what sort shall be expended at what times and in what ways for a given wage, cannot be specified in advance of the work actually being carried

out, there is therefore an area of indeterminacy in the labour contract. The concept of an effort bargain arises as a result of this indeterminacy and helps to bridge the gap between analyses of the bases of conflict and consideration of conflict behaviour (Edwards 1986). In Baldamus' view the potential for disparity between wages and effort located

the very centre of industrial conflict even if the participants themselves are not aware of their conflicting interests in terms of changing effort values' (1961.p.105, 108, quoted in Edwards 1986 p.33).

The wage-effort relationship is thus an unspecified relationship which underlies every employment contract. However, the relationship is not fixed and represents an important source of instability in relations between management and workers. It also permits us to focus upon an immediate source of conflict at the point of production.

A further source of conflict arises as a result of the distribution of rewards from work. The impact of the distribution of work rewards occurs through a number of channels. First, through differentials in pay discussed above, second through differences in the rewards to labour as opposed to those of capital. Perceived inequities arising from these distributional channels may materialise in demands for fair pay or a 'just' wage embodying a concern for fairness in relation to other employees or employers. Focusing on the issue of profits, there is little doubt that the level and growth of profits are relevant to employees, frequently being used by trade unions in formulating and justifying demands for higher pay on the grounds that workers should share in the benefits of high or increasing profits especially where these have been increasing faster than pay or at the expense of wages. It has also been argued that high profits may increase the likelihood of unofficial stoppages. As Smith et al. (1978) have argued;

If the Ashenfelter and Johnson model is used, the ability of union leaders to persuade the membership to be content with a lower settlement will be diminished.

The final factor considered to affect worker attitudes is derived from the work of Gallie (1978, 1983) who sees them as determined largely by the local industrial and community setting (Lockwood 1966), by the industry itself, (Turner, Roberts and Roberts 1977) and by differences in socio-cultural attitudes. It is this last factor which Gallie lays particular stress upon in his comparison of the class consciousness of French and British workers. He argues that in Britain, due much to more accommodating managerial styles, shop-floor representatives have achieved effective control over many aspects of the work situation. Management have effectively conceded substantial rights to trade unions whereas in France, management has remained sovereign within the enterprise. The difference between management in the two countries, Gallie argued, was the result of historical factors and cultures which accounted for the contrasting attitudes towards trade unions and manifested themselves in differences in the institutional structures of the two countries. In terms of socio-cultural factors and their role in social integration, Gallie emphasised management ideology, the way this translated into the power structure in social institutions, and the ideology and mode of action of trade unions. In identifying factors that are grounded in early industrial development Gallie has built upon Lockwood's work in highlighting important contextual factors which serve as a backcloth for the interactions between management and workers at the workplace.

This section has examined a range of studies that have attempted to analyse worker attitudes, particularly manual workers, and their behaviour. To reiterate an earlier point, many of the studies have attempted to infer attitudes from behaviour (see also Armstrong et al. 1981) and whilst accepting the methodological problems with such an approach (see beginning of this section and Edwards and Scullion 1982) it has been possible to identify seven factors which appear to be central influences upon worker attitudes. These are set out overleaf:

$$EA = f[Js, W, WD, Ws, E, P, SCP]$$

Where:

EA = Worker attitudes

Js = Job security, job rights

W = Earnings growth, real or nominal

WD = Earnings differentials

Ws = Stability of earnings

E = Effort bargain - the wage effort exchange

P = Levels of profit

SCP= Socio-cultural and political factors

This suggests that if any of the underlying factors affecting worker attitudes alters to the detriment of the worker he or she will attempt to rectify the perceived imbalance. Whether strike action is resorted to will be dependent on a wide range of factors including the magnitude of the imbalance, socio-cultural factors ('do strikes pay') the state of external factors, product demand, the availability of alternative employment etc and crucially upon the capacity to undertake strike action. It is this capacity, the importance of organisation in strikes which is the subject of the next section.

(II) UNION CAPACITY

Given the existence of worker attitudes favourably disposed towards strike action, an essential further requirement is a means whereby these attitudes can be translated into strike action. Such a factor is provided by the emergence of effective shop steward systems. DMR argue that these impact upon the nature and incidence of strikes in three ways. First, in providing a crucial precipitating condition for strike action. Second, in accounting for the spread of strike activity across industries - the contagion effect - and finally, in influencing the form of strikes in the post-war period. This is not to argue that strikes will not emerge in non-union settings or where shop steward systems are not highly developed, but to stress the crucial role of organisation and leadership in strikes (Batstone et al 1977, 1978, Lane and Roberts 1971, Hartley et al 1983).

It was noted in the discussion of the DMR study that the association between strike activity and shop steward organisation is not universally accepted and requires us to locate the steward within a wider context. In particular a structural context which acknowledges the importance of factors such as establishment size, bargaining levels and incentive payments systems (Brown et al 1981, McCarthy 1966). These factors will significantly affect the ability of groups of workers to achieve their objectives by increasing or decreasing the bargaining power at their disposal (Hill 1974). In addition consideration needs to be given to the methods stewards can employ to lead and organise those they represent and their use of 'power over' in order to exert 'power for' these groups (Hyman 1975, 1979).

In the section on the DMR work some of the reservations we have with the union capacity variable were highlighted. Their apparent willingness to accept uncritically a positive association between shop steward organisation and strikes needs to be set against McCarthy's widely quoted conclusion in a research paper for the Donovan Commission that 'the steward was viewed by himself and others as an accepted, reasonable and moderating influence, more of a lubricant than an irritant' (McCarthy

and Parker 1968 para 15). The two positions are not necessarily contradictory if the heterogeneity of the shop steward role is appreciated. As McCarthy and Parker state, there are wide variations in the functions, responsibilities and influence of stewards in different plants, a factor related to the structural conditions outlined above. In addition, the period since Donovan has witnessed considerable changes in steward numbers as well as in the nature and extent of organisation which might be expected to have affected the level and form of strike activity after the DMR finishing date of 1973.

The following sections examine the role of shop stewards in the management of conflict, their ability to mobilise groups and to set these within a structural context. One reason for adopting this approach is that workgroups and stewards with power at their disposal may have less recourse to the strike weapon (Batstone et al 1978, Edwards and Scullion 1982) suggesting a complex interplay between structure and action. It can of course be argued that the focus on such an interplay is of little relevance in a time-series analysis conducted at a level of aggregation above the individual firm, but two points are necessary here. First, in the context of developing a theoretical model it is necessary to examine the components in some detail, particularly as the model is developed from attitudes and other factors operating at the company and plant levels and some appreciation of how these interlink is important. Second, it was noted earlier that the emergence of effective shop steward systems was held by DMR to be the main reason for the 'contagion' effect and some examination of the mechanics of shop steward organisation in bringing about this spread of strike activity into hitherto 'virgin' territory would seem to be relevant.

WORKGROUPS, SHOP STEWARDS AND LEADERSHIP:

The basis of steward leadership and the articulation of interests.

The discussion proceeds from an examination of structural and action categories that permit the development of a perspective on the context of shop steward organisation and the mechanics of;

The factors which transform workers with a grievance into a group with sufficient sense of solidarity to improve their bargaining position'. (DMR 1983 p.413)

Or as Batstone et al (1978) have argued;

‘An understanding of the phenomenon of strikes may start from an awareness of the subordination of workers but it has to go further and recognise the complex historical interplay between structure and consciousness as mediated by organisational processes’.

In the previous section we noted the prevalence of largely economistic orientations amongst workers but have also cited works which found evidence of a ‘dual consciousness’ among manual workers (Mann 1973, Beynon 1973, Beynon and Blackburn 1972, Batstone et al. 1977, 1978, Armstrong et al 1981), implying that the immediate work environment may aid the development of a factory consciousness (Beynon 1973, Batstone et al 1977, but cf Edwards and Scullion 1982). Significantly, the evidence for ‘dual consciousness’ does not appear to be confined to workers in situations where the immediate work situation provides them with a significant power base (Armstrong et al 1981) but the study by Batstone et al. (1978) in particular illustrates the role of stewards and their methods in aiding the development of such a ‘factory consciousness’.

Before considering the role of shop stewards in the development of consciousness it is valuable to identify factors which will influence their behaviour and freedom of action. Four main sets of factors can be seen as providing potential constraints and opportunities on the shop steward function, management (Brown et al. 1978), the external union (Boraston et al. 1975), other shop stewards (Batstone et al. 1977,

1978) and the workgroup(s) the steward represents. The last factor is particularly important in that it provides the immediate power base for any workgroup representative and constitutes a major reason for differences in the power and effectiveness of shop stewards.

Little work has been carried out on the sources of variation in group behaviour in the UK (cf USA, Sykes 1958) although Lupton's (1963) work is a notable exception. However, an attempt to provide a framework for analysing differences in such behaviour has been made by Hill (1974) who identifies three sets of factors, structural conditions - essentially the lay-out of the production system resulting from the nature of technology and the production system. The extent and nature of group consciousness; the factors that persuade people to take advantage of conditions and how the solidarity of the group is defined. The power position of workers, which is seen to derive from the production system, the structure of the labour market (Lupton 1963) and the role of management and organisational characteristics; the efficiency of management control systems. Each of the foregoing factors can encourage workgroup formation, facilitate or impede it. Subsequent work by Batstone (1988b), on the power resources available to a trade union, lays similar stress upon the resources of individual members (their ability to disrupt production, labour market position and the political influence workers can wield) as well as the union's (or shop stewards) ability to combine and mobilise these resources. Significantly, the factors suggest that managements can greatly influence the number and nature of workgroups that develop (Nichols and Beynon 1977) and that some workgroups may develop an appreciation of their own power position which they can use without the leadership of stewards or in opposition to them (see Turner et al 1967, on unofficial-unofficial stoppages). Whilst some groups may develop such consciousness in the absence of shop stewards, these instances are likely to be rare as the cluster of factors favourable to such a development are uncommon in practice. Consequently the focus below is on the role shop stewards may play in fostering a form of collective consciousness.

Batstone et al. (1977) provide valuable insights into the methods shop stewards employ in developing consciousness as well as highlighting the importance of more structural bases of power. With regard to the nature of work organisation, Batstone et al. suggest that the strength of such organisation is a function of, the extent to which group members have skills that cannot easily be replaced or substituted, the extent to which group members occupy a crucial position in the organisation's workflow, the immediacy with which group actions can affect or disrupt organisation and the extent to which groups can create and cope with uncertainty in the production process. These structural factors, whilst important in providing a significant power base for groups do not imply a particular course of action. The latter is seen as being heavily influenced by the actions of stewards and steward bodies. Batstone et al. (1977) identified three aspects of power for stewards and the ways these were employed in the 'negotiation of order' in the workplace. These were, success in making decisions, the ability to shape, identify and direct issues in the manner required, the maintenance of a particular ideology and the pattern of institutions which served to support and legitimate patterns of behaviour. The authors discovered that whilst the three dimensions of power were interrelated, stewards who were most powerful in terms of the first two dimensions achieved most success (leaders) and most frequently referred to the third in their systems of argument. Specifically, shop stewards achieved results and mobilised power through the use of language (vocabulary), ideology, and their network of contacts. Not surprisingly Batstone and his colleagues found that leader stewards were more successful than other stewards (populists) in terms of earnings and lower levels of overtime, successes which were reflected in a lower resort to both strike action and procedure (1977 p.258) and that more generally;

Groups of workers most able to strike (in terms of bargaining awareness and collective strength) may rarely in fact have resort to strike action' (1978 p.223).

This discussion has allowed us to establish a link between workplace organisation and attitudes which can now be developed further. Batstone et al. (1978) have argued that

members perceptions of issues can be significantly altered by the efforts of shop stewards (see also Waddington 1986), where their ability to do this is dependent upon the dual consciousness of the membership. Through the dimensions of power identified above shop stewards are able to create a dominant perspective very different to that typically found in a plant. However, they stressed that such unity and solidarity as developed was focused on the domestic organisation, it was a 'factory consciousness' rather than a clear class consciousness. Its main elements are described by Beynon (1973).

(It)...understands class relationships in terms of their direct manifestation in conflict between the workers and the bosses in the factory. It is rooted in the workplace where struggles are fought over the control of the job and the rights of managers and workers. In as much as it concerns itself with exploitation and power it contains definite elements. But it is a politics of the factory. Implicitly tied up with the day-to-day battle with the boss.

Such a consciousness was for Batstone et al.(1978) 'very much the creation of the stewards' but tended to be transitory and was always 'brittle and delicate'. It was also aided by shopfloor workers having a commitment to trade unionism which was an important and crucial condition for their being persuaded to support strike action. They argued further that 'once collective opposition to management had developed the strike is simply a further tactical extension' (1978 p.218). However, the creation of this awareness was only found amongst their leader stewards and those in the steward hierarchy. Populist stewards and those away from the shopfloor faced constraints that encouraged them to follow a more sectionalist approach (see Edwards and Scullion 1982 who argue a sectional consciousness is widespread and more accurately describes the reality of group consciousness than does the concept of factory consciousness). Batstone et al. suggested that it was the commitment to trade union principles on the shopfloor and amongst leader stewards which significantly aided the development of such a consciousness.

Beynon's account of factory consciousness stressed its political character and the

importance of the frontier of control. For Batstone et al.(1978) the worker is inevitably involved in the wage-effort bargain. When disputes arise they may relate less to financial rewards than to the effort side of the equation. Equally, discussion of financial rewards is likely to involve effort (particularly for those with a very calculative approach to work) and the definition of the work situation begins to alter, ceasing to be simply a source of income and instead becomes a political arena. Stewards have a role in this in stressing the political dimension using the various sources of power and specific vocabularies infused by political ideas.

The notion of a frontier of control is however complex and suggests caution in empirical analyses. As Edwards and Scullion (1982) have shown any frontier of control is shaped by the interaction of employer and worker strategies so that common approaches by management may produce very different clashes over control depending upon the positions adopted by workers. They also suggest that conventional measures of union strength may not be good indicators of the ability of workers to resist management and attain their own ends as union strength can be associated with very different patterns of shopfloor relations (Edwards 1981).

THE GROWTH AND CHARACTER OF SHOP STEWARD ORGANISATION

The analysis above has concentrated on establishing a link between shop stewards and the ability of workers to undertake strike action. The analysis suggests that this ability will vary between different structural contexts (the nature of the work organisation) and will be heavily dependent upon the skills the steward can draw upon (the aspects of power) and the nature of the workgroups they represent. In what follows we examine the development of shop steward organisation in the post-war period before considering the role of the external union and briefly consider empirical work on the relationship between shop steward organisation and strike activity.

The post-war period experienced a dramatic increase in the number of shop stewards together with a deepening of shop steward organisation. Marsh and Coker (1963) estimated that the AEU saw an increase in stewards of 56% between 1947 and 1961 with half of this increase occurring between 1957 and 1961 at a time when AEU

membership in total increased by only 30%. They further estimated the number of stewards in the UK at that time (1961) as between 100000 and 120000 of which 35000 were in federated establishments in engineering. In a survey for the Donovan Commission McCarthy and Parker estimated that the figure for 1966 was around 175000 with over half in the metal-handling industries and around 13% in the rest of manufacturing, although even at this time a third of establishments with over 150 employees had no shop steward and 10% only one (McCarthy and Parker 1968). Clegg (1979) estimated for 1978, after a prolonged period of union growth that the total number of stewards had risen to 250000 with 156000 in manufacturing.

Recent work suggests that steward numbers continued to increase in the first half of the 1980s with a subsequent decline towards the end of that decade (Daniel and Millward 1983, Millward et al. 1986, 1992). The first two WIRS indicated that this increased coverage occurred largely outside the traditionally well organised sectors of the economy. Thus, despite the decline that occurred in manufacturing after 1979 there is evidence that where union membership and organisation was well developed it has been maintained though where it was weak it has become weaker (Fogarty and Brookes 1985). In support of this Terry (1986) claims that the events of the 1980's have on balance reduced shopfloor bargaining power but that it has remained strong relative to the decline of trade union power at the aggregate level, a finding also supported by the 1990 WIRS (Millward et al. 1992).

The growth in the absolute numbers of shop stewards has been accompanied by an increased complexity and hierarchy of steward organisation together with a deepening of organisation which has led to a reduction in the size of steward constituencies although all are heavily influenced by establishment size (Brown et al. 1981, Daniel and Millward 1983, Millward and Stevens 1986). Research suggests that a fully developed shop steward organisation needs a critical mass, a minimum number of employees on site (500 +, Fogarty and Brookes 1985), as a result, where the size of establishment is falling (in terms of numbers employed) the maintenance of that effective organisation becomes more difficult. Similarly, steward hierarchies seem to be closely related to establishment size. Such hierarchies have been well

established in the engineering industries, in their study of shop stewards in engineering Marsh and Coker (1963) argued that there were few establishments where a shop steward committee of some description did not exist. Similarly Evans (1976) reporting on the study he, Marsh and Evans carried out in engineering in the late 1960's stated that there was;

A tendency for union organisation in an engineering plant of any size to develop a hierarchy or superstructure of shop steward organisation and that each of the major unions in the plant will want to have a senior of their own. (p.90-91)

Whilst such hierarchies initially developed in the engineering industry, a significant spreading to other sections of manufacturing, the Public sector and private services took place after the 1960's (Brown et al., 1981). The subsequent work detailed in the three WIRS offers a broader perspective and as well as showing the spread and strength of steward organisation outside of manufacturing shows that there has been a decline in the coverage of combine committees, the number of full-time stewards and in the number of establishments with shop stewards generally.

These recent surveys also reinforce the view above that these changes need to be placed within a broader structural context. Joint shop Stewards Committees appear to be related to workforce size and the number of unions recognised by management for collective bargaining purposes. In contrast, combine committees, are associated with high trade union density, comprehensive closed shops and a full-time steward or representative at the establishment. They were also found to be most significant where bargaining at company level was the norm. These studies also suggest that high union density and the existence of a closed shop in particular are associated with an greater range of topics for negotiation between stewards and management. This would imply a greater potential for disagreement and may be linked to an increased resort to the strike weapon.

The increase in shop steward hierarchy and organisation has important implications for the present work. Hyman (1979) has argued that since Donovan there has been

a consolidation of hierarchy within steward organisations, encouraged by managements, with the role of JSSC's changing to exercise a largely disciplinary role on dissident sections of the membership. He also suggested that there has been considerable integration between steward hierarchies and the official trade union structure with the latter restructuring to meet the challenge of stewards, developing rulebooks which define rights and duties of convenors and JSSC's. Hyman stresses that whilst these trends are not universal they indicate an accentuation of the duality inherent in the steward role in that their potential as an agency of power or control over their members has emerged more clearly (as opposed to power for) leading to what he has termed the 'bureaucratisation of the rank and file'. Terry (1983) also lays stress on the active encouragement of management in developing reform strategies with respect to shop stewards but emphasises the fact that stewards have had to develop more complex forms of organisation to enable them to negotiate with a management structure that changed after mergers and takeovers and the internal restructuring of the 1960's and 1970's.

As well as pursuing reformist strategies with respect to existing steward bodies managements actively fostered the emergence and subsequent development of steward organisation in those areas with no history of such organisation, so that:

Managements confronted by problems of profitability, adopted a range of corporate and industrial relations strategies, leading to the spread and formalisation of shop steward organisations....these could be seen as the first moves towards company unionism...in effect managements developed a form of steward organisation, which they saw as appropriate to their needs' (Terry 1983).

Whilst there is considerable support for increased formalisation in the 1970's (Brown et al. 1981), there is less agreement that this has led to 'bureaucratisation' (Batstone 1984, Edwards and Heery 1985). This has important implications for strike activity; if Batstone is correct, the impact on strike forms and activity would either be negligible or, in engineering particularly, show up prior to the reforms of the late

1960's and early 1970's. However, if as Hyman and Terry argue, stewards are 'incorporated' into the managerial decision-making processes we would expect a significant decline in strike activity in those sectors where such 'incorporation' was most evident.

SHOP STEWARD ORGANISATION AND STRIKE ACTIVITY: SUMMARY AND EVIDENCE

The discussion of shop steward organisation and its role in strike activity has suggested a complex and ambiguous relationship. The studies by Batstone et al. (1977, 1978) illustrate the role of leadership in strike action but suggest that those organisations with significant power in terms of their own and their workgroups resources may have little resort to strike activity. Similarly, the 'bureaucratisation' thesis suggests that stewards, by emphasising 'power over' as opposed to 'power for' would not be expected to be associated with strike activity. In contrast, Pencavel (1970), in his time-series study of UK strike activity suggested that the main factor behind the increase the number of strikes in his period was the growth in steward numbers and associated workplace bargaining, but the absence of data at the aggregate level prevented a further test of this hypothesis. Likewise other time-series work and until recently, cross-sectional studies were hampered by the same problems.

These defects have been overcome with data collected as a result of the 'Contours' study (Brown et al. 1981) and WIRS 1 (Daniel and Millward 1983). Both studies produced data on steward numbers and organisation along with different forms of industrial action which have permitted a more accurate assessment of the relationship between shop stewards and strike action than has been hitherto possible.

Edwards (1981) using data from the 'Contours' study, of industrial action over a two-year period found various measures of union organisation significantly related to the likelihood of plants experiencing industrial action. However, Edwards argued that only 15-20% of the variation in the number of strikes between plants could be explained by the largely structural variables he employed, so that, whilst shop steward activity was related to strikes and other forms of industrial action, around 80% of the variation among plants in their experiences of strikes were the result of differences among plants in the day-to-day decisions of management and shop stewards.

Work using the WIRS 1 database has been undertaken by Blanchflower and Cubbin (1986) and permits an examination of all sectors of the economy. They found that organisational factors, especially the presence of shop stewards and the percentage of full-time manual workers who were union members were significantly associated with strike action. Of particular interest was the fact that they found stewards had a significant impact on the probability of plants experiencing small strikes as compared with those experiencing no strikes at all, but not significant for establishments that experienced longer strikes as opposed to those that experienced small strikes or none at all (1986 p.34). These findings are important but must be treated with caution (see Edwards 1981), many of the independent variables used are significantly related to one another, as are the dependent variables in the case of industrial action, giving rise to a problem of multicollinearity. In Blanchflower and Cubbin's work there is also no indication of the overall explanatory power of the model, which, like that of Edwards' may be very weak.

THE EXTERNAL TRADE UNION

It is possible to discern from our discussion four main ways in which stewards can influence dimensions of strike activity. First, their organising function, providing a vehicle for workers with a grievance to enable them to have the capacity to engage in strike action. Second, that given the first point, a spread of shop steward organisation to hitherto unorganised plants would be expected to increase the likelihood of workers engaging in strike action (DMR's 'contagion effect') and third, sustaining any action if it occurred. Fourth, that where collective bargaining is highly decentralised, shop stewards, through their negotiating function will have a significant affect on the number of stoppages that may arise (it should be noted that the first three points can occur independently of the fourth). The fourth point is relevant in relation to DMR where the emphasis on shop steward organisation encompasses strike numbers and as a result is heavily influenced by their period of study and, as we discussed earlier by their choice of industries. In view of this some consideration needs to be given to the role of the external union in strike activity particularly where bargaining is centralised. It is possible to identify ten ways in which a trade union and trade union structure may influence strikes over and above the influence of shop

steward organisation.

- a) One important way in which the external union may exert an influence upon strike activity is through the objectives it strives to achieve and the strategies it chooses to pursue in order to achieve them. (Batstone 1988b). External circumstances will necessarily influence the extent to which tactical as opposed to defensive goals are pursued (Crouch 1982) and 'rational choice' models suggest unions take a calculated view of objectives and strategies with some not being pursued because of the unlikelihood of their achieving success in particular situations.
- b) According to Clegg (1976) trade union behaviour is largely determined by the structure of collective bargaining. Where collective bargaining is centralised the tendency will be for trade union structure and Government to centralise. In such situations bargaining opportunities will be infrequent and workplace organisation embryonic. As a result strike numbers will tend to be low as will the ability of the union to sustain a stoppage in view of the lack of any effective shop steward organisation.
- c) Alternatively, trade unions may be constrained by structural factors from developing effective workplace organisation e.g because of establishment size, workforce characteristics, management opposition or because of their reluctance to encourage the development of such organisation. The implications for strike activity would be similar to those in (a) above.
- d) If shop steward organisation has been encouraged by the period of full employment and opportunities for decentralised bargaining that piecework systems of payment provided the external trade union could still influence this development. Some trade unions have given significant autonomy to shop stewards and workplace organisation (e.g TGWU) particularly in large establishments (Boraston et al. 1975, Brown et al. 1978) whereas others in principle, if not in practice closely circumscribe the activities of shop stewards

(e.g AEU). A major development since the 1960's has been the formalisation of the steward role by the external union giving clear guidelines on their activities and more closely integrating them into their internal structures (Clegg 1979, Hyman 1983).

- e) There is considerable evidence to show that strikes are linked to periods of rapid union growth (Cronin 1979) and more specifically that the latter is associated with strike waves. Notwithstanding the question of causation in this approach the rationale for this is unclear. Following Bain and Price (1983) a number of business cycle influences are believed to affect workers decisions to join a union, including inflation the growth of money wages etc, although the theoretical arguments advanced by Bain (particularly Bain and Elsheikh 1976) have been subject to considerable criticism. If Bain is correct workers joining unions to protect or advance their living standards create pressure within unions to achieve significant increases in pay etc to satisfy their expanding membership. If employers are unwilling to concede, industrial action is a likely consequence.
- f) A further factor affecting strike numbers independently of shop steward organisation is disputes that arise over trade union recognition which have consistently represented a significant percentage of non-wage stoppages.
- g) Similarly, multi-unionism at the industry as well as plant levels increases the potential for conflict (Metcalf et al. 1993). The number of potential disagreements over bargaining objectives and strategy and the problems of 'leapfrogging' all increase the likelihood of stoppages. The problem is further compounded where multi-unionism involves attempts by different unions to recruit the same group of workers leading to considerable inter-union rivalry and possible disputes. At a plant level the issue of demarcation has created many industrial relations difficulties in some industries (e.g shipbuilding) and accentuated the sectionalism within the workforce.

- h) In the Introduction we noted the work of 'political' theorists who argued that trade unions may trade-off the strike weapon in return for advances in the political arena so that moves towards corporatism should be associated with a decline in strike activity (Korpi and Shalev 1979, although this may only apply to centralised industrial relations systems). Similarly, institutionalist writers have argued more modestly that relations between trade unions (or the TUC) and the Government have an important influence on strike activity (Clegg 1976, Ross and Hartman 1960, DMR 1983).
- i) A further point relates to the role of union leaders in strike activity. As we have seen already, the Ashenfelter and Johnson model of strikes presumes that strikes are used by the leadership as a control device to reduce members pay expectations. Whilst this may not be appropriate to the UK (DMR 1983) an alternative view might suggest that some leaders, particularly new incumbents would be more prepared to take a tough line in negotiations to 'prove a point' to the negotiators and members and increase the potential risk of stoppages arising.
- j) A final point is the relationships and degree of trust existing between the main negotiating parties, particularly between union leaderships and management. Strong inter-personal relations may ensure conflict can be avoided when other factors are working against such an eventuality Walton and McKersie, 1965, Stephenson and Allen 1987). The same argument can be extended to relationships between trade unions and governments (Ross and Hartman 1960, Clegg 1976) and the ability to agree deals and avoid conflict when the circumstances are not favourable to such a solution.

III

EMPLOYER/MANAGERIAL ATTITUDES

A consideration of employer attitudes is commonplace in economic accounts of strike activity, particularly those derived from bargaining models where such attitudes are seen largely as a function of profits. The approach to employer attitudes developed here borrows heavily from these economic approaches but also aims to provide a more detailed appraisal of these attitudes, highlighting their complexity and the difficulties involved in their specification. Before outlining these difficulties we summarise the main elements of our employer attitudes variable, the rationale for which will be developed in the chapters that follow.

We suggest there is little justification for the distinction in managerialist approaches between employers and senior managers in terms of the objectives they adopt for organisations or between senior managers and what Fidler (1981) calls the 'core company'. It is apparent from work on senior managers (Winkler 1974, Fidler 1981) that they are overwhelmingly concerned with cost control and cost minimisation with the ultimate goal of profit. This is not to suggest that matters such as wage claims will automatically be resisted but rather that such managers will be more concerned with the effect of the claim on the size of the wage bill or of those costs in relation to total costs, the rate of change of productivity and the impact on prices and profitability. As MacInnes (1987) has argued the fact that employers place a premium on cost-control and competitiveness need not lead them to identify industrial relations or the organisation of labour as the area where their problems could be solved. A further relevant factor in the specification of employer attitudes is the diversity of views within the management hierarchy and that, if considerable diversity exists, to what extent can lower level managers usurp the policies and authority of those in more senior positions. Central to these issues is the effectiveness of the management control system which will be affected in part by the number of levels in the hierarchy and the span of control. These in turn will be affected by external contingencies such as the state of demand, the nature of the product market faced by an organisation, particularly in terms of the degree of competition and factors such

as the type of technology used and the size of the organisation (see Aston studies on the importance of these factors for organisational structure and performance) as well as by managerial preferences. Finally, there is, following Poole et al. (1982) the importance of socio-cultural factors in affecting attitudes and shaping managerial initiatives (see earlier discussion of these factors on workers; Gallie 1978, 1983). Each of these factors is examined in more detail in the second part of this section, here we explore the difficulties of specifying the attitudes variable and provide a rationale for the general arguments outlined above.

One of the major debates within social science in the 1950's and 1960's concerned 'managerialism' and the presumed divorce between ownership and control of business enterprises. It is not our purpose to examine this debate in detail but some relevant points can be made. First, Reekie (1980) has argued that the pursuit of 'managerial' objectives may, in the long run, be similar in effect to that of pursuing long-run profit maximisation. Second, Nichols (1969) found that most directors and senior managers in his study were committed to the long-run company interest and that in general the distinction between ownership and control appeared to make little difference in practice. Support for this view comes from a number of other studies. Pahl and Winkler's (1974) work on 'professional' managers found their indicators of successful performance to be profits, growth and return on investment. Similarly Zeitlin (1974) cites managerial goals in terms of growth, sales, technical efficiency and a strong competitive position as a means to achieving high corporate profits. Subsequent work by Fidler (1981) argues that in the short-term boards of directors see themselves as balancing the objectives of disparate groups connected with their firms, offering support to 'stakeholder' theories, and in light of what 'is best for the firm in the long term'. In the long-term directors appear to view the interests of all concerned as identical and that this equates to the success of the company in making profit. Overall we would concur with the summary of Hill (1981) who argued:

Theorists of the managerial revolution failed to appreciate that the issue of managerial behaviour is not....reducible to the personal preferences of managers. The policies and actions of top management are not constrained but are subject to certain external disciplines which operate regardless of their attitudes and motivation'. (1981 p.74-5)

Considerable evidence also exists concerning divisions within management (Pettigrew 1973) but it is difficult to assess what difference these make in practice. Our concern is with levels within the managerial hierarchy rather than across levels of management and therefore focuses upon the effectiveness of managerial control systems in ensuring that policies enacted at Board level are adhered to by those at different levels within the hierarchy and the extent to which those at lower levels have relative autonomy in decision-making. Our general proposition, which is developed more fully below, is that whilst managers have some freedom in setting objectives for their organisation in practice they are constrained by a number of 'contingent' factors. Further, that these contingencies, the size of the market and organisation, degree of competition etc, will affect the nature and effectiveness of the managerial control system (and especially the incentive managers have to improve the effectiveness of that system) and the extent to which lower level managers have discretion in framing policies which deviate significantly from those of senior managers. As Hill (1981) has again argued:

Some managers below top executive level may adopt sub-optimal strategies regarding accumulation, they 'satisfice' rather than maximise - profitability not being a central concern for them - but the objective and interests of these lower level managers are constrained and lower level managers are under pressure to act in ways that realise the objectives of senior management.

Such a proposition can be criticised for its emphasis on structural constraints to the exclusion of human factors. In an attempt to remedy this it is valuable to briefly examine some of the evidence on the attitudes of different levels of management, beginning with work on directors.

The attitudes of directors are well-documented. They generally appear to adopt a unitary view of their organisations (Fox 1966, as it appears do other levels of management, Poole et al 1982) with trade unions seen largely in functional terms (Fidler 1981) and where the accounting function predominates (Batstone 1984). A number of writers (e.g Winkler 1974, Fidler 1981) have shown that directors have limited contact with manual workers and the shop-floor generally, with labour invariably treated as a cost to be minimised. In general, directors appear to be dominated by financial considerations, be committed to profitability and to be isolated socially and spatially from trade unions and the shopfloor.

On management attitudes generally, a contrast is provided by three studies conducted over a twenty five year period. Superficially, this might permit an insight into whether attitudes have changed over the period but the differences in study design and objectives makes such an exercise difficult at least for two of the studies. The first is that carried out by the P.E.P (1965) which presented evidence within a dichotomous framework contrasting managers characterised in terms of whether they were 'thrusters' or 'sleepers'. The contrasts rely heavily on the belief that the former were more common in the newer industries and the latter in the older industries such as shipbuilding, suggesting that these attitudes were responsible for the differences in performance stating that there existed a 'discernible connection between attitudes on the one hand and growth, or adequate or good profit levels on the other' (p.227). Leaving aside the question of cause and effect and the fact that certain firms and industries may attract individuals with certain prior orientations (as the earlier discussion suggests) the study suggested certain behavioural characteristics of these two types. The 'thrusters' were associated with long term planned initiatives rather than management that was reactive, short-term and suspicious of change characteristic of the 'sleepers'. It was 'thrusters' therefore who were most likely to achieve favourable results. Although this view receives some support from recent studies of successful companies (Peters and Waterman 1982, Goldsmith and Clutterbuck 1984, Management Today 1987), work by MacInnes (1987) on the effects of the period since 1979 in the UK suggests that British management has remained wedded to a short term, cost minimising attitude particularly towards labour. In the context of the

proposition advanced above, the differences in attitudes would be significantly influenced by the characteristics and culture of the industries and firms themselves rather than to managerial attitudes per se giving rise a form of 'bounded rationality', (Williamson 1976) so that older industries with static/declining markets and strong resistance to change might 'encourage' short-term ad hoc responses leading to a form of permanent crisis management, and possibly attract individuals with similar short term perspectives.

The second study is that conducted by Poole et al. (1982) based on a survey of members of the BIM. Their work stresses the role of cultural factors in shaping managerial attitudes and the importance of control to an understanding of these attitudes. Anything perceived as curtailing or threatening to curtail the policy and executive function of management was viewed with considerable suspicion, particularly Government action and the influence of trade unions. Overall, a highly unitarist frame of reference predominated amongst their sample of managers.

Poole and Mansfield (1993) replicated Poole et al. to test the validity of their 1981 results after the 'Thatcher years'. Significantly, the period appears to have experienced a strengthening of the unitarist frame of reference amongst managers and an increasing preference for 'market' rather than 'corporatist' approaches to areas like labour markets. The study also confirmed a stability in underlying management preferences towards trade unions and government intervention, and a willingness not to be constrained by the actions of either, control has remained a key concern as has an ideological preference for free enterprise.

Finally, it is necessary to note some general evidence on the attitudes of lower level managers and supervisors. Their significance lies in their role in workplace bargaining which was significant in some areas of manufacturing (Turner 1969) but which has subsequently declined as a result of organisational changes (Child and Partridge 1982). In addition, management for such groups is likely to be different in kind from other groups of managers, as Batstone et al. (1977) argue, shopfloor management in particular is largely 'crisis' management. Many individuals in these

groups 'graduated' from the shopfloor and undoubtedly experienced considerable stress in their new roles (Thurley and Wirdenius 1973) but in terms of their allegiance to key corporate objectives the argument here, following the proposition above, is that the degree of freedom they have in making decisions is linked to external factors as is the willingness of senior managers to give them this freedom. It should be noted that many senior managers were aware of the informality of workplace industrial relations in the 1960's (McCarthy and Parker 1968) and most claimed to be satisfied with it. On our argument this would have been possible because the contingent factors, (or perception of them) were favourable to such a situation. As Child and Partridge (1982) have shown, the scope of the role of supervisors does appear to be related to the effect of contingent factors.

Despite our concern with contingencies in affecting managerial attitudes we would stress that the former do not determine behaviour. Our analysis suggests managers have to take account of contingencies in determining structure, the number of levels in the hierarchy, (Turner et al., 1977) the span of control and the organisation of production but it acknowledges that they have choices in how they respond to or anticipate such changes. In this context the period under consideration has witnessed major changes in economic, political and social contexts, particularly growing international competition and import penetration which would be expected to affect company organisation and management practice which are considered briefly below.

Purcell and Sisson (1983) argued that in the 1950's the typical pattern of company organisation was either, highly centralised control of all functions or of one holding company where separate divisions had a high degree of autonomy. Since then there has been there has taken place a broad move towards multi-divisional or 'M' form organisation (Williamson 1967) where a small group of senior managers at the heart of an enterprise play a key role in developing corporate strategy, controlling subsidiary companies by means of strict budgetary control and where these subsidiaries are viewed as profit or cost centres. Allied to these developments were changes in size, particularly after the mid 1960's through horizontal and vertical mergers and diversification (Utton 1977). More recently there has been evidence of

companies continuing to reduce centralised direction and develop 'mini-factories' and flexible manufacturing systems (Edwards 1987) with the themes of flexibility and employee involvement being stressed, combined with strict cost control (Edwards 1987, Brown 1986).

Overall, this section has attempted to place the question of employer attitudes within the wider context of the organisations and society from which they are largely derived. Put simply, organisations, and those that run them, operate within an economy organised on capitalistic lines where survival rests on the ability to ensure continued growth and profitability via capital accumulation. The pressures to abide by the 'rules of the game' will vary within and between organisations and across market contexts, but as the quote from Hill (1981) illustrates, managerial behaviour cannot be reduced to managerial preferences, the disciplines exerted by the capitalist market economy significantly constrain the objectives organisations can set for themselves and the extent to which they can deviate from these. Likewise, the same pressures will significantly constrain the degree of freedom managers have in deviating from such objectives.

The model of employer/managerial attitudes that can be derived from the above discussion has four main elements. These are essentially, organisation's cost structures and changes therein, present and future demand, present and expected levels of competition and socio-cultural/ political factors. Thus:

$$E^*A = f [C, C^*, Q, Q^*, COMP, COMP^*, SCP]$$

Where:

E^*A = Employer/managerial attitudes

C = Cost structure

C^* = Changes in cost structure

Q = Present demand

Q^* = Expected future demand

$COMP$ = Present level of competition

$COMP^*$ = Expected level of competition

SCP = Socio-cultural/political factors

COST STRUCTURE AND CHANGES IN COSTS

The significance of cost structure for employers is stressed in Marshall's work on the elasticity of derived demand. To summarise, employer attitudes to changes in wages/earnings will depend upon the elasticity of demand for the product, their ability and willingness to substitute capital for labour, unskilled for semi- or skilled workers or non-union for unionised workers (thus significantly affecting the bargaining power of particular groups of employees), the extent to which labour represents a significant proportion of total costs (much will also depend on what is happening to productivity) and labour's share in value added. Assuming that labour represents a significant proportion of total costs for many firms then, *ceteris paribus*, increases in real wages/earnings will be more likely to be resisted, particularly if their ability to pass on such costs to consumers is limited. However, recent evidence suggests that firms are also interested in the size of the wage bill so that if increases in earnings can be traded off against redundancies the pressure on costs may be negligible.

In addition, employers are also concerned with changes to total labour costs (Oi 1962) with increases/decreases in payroll taxes. Thus, changes in government policy which lead to increases in employers National Insurance contributions may precipitate attempts at cost cutting by employers which may increase the likelihood of strikes occurring.

PRESENT AND FUTURE DEMAND

Closely linked to the issue of levels of competition considered below. It can be expected that firms facing steadily increasing demand for their products can more easily respond to employee demands for better pay and conditions in view of their increased profitability. In contrast, firms facing a steadily worsening market situation in terms of declining demand for their products will be more likely to resist pressure from workers for improvements in pay and conditions. In addition, such firms will be more likely to initiate measures aimed at increasing efficiency and cost control which would again be more likely to be resisted by workers.

This contingency view assumes that factors such as the nature of demand and competition would have implications for organisational structure. Organisations facing rapidly growing dynamic product markets will tend to develop 'organic' organisation structures, flexible and decentralised. In contrast, those facing stable and largely predictable markets with limited competition will develop 'mechanistic' structures, more rigid, bureaucratic and hierarchical (Burns and Stalker, 1961). Although accepting that organisations need both types, product market factors can be expected to significantly affect organisations in their choice of structure and internal systems.

PRESENT AND FUTURE COMPETITION

These factors will significantly determine the degree of freedom firms have in responding to worker demands. For firms in monopolistic and oligopolistic markets, the associated levels of competition will give them limited incentives to utilise resources efficiently. If such firms are enjoying excess profits, their ability to meet demands from workers in the form of higher pay, more relaxed working conditions etc, will be increased. Conversely, firms operating in highly competitive markets can be expected to use resources efficiently and have less freedom for manoeuvre in meeting worker demands for improved pay and conditions.

A relevant factor to consider here is Liebenstein's principle of X-inefficiency (Liebenstein 1966). This rests on the assumption that individuals have their own utility functions independent of the organisations for which they work. Whilst human effort can be varied within set limits, workers may be able to choose the pace and quality of work and the amount of time they spend on certain activities. The extent to which they can do this (maximise their own utility functions with limited influence from their organisations) is likely to be affected by the degree of monopoly power enjoyed or degree of competition faced by an organisation. As Hawkins (1973) has argued:

Management may consume part of the potential profits in a variety of ways e.g by tolerating inefficiency, by....overstaffing and by spending on prestigious buildings and equipment....The more comfortable the situation the less may be the effort which is expended to improve it.

The effect on the employer's ability to withstand employee demands is similar to the account above. Where X-inefficiency exists, firms have more scope to accede to worker demands and thus reduce the possibility of strike action occurring.

SOCIO-CULTURAL/POLITICAL FACTORS

Finally, following Poole et al. (1982, 1993), and the work of Gallie (1978, 1983) there is the impact of broader economy-wide factors which affect employer attitudes. In particular Poole et al. have stressed the importance of control for managers manifesting itself in a wariness towards anything that might undermine that control, for example government intervention or enhanced power and influence to trade unions. Similarly, attitudes towards and perception of trade unions are affected by broader attitudes in the wider society and from the experiences of others. A contrast is clearly provided here by Gallie (1978) in his account of the differing attitudes and behaviour of French and British managers towards trade unions.

Whilst Gallie highlights the importance of deeper cultural bases to attitudes and behaviour and in particular the significance of broad national cultures in accounting for national differences in attitudes and consciousness the importance of local cultures should also be stressed. These would include regional traditions as well as factors such as organisational culture, all of which would be expected to exert an influence on strike activity.

IV

MACRO-ECONOMIC FACTORS

In the Introduction it was stressed that for economists, macro-economic factors are assumed to have a direct impact upon the impact of stoppages in particular because they are assumed to affect worker expectations and/or those of employers. Other theoretical approaches outlined suggested a more modest role for economic factors, principally as background or precipitating influences (see DMR) which, set in the context of structural and organisational factors influence a number of dimensions of strike activity. Notwithstanding the criticisms of the approaches employed by economists it is possible, given worker organisation and attitudes favourable to the use of the strike weapon to identify a number of direct ways in which broad macro-economic factors can be expected to influence strike activity.

First, in the short-run, movements in the short-term business cycle, by creating uncertainty in the environment affect perceptions of the future held by workers and employers. Following Rees (1952) it can be argued that these perceptions are likely to be furthest apart at the peak of short-term cycles, thereby increasing the likelihood of a higher number of stoppages at the 'turning point' of the peak of these cycles (Mayhew 1979).

Second, where macro-economic factors are of such intensity and severity that they exert a more direct impact on the attitudes and perceptions of the parties. Clegg (1979) has suggested that such factors were particularly important in Britain during the 1970's and swamped the effect of other factors, such as bargaining reforms on strike patterns during this period. As well as affecting stoppage numbers, economic factors can be assumed to affect other dimensions of strike activity. For example, in periods of high inflation, *ceteris paribus*, strike numbers might be expected to increase as workers seek to protect real earnings and because the frequency of bargaining increases. Furthermore, where the economic climate is particularly harsh, more people would be affected, as the organisational and structural factors will be unable to provide protection for workers and this may precipitate a spread of strike

action across industries and establishments. In addition, in a situation of high unemployment, stoppages would be expected to lengthen as slack markets provide little incentive for employers to find quick solutions to resolve problems that arise.

In the medium to long term, economic factors linked to broader structural changes may exert a significant impact upon strike activity, for example through the movement of long waves or Kondratieff cycles in capitalist economies (Cronin 1979, Screpanti 1987). The build-up of grievances during a downswing or thwarted expectations at the peak of an upswing lead to periods of intense conflict in the form of strike waves. At these 'crisis points' the interests and expectations of employers and employees would be expected to be furthest apart. In the case of long waves, attitudinal restructuring during an upswing and the establishment of new dominant values would generate an expectation of continued benefits into the future. A move into downswing would be expected to show up initially for employers because of changes in orders and only later for employees and lead to an increasing gulf between the expectations of the future held by each group, increasing the likelihood of disagreement and reducing the chances of compromise short of a stoppage. Furthermore, Cronin (1979) has argued that such waves are associated with a greater spread of conflict across industries which would have the effect of increasing stoppage incidence.

Overall, although macro-economic factors are normally seen to operate as background variables with respect to strike activity. The discussion suggests that macro-economic factors can exert a more direct influence on a number of dimensions of strikes, with their precise impact affected by specific organisational and structural contexts and critically, by the ways in which they are interpreted and acted upon by managements. These direct channels emphasise the role of economic factors in creating uncertainty in relations between employers and employees and, more specifically in representing fundamental changes in the national, international or structural contexts within which such relations take place and develop.

V THE STATE

In Chapter 2, a summary of the main elements of the DMR analysis was presented and the emphasis placed by them on the role of government noted. Their focus on government stemmed from the view that:

In each sub-period there have been certain aspects of the post-war strike pattern where the reactions and policy initiatives of successive governments have been decisive (1983: p.414).

In keeping with other 'institutionalist' accounts of strikes, DMR employed a conception of the state which focused almost exclusively on government and the legislature as the main channels through which the state influenced the conduct of industrial relations. However, as was noted earlier, these factors were given considerably more prominence than is customary in 'institutionalist' works.

It is the contention of the present study that DMR are correct in their elevation of the role of government as a major factor in the post-war strike pattern but that this role is more pervasive than they suggest. In addition, the extent to which government initiatives can be treated as exogenous influences on strike patterns particularly in the more interventionist phases of the state since the mid 1960s needs to be examined in more detail. This links to a more fundamental concern with their work. Implicit in their account is a liberal-pluralist conception of the state with the latter as a neutral arbiter regulating conflict through different interest groups. Such a perspective tends to explore state initiatives as independent of developments within the wider economy. Within DMR the state-economy relationship is unspecified and unexplored, with the variables employed reflecting the perceived need to ensure stability and conflict resolution within the industrial sphere, rather than examining variables concerned with ensuring stability and the management of conflict including class conflict more generally. The fact that successive governments may themselves have been the cause of some of these conflicts is only briefly explored.

Perspectives on the State

It is not the purpose of this section to engage in a prolonged discussion of the role of the state* in capitalist societies although the following analysis draws upon material from a range of perspectives. It should be noted however, that although theories of the state have been dominated by debates between liberal-pluralists and marxists and within these traditions, the two schools have moved closer together on a number of central issues in recent years (Lindblom 1977, Dunleavy 1981, Kelly 1988). In particular, marxist writers who subscribe to class theories of the state (Urry 1981, Clegg et al. 1986) lay stress upon the often contradictory policies of the state, the heterogeneity of capital's interests (Strinati 1982), the diversity of interests within the state (the predominant role of the Treasury) and the unintended consequences of state actions, much of which liberal-pluralists would find little to disagree with. Both schools also see the state's role in terms of maintaining order and stability and containing class conflict (Middlemass 1979, Miliband 1985), reflected in a parallel interest in the emergence of corporatists and neo-corporatists developments in the UK and elsewhere in the 1960s and 1970s (Crouch 1977, 1982, Panitch 1980, Strinati 1982). Similarly, liberals and marxists have many elements in common. They both see the state as responding to pressures emanating from within civil society and see its actions as determined by the underlying logic of modern market society (Zeitlin 1985).

The largely deterministic conceptions of the state as developed by a number of marxists and liberal writers present an analysis of the state's role in respect of strikes with some difficulty. If the nature and actions of the state are largely determined by the economic base and that the state is essentially a passive respondent to pressures from within civil society the state's role in respect of industrial relations and particularly strikes is largely an endogenous one, and makes it difficult to analyse its role in respect of these issues. One approach which potentially overcomes these problems and permits an analysis of the state consistent with the general approach of DMR is that of Zeitlin (1985).

* The state is here defined as institutions, the government, administration, legislature, military and the police, local government and parliamentary assemblies and the relationships between these (Miliband 1969, Middlemass 1979, Hill 1981).

Zeitlin's work, whilst critical of both marxist and liberal-pluralist conceptions of the state could be integrated into the area of consensus between the two schools. His particular concern is with the question of why the state has acted in ways that helped to foster shop-floor bargaining and workers job control albeit unintentionally (Tolliday 1985) and places emphasis upon the interests of state leaders as separate from those of the economic base. Zeitlin therefore stresses the need to see the state as a complex institution and as potentially autonomous, with its own interests and capacity for action. As he argues;

State's can therefore pursue interests distinct from and potentially opposed to, those of all the contending groups which make up civil society (1985: p.27).

In the case of the British State in the twentieth century, he cites the requirement for it to balance conflicting objectives which aided the prevalence of short-term decision making.

Zeitlin's analysis has particular relevance for the present work, specifically because it can be 'locked onto' the role of government developed by DMR without altering their general approach. It retains the notion of the state as a largely exogenous factor, relatively independent of the economic base, and permits an extension of their work rather than its replacement by a different theoretical framework. It has the further advantage of extending the range of state influences beyond those commonly found in institutional-pluralist accounts. As Tolliday (1985) has argued in the context of the state's influence in the British motor industry industrial relations:

The wide ranging importance of the state to the shape of development of industrial relations in this industry.... suggests the need for a wider framework for looking at the state, than, that for instance used by Clegg....The notion of 'abstention' which characterises Clegg's description of the state's role in fact evades most of the difficult substantive questions of how the state operates in this area and the actual influence that it exerts (1985: p.139).

Both Zeitlin and Tolliday provide an important service in highlighting the complexity of the state and hitherto benign aspects of the state's role in influencing industrial relations. However, this view can be challenged and such challenges need to be addressed before proceeding further. In particular, the case studies on which Zeitlin draws, concentrate on an era in which the state played a less interventionist role in industrial relations and where the maintenance of social and economic stability was achieved through liberal collectivism and the welfare compromise (Crouch 1977, Dunn 1987). This rested upon the requirement that economic growth would provide sufficient 'headroom' to satisfy labour expectations. If the state's role changed from the 1960's in order to find new ways of securing stability, this, like its predecessor might have had unforeseen consequences at the micro and macro levels but was, in contrast to Zeitlin's analysis, a distinct reaction to problems arising within the economic base, although this does not negate the point that the state could still choose how it responded, and clearly different parts of the state apparatus could and did advocate different responses. An additional point is that although the state could have responded in different ways to ensure economic and social stability, it was increasingly required to provide political solutions to what were problems generated from within the economic sphere. When it became apparent that in doing so it was having to 'reconcile the irreconcilable' the greater was the likelihood of a 'legitimation crisis' to develop in the existing economic and political order (Habermas 1976).

THE STATE AND ECONOMY

Although Jessop (1978) has provided a clear rationale for the state's dependence on the economic base and for why it is continually reacting to economic events, as was noted above the state can respond in different ways and many writers now argue that the relationship between the state and the economic base is not static and changes in response to changes in economic performance and the need to maintain stability (Crouch 1977, 1982, Strinati 1982). An illustration of this view is provided below drawing particularly on the work of Crouch (1977).

Crouch has emphasised the state's commitment after the second World War to maintaining full employment by running the economy at a high level of aggregate demand and to the 'welfare compromise' (what others have termed the 'post-war settlement' (Leadbetter 1987), within a general philosophy of liberal collectivism. We have noted above that this depended for its success on the ability of the economy to deliver sufficient growth to satisfy worker expectations, employers, in turn had confidence that production would continue uninterrupted and that wage increases could be conceded with little fear of being priced out of markets (Crouch 1982 p.32). However, Crouch argues that by the 1950's the problems of reconciling conflicting objectives began to emerge fuelled by the relatively poor growth performance of the economy so that 'headroom' was provided by inflation interspersed with occasional periods of unemployment. Stability was nonetheless achieved until the 1960's by the institutionalisation and limitation of conflict within the compromise and by ideological restraints on worker ambitions (Crouch 1982, but particularly Panitch 1976 on the commitment to social democracy by the Labour party aiding the integration of the working class).

These problems led successive governments to seek ways of controlling rising labour costs and improving productivity most notably at the macro level via incomes policies and latterly a more restrictive legislative framework in industrial relations. This increased awareness of supply - side deficiencies in the economy led fractions within capital in the 1960's to break with the compromise (Price 1986) and provided an

initial impetus to attempts by the state to influence, if not actively intervene at a micro level in production relations. These sections within capital moved to restructure elements of the labour process in three ways. First, by changing payment systems to reduce the number of issues available for bargaining and the frequency of bargaining via measured daywork. Second, by attempts to regain control over the utilisation of labour through productivity bargaining, and third, increasing the formal rationality of payment structures through job evaluation (Price 1986). These attempts to restructure elements of production relations were all subsequently encouraged by the State, as was the reform of collective bargaining under the auspices of the CIR and latterly ACAS, and capital restructuring in the 1960's via the IRC. All these changes had implications for industrial relations and a potential impact on strike activity. In the case of the IRC, the formation of GEC provided an opportunity for 'rationalisation' and in BL the creation of a large company from smaller units widened the orbits of comparison for pay claims (DMR 1983). With the reform of collective bargaining we discussed above the view that this could provide the basis for conflict (e.g. Goldthorpe 1977, Hyman 1975). A view which receives substantial support in respect of reforms introduced in State owned enterprises such as BL (Willman 1984).

That the state felt it necessary to intervene to ensure economic and social stability and to ensure the resources of the state and its ability to perform certain functions, did not prescribe the strategy or techniques of intervention that it could adopt. As Hill (1981) has shown, the state could have responded with a policy of restrictive labour legislation and high unemployment although this was generally seen as a politically unacceptable option in the 1960's (see Shonfield: Donovan Report 1968). Alternatively it could have relied on coercion to achieve what were seen as necessary changes or it could (and did) opt for a more consensual approach based on corporatism or 'bargained corporatism' (Crouch 1977, 1982). As Panitch (1980) has argued, this may have been the only way in which the State could have, in principle, ensured wage restraint and profit levels in the context of maintaining full employment. Nonetheless, despite or possibly because of increasing interventionism by the state, problems remained. The need to reconcile the contradictory problems

of containing incomes on the one hand and to prevent damaging disputes on the other (Hyman 1975) and more generally, the inadequacy of political solutions to problems generated from within the economic sphere. A final problem concerned the emergence of 'bargained corporatism' and the increasing importance of political exchange for trade unions (Pizzorno 1978) resting as it did on union leaders' ability to 'deliver' deals negotiated at the level. Such corporatist tendencies relied on the unions' ability to control their members; in the context of a decentralised trade union movement such as that in Britain the tension between the national and shopfloor levels posed a constant threat to the unions' ability to deliver at a local level what had been 'negotiated' in the political arena.

Such concerns were evident in the late 1970s and in the emergence of concerns with the 'strong state' under the Conservative governments in the 1980s (Gamble, 1988). The option identified by Hill and discarded in the 1960s was pursued with increased vigour in the most recent period with a political concern to 'free-up' markets and allow enterprise to flourish by 'creating the conditions' alleged to be necessary to encourage such entrepreneurial zeal. This entailed the enactment of successive pieces of restrictive labour legislation, giving rise to claims that a 'juridification' of industrial relations had taken place (Lewis, 1987), together with a further weakening of the labour movement, in part, through the unemployment generated as a result of the policies pursued. The important point is that a succession of governments committed to a set of political and ideological principles further undermined and finally broke the 'post-war consensus' and restored the principle of the market through encouragement of 'supply-side economics' to a central position in economic activity.

SUMMARY AND CONCLUSIONS

This discussion of the role of the state has adopted an approach which views it and its relationship to the rest of the economy as being significantly influenced by events within that economy, but stresses the degree of choice the state has in intervening (or not intervening) to ensure accumulation. In addition, state initiatives are seen to have an independent impact on areas of the economy and industrial relations which may

be unforeseen by policy-makers (Zeitlin 1985, Tolliday 1985).

State initiatives affecting industrial relations take a variety of forms which extend beyond the direct industrial relations variables employed by DMR. First, there are those factors which impact directly on the conduct of industrial relations, including methods of conflict resolution, incomes policies and labour legislation and judicial decisions. Second, the generalised effects of state intervention in terms of policy changes and the creation of a more uncertain environment within which organisations have to operate. Third, those initiatives which feed directly into the determinants of worker and employer attitudes, including fiscal and monetary policies. Fourth, incentives and encouragement to companies to adopt 'good practice' in industrial relations such as through the CIR and ACAS, productivity bargaining and the reform of collective bargaining. This would also include the state as the model employer and more recently the encouragement to strong management initiatives in a number of public corporations with the intention of acting as a role model for the private sector (Beaumont 1987). Allied to this is the ideological component to state actions, statements and inactions in the field of industrial relations. This would include general attempts to influence public opinion and workers in particular of the benefits of negotiation and compromise and recent assertions of managements' 'right to manage'. More specifically it would include government attempts to influence the parties in collective bargaining, such as pressure on the EEF in the late 1950's and more recently the employers sides of negotiating forum within the public sector (Winchester 1983).

VI

PRODUCT AND LABOUR MARKET FACTORS

With the emergence of certain strands of the labour process accounts of strike activity (see discussion above), the role of product markets in particular, in accounts of strikes has tended to be relegated to the status of a background variable of little importance. Indeed the account of product and labour markets offered by DMR (1983) emphasises the importance of intervening variables between markets and strike activity, in particular the way market changes are acted upon by managers. Their argument in respect of product markets is that:

In all three (industries) product market variations evoked further changes which in turn influenced the level of stoppages.

This does ascribe a greater role to these factors than other writers (e.g Edwards and Scullion 1982) and they further emphasise other, more direct channels by which product markets influence stoppage activity. In their discussion of the coal industry they highlight the role of fluctuations in product demand in influencing the conduct of industrial relations and in their coverage of the docks, emphasise the manner of demand changes, the ways the distribution of traffic differed among ports and how the associated uncertainty affected strike activity. DMR also develop the interplay between product markets and labour demand and managerial responses to these. In the coal industry they argue that competitive pressures led to the introduction of new technology and significant productivity gains which reduced the demand for labour. In turn, the likelihood of conflict resulting was determined by whether management responded via voluntary or compulsory redundancies (see also their discussion of the docks).

Much of the DMR argument concerning product and labour markets therefore rests on the variety of techniques management employed in response to changes in labour demand and the way the changes were introduced e.g unilaterally or jointly determined. Some of their industries allowed natural wastage and a cut back in

recruitment to occur. Others opted for compulsory redundancies; and on other occasions, management responded with alterations in overtime and short-time working. The responses of workers to these changes differed, even responding in different ways to similar situations. The overall assessment on the role of product and labour markets by DMR is illustrated below:

Where changing product and labour market conditions create problems for both sides of industry, the result may be to raise or lower the level of strike activity, **depending on the solutions adopted...**(they) may exert a powerful influence on strike activity, but they are not the determining factor.
(Emphasis added)

In many respects the DMR approach adopts a similar perspective to that of Edwards and Scullion (1982) in laying stress on managerial initiatives and worker responses in an analysis of strikes and emphasising that product markets do not determine either strikes or behaviour more generally. We noted in our earlier discussion that whilst the focus of Edwards and Scullion's work is on the nature and form of the labour process and its relationship to forms of conflict whereas DMR are concerned with aggregate strike patterns their conclusions are similar. We also noted that Edwards and Scullion emphasise that the labour process be seen as relatively autonomous i.e. that product market factors do not determine the nature and form of labour process that develops. Organisations have a number of options with regard to the way labour power is translated into effort so that particular market configurations can co-exist with very different forms of labour process. Whilst accepting this point it obscures a number of ways in which product and labour markets may impact on strike activity in addition to those discussed by DMR. First, there are behavioural implications (DMR above and Zeitlin 1979) in that markets condition the balance of forces between capital and labour and influence relationships within the ranks of workers and managers (see attitudes sections above). Second, product markets in particular significantly affect aspects of industrial, workplace and workforce structure which may permit or constrain certain approaches to the labour process, and third the critical point about the relationship between product markets, the labour process and strikes may lie in situations where contradictions in the circuit of capital occur and

precipitate major changes to the labour process, a point taken up in the discussion of long term movements in industrial strike activity at the end of the Theoretical Model section.

VII

STRUCTURAL FACTORS

(1) BARGAINING STRUCTURE AND INSTITUTIONS

The term bargaining structures here refers to the levels of institutional means and the efficacy of procedures in operation, to resolve conflicts of interest and rights between managers and workers. In the introduction we noted that the emphasis on bargaining structures is a crucial factor setting 'institutionalist' accounts apart from other models of strikes (Kelly and Nicholson 1980). However, within this tradition there are sharp differences of opinion as to the effects of collective bargaining structures in particular on patterns of industrial conflict. The effect of collective bargaining on such patterns is complicated by the fact that, following Parker et al. (1971), five separate dimensions of collective bargaining can be identified, all of which may have an effect on the probability of conflict arising. Parker distinguishes between bargaining levels; industry, company, plant, workplace; bargaining units, which groups are recognised for collective bargaining purposes; bargaining forms, whether formal or informal; bargaining scope, the range of subjects open to negotiation; and bargaining principles, the attitudes of the parties involved in the bargaining process. From this it is possible to hypothesise that, for example, the larger the number of bargaining units, *cet par*, or the wider the scope of bargaining, *cet par*, the greater are the bargaining opportunities and the greater the probability of a failure to agree and conflict to result.

Before considering these dimensions in more detail it is valuable to locate collective bargaining within a broader framework and discern changes within the 'institutionalist' tradition. In the 1950's and 1960's much of the interest in collective bargaining focused on it as a 'political' mechanism providing for an 'institutionalisation of industrial conflict'. For these writers (Harbison 1954, Dahrendorf 1959, Lipset 1959, Dubin 1954), collective bargaining provided a means of separating industrial from political conflict by channeling industrial issues away from the political arena, producing their institutional isolation. Consequently it was seen to narrow the focus of conflict by reducing the number of contentious issues so

that 'workers' experience in industry does not provide a model for interpreting the global structure as being divided into antagonistic classes' (Kerr et al 1962). For Dubin (1954) collective bargaining was 'the great social convention that has institutionalised industrial conflict' and for Lipset provided a means whereby unions could integrate their members into the larger body politic giving them a basis for loyalty to the system, echoing the view of the Webbs (1897) that when unions and collective bargaining were accepted conflict would be reduced. Lastly, it was claimed that the political value of collective bargaining could, by helping to resolve industrial conflict and enhance the rights and dignity of workers provide 'one of the most important bulwarks for the preservation of the private enterprise system' (Harbison 1954).

For these writers, collective bargaining would ensure a separation of industrial and political conflict and impede the emergence of a coherent class consciousness by integrating the trade unions and their members into the wider society. This social integration argument is implicit in the work of Ross and Hartman (1960) describing the 'withering away' of the strike on the basis of the 'institutionalisation of industrial conflict' via the joint regulation of terms and conditions of employment. In their analysis, the development of industrial society is seen to be associated with more mature and responsible trade unions and employers, highly developed bargaining structures and, at a political level, government encouragement of joint regulation and the development of stronger links between the Labour Party and trade unions. All of which would, according to Ross and Hartman, lead to a reduction in levels of conflict. Despite the subsequent theoretical and empirical criticisms of this work (Hyman 1984), it, and the work of Turner et al. (1967) were very significant in the Donovan Commission's analysis of strike patterns. For Donovan (1968), the number of small, short, unofficial and unconstitutional stoppages in Britain in the 1960s could be accounted for by the fragmentation of collective bargaining and the attendant volume of bargaining at workplace level allied to the growing number of shop stewards. In effect, the number and type of strikes in Britain were seen to be a direct result of the failure of joint regulation at the industry level and the inadequate conduct of industrial relations at company and plant levels. Despite the fact that the

Commission's view 'was not grounded in any detailed investigation of the evidence' (Clegg 1979), with little account of how this situation had arisen (DMR 1983), its conclusions were interesting and influential. Borrowing heavily from Turner et al. (1967) and their concept of 'institutional obsolescence', the apparent failure to contain conflict could be remedied by substantial procedural reform. To borrow Parker's classification, this involved an increase in the scope of bargaining (although substantially less than that advocated by McCarthy and Ellis 1973), a formalisation of bargaining, a reform of procedures, particularly disputes procedures and to introduce them where they did not already exist. The increased use of written procedures, and, finally, a change in the levels of collective bargaining towards plant level or company level in the case of multi-plant companies.

More recently Clegg (1976), refining the Donovan Commission's view of strikes, has argued that strike patterns are explained largely by means of the system of collective bargaining; the level of bargaining, disputes procedures and the indirect effect of the level of bargaining through factional competition (1976 p.80). For example, where comprehensive and efficient disputes procedures exist, these are associated with a small number of official and unofficial strikes and thus a fall in the overall level of strike activity. Clegg stressed however, that collective bargaining does not account for short term changes in strike patterns, these being the result of external factors such as incomes policies, price inflation and changes in taxation and legislation. This last point is illustrated by his account of strike activity in the 1970's when he stated that apart from explaining the nature of strikes in the public sector:

The structure of collective bargaining appears to make only a modest contribution to accounting for post-Donovan strike trends (Clegg 1979).

Overall, Clegg's analysis implies that if bargaining is reformed we should expect to see at best, fewer stoppages and certainly larger and longer stoppages. The latter point arises because, as a result of reform only intractable matters will now become strikes (Edwards 1982). Finally, as a result of more effective procedures more of the

strikes occurring would be official and constitutional. In essence therefore, Clegg's argument is that reform of bargaining structure will affect both the form and the incidence of strikes and that reform will tend to restore order and relative peace to the industrial relations system.

The work of Durcan, McCarthy and Redman (1983) as we have seen represents the latest variant of the 'institutionalist' approach, yet in their discussion of collective bargaining institutions appear to share some of the concerns of more radical writers (Fox 1973, 1974, Goldthorpe 1977). DMR take issue with Donovan and Clegg over what they see as an over-emphasis on procedural reform to the near exclusion of substantive issues and argue that changes in the bargaining format per se would have little effect on reducing conflict unless these were accompanied by changes in the substantive terms. More generally they argue that 'policies to reduce strikes are unlikely to be successful unless they include means which tackle the sources of such conflict' (1983 p.410). Their general argument is as follows:

Reform of procedures, along with other forms of bargaining change advocated by Donovan might well be expected to have an impact on the strike pattern through bringing about a change in incidence and form - but unless comparable measures had been taken to reduce the scale of conflict any beneficial results were likely to be severely limited (p.411).

Thus, for DMR, changes in the bargaining level per se would be likely to affect the form that strikes action takes but may over time leave the incidence unchanged.

Finally, DMR stress that the question of procedural inadequacy is closely linked to the growth of shop steward organisation and the factors together are held largely responsible for the growth of the 'micro-stoppage' and the 'contagion effect' (p.411 and above). The two are seen as:

A kind of transmission mechanism - turning the conflicts generated by the clash between worker expectations and managerial intentions into bargaining requirements and opportunities (p.411).

In this section the importance of collective bargaining structures have been emphasised within the 'institutionalist' framework as well as the diversity of approaches within this tradition. The importance of this last point is illustrated by the fact that most 'institutionalists' would support a link between the emergence of fragmented bargaining in the 1950's and 1960's and the increase in strike activity but would suggest very different strike experiences in the reform and post-reform era of the 1970's and 1980's.

In addition to the debates within the 'institutionalist tradition, writers within the unitarist framework would have expected reformism to have had limited effects on strike patterns, rather than the stimulus to trade union recognition and growth which accompanied reform might have been expected to have led to increased strike activity (Batstone 1984). Similarly, those within the radical tradition had serious misgivings about the reformist prescription and about the Donovan analysis in particular. Goldthorpe (1977) suggested that Donovan largely ignored the conflicts which might be associated with reform where parties are required to change practices with which they are content, a point echoed by marxist writers (Cliff 1970, Hyman 1975) who suggested that the degree of consensus between the parties in wishing to pursue reform might be minimal. Finally, Batstone (1984) has suggested that Donovan failed to account for the possibility of rising expectations as a result of reform. Whilst it is not the aim of this work to examine these positions in detail, they suggest reformism could be associated with a range of possible outcomes in terms of strike activity.

(2) INDUSTRIAL STRUCTURE

Some consideration of the structure of industries and plant size is a common component of many cross-sectional studies of strike activity, but is rarely used in time-series work. However, we have argued under the section on employer attitudes that structure is likely to be important in relation to these in its impact on the internal organisation of companies, the effectiveness of management control systems and the conduct of industrial relations. In this section, the implications of industrial structure for strike activity are developed in more detail and this is coupled to a brief survey of changes in industrial concentration in the post-war period.

In recent years industrial concentration has spawned extensive research (Hannah and Kay 1976, Aaronovitch and Sawyer 1975, Hart and Clarke 1979) with a particular focus on changes in aggregate concentration. Hannah and Kay identify, in common with other writers the significant changes that took place in aggregate concentration in the 1960's. They show that, whereas in the 1940's the share of the value of total assets accounted for by the largest 100 manufacturing companies stood at around 57%, this had risen to 60.1% in 1957 and to 74.9% in 1969. If the analysis is confined to the 50 largest companies the figures for 1957 and 1969 are 48.4% and 60.6% respectively. According to Hannah and Kay, aggregate concentration continued to increase to 1973, although the share of the 50 largest companies shows little change between 1969 and 1973, and since this date appears to have changed very little. The changes in the internal organisation of these companies, discussed above, can be gleaned in more detail from work carried out by Prais (1976). Evidence that the average size of firm has been increasing is provided by the fact that in 1958, the 100 largest companies averaged 27 plants each, whereas by 1972 this had risen to 72. However, over the same period the average employment in these plants fell from 750 to 430 employees. Of related interest is the fact that these companies appear to be heavily diversified. Utton (1977) in a study of diversification amongst the 200 largest manufacturing companies in the UK for 1974 found that, on average, they operated equally in over four separate three digit industries.

The evidence of industrial concentration is broadly similar to that found at the aggregate level. Armstrong and Silberston (1965) for the period 1951-8 found that 'the extent to which many industries are dominated by a few 'giant' enterprises appears to be increasing', a finding which was subsequently endorsed by Shepherd (1966). An appreciation of this trend for the post-war period until the mid 1970's is provided by Hart and Clarke (1979) who argued that the share of the three largest enterprises in the typical manufacturing industry in 1935 was 26%, rose to 29% in 1951, 32% in 1958 and to 41% in 1968, with a slight increase to around 42% in 1973. This disguises considerable variation between industries but in the classic heartland of British industry at least it appears that the scene is dominated by a small number of enterprises (Purcell and Sisson 1983).

The implications of these changes for strike activity are not clear. These trends, via mergers in particular (Hannah and Kay 1976) towards oligopolistic industries with attendant market power might suggest that large firms in these industries would be able to secure monopoly profits which could be shared with employees. However, the extent to which profits and concentration are related has been the subject of empirical debate. Early work by Stigler (1963) and Hart (1968) found no direct positive link between the two, although Bain (1956) found a significant effect when CR8 was over 70% but not when it was below this figure. Work on a survey of industrial groups also supports a positive link between profit rates and levels of concentration (Nickell and Metcalf, 1977). If higher profits and concentration are positively related, we would expect, following the argument of earlier sections that workers would increase their demands on the grounds of fairness and, if mergers widen the 'orbits of comparison' for workers, the greater number of comparative groups might mean employers would be more likely to concede these increases. Work by Hart and Clarke (1979) broadly confirms this. Using an approach based on bilateral monopoly where wages would be expected to be higher than in competitive industries they found evidence that higher monopoly profits are absorbed by higher wages. This view is of course consistent with the presence of X-inefficiency in monopolistic organisations, allowing them some flexibility in acceding to worker demands.

The argument of earlier sections suggests there is another possible route from concentration to strike activity which stresses the likelihood of stoppages arising as changes occur in concentration through mergers and divestment. Such changes can be expected to challenge established patterns of behaviour and 'dominant workplace values' (Peters 1978, Waddington 1987) particularly in the acquired plants or those about to be sold off or closed. We would suggest that the prelude to such changes and the transitional phase during which changes are taking place and new values and behaviour patterns established are likely to be marked by a greater willingness to resort to industrial action. Their ability to do so as, we have stressed throughout, is dependent upon the resources of organisation and specifically shop steward organisation available to them.

The fact that an industry is highly concentrated does not necessarily mean that it faces little competition, as measures of import penetration testify. In the employer attitudes section, broad changes in organisation in the 1960's (from U-form to M-form) were noted. These changes have also been accompanied by significant alterations within management (Purcell and Sisson, 1983), so that in many companies despite industrial concentration, the importance of X-inefficiency and thus the scope for acceding to pay demands may be less than is commonly assumed or has become less throughout the post-war period in many industries.

Finally, consideration needs to be given to the relationship between plant size and strike activity. In general, the evidence suggests a significant positive relationship between the two (Prais 1976, Smith et al. 1978, Shorey 1977, Edwards 1980, Brown et al. 1981, Daniel and Millward 1983). The Department of Employment study in particular (Smith et al. 1978) emphasised the concentration of strikes in plants with more than 500 workers. However, the fact that plant size and strike activity are related tells us little about the nature of that relationship. Shorey (1977) has provided a rationale for this which emphasises the following factors. First, the bureaucracy associated with large plants, with long chains of command and communications problems (also Edwards 1980). Second, the large number of workers employed on similar tasks provides a platform for the emergence of collective grievances. Third,

the nature of the technology and production system and the use of specific forms of payments system and, fourth, the greater number of separate jobs and the tendency towards multi-unionism. Recent work suggests the latter may be a particularly important factor (Metcalf et al., 1993). Shorey argues further that conflict will be more likely in larger plants and, because of the interdependence of work in such plants, will be more costly when it occurs. This suggests that the bargaining power of workers is considerably enhanced in such plants because of their strategic position within the production flow and that managers have a significant incentive to improve their labour relations function and internal control systems and/or reduce plant size. Interestingly, in view of the discussion of changes in industrial organisation above, whilst Shorey found a positive relationship between strike activity and plant size, he found a negative relationship between firm size and industrial conflict.

VIII

MANAGERIAL INITIATIVES

The role of management and managerial initiatives in influencing the conduct of industrial relations has been stressed by writers from a variety of theoretical perspectives and in the 1970's received increased attention as a result of renewed interest in the labour process and latterly management strategies. The ensuing debate surrounding the latter emphasised the role of management in structuring the process by which labour power is translated into effort and the ways in which the form of the labour process can have implications for the nature of conflict which may arise (Edwards and Scullion 1982, and discussion in Introduction). In the earlier section we stressed the more specific role of managerial initiatives as a factor in explaining strike patterns which characterises the approach of Durcan, McCarthy and Redman (1983). Whilst accepting the importance for strike activity of the nature of labour management relations embodied in the specific form of the labour process the focus here is upon the role of managerial initiatives generally for strike activity (accepting that the nature of the labour process and how this is perceived by workers will affect the way managerial actions generally are perceived).

Despite their concern with managerial initiatives, DMR do not clarify their exact form. They are taken here to refer mainly to decisions taken unilaterally by managements in areas which directly affect the conduct of industrial relations within organisations. Such a definition presents at least two problems. First, it is not obvious which areas within an organisation are jointly determined and which unilaterally by management and second, in common with other elements of the theoretical model, the definition locates these initiatives at a company or plant level (although encompassing the initiatives of employers associations at the industry level) whereas in the operational model these are examined at the industry level. In addition, the significance of these initiatives is likely to be most important where managers introduce changes in areas which have previously been the subject of joint determination between managers and trade unions, for example the changes to working practices in the car industry in the late 1970's and early 1980's (Willman

1984, Marsden et al. 1985), or more generally where these changes interrupt and threaten to undermine accepted established patterns of working.

Accepting these points, the main focus of managerial initiatives in this study are those concerning payments systems, bargaining structures, the methods employed to cope with fluctuations in product and labour market conditions and in particular the methods adopted by managers to achieve reductions in manpower. Such a set of factors can be criticised for being too restrictive. In particular, changes in the workforce composition, and establishment size could justifiably be included in this section. We have chosen to place them in other sections on the grounds that other influences, market size, nature of the product, competitive pressures etc, significantly constrain managerial action in these areas. However, we would stress the importance of this factor; broader economy-wide factors will affect all firms, but how managers react to or anticipate these changes will significantly affect the likelihood of strikes taking place. Furthermore, the dividing line between managerial initiatives and other factors is an artificial one, in practice managers have a significant influence on the shape of a wide range of variables beyond those we have described as managerially initiated.

This issue of managerial responses and more broadly, strategies developed in the area of labour management as a result of product and labour market changes is a central element within our explanation of long run changes in strike totals and particularly in non-pay stoppages. Our account of long run movements in strike totals emphasises managerial responses to product market change particularly where these generate contradictions or disarticulations in the industrial circuit of capital.

The issue of management strategy as opposed to management initiatives is also important. The latter implies a largely reactive role for management whereas the former suggests a planned, proactive stance in the management of labour. There is a strong case for arguing that in a number of industries a more planned, systematic approach to industrial relations is evident from the mid 1970s (after the DMR study period) and consideration needs to be given to this, even if the strategies pursued

differ at an operational level from their original intentions (Edwards and Heery, 1989).

IX

LONG-TERM MOVEMENTS IN STRIKE ACTIVITY

In the Introduction, a number of approaches to the examination of strike activity was identified emphasising their origins within specific disciplinary areas. An alternative formulation would have been to distinguish them on the basis of cross-sectional as opposed to time-series analysis and, within the latter, on their concern with year-on-year variations or on longer term movements in strike activity.

Those accounts which have been concerned with broader movements in strike activity have been almost exclusively concerned with aggregate strike patterns rather than with movements at the industry level. Those studies with an aggregate or international focus have emphasised the particular role of political factors although debate continues around the exact nature of these influences. In institutionalist accounts, such as DMR (1983) it is the role of government via incomes policies, legislation and state sponsored conciliation and arbitration which is seen as accounting for the main variations in strike volumes over time. In contrast, the work of Shorter and Tilly (1974) emphasises the association between peaks of strike activity and political crises and that at such times strike activity is overtly political in its aims and focus. Other political approaches such as Korpi and Shalev (1979) see links between working class strength and the political arena so that the election of social democratic governments is associated with a decline in strike activity as class interests are pursued in the political as opposed to the industrial sphere. This would predict a 'withering away' of the strike but one significantly different from that advocated by Ross and Hartman (1961) where stress is placed upon trade union support for Labour parties and the institutionalisation of conflict through collective bargaining as the basis for declining strike activity. At the general level, the role of political factors can also be seen in the work of Hibbs (1974) and Cronin (1979).

Whilst political factors are clearly important at an aggregate level, their possible influence at a more micro level has been relatively neglected (cf Pencavel 1969, DMR 1983) and obscures the fact that even at the aggregate level, political factors may be

mediating the impact of broader factors. Evidence for this can be found in the work of Screpanti (1987) where waves of strike activity are seen to occur at similar periods in time in different countries suggesting that factors specific to a country (such as political changes) are inadequate in accounting for these broader movements.

In terms of movements in the aggregate pattern, a number of writers have stressed the role of international factors, such as movements in world trade and passages into qualitatively different phases of economic development. The latter has been emphasised by Cronin (1979), Gordon, Edwards and Reich (1982) and by Screpanti (1987). In these approaches the role of political factors assumes that of responses to deeper seated economic changes and that whilst governments can and do respond in different ways to these broader factors which may exacerbate or militate against overt conflict it is these broader changes which are the critical precipitating condition. To illustrate this point, the period from 1968-1973 was one of heightened levels of strike activity in most West European economies (Crouch and Pizzorno 1978) although the magnitude differed between countries. The factors contributing to the 'strike wave' are generally cited as a slowdown in world trade from the mid 1960's clashing with workers expectations of continued prosperity leading to a gap which the lack of 'headroom' previously provided by economic growth was unable to satisfy. The impact of these factors was strengthened further by attempts at wage restraint and restrictive legislation (at least in the UK) and heightened grievances. In the UK other factors, the spread of shop steward organisation and the weaknesses of regulatory mechanisms together with organisational responses to the changing environmental contexts served to further increase the likelihood of conflict arising.

These factors taken together suggest that like, year-on-year variations, broader movements in aggregate strike activity have complex roots and cannot be reduced to the impact of one or two variables. In addition whilst these factors are likely to exert an impact at the industry level their influence will be mediated by an additional set of factors (e.g specific market contexts, management strategies and initiatives, bargaining structures, payments systems etc) and that broader strike movements at this level will be affected by influences more specific to these industries and to how

these are acted upon by managers and the extent to which these actions undermine workforce values and expectations.

THE INDUSTRIAL CIRCUIT OF CAPITAL

In the Introduction we suggested that work by Kelly (1982, 1985) offered a useful framework for analysing the role of product and labour market factors in emphasising the need to examine the full circuit of capital. His work, carried out in the context of job design argued that the significant factor leading to the adoption of such techniques was disarticulations and contradictions within the circuit of capital so that major changes in product and labour markets may not be accompanied by changes in the labour process. For Kelly, it is these contradictions which are the motors of change, suggesting a more direct relationship between market changes and labour process changes. This analysis has the merit of recognising the significance for managers of realising profit rather than merely being concerned with control and the extraction of surplus value. Thus, if the realisation of profit in product markets is easily obtainable, firms may be less concerned with the labour process and, in keeping with the argument of earlier sections, will be better able to meet demands that do arise. Significantly however, the contradictions within the circuit, imply that even when realisation becomes more difficult firms may not respond immediately. As Hobsbawm (1964) has stressed in respect of the nineteenth century in Britain.

It was safer, if less efficient, to stick to the old ways, unless the pressure of profit margins, increased competition, the demands of labour or other inescapable factors forced a change. But the period of major economic upheaval after the Napoleonic wars and the crisis of 1873 subjected employers to just this kind of pressure.

For Hobsbawm, it was the changes in the late nineteenth century in Britain and the emergence of a crisis of profitability which created the conditions for an 'efficiency movement' in reorganising production. Likewise, for Kelly (1985) it is these contradictions, in this case a crisis of profitability, which necessitated changes in the sphere of production. This analysis can be adapted to offer an explanation for 'potential conflict points' when increased resort to strike action can be anticipated.

Indeed, elements of such an approach infuse the account of stoppages in the motor industry in the 1960's offered by DMR, where an increasingly competitive product market led to structural reorganisation which accentuated problems within a largely unchanged labour process. A similar explanation might also fit the industry, and specifically BL and Ford, from the mid 1970's to the early 1980's where attempts to reorganise production and reassert managerial control confronted established workplace values and behaviour and precipitated widespread conflict (Willman 1984).

The approaches offered by Edwards and Scullion and Kelly are not mutually exclusive but the latter emphasises the point that whilst the labour process may be the most significant locale for examining conflict behaviour, on occasions market pressures will impact so severely as to force changes in the production sphere. In particular, when the contradictions between exchange relations and production relations have become of sufficient severity. Thus, the impact of markets varies over time, becoming most significant when competitive pressures endanger profitability or survival, increasing the pressures on managers to reorganise production and the labour process.

This approach suggests that there is likely to be a time lag between market changes and changes in the production sphere, and that this will vary over time and among individual firms and industries. Similarly, in many of these firms and industries it will be the cumulative effect of such changes which will force managers to reorganise production. Those industries that have traditionally faced limited competition would be expected to adjust more slowly to market changes than those in more competitive markets. Further, that when these changes impact on established worker attitudes and where effective means of organisation exist, conflict is more likely to arise.

LONG-TERM MOVEMENTS IN STRIKE ACTIVITY AT THE INDUSTRY LEVEL: SOME HYPOTHESES

The earlier discussion suggests an important role in movements in aggregate strike volumes for political factors, often in response to deeper changes in the world and national economies. These factors are also liable to have a significant impact at the industry level, particularly where industries are most open to competitive pressures and/or the influence of government policies. In addition at the industry level broader movements in strike numbers would be expected to be affected by the level at which collective bargaining is conducted, and the nature of payments systems together with any changes in these. However, the last two are essentially managerially initiated changes in response to issues specific to particular industries and organisations within them. For example they may be responses to external competitive changes or to changes in the nature of technology or the product itself. The argument of this section is that the critical factor behind longer term movements in strike dimensions at the industry level is changes in product market conditions and competition which, in turn, give rise to a range of managerially initiated changes. Taking as our starting point the work of Cronin (1979), he has argued that:

Strike propensity will vary with the extent to which particular phases of capitalist evolution impinge upon the day-to-day working of different industries. How central an industry is to the economy and how subject it is to market vagaries and imperatives should determine how prone it is to industrial conflict (p.158).

This suggests that at different times associated with different competitive pressures there are particular leading sectors in an economy which would be associated with the highest levels of industrial conflict. With the qualification that this would depend upon the social cohesiveness of groups in the industry and the extent to which such groups are exposed to the pressures of competition. This last point is significant as it implies that there would be, *ceteris paribus*, a positive correlation between strike activity and exposure to market forces.

Thus for Cronin, given attitudes favourable to striking and effective organisation, the critical factor in heightened levels of strikes is the 'opening up' of a sector to competitive forces. It is therefore associated with a particular stage in an industry's development, specifically its exposure to greater international competition.

Although Cronin does not specify this, it is at such times (or after a time-lag) that management would be expected to attempt to introduce changes to deal with the altered circumstances. Although such changes could be effected in a way that affects short-term strike activity it is likely that broad phases in industrial development and evolution would encourage attempts at more fundamental and structural change which would be associated with heightened levels of strike activity.

In terms of the development of industries the argument here is that industries will be most prone to periods of increased volumes of strike activity at, or some time after, the turning points from growth into stagnation and from stagnation into decline as it would be at such times that major pressures for change would be most apparent. This is based on a number of assumptions. First, that the key change is in product markets, reflecting declining demand and/or increased competition and would have its impact upon profitability and precipitate a search by managements for improvements in efficiency and cost savings. Second, that fundamental changes would be more likely to be introduced as the product market situation would be likely to contrast with a relatively unchanged labour process and possibly labour market position. In other words at such times contradictions within the industrial circuit of capital would be most obvious and severe. Given the severity of problems at such times it is also more likely that some if not all of the changes would be the result of unilateral management action rather than jointly determined. Third, that in the event of a relatively unchanged labour process and product market stagnation or decline, labour's share of value added would be expected to rise and increase the likelihood of managerial initiatives to cut labour costs through redundancies, efficiency packages, plant closures and restructuring, together with less freedom in pay negotiations to satisfy workforce demands. Following Rees (1952), this also suggests a greater likelihood of conflict as a result of different perceptions of the future. At

the end of a period of steady growth, managers would be expected to see the impact of change more immediately, through falling sales and fewer orders, workers, in light of tangible evidence to the contrary, might perceive continued expansion into the future so that at such times the gulf between the two would be at its greatest. It also suggests that increasing strike activity would tend to affect both pay and non-pay stoppages, particularly the latter as managements attempt to change elements of the labour process. It would also suggest an increase in other dimensions of strike activity, particularly workers involved and days lost as the changes would affect most of the industry and would be likely to challenge established custom and practice and working patterns.

These developments take place within a broader context of international and national factors, particularly those relating to product market competition but the critical issue for strike activity at the industry level is their intensity, the ways in which they are acted upon by managements and the extent to which these conflict with or undermine established patterns of working. In summary, although all industries experience changes in their competitive situation and can be seen to develop through qualitatively different phases they do not all experience heightened conflict levels at or soon after movements from one phase to another. Those that do experience waves of strikes at such times do so as a result of the managerial responses to the changes, which clash with and potentially undermine or overturn established attitudes, working practices and union organisation.

SECTION II

THE OPERATIONAL MODEL

THE OPERATIONAL MODEL

The theoretical model developed in the previous chapter stressed the role of attitudes and factors which would affect the ability and willingness of workers and employers to engage in or resist strike action. It identified specific factors relevant to an understanding of why strikes occur and postulated a clear causal mechanism from background influences or 'triggers' (Kelly and Nicholson 1980) through structural factors to attitudes and thence to strike action (or peaceful resolution). It is therefore a process model of strikes and although has been developed with the explicit focus on the industry and company levels is sufficiently flexible to be applied at different levels of aggregation (the level at which bargaining takes place largely determining where conflict occurs). Before outlining the operational model in detail consideration needs to be given to some specific problems encountered in operationalising the theoretical model.

This study aims to present an analysis of strike patterns in four key industry groups for the post-war period, (these industries are described in detail in the following sections) with the objective of using results from these industries to provide an explanation of strike patterns at the aggregate economy-wide level. It therefore relies on official data on the main dimensions of stoppages as well as for data on the main variables employed in the study. The deficiencies of official data, particularly on strikes are legion (Shalev 1978, Edwards 1983, DMR 1983) and will not be repeated here. Suffice it to say that the problems are most acute with the series for strike numbers, and even here if the concern is with trends over time these deficiencies (principally under-recording) are likely to remain similar over time. One further problem specific to the present work needs to be considered. As a result of substantial data limitations two of the main elements in the theoretical model cannot be measured precisely. With the union capacity variable, no longitudinal data exist on shop steward numbers at the industry level. With the bargaining structure variable, limited data are available up to 1968 and from then on only intermittently until the present day. These data limitations affect a number of other variables but the defects are less significant than with the two areas outlined above.

The two figures overleaf illustrate the operational model employed in the empirical work. The first figure mirrors that in the introduction to the theoretical model and the second attempts to provide a more comprehensive breakdown of the ways in which industry and economy-wide factors impact upon the components of worker and employer/managerial attitudes identified in the model. The figures identify the main variables to be employed in the operational model. In what follows these variables are developed in more detail beginning with aggregate/economy-wide factors. Throughout this chapter we refer back to the theoretical model to provide a rationale for the inclusion of particular variables and to link the specific operational variables with elements within the earlier model.

FIGURE 1

THEORETICAL MODEL UNDERLYING PRESENT WORK

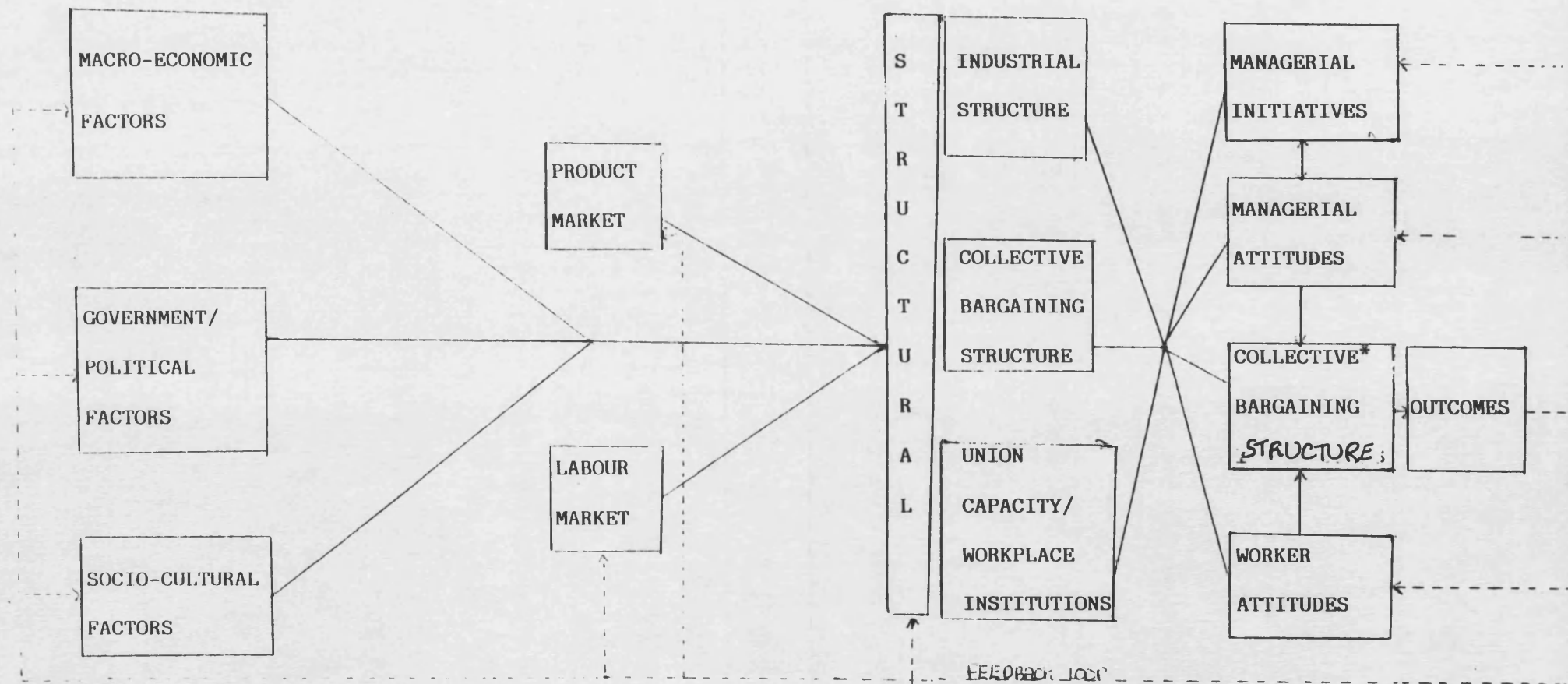
107

ECONOMY-WIDE LEVEL

INDUSTRY LEVEL

IND/CO/PLANT LEVEL

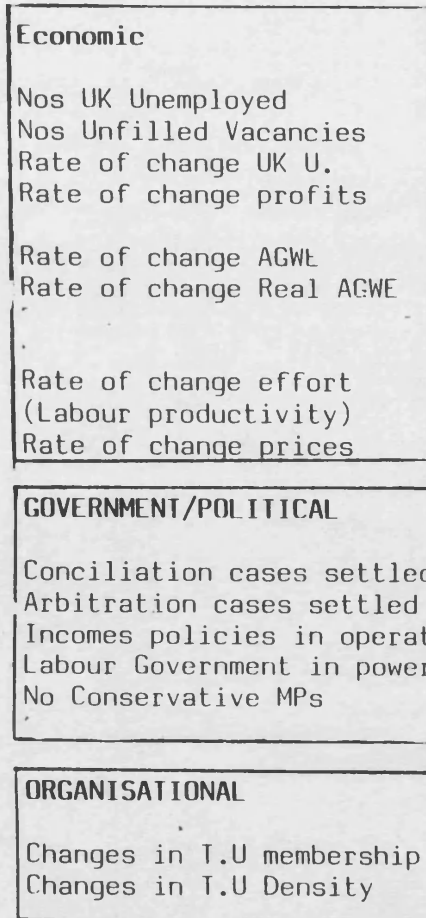
IND/CO/PLANT LEVEL



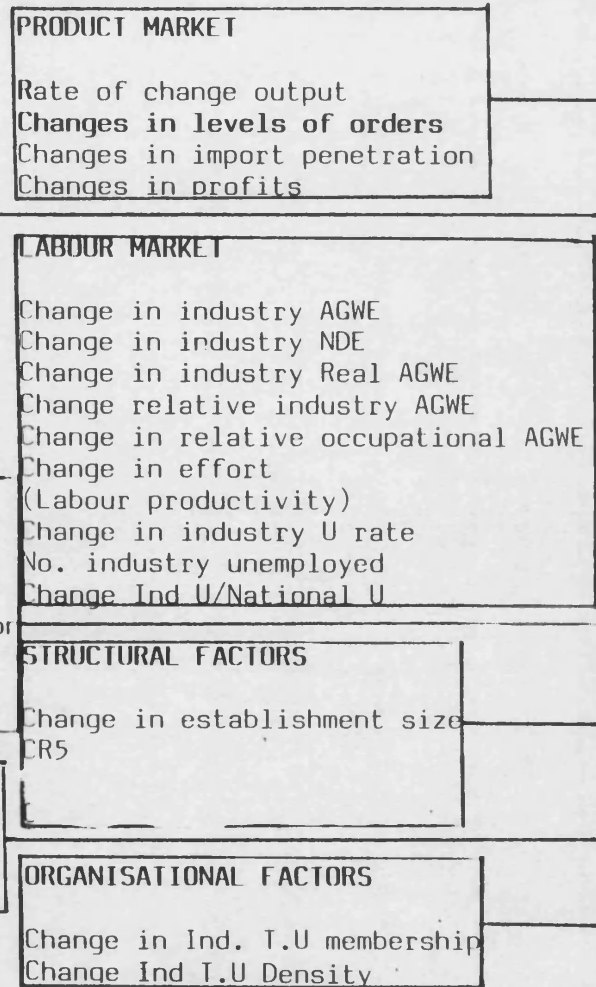
* Collective bargaining as in the structural variables, but separated out to indicate interaction with attitudes.

OPERATIONAL MODEL DERIVED FROM DURCAN ET AL

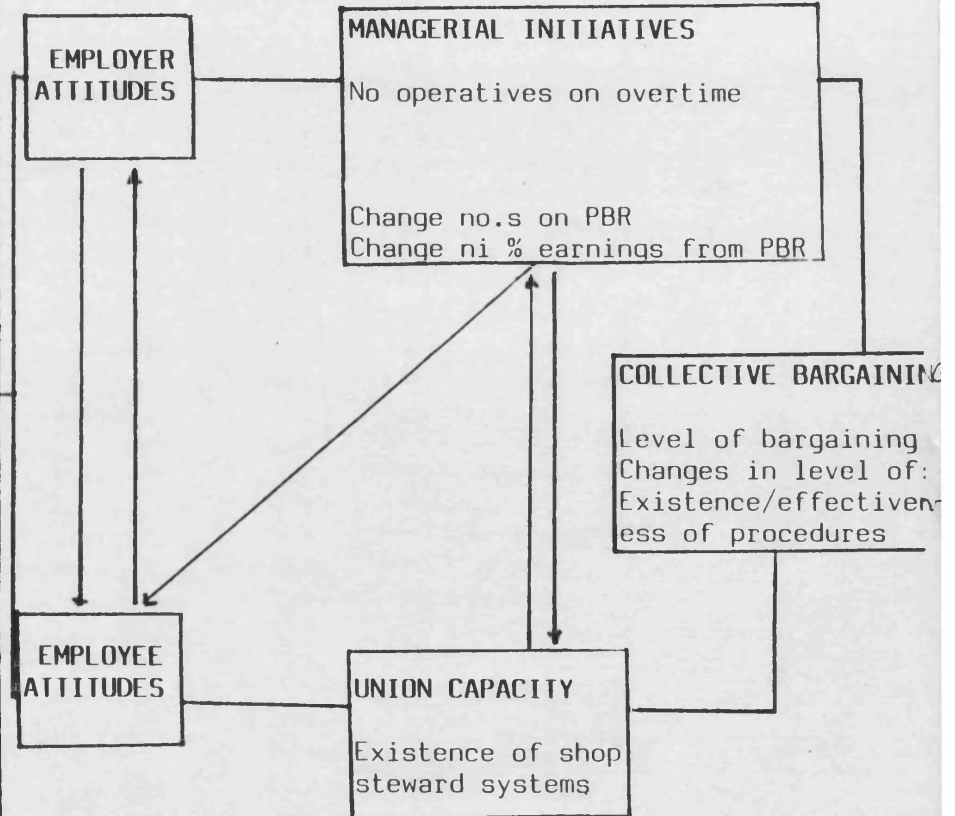
MACRO LEVEL



FIRM/INDUSTRY LEVEL



FIRM/INDUSTRY LEVEL



X

AGGREGATE/ECONOMY-WIDE FACTORS

THE LEVEL OF UNEMPLOYMENT: PERCENTAGE UNEMPLOYMENT IN THE UK

Despite the frequent inclusion of this variable in empirical work on strike activity (see Introduction) its association with the latter is difficult to predict and has produced some conflicting empirical results (Edwards 1981, DMR 1983). From the employees perspective low unemployment, *ceteris paribus*, can be expected to increase bargaining power. In terms of the theoretical model employees would be expected to enjoy greater job security and find it easier to move jobs. They might be more willing to press for higher wages in their existing jobs because of the reduced possibility of redundancy and because plentiful job opportunities exist elsewhere in the event of redundancy. In addition, for potential strikers part-time job opportunities are more likely to be available and employees more able to sustain a strike during periods of high demand ('prosperity') and low unemployment than in periods of recession (Smith et al. 1978). Therefore, for workers the costs of action are reduced in periods of low unemployment. It is also likely that such periods affect worker attitudes to the extent that strikes become more effective and acceptable means of achieving their objectives (Goldthorpe 1978, see Cronin 1979 for evidence of the reverse effect on attitudes of high unemployment). Although this may be the result of an associated increase in profitability which would tend to increase the willingness of workers to resort to strike action. Periods of high employment also appear to be associated with rising earnings which would tend to reduce the possibility of strike action but also with a narrowing of differentials (see Reder 1958, Routh 1984 and evidence for the widening of differentials in periods of high unemployment) which would be expected to increase it.

For employers, the arguments remain unclear. Traditionally it has been argued that in periods of low unemployment, employers strike costs would be expected to be high. They would be expected to face full order books and enjoy relatively high profitability and consequently be more willing to concede to wage demands rather

than incur strike losses which would involve the loss of profits and possible market share. Further, that periods of high employment and demand would make it easier for employers to pass on increased costs to consumers, whereas high unemployment would, if associated with slack demand, make it cheaper for employers to endure a strike if the alternative were the expensive stockpiling of goods.

Overall, the evidence on the impact of the level of unemployment on strike activity is unclear. Whilst low unemployment may make workers more willing to resort to strike action it also makes employers more willing to concede to worker demands (and if associated with higher profits, more able) as the costs of conceding in periods of high demand might be less than those of enduring a strike.

The impact on other dimensions of strike activity is also ambiguous. A priori, unemployment is unlikely to have an impact on workers involved, although in periods of high employment and high product demand bargaining may tend to be more decentralised and any stoppages consequently small and short. In contrast, such periods would tend to mean employer willingness to settle prior to a strike and in the event of a strike arising to settle quickly so that stoppages would be relatively short and days lost small. Ceteris paribus, high unemployment would tend to be associated with longer and more protracted stoppages and a rise in days lost.

RATE OF CHANGE OF PRICE INFLATION (% CHANGE IN RPI PER ANNUM) LAGGED ONE YEAR

When prices are rising, *ceteris paribus*, workers can be expected to try and maintain real wages/earnings if they do not suffer from money illusion (Shorey 1977). Further, the faster the increase in the cost of living, as measured by an increasing rate of change of prices; the more likely are workers to undertake strike action in order to maintain and improve real wages/earnings. Two reasons can be advanced for this. First, the faster prices are rising *cet par.* the faster real earnings are being eroded and the more likely workers will be to engage in some form of industrial action in order to maintain or improve real earnings. Second, in inflationary periods the frequency of pay bargaining is likely to increase which may tend to increase other dimensions of stoppage activity.

The effects on employers are more difficult to assess, depending upon the source of the increase in prices. If product prices are increasing *ceteris paribus*, this will mean increased profitability in the short-run and enhance the ability of employers to meet employee demands, thereby reducing the likelihood of strike action. However, if prices are rising because of increases in input costs then prices have increased to alleviate a squeeze on profits. In this case, worker demands for increases in pay are likely to meet with resistance if profits are already under pressure and suggests that stoppages that arise will be longer and more protracted leading to a higher number of days lost.

Overall, in the 'demand-side' view with higher profits we should expect employers to be less likely to resist worker demands for increased money earnings to compensate for increased prices. But in the 'cost-push' case we should expect them to resist if pay increases place additional pressures upon profit margins. Thus the effects on strike action are difficult to predict depending upon the cause of the increase in retail prices.

RATE OF CHANGE OF MALE AVERAGE GROSS WEEKLY EARNINGS (AGWE) LAGGED ONE YEAR

RATE OF CHANGE OF MALE AVERAGE GROSS WEEKLY REAL EARNINGS LAGGED ONE YEAR

The rate of change of money earnings has been included as an explanatory variable in a number of studies of strike activity including those by Shorey (1974, 1977), Knight (1972) and by DMR (1983). The two earlier studies found a negative relationship between the rate of change of money earnings and the number of strikes when the variable was lagged but DMR found no significant relationship between the two. According to Knight (1972), periods of low increases in money earnings are likely to be followed by periods of substantially increased strike activity on the assumption that low increases in money earnings violate worker perceptions of acceptable increases and thus worker expectations. However, the inclusion of such a variable in isolation from price changes assumes that money illusion exists on the part of workers, an untenable position in the long-run (although not in the short-run, workers may seek to gain increases in nominal earnings where a company has made substantial profits. Here, the motivation for increases in money earnings comes from considerations of equity and fairness rather than any appreciation of price changes).

Likewise, for the firm it is realistic to assume that employers are concerned with pay in relation to prices, the impact of pay on total costs (and the associated issue of pay and productivity) and the size of the total wage bill (see arguments in theoretical section above). The suggestion that there should exist a negative relationship between changes in money earnings and strikes would seem to be justified only (1) in the short-run and (2) if the changes in money earnings also represent an additional real cost to the employer increasing the size of the wage bill to the extent of entailing reduced profits and/or increased prices.

In the case of changes in real earnings, it has been argued that if strike action is dependent upon the attitudes/aggressiveness of the parties involved in the bargaining process then *ceteris paribus*, strike action is less likely the more rapid the growth of

real wages in the recent past (Turner et al. 1972). On the argument of the earlier theoretical section, if earnings expectations are violated, this may make workers more willing to engage in some form of industrial action. Conversely, for employers, lower increases in real earnings are more acceptable as they involve a smaller impact on costs and are thus more likely to resist increases in real earnings growth *ceteris paribus*.

However, as the previous chapter suggested, employers may be less interested in the growth of real earnings *per se* and more with the size of the total wage bill, and with aggregate labour costs. They may be willing to concede increases in real earnings if these can be offset against redundancies or higher productivity. The effect upon strike activity becomes uncertain depending upon worker responses to such a trade-off. If no such trade-off exists it can be argued that increases in real earnings - lagged - will *ceteris paribus*, be negatively associated with stoppage frequency (Pencavel 1970, Hunter 1973).

RATE OF CHANGE OF LABOUR PRODUCTIVITY

In the theoretical section attention was drawn to the work of Behrend and Baldamus and the notion that the wage-effort exchange was central to the implicit employment contract (Shorey 1977, Watson 1980). From this it can be argued that if increasing productivity is associated with an intensification of effort then, *ceteris paribus*, with a worsening of the effort bargain for workers, resort to strike action is more likely. However, Shorey (1977) who specifically separates the level of effort from increases in productivity in his conflictual model of pay stoppages argues that because increases in productivity improve the long-run profitability of an enterprise/establishment, *cet par.* firms are able to increase their offers to workers without jeopardising their market position. It is therefore assumed that employers will normally share the benefits of productivity improvements with workers partly as an incentive to encourage them to even higher productivity gains.

Overall, employees, whose effort bargain may have worsened as a result of more intensive effort might be more likely to undertake strike action. But for employers,

higher productivity will enhance their ability to raise wage offers to meet increased worker demands making strike action less likely. However, given the argument of the theoretical section one should distinguish, as Shorey does between effort and productivity and focus upon the former given worker concerns with the relationship between effort and reward, although data availability on effort prior to 1970 makes this difficult. A further consideration is the extent to which employers share or are able to share the benefits of higher productivity with their employees as opposed to their customers.

Three further issues remain. First, there is the difficulty of identifying the extent to which productivity gains are the result of increased effort and co-operation on the part of workers rather than as a consequence of an increased capital/labour ratio. Second, with the encouragement of productivity agreements in the 1960's and flex-agreements in the 1980's whether productivity gains were the stimulus to or the consequence of higher pay awards. Third, that rises in productivity are frequently linked to incentive payment systems, and certain forms of these (e.g. piecework) are often associated with increasing levels of strike activity (but see Edwards, 1988).

PROFITS: RATIO OF GROSS TRADING PROFITS TO TOTAL COMPENSATION.

LEVEL OF REAL PROFIT.

In the theoretical model the level of profits was seen as a central ingredient in influencing worker attitudes and perceptions of fair treatment and the underlying factor affecting employer attitudes. The earlier argument suggested that high profit levels can be expected *ceteris paribus*, to lead to pressure for higher wage demands on the grounds that employees should benefit from the prosperity of the organisation. It was further suggested that high profit levels might affect the form of strikes, the inability of union leaders to control their members increasing the possibility of unofficial action.

In addition, high profit levels are frequently used as a basis by unions when formulating their pay demands and can be expected to raise the latter. For

employers, high or rising profits may mean full order books and consequently could make them more willing to concede to such demands rather than incur a strike involving lost profits and markets. Overall, whilst high profits would be expected to increase demands for higher wages they would also be expected to increase the ability of employers to meet such demands with the result that the association between profits and strike activity is unclear.

As a proxy for the state of demand and employers ability to meet worker demands, the level of profits may have considerable advantages over measures such as unemployment, particularly from the employers' perspective. For employers, and for many individuals in work, profits may be a more immediate indicator of the state of a company than other measures, particularly if employees utilise restrictive comparisons as we suggested earlier and if unemployment does not have a significant impact on them. In addition, evidence suggests that in periods of high unemployment employers may act as if unemployment were significantly lower than official figures suggest. They effectively exclude certain categories of the unemployed from their considerations or only consider them as 'peripheral workers', not in competition with their established, and relatively protected 'core' workers (Atkinson and Meager 1986).

XI

THE ROLE OF THE STATE

INCOMES POLICIES

Normally included as a dummy variable in a number of studies of strike activity although its relationship with the latter is problematic for a number of reasons. First, there is evidence that incomes policies may have a differential impact on the components of strike activity (Davies 1979), reducing those over pay and increasing those over non-pay issues. Second, the relationship between incomes policies and strikes may change over the life of a policy, having a significant depressing effect in the early years (as in 1976 under the Social Contract) but creating a build-up of grievances which frequently lead to the abandonment of policies (as in 1978/79). Third, there is a problem on occasions of identifying when a policy is a policy and when it is not, for example cash limits in the public sector are not, but they may operate in very similar ways. A final and related point is that there are different forms of policy ranging from moral suasion to freezes and statutory controls

Taken together these factors suggest that it is very difficult to operationalise the incomes policy variable. Many studies have utilised a simple 'on-off' dummy variable but this is subject to all of the difficulties outlined above. As Smith et al (1978) suggest, ideally what is required is some sort of qualitative index which would alleviate some of these problems. The approach of Davies (1979) in distinguishing between 'hard' and 'soft' policy periods is one attempt to do this although it is vulnerable to criticisms of subjectivity.

In this study Davies' distinction is employed although the dummy variable separates between 'hard' policy and 'policy-off' periods. Such a distinction neglects the degeneration of policies when grievances build up but it permits a test of the association between strikes and a specific period of policy.

The association between strikes and the incomes policies variable included here is

again unclear and may depend upon the government in power and the acceptability of the policy. Where there is general support policies would be expected to reduce strike numbers but where they are unpopular they would be expected to be associated with a greater number of stoppages, workers involved and days lost as the general nature of policies would be expected to affect a large number of employees.

ARBITRATION AND CONCILIATION CASES SETTLED¹

For Durcan et al (1983), this variable is included on the grounds that:

- a) Government withdrew from involvement in conciliation in the 1950's which was associated with a rise in strike activity.
- b) Workers increasingly questioned the impartiality of conciliation machinery which led to a decline in its use.

Overall, the rationale here is that greater government involvement in dispute resolution through e.g ACAS should reduce the number of potential disputes and strikes below the levels at which they would otherwise have been. Although included, it was decided that because of the establishment of ACAS, the DMR propositions were less applicable to the later period and so limited tests were undertaken on these variables.

¹Investigations on these variables revealed their close association with strike numbers (see also Lowry, 1990) and also a strong positive relationship to aggregate trade union membership. The association with the latter is particularly marked and made testing the arbitration and conciliation variables in isolation from trade union measures particularly difficult. It is clear however, that ACAS has helped to reduce strike activity below the level it would otherwise have been and seems to have had a major influence during periods of incomes policies.

LEGISLATION AND JUDICIAL DECISIONS: 1984 TRADE UNION ACT

A dummy variable included to measure the effects of Industrial Relations and Labour Market legislation, with the potential for affecting strike activity. Broadly this includes any legislation likely to affect worker and/or employer attitudes.

For workers, legislation which enhances job rights and security (employment protection) can be expected to reduce the willingness to resort to strike action. Likewise, legislation (and judicial decisions) which affects organisational resources (trade unions) will influence the ability of workers to undertake strike action so that whilst laws designed to reduce the ability of unions to engage in forms of secondary strike action may reduce such action. If grievances remain these may manifest themselves in different forms of industrial action.

The effect on employers of such legislation is unclear, it can be assumed that they would be more inclined to favour and use any laws if their use imposes few costs upon them, i.e. that such legislation is perceived as being cost-effective from the employers perspective (note the increased use of the 'labour injunction' since 1984 testifying to it as a relatively cheap and effective means of dealing with particular disputes and malpractices). Furthermore, following Poole et al. (1982) support for such legislation would also seem to depend upon the extent to which it affects management control. Laws which restrict such control and/or entail greater openness and provision of information are likely to be resented and induce a hardening of attitudes amongst managers.

Overall, the effect on strike action is unclear, but laws which undermine workers rights and expectations whilst increasing the willingness to engage in some form of action at the same time make them more vulnerable to employer actions. However, one possible effect may be for workers to attempt to push for rights removed by government to be reinstated or improved upon by employers. Thus one effect of a worsening of individual employee rights could be an increase in industrial action over non-pay issues.

In the empirical work, the impact of legislation is confined to the period after the introduction of the 1984 Trade Union Act. This piece of legislation was chosen because one of its direct concerns was industrial action. In view of this it would be expected to reduce strike action by reducing the number of unofficial and unconstitutional disputes and by using ballot results in support of strike action during negotiations to put pressure on employers to concede on issues or face a strike. However, this would depend upon employers willingness to use the legislation or employee perceptions that employers would be willing to use it (It is likely following Poole et al. (1982) that legislation which enhances managerial control would be welcomed and evidence from Poole and Mansfield (1993) shows clear support from managers for the labour legislation passed in the 1980s (but see McCarthy, 1992, Hougham, 1992)). Where these conditions hold, the 1984 Legislation would be expected to reduce the likelihood of strikes arising although it might tend to make those that do arise more intractable.

LEVEL OF AND CHANGES IN INTEREST RATES

The main impact of this variable would be expected to fall on employers although a feed through to HP and mortgage rates would be expected to affect workers and particular industries. Changes in interest rates are known to have a significant impact on firms costs as well as in adding to business uncertainty. An increase in interest rates, *cet par*, will tend to increase costs if firms have overdraft or loan facilities and may increase the likelihood of 'distress borrowing'. A further effect will be the tendency for firms to postpone or curtail investment in fixed plant and equipment. This would be expected to reduce profits and limit the ability of firms to meet any increased demands that might arise from workers.

The extent to which interest rates are likely to be associated with increasing strike activity will depend upon the responses of workers, who may be more willing to participate in pay disputes if mortgage/HP payments increase and reduce disposable income, and employers, if their costs increase significantly as a result.

LABOUR GOVERNMENT IN POWER

A variable employed by both Pencavel (1970) and Cronin (1979) as an explicitly political factor affecting stoppages, although its association with the latter, as Cronin has suggested is unpredictable. Workers may react to a Labour government in a number of ways, possibly pressing for larger demands when a friendly regime is in office, reasoning that concessions might be more forthcoming from such a regime. Alternatively, workers might moderate their demands to prevent embarrassment of their representatives in the party whilst it is in office.

In contrast, employer responses will depend upon their perceptions of how such a government would affect future profitability, which is unclear. However, following Poole et al. (1982) it is likely that employer attitudes could harden if they believe that this would lead to their independence and control being undermined.

NATIONALISATION

A dummy variable included to identify the impact of the early years of state ownership on an industry. The association with strike activity would depend upon the attitudes of the parties involved to nationalisation. Given traditional trade union support for public ownership and the belief that common ownership would be of benefit to working people union support for it would be expected to reduce strike activity. For the public corporation, where the attitudes of key individuals and the government of the day is sympathetic to nationalisation this too would serve to dampen down strike activity.

However, given that nationalisation has been associated with greater centralisation of industrial relations institutions and procedures particularly pay bargaining this may also reduce the frequency of strike action. In addition it may lead to bigger disputes in terms of workers involved as bargaining groups increase in size.

XII

STRUCTURAL FACTORS

INDUSTRIAL STRUCTURE

CHANGES IN ESTABLISHMENT SIZE (% ESTABLISHMENTS EMPLOYING 500+ EMPS)

Plant size was examined in some detail in the section outlining the theoretical model. Following Shorey (1977) and Prais (1978) it was argued that strikes are more likely to occur in large plants rather than small because the former are more bureaucratic, have more problems with communication (Edwards 1979) and, by employing a large number of workers on similar tasks, provide a platform for multi unionism and the emergence of collective grievances. Shorey also highlights other factors commonly associated with large plants such as certain types of technology, payments systems, the number of separate jobs and the tendency towards multi-unionism.

Empirical evidence confirms the positive association between plant size and strike activity (Shorey 1977, Edwards 1979, Prais 1978, Brown et al. 1981) with a particularly strong relationship when a plant employs over 500 people (Smith et al. 1978). However, in addition to the factors identified by Shorey, plant size is significantly related to other factors known to be associated with strike activity. In particular, various measures of trade union organisation and strength such as shop stewards, full time shop stewards, Joint shop steward committees and the presence of personnel/industrial relations specialists have all been found to be associated with plant size (Brown et al. 1981) so that plant size may be picking up the effects of these factors (Edwards 1979).

Notwithstanding these points, the positive association of plant size and strike activity in cross-sectional analyses suggests that over time, the more of an industry's employees working in large establishments *ceteris paribus*, the larger the number of stoppages. We would also expect plant size to be positively associated with other dimensions of strikes, (workers involved and working days lost) where large plant size is associated with company or plant bargaining and formal procedures.

THE LEVEL OF INDUSTRIAL CONCENTRATION

In the theoretical model changes in industrial concentration in the post-war period were documented and an attempt was made to develop a theoretical link between industrial concentration and strike activity. On the assumption that concentration would be associated with monopoly profits it was postulated that this would lead to demands by workers for improvements in pay and conditions (Smith et al. 1978) on the grounds of fairness. However, it was further suggested that greater monopoly power would, *ceteris paribus*, give producers more freedom to pass on cost increases to consumers and empirical evidence was cited showing that workers appeared to share in the benefits of higher profits (Hart and Clarke 1979). In summary, where industrial concentration is associated with above average profits firms are able, through lack of competition, and/or X-inefficiency, to pay above average wages and appear to do so.

In terms of the effect on strike activity, increased profits would be expected to increase pay demands but that as a result of their profit position firms ability to meet these demands is increased, making the possibility of strikes less likely. In the earlier theoretical section it was also suggested that high levels of industrial concentration need not imply an absence of competition as considerable competition may exist in the form of imports. Where such competition exists, the extent of X-inefficiency will be reduced as will the scope companies have in being able to pass on cost increases to consumers. In this case, even where companies are still making above average profits (at least in the short term), their ability to share these with their workforce declines and the likelihood of strike action increases. The net effect on strike activity is therefore unclear, critically depending upon the ability (and willingness) of employers to share any benefits of monopoly profits as may arise.

BARGAINING STRUCTURE

THE LEVEL AND FORM OF COLLECTIVE BARGAINING (Percentage of establishments in an industry stating the main level at which collective bargaining occurs, or where most recent pay award made) AND CHANGES IN.

In view of the importance of bargaining structure within 'institutionalist' accounts of strike activity considerable space was devoted to this in the theoretical model contrasting some of the earlier writings in this tradition with the work of Clegg (1976) and latterly DMR (1983) and with writers outside of the tradition who, like DMR are more sceptical of the beneficial claims made for institutional reform.

Following the earlier coverage it is possible to discern two broad schools of thought within recent 'institutionalist' writings on the effects of institutional changes on strike patterns and activity. Although both schools would probably agree on the link between the level of collective bargaining and a number of dimensions of stoppages including size (workers involved), length (working days lost) and status (whether official or unofficial). Disagreement centres upon the effect of bargaining levels on the frequency of bargaining and thus on the number of stoppages, and the effect of changes in bargaining levels on stoppages. The optimistic school within 'institutionalist' writings associated with Donovan, Clegg, Turner et al. and latterly Willman (1984) suggests that shopfloor bargaining will be associated with a large number of disputes, unofficial, unconstitutional short and small, because of the frequency with which bargaining can take place and the attendant potential for strikes to occur. The optimists' focus on reform of collective bargaining institutions, with an emphasis on plant and company bargaining is part of a greater formalisation of bargaining involving a reduction in the frequency of negotiations whilst accepting that larger and longer stoppages may result (see earlier discussion of Clegg 1976).

The revisionist approach of DMR suggests that although bargaining changes could affect incidence and form it is possible that unless attempts are made to address the underlying causes of conflict (eg substantive issues) the benefits of reforms could be very limited (ie in that in the long run the incidence could remain unchanged).

Of additional interest is the impact of changes in bargaining form and level on the main dimensions of strike activity. Following, Goldthorpe (1974) such changes would be likely to be associated with increased conflict, particularly when these changes impacted upon established behaviour patterns and/or undermined expectations or perceptions of fairness. In addition changes might be associated with a period of rising expectations (Batstone 1984) which also might make containing conflict more difficult.

Overall the discussion suggests that the level of bargaining is extremely important in determining the size and length of stoppages and may have an influence on the frequency with which stoppages occur, although its impact will be mediated by factors such as the relationships between the actors in negotiations.

PROCEDURAL REFORM: OPERATION OF PROCEDURE AGREEMENTS

A dummy variable included to assess the impact of procedural change and the operation of new procedures. The main focus is upon the operation of disputes procedures such as that in shipbuilding after 1967 and in engineering after 1976.

The association with strike activity would be expected to depend upon the acceptability of the changes and the extent to which they were mutually agreed rather than imposed (as with the 1922 procedure agreement in engineering). A priori, more effective procedures, mutually agreed would tend to reduce stoppage numbers although those that did arise would be expected to be longer as it would imply the issues surrounding them would be more difficult to resolve.

XIII

ORGANISATIONAL FACTORS

CHANGES IN TRADE UNION MEMBERSHIP AT INDUSTRY LEVEL LEVEL OF AND CHANGES IN TRADE UNION DENSITY AT THE INDUSTRY LEVEL

These variables are commonly employed in time series work on strike activity (for example, Pencavel, 1970, Cronin 1979) but are not utilised by DMR. They are included here as alternative proxies for the effectiveness/growth of trade union organisation, particularly shop steward organisation. Cronin has stressed the importance of trade union growth as an important factor in its own right in affecting strike activity rather than as a proxy for shop steward organisation. He highlighted the point that large increases in trade union membership and density appear to occur just prior to or coincide with waves of strike activity. In the present study the two variables are included on these grounds, that union growth is an important factor in affecting strike action and as a proxy (albeit with deficiencies) for the growth of shop steward organisation.

It should be stressed that the impact of increases in industry trade union membership/density on strike activity would appear to be most important in situations of centralised bargaining and where effective shop steward organisation develops concurrently or is already in place. This is so because although increases in union membership enhance union resources (including finance at the National level) and the ability to undertake strike action at all levels, individual plants may be little affected by these broader changes in membership with the result that the main dimensions of strike activity are relatively unaffected. However, where bargaining is centralised, an increase in membership could be expected to be associated with an increase in the size and length of stoppages.

However, on the assumption that increases in membership enhance the resources of the union and the confidence of the union leadership to press for improvements in pay and conditions, it can be expected that the union would be more willing to advocate

strike action in pursuit of these (particularly if workers have joined unions to pursue their grievances more effectively as the argument above suggests). Employers, on the other hand, can be expected to be more aware of union strength and more willing to settle prior to a strike. The overall effect on strike activity of the two variables considered here is therefore uncertain but, *ceteris paribus*, any effect would be expected to be most important where bargaining is centralised. In addition the increased resources of the union nationally and the level of bargaining where the impact of growth would be most significant might be expected to lead to an increase in the proportion of stoppages which are official.

A further point is that high levels of union density in conjunction with centralised bargaining would tend to be associated with more workers involved and days lost than under decentralised bargaining. Although, the critical influence is the level of bargaining rather than the level of union density.

XIV

INDUSTRY/COMPANY/PLANT LEVELS

PRODUCT AND LABOUR MARKET VARIABLES

As the theoretical model has suggested, product and labour market variables are assumed to have an impact upon strike activity both directly, by affecting attitudes and organisation, and indirectly as a consequence of managerial responses to changes in product and labour markets. In the first part of this section consideration is given to the direct impact of these factors.

THE LEVEL OF OUTPUT AND RATE OF CHANGE.

THE LEVEL OF PRODUCT DEMAND AND RATE OF CHANGE

These variables are included as a proxy for changing product demand and competitive conditions within an industry. In the theoretical section it was argued that a sustained period of output growth would, *ceteris paribus*, mean employers having a greater ability to meet any worker demands that may arise. This would be because of a strengthening of product demand, cost advantage and/or a weakening of the competitive position facing the industry. This ability to meet such demands would, however, depend upon the overall level of output as well as its rate of change.

For workers, rising output growth and product demand, particularly if accompanied by rising profits would be expected to lead to demands for increased compensation but, with employers better able to meet such demands the effect on strike activity would depend on the strength of the demands relative to employers willingness to make concessions (see theoretical model and discussion of profits and strike activity above). Net, the rate of change of output *ceteris paribus*, would not be expected to have a significant impact on strike activity but the model would suggest that fluctuations and the cyclical behaviour of output could have an effect on the likelihood of strikes developing in a particular industry. the rationale for this is developed below.

In the Introduction it was stressed that a central element within many economic

analyses of strike activity has been to view them as the result of market imperfections or as analogous to accidents (Hirsch and Addison 1985). The likelihood of such mistakes or accidents occurring is increased in periods of uncertainty or at peaks of short-term cycles (see Rees 1952) where the extent to which asymmetric information exists between employers and employees would be expected to be at its greatest. The result might be to increase the probability of differing interpretations of the future to develop among the two groups (Mayhew 1979). Such an explanation would fit with the view of DMR that a critical factor in accounting for the nature of the industrial relations climate in the coal industry was fluctuations in output. Similarly, it would provide a rationale for strikes in the car industry documented by Turner et al. where product market variations led to marked fluctuations in earnings.

The problems with using output as a explanatory variable rest upon the fact that it is not exogeneous with respect to strikes particularly dimensions such as working days lost. Measures of product demand, are also likely to be affected by strike activity (see Introduction) but the link is not as direct. Consequently, where the data are available use is made of measures of customer demand in the empirical work rather than the output measure.

PROFITS: LEVEL OF REAL PROFIT.

Rationale as for the aggregate variable in Aggregate/Economy-Wide section above.

LEVEL OF IMPORT PENETRATION (AND CHANGES IN)

This variable is included as an indicator of the degree of competition in an industry and changing competitive pressures within an industry. Again, its relationship to strike activity will depend largely upon the nature of firms responses to the level of and changes in, the level of import penetration. This is so because, whilst import penetration affects a central element within employer attitudes there is no direct impact upon worker attitudes. For employers, increasing competition and/or the loss of market share that may result from increases in import penetration will reduce the ability of firms to meet any demands that may arise from workers and may increase the likelihood of their introducing measures to increase efficiency and reduce costs.

Thus, if the *ceteris paribus*, assumptions are relaxed, growing competitive pressures can be expected to precipitate employer responses of stricter cost control and/or redundancies. Workers may be more willing to resort to strike action as a result of the worsening of the wage/effort bargain or because job/security is threatened or because their ability to extract concessions from employers is reduced, undermining their expectations. Against this, a threat to job security may make workers more malleable and willing to accept such measures as their bargaining power is reduced.

In summary, we would not expect an association between import penetration *cet par.* and strike activity. Rather, that the critical factor is the way in which managers choose to respond to the changing competitive pressures that increases in import penetration imply.

THE LEVEL OF STOCKS

This variable has a dual purpose in the study; first as an alternative indicator of the state of product demand, and second as an element within a broader management strategy. However, like output it suffers from the fact that the level of stocks is not exogeneous with respect to strike activity.

In the first formulation, fluctuations in product demand would be expected to be reflected in low levels of stocks with low demand entailing cutbacks in production and a build-up of unsold stocks. Whereas high demand would tend to be associated with full order books and a low level of stocks. Consequently, the costs of industrial action in periods of low demand will fall disproportionately upon workers as firms use stocks of goods to meet customer demand. Conversely in periods of high demand and low stocks, strike costs would fall most heavily on employers.

As an element within a management strategy, operating with a high level of stocks has a number of distinct advantages for employers. Stocks are necessary to provide a degree of flexibility in order to meet fluctuations in customer demand and to maintain goodwill in the event of shortfalls in production. They also significantly reduce the costs of industrial action to an organisation, assuming the action is

short-term. Against this must be set the additional costs of maintaining a permanently high level of stocks which, like the necessity for maintaining such stock levels will be likely to vary between industries and firms. In terms of strike activity, the maintenance of stock levels can be expected to reduce the incidence of stoppages as the costs of such action on workers may be of such a magnitude that the strike weapon is viewed as counter-productive. Workers with a deeply held grievance may resort to other forms of industrial action in an attempt to diminish stock levels as a prelude to strike action but overall, we would expect a negative association with strike activity if this is the motive behind maintaining higher than average stock levels.

Overall, the preceding argument suggests that low levels of stocks will reduce the costs of strike action for workers and make it easier for them to enforce a grievance via strike action. However, if low stocks are a reflection of high demand and increasing profits, firms will be better able to meet demands from workers and make strike action less likely (relaxing the *ceteris paribus* assumptions). Net, the overall association between the level of stocks and strike action is indeterminate.

* The above discussion has implicitly focused upon stocks of outputs rather than inputs and a brief note on the latter is necessary before proceeding further. Although the threat of strike action amongst suppliers has a significant effect on a firm's decision to hold large stocks of components and raw materials or to multi-source materials it is unlikely to have a significant impact on primary industrial action. Thus, whilst a firm's actions in stockpiling materials could increase its vulnerability to secondary industrial action and increase its own costs; by ensuring the availability of components it makes continuity of production (earnings and job security) more likely. Whilst an increase in stocks of materials and components is unlikely to impact directly on worker attitudes the effects of such an increase would be expected to reduce the possibility of strike action.

INDUSTRY AVERAGE GROSS WEEKLY EARNINGS AS A PERCENTAGE OF AGWE OF ALL WORKERS: MALE MANUALS

CHANGES IN THE RATIO OF AGWE OF SELECTED OCCUPATIONAL GROUPS

A central element within the theoretical model was the importance to workers of notions of fairness and in particular, fairness in relation to other workers. It is generally accepted that comparisons with other groups strongly influence workers as they formulate their current wage demands (Shorey 1977) on the grounds that wages are indicators of status and that comparability is central to fair treatment. However, a major argument of the section on worker attitudes was that whilst comparability is important to workers the reference groups used for comparison are highly restricted (Runciman 1966, Daniel 1975). Empirical support for this view comes from Brown and Sisson (1975) who found that in their study of the engineering industry that comparisons in wage bargaining were frequently made with reference to internal comparisons rather than with other industries. This would suggest that in general an examination of changes in industry AGWE relative to all workers would not be a significant determinant of strike activity, as the earnings of workers overall are not a comparative reference group for the majority of workers. In contrast, the ratio measure might yield more significant results depending upon the choice of selected occupational groups. Closely comparable groups within the same industry would allow a clearer test of Runciman's view that most people's lives are governed by the resentment of narrow inequalities and the preservation of small differentials.

The implications for strike activity are that the faster the rate of growth of earnings of the comparative group in the recent past relative to those in the group under study, the higher will be workers current demands. Whether this will lead to an increase in strike activity will depend upon the action of employers. Shorey (1977) has argued that employers may concede at least a restoration of differentials, in so far as this makes it easier to reach compromise settlements and because it may be in the interests of a firm to follow the lead of other firms in wage settlements. Overall, therefore,

the link with strikes is uncertain.

In practice, the likelihood of strikes developing will be dependent upon the reasons for the erosion of differentials. If they have eroded through worsening economic circumstances then strike action may be unavoidable, particularly as wage differentials appear to widen between occupations in periods of recession (Reder 1952).

AVERAGE NUMBER UNEMPLOYED IN INDUSTRY AND CHANGES IN:

This variable is included as an indicator of job security and changing labour demand. The variable may, like the aggregate variable, be indeterminate with respect to strike activity although Smith et al. (1978), following Pencavel (1970) suggest that industries where unemployment remains low will be those in which workers enjoy a significant amount of bargaining power which may, if employers do not respond by offering improved terms and conditions lead to a greater likelihood of resort to strike action.

LEVEL OF AND CHANGES IN THE INDUSTRY WAGE BILL/REAL WAGE BILL AND WAGE BILL PER UNIT OF OUTPUT.

The theoretical model suggested that firms may be concerned with the size of their wage bill rather than with increases in wages or earnings per head. As a consequence, firms may be willing to concede increases in pay if this is traded off against redundancies. For firms, an increase in the size of the wage bill can be expected to lead to pressure to reduce labour through natural wastage or redundancies (following DMR, the method of securing reductions can be expected to be a critical factor in determining the likelihood of strike action). If redundancies are the preferred option, these would be expected to affect worker attitudes, undermining job security and making strike action more likely. This effect will further depend upon trade union(s) responses and the nature of the trade-off between wage increases and redundancies perceived by the trade union(s) (Crouch, 1982).

XV

MANAGERIAL INITIATIVES

The brief coverage of managerial initiatives in the theoretical model identified a number of areas which would be expected to have an impact upon on strike activity. These were the nature of the payments system in operation, a common ingredient in 'institutionalist' work (see Clegg 1976, 1979), the extent of overtime and short-time working and changes in these together with changes in employment, specifically the methods adopted by management in achieving reductions in manpower. The rationale for including these and their expected relationship with strike activity is examined below.

PAYMENT SYSTEMS: NATURE OF, AND CHANGES IN.

PERCENTAGE OF WORKERS ON PAYMENT BY RESULTS (PBR), AND CHANGES IN.

The nature of, and changes to payment systems are included as a factor likely to increase the possibility of strike activity taking place. The nature of payments systems is dealt with below but the issue of changes to systems, by directly affecting pay and earnings opportunities as well as bargaining and work control opportunities might significantly affect strike incidence. The particular concern here, is changes from payments-by-results schemes to measured daywork. Such changes would tend to lead to reduced bargaining opportunities over pay and reduce earnings fluctuations, but may lead to rising grievances over reduced earnings possibilities and over reduced workforce influence over pay issues.

The second factor is included as a proxy for fluctuations in earnings and as an indicator of bargaining opportunities. This last factor is particularly important; work carried out by the National Board for Prices and Incomes (NBPI 1968) found that piecework/PBR gives rise to more disputes because more bargaining situations exist and thus more opportunities for potential disagreement and conflict. However, there is a danger in equating piecework with other PBR schemes. If reform of a payments system takes place involving a move from timerates or piecework to other forms of PBR (including group-based schemes), unless worker perceptions of fairness, job

security or earnings have been undermined it is doubtful whether an association with strike activity would exist although the change itself might precipitate conflict.

Overall the possible impact on strike activity seems to derive from two sources. First, that if PBR schemes increase the opportunities for bargaining then the potential for strikes would increase and second, the change in payments systems or numbers on such schemes would, by affecting earnings be expected to have an impact on strike numbers. In the latter case much will depend upon the extent of the change in numbers affected and in earnings. A qualification to these points would be that by keeping pay high, PBR schemes reduce the possibility of strikes occurring and that, as noted above, more recent plant-wide and group-based schemes reduce the number of bargaining situations and therefore the potential number of disputes.

PERCENTAGE OF AVERAGE GROSS WEEKLY EARNINGS (AGWE) FROM PBR AND CHANGES IN.

Where workers receive a large proportion of their total pay from PBR schemes, a change which reduces the bonus component would, by affecting earnings and notions of fairness, be likely to precipitate action on the part of workers. From the employers perspective the size of the bonus component might be part of a broader strategy. Some companies might increase the bonus element, but reduce basic pay, to reduce the likelihood of industrial action short of a strike (Willman 1984, for an account of such a strategy at BL cars) but may increase the potential for strikes. In particular, in a bonus scheme where bonus earnings form a large proportion of total earnings it is easier for workers to restore earnings lost during a short stoppage.

Overall, high earnings from PBR would tend to lead to a low level of 'cut-price' industrial action, but because of the potential for making up earnings after a dispute produce an environment where strikes are the most cost-effective means of achieving improvements in pay and conditions. Similarly, changes in earnings as a result of fluctuations in the PBR component would be expected to increase the potential for disputes, through uncertainty and earnings instability (Turner et al. 1967).

THE NUMBER, AND CHANGES IN THE NUMBER WORKING OVERTIME AND AVERAGE HOURS OF OVERTIME WORKED

The rationale for these variables is that, particularly in the case of changes, they generate a climate of uncertainty and are associated with variations in earnings. In addition, with the short-time variable there is an association with threats to job security (as with severe cutbacks in overtime).

In terms of the relationships between the two variables and strike activity. In the case of overtime, where earnings are falling because of cuts in overtime, workers may respond with demands for increased basic pay to compensate for the loss of earnings or moderate demands if job security is threatened. Employers can be expected to resist increases in basic pay per se because of the possible impact on costs. This is particularly likely if (relaxing the cet par assumptions) cuts in overtime are introduced against a background of falling demand, such a fall in demand may make employers more determined to resist demands from their employees and increase the likelihood of a strike. In such a situation a strike may not impose great costs on an organisation as goods produced might be expensively stockpiled rather than sold so that a strike might produce a net gain for the employer (see Willman 1984). (It should also be stressed here that for employees, strikes are likely to be more cost-effective when overtime earnings are high as earnings lost during a dispute can be made up relatively easily after a dispute is over).

TECHNOLOGY: TYPE, AND % CHANGE IN SPREAD OF TECHNOLOGY.

The nature of technology has long been considered a factor in explaining differences in strike propensity between industries (Blauner, 1964, Ingham, 1974), although concerns about technological determinism and the fact that strike activity does differ markedly between plants in the same industry using identical technology has tended to reduce the emphasis placed upon this factor (Clegg 1979). The main concern here is with changes in technology as measured by changes in the spread of technology within an industry.

The argument is that the rate of change is an indicator of changes in work organisation, the nature of work and the labour process. Technological change is likely to change the nature of work relations, authority relations and custom and practice. Such changes would be expected to challenge and disturb established working patterns and be likely to generate grievances. In practice, the extent to which such changes are likely to result in strike activity will depend upon the context in which they are introduced, the strength of union organisation and the way the changes are introduced.

MANAGERIAL INITIATIVES (2)

THE CIRCUIT OF CAPITAL VARIABLE

A central element within our theoretical model was the proposition that the likelihood of stoppages arising might best be viewed within an approach which encompassed the full circuit of capital and contradictions within this circuit (see above and Kelly 1982, 1985). The argument advanced within that section suggested that where major contradictions arose within the circuit managers were more likely to perceive the need for change e.g to effect changes in the labour process to cope with changed product market conditions. As our discussion of other variables suggests, these changes would not necessarily produce stoppages but for a number of reasons might be expected to make stoppages more likely. First, changes may tend to produce greater uncertainty among workers, particularly if job security and earnings are threatened. Second, the possibility of strikes occurring would be increased if changes threaten to disrupt traditional 'indulgency patterns' or aim at combatting problems of 'X - inefficiency' within organisations. In this context, Daniel's (1987) study of technical change is instructive, revealing that change affecting the organisation of work encounters substantially more resistance from workers than does technical change. Daniel suggests that this may be due to the fact that the latter is frequently associated with increased earnings and enhanced job security for many workers. In terms of the theoretical model, it can be argued further that organisational change may be more likely to impact directly on the determinants of worker attitudes, particularly job security, earnings and the relationship between wages and effort. This represents a

third point; that change may affect a number of components of worker attitudes and, where this occurs in terms of worsening those elements, increases the likelihood of resort to strike action.

To retain the elements of the theoretical model, the circuit of capital variable employed here is an amalgam of three interdependent factors within the circuit. One denoting product market conditions, a second the labour market and the third, the labour/production process. The diagram overleaf represents the circuit and the choice of variables available.

As economic theory suggests, these three elements are interrelated, changes in product markets will feed into earnings and productivity.

PRODUCT MARKET

Gross profits to
Total compensation

Import Penetration

LABOUR MARKET

Change in Industry AGWE
Level of Industry U

Change in Real Earnings

LABOUR PROCESS

Change in Labour Productivity

Real Wage Bill
Real Wage Bill per Unit of Output

However, the speed with which changes in product markets feed into the other elements is unlikely to be instantaneous. First, many industries do not conform to a perfectly competitive model, at least in the short to medium term and in the absence of competitive pressures, severe contradictions within the circuit may have to appear before organisations initiate change (an assumption of the circuit of capital variable is therefore that a degree of imperfect competition exists). Second, significant obstacles to change may prevent rapid adjustment such as resistance from trade unions and from within management. Third, real world lack of information may prevent an accurate assessment of the situation facing an organisation and lead it to adopt a 'wait and see' approach before initiating change. Finally, other barriers to change in the form of organisational structure and culture may lead to delays in adjustment.

LABOUR'S SHARE IN VALUE ADDED: The contribution of labour to the value added by industry.

Recent work focussing upon enterprise calculation has laid particular stress on the role of value added in affecting organisational behaviour. It is included to capture in a single variable the extent of contradictions within the circuit of capital and particularly between product markets and the labour process. In UK manufacturing, labour typically accounts for over 60% of value added (Neale and Haslam 1989), greatly in excess of that found in other countries such as Japan and is a reflection of the relatively high labour intensiveness of much of UK manufacturing. The significance of this for strike activity is that a high share of value added accounted for by labour makes control of labour costs and efficient utilisation of paramount concern where product markets are or become more competitive.

In an industry with a high share of value added contributed by labour, product market decline or greater competition will lead to attempts to raise productivity, improve labour utilisation generally and/or closures and redundancies. What is critical for the impact on strike activity is the extent of the changes, how they are introduced and how these conflict with workplace values and workforce attitudes and expectations together with the strength of union organisation. Where the changes involve widespread changes which conflict with established workplace values and where union

organisation is strong the likelihood of strike action is increased. Furthermore, action that does develop is likely to be prolonged, reflected in a heightened level of days lost.

XVI

RESEARCH METHODOLOGY

The research undertaken for this study concentrated on two specific methods. The first; econometric analysis using Department of Employment strike data for the period since the Second World War at aggregate and industry levels. The data related normally to strike numbers deflated by employment and to adjusted figures for days lost and workers involved. Where it was deemed appropriate separate equations were run for pay and non-pay disputes and for sub-periods. A full discussion of the techniques used and the tests employed for significance and autocorrelation are described below. The second research method used in the study was that of a limited number of semi-structured interviews, these were conducted initially to provide a check on the validity of the econometric work and to provide qualitative data which could illuminate more recent strike experience in the industries studied.

(1) ECONOMETRIC WORK

Many studies of strike activity and particularly those of economists, make use of techniques of multiple regression to ascertain the existence of a relationship between a dependent variable (e.g the number of stoppages in a given period) and a number of independent, explanatory variables. The equation reproduced below was run by Pencavel (1969) to account for variations in the dependent variable - the number of Strikes outside of coal-mining - by using seven independent variables. The value of these variables, the regression coefficient, shows the importance of each in respect of the number of strikes so that an increase of 1 % point in the rate of unemployment (U_t) is associated with a fall of around 41 strikes per quarter in Pencavel's equation.

$$S = -147.88 + 74.93N_1 + 38.0N_2 + 7.01N_3 - 41.29U + 1.87D - 42.46R_{t-1} + 5.5T$$

(1.68) (4.99) (2.67) (0.48) (2.89) (2.6) (4.89) (15.29)

$$SEE = 41.9$$

$$R^2 = 0.869$$

$$D.W = 1.36$$

Where: N_1 , N_2 , N_3 are seasonal dummies. U ; is the rate of aggregate unemployment in the current period. D ; the ratio of profits to total compensation. R_{t-1} ; the rate of change of real wages lagged six quarters. T ; a time trend.

Similarly, a rise in real wages, six quarters previously (R_{t-1}) in the same equation is associated with a fall of around 42 strikes per quarter. The figures in brackets denote t statistics which indicate the significance of each variable employed. In general, values of t greater than 2 imply that the variable is significant. In equation (a) all the explanatory variables with the exception of the third seasonal variable N_3 can be seen to be significant.

The three other measures used by Pencavel are indicators of the general significance and explanatory power of the overall equation. The Standard Estimate of Error (SEE) gives an indication of the significance of the equation, the lower is this figure the better for the overall significance. The R^2 figure is the coefficient of determination and gives an indication of the explanatory power of the equation and varies in value from 0 to 1. The higher is R^2 the greater the explanatory power of the equation, so that in equation (a) the variables employed account for around 87% of the variation in the dependent variable. The last measure, D.W, is the Durbin-Watson statistic particularly important in time-series work and draws attention to the existence or otherwise of autocorrelation between residuals. Residuals are differences between observed values of the dependent variable and values predicted by the equation. The D.W statistic indicates whether there is a pattern in the dependent variable which is unexplained by the variables already in the equation. Put another way the Durbin-Watson statistic indicates whether or not critical variables have been omitted from the equation. The statistic takes a value between 0 and 4, with 2 being the ideal value indicating no autocorrelation. In econometric work in the field of strikes, a value of between 1.4 and 2 is used to indicate a lack of any significant autocorrelative problems, values between 1.1 and 1.4 inconclusive and values below 1.1 as indicating problems of autocorrelation (see Cronin 1979: p.77). A further measure used in some econometric studies is the F statistic, which indicates the extent to which the independent variables are significant explanators of variations in the dependent variable. In general, the higher the value of this the better, but values of over 4 or 5 can be assumed to indicate overall significance.

(2) SEMI-STRUCTURED INTERVIEWS

The research conducted for the four industry chapters concentrated mainly on statistical data particularly that of the econometric work outlined above. In addition, these chapters drew upon some limited qualitative data provided through the use of a small number of semi-structured interviews. For steel, shipbuilding and motor vehicles two interviews each were carried out, and in coal-mining four interviews.

The main aims of the interviews were first, to provide a means of checking the accuracy of specific historical data on changes in these industries. Second, to obtain additional information on changes in industrial relations for the 1980s and 1990s to supplement secondary data sources. Third, that given the importance of the role of organisation in our account of strikes, a particular aim was to obtain information on trade union perceptions of change and management initiatives in the 1980s particularly which is the reason for the predominant union emphasis in the interviews. Finally, the interviews were also used as a means to obtaining access to documents that were unobtainable through other sources. The minutes of the Shipbuilding Industry Committee from the CSEU is an illustration of this point, as the privatisation of British Shipbuilders meant that such information was no longer available centrally from that source.

The interviews all followed a similar format with a preliminary introduction to the study and more detailed open questions relating to developments in the industries/organisations in the 1980s. On the basis of the responses, interviewees were probed further on specific issues relating to the changes. In some cases, notably coal-mining, these led to discussion of specific areas and pits and strike propensities over time. Where possible, the information obtained was checked with that of other respondents, and published data where available. These were followed up by questions which concentrated on eliciting information on trade union responses to the changes experienced in the 1980s, as relatively little information was available on these in contrast to information on management strategies. Where direct reference is made to interview material in the text, this is marked with an asterix, e.g Ferry (*)

SECTION III

AGGREGATE AND INDUSTRIAL STRIKE ACTIVITY SOME INITIAL FINDINGS

AGGREGATE STRIKE ACTIVITY: THE ROLE OF THE MACRO-ENVIRONMENT

The previous discussion and our own theoretical model have identified the role of broad environmental influences on strike activity, particularly their incidence and length. Following DMR it was decided initially to focus specifically on the role of environmental influences on strikes at the aggregate level to try and assess empirically their relative importance in the post-war period. This decision was also influenced by our wish to test further three of the most influential analyses of aggregate stoppage activity in the UK. In our earlier discussion of approaches to studying strike activity (see Introduction) the explanations offered by economists and those adopting a political-historical approach were reviewed and within these, the works of Pencavel (1970), Shorey (1977) and Cronin (1979) given particular attention. Surprisingly, in terms of their influence, there have been few attempts to apply their work to later historical periods or to extend them beyond their original time periods. Whilst this omission is understandable in Cronin's case, as his analysis covers approximately 90 years, it is less clear in the case of Pencavel and Shorey. Our intention is therefore to seek to remedy this situation, to test the underlying stability of the models and to examine their relevance and applicability to later time periods. The first section concentrates upon the contribution of the two economic approaches to the analysis of strike activity beginning with a re-consideration of Pencavel's seminal work.

The pattern of strike activity in the post-war period is outlined in the tables and the figure overleaf. The tables have been arranged according to the periodisation suggested by DMR (1983) and subsequently extended by Hyman (1984). They serve as a general backcloth against which the review of three major studies are set.

Table 1

NET STRIKE TOTALS

YEARS	Av Num St. pa	Av Num Wkrs inv	Average WDL	Average size	Days lost pw
1946-52	625	228.4	1318	365	5.8
1953-59	608	551.2	3407	907	6.2
1960-68	1451	1189.3	2872	820	2.4
1969-73	2723	1446.5	9881	531	6.8
1974-76	2182	910	6100	417	6.7
1977-79	2119	2202	16195	1039	7.4
1980-84	1052	1102	5670	1048	5.1
1985-90	653	616	2792	943	4.1

Table 2

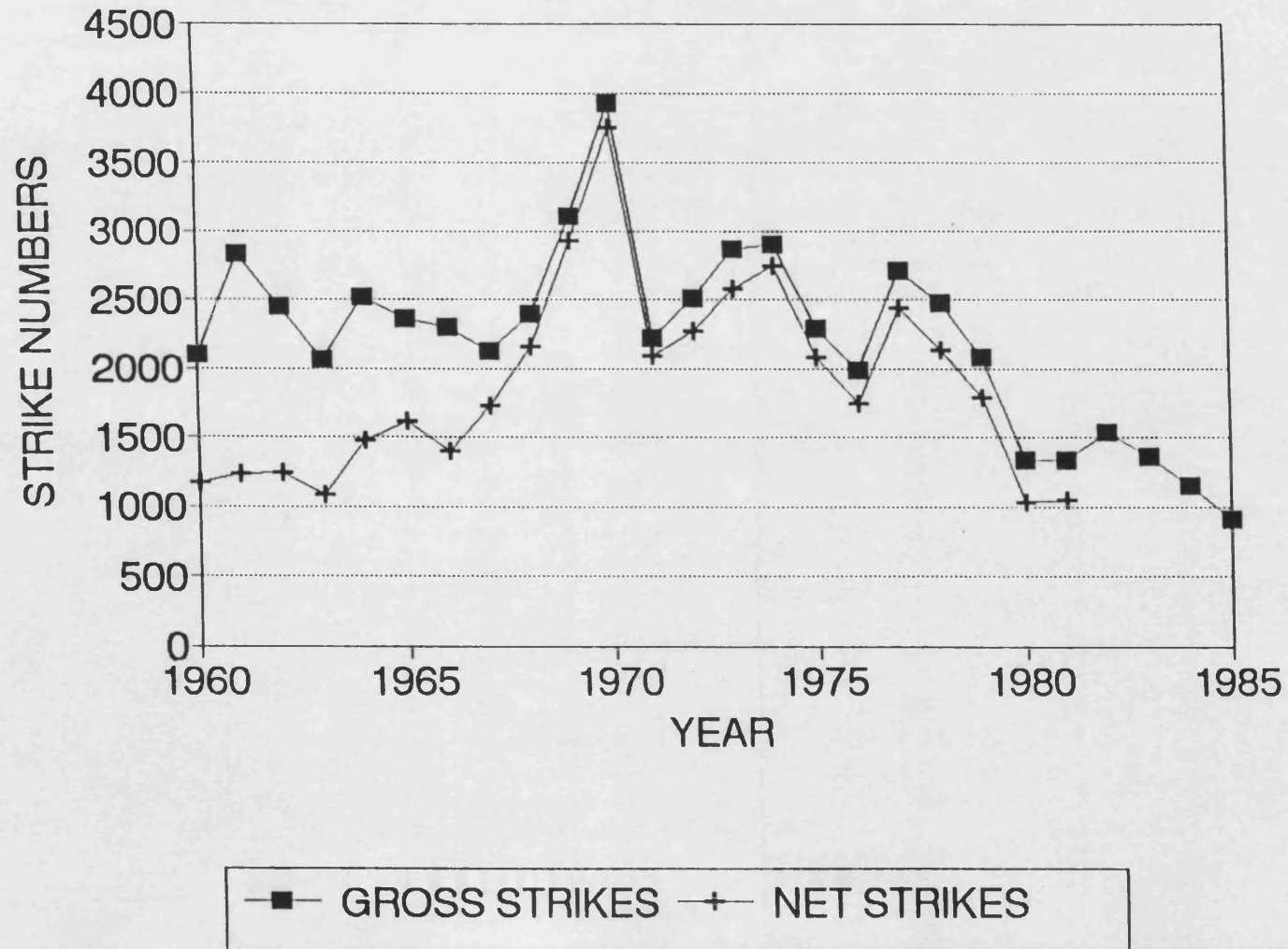
GROSS STRIKE TOTALS

Years	Av No St pa	Av No WI	Av WDL	Av Size	% Strikes < 3 days	Days lost p w
1946-52	1698	443	1888	261	77.1	4.3
1953-59	2340	787	3950	336	81.1	5.0
1960-68	2372	1316	3188	554	71.0	2.4
1969-73	2924	1571	12497	537	53.6	8.0
1974-76	2413	1032	8015	428	43.4	7.8
1977-79	2453	2272	16340	926	41.8	7.2
1980-84	1340	1280	10372	955		8.1
1985-90	851	702	3850	852		5.5

Source: Years to 1973 Durcan, McCarthy and Redman (1983).
1974-Hyman (1984) and DE Gazette annual data on stoppages.
Average size = average number of workers involved

AGGREGATE STRIKE ACTIVITY

1960-1985



PENCAVEL

Pencavel's work derived from the theoretical model and empirical work of Ashenfelter and Johnson (1969) for the USA and was an attempt to test it in the British context. Operationally, the model examines the probability of a strike occurring in a given bargaining unit which is seen to be dependent upon profits, some minimum acceptable wage increase, the state of the labour market, seasonal factors and a time trend. Pencavel proceeded to test the model at the aggregate level and on four separate industries using quarterly data from the first quarter of 1950 to the second quarter of 1967 with the dependent variable as the number of stoppages beginning in each quarter in all industries except coal-mining. The results of his empirical work at the aggregate level are given below with our equations for 1967-87 and 1947-87 set alongside.

The three equations reported by Pencavel give considerable support to the Ashenfelter and Johnson model with all variables apart from the third seasonal dummy and the two political variables significant. However, as was noted in the Introduction, the results may be affected by the years chosen for study and attempts to apply econometric models to periods other than that chosen by Pencavel have been less successful. In an attempt to check this we ran Pencavel's equations (b) and (c) using annual data for the period 1967-87, the results for (c) are shown below as equation (d). Note that the wage and price terms were lagged one year rather than the six quarters used by Pencavel. Given the relatively small number of observations and fewer degrees of freedom the results must be interpreted with caution.

In a number of important respects equation (d) performs well. Its overall explanatory power is high, the F statistic suggests the variables are significant determinants of variations in the number of stoppages and the D.W statistic confirms the absence of significant autocorrelation. However, of the independent variables employed only the unemployment and wage terms are significant with unemployment exerting a strong negative influence upon stoppage numbers. In contrast to the results obtained by Pencavel the Time trend is insignificant and with a small coefficient.

Note:

In the following equations the variables used are as follows:

N1, N2, N3 are seasonal dummy variables

U; the aggregate rate of unemployment in the current period.

D; the ratio of profits to total compensation.

Rt-1; the rate of change of real wages lagged six quarters (Pencavel), one year in equations (d) and (e).

Wt-1; the rate of change of money wages lagged six quarters.

Pt-1; the rate of change of retail prices lagged.

T; a time trend. YP; Incomes policy dummy variable.

LG; Labour government dummy variable.

SEE; the standard error of estimate. F; the F test of overall significance. R2; the coefficient of determination.

D.W; the Durbin-Watson statistic.

STRIKE ACTIVITY: AGGREGATE RESULTS

Variable	Equations			1967-87	1947-87
	PENCAVEL				
	(a)	(b)	(c)	(d)	(e)
Constant	- 147.88 (1.68)	- 74.46 (0.72)	- 142.25 (1.47)	3502.3	1211.5
N1	+ 74.93 (4.99)	+ 70.55 (4.6)	+ 75.56 (4.91)		
N2	+ 38.0 (2.67)	+ 38.45 (2.7)	+ 37.99 (2.64)		
N3	+ 7.01 (0.48)	+ 5.44 (0.37)	+ 6.71 (0.46)		
U	- 41.29 (2.89)	- 38.73 (2.42)	- 50.19 (2.95)	- 203.6 (3.08)	- 188.65 (4.38)
D	+ 1.87 (2.6)	+ 1.27 (1.49)	+ 1.97 (2.35)	- 7.16 (0.12)	- 40.2 (0.5)
Rt-1	- 42.46 (4.89)	- 52.52 (3.84)	- 68.0 (2.3)	- 65.5 (2.37)	
Wt-1		- 44.2 (3.89)			
Pt-1		+ 39.34 (4.34)			
T	+ 5.5 (15.28)	+ 5.24 (13.1)	+ 5.71 (13.28)	+ 15.04 (0.3)	+ 78.37 (5.57)
YP			- 10.27 (0.56)	- 257.1 (1.04)	- 44.15 (0.2)
LG			- 11.10 (0.54)		+ 360.57 (2.0)
SEE	41.9	41.9	42.3		
SDE				428.6	477.0
F				10.1	13.2
R2	0.869	0.873	0.971	0.81	0.69
D.W	1.36	1.35	1.41	1.49	0.91

The figures in brackets are t values.

Equation (d) suggests that for the period 1967-1987 it is the unemployment term which is giving the equation its overall explanatory power and significance with a rise of one percentage point in the unemployment rate being associated with a decline of around 200 strikes a year. Given the fact that Pencavel used non-mining strikes per quarter as his dependent variable and the present study uses non-mining strikes per year this result is almost identical to that obtained by Pencavel for the earlier period in terms of the significance of the variable and the strength and sign of the coefficient. The strength and significance of the lagged real wage term is however considerably reduced in the later period and although the only other significant variable in equation (d) its influence on the overall significance and explanatory power on the equation appears to have diminished. In view of this contrast with Pencavel's results it was decided to re-run the equation (d) without the time trend.

The omission of the time trend made little difference to the overall explanatory power of the equation and actually increased its overall significance. In contrast with the period 1950-67, the time trend did little to enhance the explanatory power or significance of the equation after 1967. To provide additional support for this view equation (c) was run using annual data for the period 1946-66. With the inclusion of the time trend the equation accounted for 81% of the variation in the number of stoppages, without it, this figure fell to 50%. Furthermore, the F test fell to a level where it was only just significant and the D.W statistic fell from 1.43 to 1.134. Of greater importance was the fact that the removal of the time trend changed the signs on the coefficients of the unemployment, profits and incomes policy variables. Similar results to these were also reported by DMR in their econometric work using annual data (DMR 1983: p. 233-234). Whilst these differences may be the result of using annual rather than quarterly data coupled with a slightly different time period this would not account for the very low D.W statistic, although Pencavel's high figure may be the result of using seasonal dummies.

Overall, these results suggest problems with the underlying stability of the model tested by Pencavel, although the results for equation (d) imply a continuing and significant role for broad economic factors in explanations of strike activity. Given

the apparent importance of economic factors over relatively short periods of time in influencing the numbers of stoppages it was decided to run the three Pencavel equations for the entire post-war period from 1946-87 to examine the validity of his model for a longer time period and to test for the significance of his economic variables over such time periods. Only equation (c) is reproduced here as equation (e) above.

Comparing the results with those from Pencavel's original equations shows that the time trend remains an important and significant explanatory variable although it is unclear what it is acting as a proxy for in the longer time period and its significance is considerably less than that found in Pencavel's original work. Although with the time trend removed only the profits variable remained significant, the signs on the unemployment and incomes policy variables change and the R^2 fell to 0.42. It would seem likely in view of the strong downward trend in strike numbers since the early 1970s that the significant positive coefficient on this variable is heavily influenced by the upward trend in the earlier period, a view supported by the lack of significance of the variable for the period 1967-1987 (equation (d) above). The importance of this term should not be underestimated, it is indicating that there were on average an additional 78 strikes a year for each year of the period studied. Thus, the trend term implies that there would be 780 more strikes in 1960 than in 1950 and over 2000 more in 1980 than in 1950. The unemployment term, and in the absence of the time trend, the profits variable remain important explanatory factors in accounting for variations in the number of stoppages (although in the case of profits, the sign on the coefficient is the opposite of that found in Pencavel's work suggesting that high profits are associated with fewer strikes, so that employers apparently share the benefits of high profits with their employees). The strength of the influence of the unemployment term, as measured by the value of the coefficient, is comparable to that found in Pencavel's work and in equation (d) for the later period, although its overall significance is higher than that in the original Pencavel equations. It is clear from equation (e) that it is the unemployment and trend terms which together drive the equation and give it its explanatory power. The Labour government variable in equation (e) is also significant (cf Pencavel) and exerts a strong positive influence on

stoppages, suggesting a major impact in the late 1960s and between 1974 and 1979. However, even with the time trend included, there is a problem of omitted variables for the extended period and the explanatory power of the equations falls markedly when tested over the longer time period. The best result (equation (e)) obtained with the inclusion of the two political variables gives an equation which accounts for 69% of the variation in the number of stoppages compared with 87% in the original equation. Given the tendency for equations using annual data to give higher values of R^2 than those using quarterly data the differences in explanatory power probably exceed those given here.

The lack of significance of the profits, wage, price and incomes policy variables in the revised equations together with the reduction in overall explanatory power and omitted variables would seem to support the contention of those who remain sceptical of the ability of economic models to account for anything other than strike incidence over relatively short periods of time. To test this view further we re-examined the work carried out by Shorey (1977) and subjected it to further testing before considering some refinements of our own to these economic approaches.

SHOREY

Shorey's work attempted to account for the probability of a bargaining unit experiencing a strike, utilising a framework which postulated a conflictual relationship between employers and employees. In common with other economic models it assumed all strikes were concerned directly or indirectly with wages with the dependent variable as all strikes outside of mining. Shorey developed an operational model with eleven variables, including two seasonal dummies and tested it using quarterly data from the first quarter of 1950 to the second quarter of 1967, the identical period to that examined by Pencavel. The equation which produced the best results for his period included six variables and is reproduced in equation (f) overleaf.

AGGREGATE STRIKE ACTIVITY: SHOREY REVISITED

Variable	SHOREY (f)	1967-87 (g)	1946-87 (h)
Constant	- 291.7 (5.2)	2308.6	250.2
Y1	+ 81.8 (7.3)		
#/P	+ 158.1 (5.4)	- 7.3 (2.02)	- 0.019 (0.013)
Wt-1	- 18.2 (2.3)	- 45.45 (1.18)	- 31.79 (1.4)
Pt-1	+ 12.9 (1.8)	+ 16.96 (0.47)	+ 20.09 (0.8)
Pt	+ 1.2 (2.2)	+ 7.6 (0.19)	- 3.38 (0.15)
Snomt-1	+ 0.48 (5.3)	+ 0.57 (2.73)	+ 0.917 (9.2)
SEE	36.3		
SDE		523.6	411.56
F		7.0	23.49
R2	0.89	0.70	0.77

Y1 = Seasonal dummy signifying the first quarter of the year

#/Pt = Real Profits in current period

Wt-1 = Change in money wages lagged

Pt-1 = Change in prices lagged

Pt = Change in prices in current period

Snomt-1 = Strikes outside of mining lagged

Figures in brackets are t statistics, Shorey gives no indication of D.W statistic but it is assumed to be satisfactory.

Despite the fact that two dummy variables and those measuring changes in the wage bill, the level of unemployment, changes in money profits and productivity are omitted because of their lack of significance the results seem to support Shorey's view that 'economic factors are important in explaining strike causation'. To test this further we ran his equation on the period 1967-87 using annual data. The results are presented in equation (g) but with our earlier proviso that the limited number of observations mean the results must be treated with caution.

Compared with Shorey's original equation only real profits and the lagged dependent variable remain significant, and the sign on the coefficient of the former is the opposite of that in his original equation. Furthermore, the lagged dependent variable needs to be interpreted carefully. Shorey includes it as an index of external militancy and lags it one quarter, in (g) and (h) it is lagged one year and is used by other writers to indicate the extent to which strikes have their own dynamic (see Cronin 1979). Irrespective of how it is used; including a lagged dependent variable as an explanatory factor may seriously bias the Durbin-Watson statistic (Koutsoyiannis 1977) and without S_{nmt-1} in equation (g), the D.W statistic falls to 1.19 and the R^2 to 0.55. In addition, the lagged dependent variable may be acting as a proxy for some other lagged independent variable and that the latter should be included in place of S_{nmt-1} (as Shorey 1977, concedes in his work). However, an argument for including the lagged strikes variable can be made in the context of our own 'open systems' model of strike activity. The role of feedback into the broader environment and the attitudes of the parties may be measured more effectively by the use of this variable rather than some alternative measure. The ambiguity associated with it and its interpretation does suggest caution in its use and this, coupled to the results of its inclusion in the revised Cronin equations (see below) led us to discard it in our own work.

Equation (h) shows the results of Shorey's original equation run for the period 1946-87 using annual data. In this revised equation only the lagged dependent variable is a strong and significant determinant of strikes in the current period and suggests that an additional ten strikes in the preceding period will produce, *cet. par*,

a further nine strikes in the current period. According to Shorey's theoretical position this offers strong support for the view that current strike levels are significantly influenced by strikes in the recent past and for Cronin's view that strikes come in waves. Just how much influence the lagged dependent variable exerts on the overall equation is indicated by the effect of removing it. If S_{nomt-1} is excluded, only P_t is significant, F falls to 2.5 (!), R^2 to 0.21 and $D.W$ to 0.43 suggesting that S_{nomt-1} is exerting a major influence upon the overall significance and explanatory power of the equation. Given the strength of the coefficient on this variable and its significance for the extended period as compared with 1967-1987 suggests that its impact fell mainly on the period of Shorey's study and raises additional concerns about his results.

The results for the extended period therefore urge caution in accepting Shorey's claim about the importance of broad economic factors in strike causation at least over relatively long periods of time. None of the variables apart from the lagged dependent variable is significant and other than the wage variable the remainder do not even approach significance. Indeed, as we noted above, in the revised equation the overall significance, explanatory power and apparent lack of omitted variables are the result of the inclusion of one variable. Moreover, a variable which is ambiguous in terms of its interpretation and which may be telling us very little about the factors affecting strike activity.

In defence of Shorey's work, the overall results may be partly a consequence of using annual rather than quarterly data. However, we incline more to the view that an equation in which over half of the explanatory power and well over half the total significance is provided by a variable whose validity and interpretation is a matter of some debate suggests that the underlying model or at least its operational form offers an account of strike activity which is at best inadequate and at worst highly misleading.

CRONIN

The analysis of broad macro-influences on aggregate strike activity has concentrated mainly on macro-economic factors with little consideration of the influence of political and organisational variables. Given the role assigned to these in our theoretical model it was decided to use the work of Cronin (1979) as a focal point in examining their influence in association with economic factors on aggregate strike activity.

Arguing for the value of a long-run historical model of various dimensions of stoppages encompassing economic, organisational and political variables Cronin used various combinations of nineteen variables to account for variations in these dimensions. Of particular interest to the present study is the equation he fitted to data for the period 1946-74 using strikes outside mining and quarrying as his dependent variable. In contrast to Pencavel and Shorey, Cronin used Beta or standardised coefficients of the predictor variable. Beta coefficients, unlike the regression coefficients used above (which give an amount in units by which the value of the dependent variable changes in response to a change of one unit in the predictor variable) refer to the amount in standard deviations by which the value of the dependent variable changes in response to a change of one standard deviation in the predictor variable. Thus, although we have used regression coefficients rather than Beta coefficients in our analyses the overall results we have obtained can be compared directly with those of Cronin although the coefficients on each variable differ. Cronin ran equations using a combination of variables with annual data for the period 1946-74, overall results for the two most successful of which are reproduced overleaf.

e) $Snom = f(GDP, Rt, TUG, Snomt-1)$; SEE = 250.6, $R^2 = 0.93$, D.W = 1.62

f) $Snom = f(GDP, TUG, Snomt-1, RL, CG)$; SEE = 261, $R^2 = 0.93$, D.W 1.51

Where:

GDP = Gross Domestic Product, as an indicator of economic prosperity

R_t = Real Wage changes in current period

TUG = Trade Union growth

$Snomt-1$ = Strikes, non-mining lagged one year

RL = Repressive Legislation

CG = Conservative government in Power

AGGREGATE STRIKE ACTIVITY: CRONIN REVISITED 1946-1987

Variable	(i)	(j)	(k)
Constant	- 132.9	- 380.29	- 836.3
GDP	+ 6.82 (1.76)	+ 11.3 (2.3)	+ 29.8 (4.24)
TUG	+ 65.7 (2.79)	+ 38.1 (1.53)	+ 57.4 (2.9)
Rt	- 45.9 (2.27)		
Wt			- 32.4 (2.77)
U			- 105.9 (3.58)
Snomt-1	+ 0.76 (7.95)	+ 0.728 (7.34)	+ 0.59 (4.9)
RL		- 420.28 (1.9)	
CG		+ 5.4 (0.037)	
SDE	371.97	380.29	320.46
F	37.7	28.77	43.4
R2	0.80	0.80	0.86
D.W	1.7	1.62	1.88

Owing to his choice of Beta coefficients we do not know how many of Cronin's variables were significant but it is assumed that most if not all met standard tests of significance. Furthermore, Cronin utilised variables far broader and less precise than those conventionally employed by economists and care needs to be taken over their interpretation.

In common with the treatment of Pencavel and Shorey's work the two Cronin equations were re-run for the extended period 1946-87. Of these it is equation (j) which comes closest to operationalising Cronin's theoretical model and although the repressive legislation variable approaches significance the performance of these political variables over the longer period is not encouraging. Equation (i) continues to perform well over the extended period with three of the four variables significant, and together accounting for 80% of the variation in the number of stoppages (net). The F test suggests the four variables are highly significant determinants of variations in stoppages and the Durbin-Watson statistic indicates no problems of autocorrelation. The two equations were then re-run with the lagged dependent variable omitted. In equation (i) this raised the significance and the value of the coefficients of GDP and TUG but rendered the change in real wages (Rt) insignificant. In equation (j) the same occurred but with RL and CG remaining insignificant and with the sign on the coefficient of CG changing. However, the major impact fell upon the overall tests of significance and determination. In both equations the F value fell by over two-thirds, the R² to 0.47 and 0.50 respectively and, of most concern, lowered the D.W statistic to 0.34 and 0.32 suggesting a major problem of omitted variables. It would appear that the lagged dependent variable again exerts a considerable influence in Cronin's equations for the period 1946-87 and as with Shorey its effect is probably concentrated in the period to 1974. It is likely to be biasing the results he obtains by depressing the value of the coefficients on the other explanatory variables, by acting as a substitute for other lagged variables and by artificially raising the value of the Durbin-Watson statistic.

Examining equations (i) and (j) in more detail reveals the driving force of the lagged strikes term in both equations. Whilst the prosperity variable only achieves significance when run separately from the real wages term. Conversely the trade union growth variable achieves significance when run with the earnings term but not with the political variables. Furthermore, it is not clear what the real wages term is saying. Cronin includes it as an expectations term but accepts that it could also be viewed as another measure of prosperity. The fact that GDP is insignificant when run alongside the wages term suggests that it might be better viewed as a prosperity measure. In which case it is presumably saying that the higher the increase in real wages the less likely are workers to engage in strike activity for the foreseeable future. Alternatively it could be saying that settlements giving high real earnings, are associated with fewer strikes suggesting the ability of firms to 'buy off' industrial conflict.

After re-running Cronin's original equations it was decided to test further a number of combinations of his variables over the period 1946-87 to gauge their significance and explanatory power. The best results obtained are described in equation (k) above. This suggests that a combination of broad economic and organisational factors together account for the major part of the variation in aggregate strike incidence in the UK for the post-war period to 1987 although it is the combination of the broadest and theoretically most imprecise variables, GDP and Snomt-1, which appear to give the equation its significance and explanatory power. The problems associated with the latter variable have already been discussed in detail, suffice it to say that it may be telling us very little about stoppages and variations in these. Similarly GDP, the 'prosperity variable' indicates the cyclical pattern to stoppages and the association between strikes and rising living standards (the use of an index of industrial production in place of GDP produced comparable results and was also highly significant). However, it is subject to a number of different interpretations and it is again doubtful how far the results inform our understanding of strike activity. In terms of our own theoretical model, whilst general prosperity is likely to be important it is the immediate effects of this, for example through output and earnings variations at industry (and more importantly), company and workplace level that are likely to

have the greatest impact on stoppage activity.

Running equations for the period 1946-67 using a combination of Cronin variables did highlight the importance of political factors, notably the operation of incomes policies, but this does not appear to hold for the extended period although this may be the result of a limited number of observations available.

SUMMARY AND CONCLUSIONS

The analysis of macro-variables using the works of Pencavel and Shorey has provided useful insights into the role of economic factors in particular in influencing aggregate strike activity. At the beginning of this section it was stressed that the few attempts that had been made to apply economic approaches to time periods outside of those used by Pencavel and Shorey, or had tried to apply them to longer time periods, had not met with the same success. The revised work undertaken in this section would support this view but with important qualifications.

In general the results obtained for the Pencavel and Shorey analyses when extended for the longer period 1946-1987 are mixed but suggest that their underlying models (at least their operational forms) may be mis-specified and inappropriate for the entire post-war period. However, the Pencavel equations perform consistently better than Shorey's and the results of the empirical work undertaken using the Pencavel operational model confirms the continuing and consistently strong negative influence of unemployment on variations in strike activity, and the strong positive influence of the time trend, although the latter is not significant for the period 1967-1987. However, despite the influence of these terms the remaining variables (excepting the Labour government in the long period and the lagged wage variables in the period 1967-1987) do not perform well, failing to achieve significance. Overall, whilst the equations account for over two-thirds of the variation in stoppages this is considerably below the explanatory power of his original equations and, more seriously in the longer period there is a major problem of omitted variables.

In contrast, the extended Shorey equation has a higher explanatory power and no apparent problem with omitted variables but this result is achieved entirely as a result of the inclusion as an explanatory factor of the lagged dependent variable with none of his other variables achieving significance (except the real profits variable for 1967-1987). Overall, it is the trend term in the case of Pencavel and the lagged dependent variable in the case of Shorey which save the equations from complete obscurity and insignificance over the longer time period. Although in Pencavel's case the time trend fails to conceal the major problem of omitted variables its influence in conjunction with that of unemployment does explain much of the variation in stoppage numbers. For Shorey's model the problems would appear to be more acute and taken together support the view that accounts of stoppage activity at the aggregate level which rely almost exclusively upon economic factors offer an incomplete explanation of the complexity of influences on strikes. This is not to argue that broad economic factors are unimportant, indeed our theoretical model places considerable stress upon them, but that they are for the most part, background variables operating more significantly in the short than long term.

Overall the extended Cronin equations and those using a combination of the variables he employed generally perform well. The explanatory power is high and the overall significance together with the absence of omitted variables suggests Cronin is correct in identifying the factors he has as important determinants of stoppage activity. Furthermore, the results give broad support to the argument that strikes need to be analysed from a multidisciplinary perspective which gives considerable support to the general theoretical framework developed above. However, in spite of the impressive results obtained there are considerable weaknesses in Cronin's work which are thrown into sharper focus when his equations are extended beyond 1974. First, and most important is the significance and strength of the coefficient on the lagged dependent variable which, as with Shorey, considerably affects the overall explanatory power and Durbin-Watson value. The fact that it is not clear what this is measuring nor how the results are to be interpreted casts a shadow over its inclusion in the equations. Second, the importance of the prosperity variables, particularly GDP but also the wage terms when used in conjunction with GDP. The breadth of the GDP

variable appears to swamp the effects of some of the other factors and, other than saying that strikes are associated with increasing prosperity it is doubtful how far the variable's inclusion aids our understanding of strike activity. Third, and finally there is the poor performance of the political variables employed by Cronin with only repressive legislation in equation (j) approaching significance. As with the economic approaches discussed above our general conclusion is that whilst many of the factors identified by Cronin are undoubtably important determinants of strike activity and perform considerably better over the longer time period than the variables employed by Pencavel and Shorey they would benefit from being examined at lower levels of aggregation where their impact can be assessed in specific market and institutional contexts.

In Cronin's defence it should be stressed that in contrast to Pencavel, Shorey and other economic explanations of strike activity his variables are employed to account for dimensions of stoppages in addition to mere numbers. Although not tested here, DMR (1983) have shown equations employing economic variables alone offer poor explanations for days lost and workers involved although certain economic variables, the rate of unemployment and earnings (normally lagged) appear to be important and consistently significant explanatory factors.

It is a central argument of the present work that in order to better understand the determinants of strike activity we need to locate the level of analysis at lower levels of aggregation in order to assess the role and influence of local market and institutional factors. In the next chapter the focus shifts to the broad industry level, examining metals and engineering, and construction. The first part of which is concerned with testing further Pencavel's industry equations over the longer time period, the second part develops, tests and evaluates a set of equations derived from the theoretical model constructed in the second section.

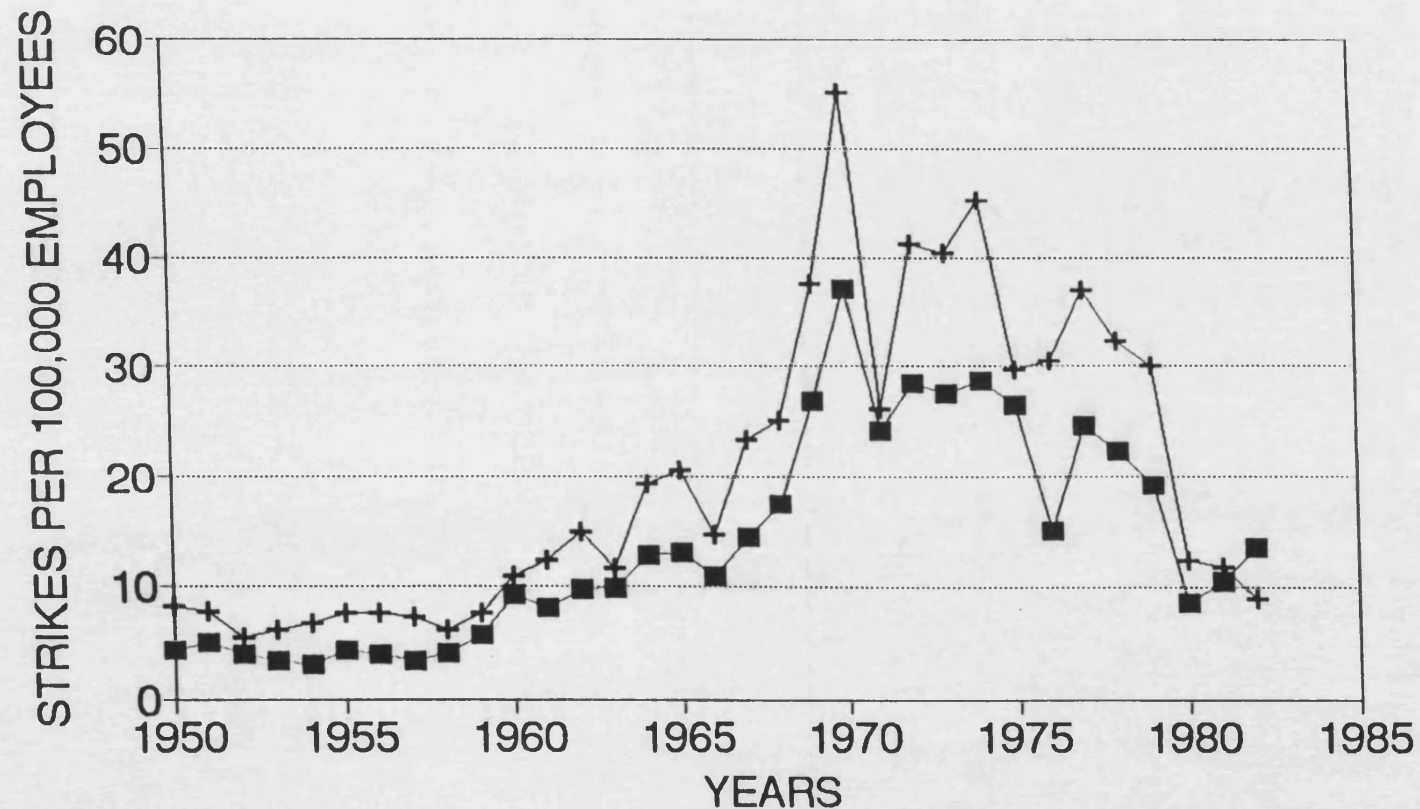
STRIKE ACTIVITY AT INDUSTRY LEVELS

A PRELIMINARY TEST OF THE THEORETICAL MODEL

A major part of Pencavel's (1970) study was the application of his operational model to specific industries for the period 1957 to 1967, again using quarterly data. The operational model at the industry level differed in three respects from that used in his aggregate equations. First, the profits term was omitted because of the lack of data, second, the real wages (and money wage and price) variable related to the industry rather than to the economy as a whole and an additional variable, the industry unemployment rate, included alongside the aggregate rate.

The Pencavel procedure has important implications for this work. Running equations using a combination of industry and economy wide variables permits a greater insight into the determinants of strike incidence at the industry level and allows a more considered assessment of the role of macro variables in strike numbers than is possible with aggregate data. Furthermore, one of the four industries examined by Pencavel, the broad metals sector (metals, engineering, shipbuilding and vehicles) is of particular interest to our study and would seem to merit further examination. In view of this it was decided to re-run the Pencavel equations for two of his industries, the metals sector and, because of its importance in net strike totals, construction. Following this, our own model is introduced and preliminary tests undertaken on metals, engineering and shipbuilding; construction and engineering. Owing to deficiencies in data, the equations for construction run from 1949-82 whilst those for the broad metals sector run from 1948-82. Both series end in 1982 as this is the last year for which industry unemployment data is available. The practice of the previous sections followed here, with the original Pencavel results for the second quarter of 1957 to the second quarter of 1967 are presented alongside the results of our own work for the period to 1982. The strike patterns for metals, engineering, construction and metals nes are shown in the figures 5 and 6 overleaf.

STRIKES PER 100,000 EMPLOYEES SELECTED INDUSTRIES

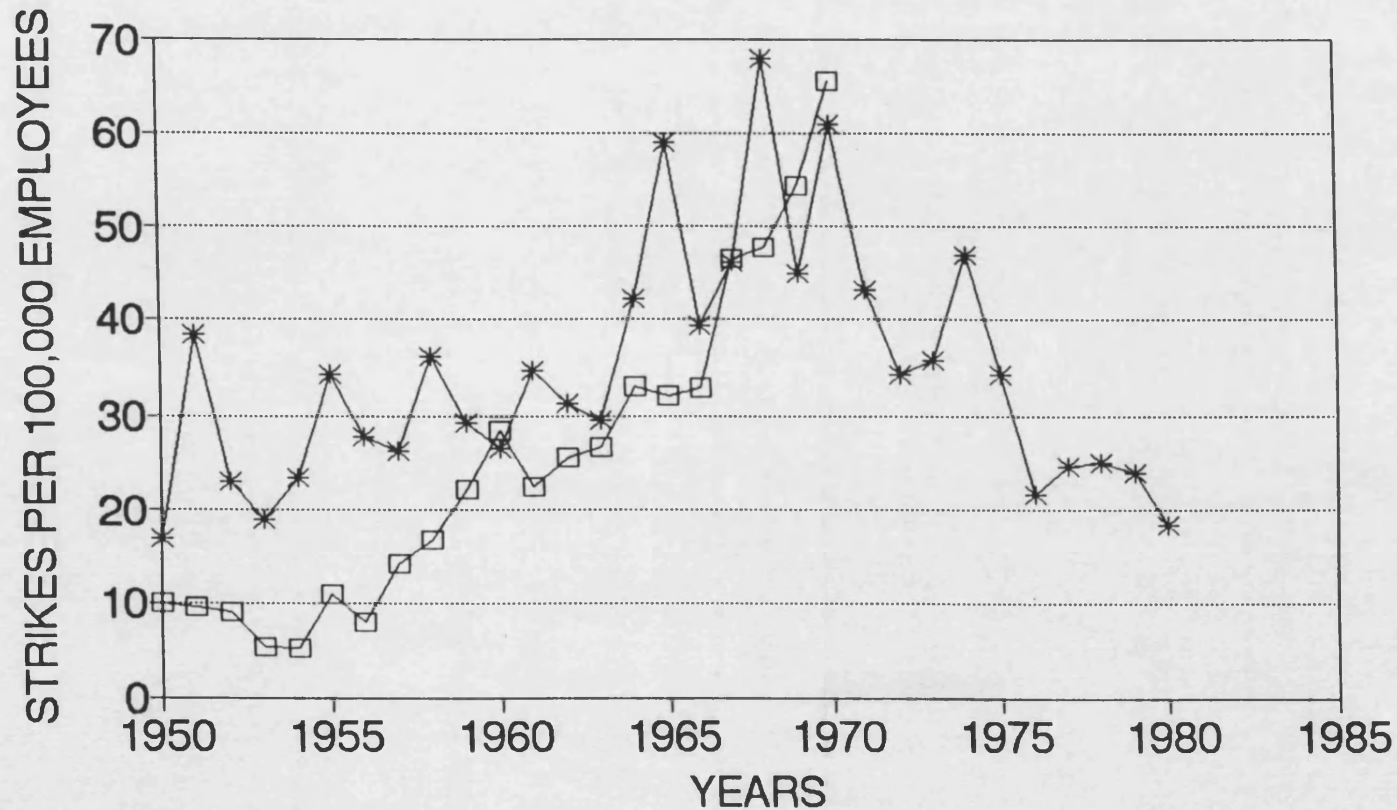


(Source: Strikes and Employment,
Employment Gazette)

■ ENGINEERING + METALS

STRIKES PER 100,000 EMPLOYEES

SELECTED INDUSTRIES

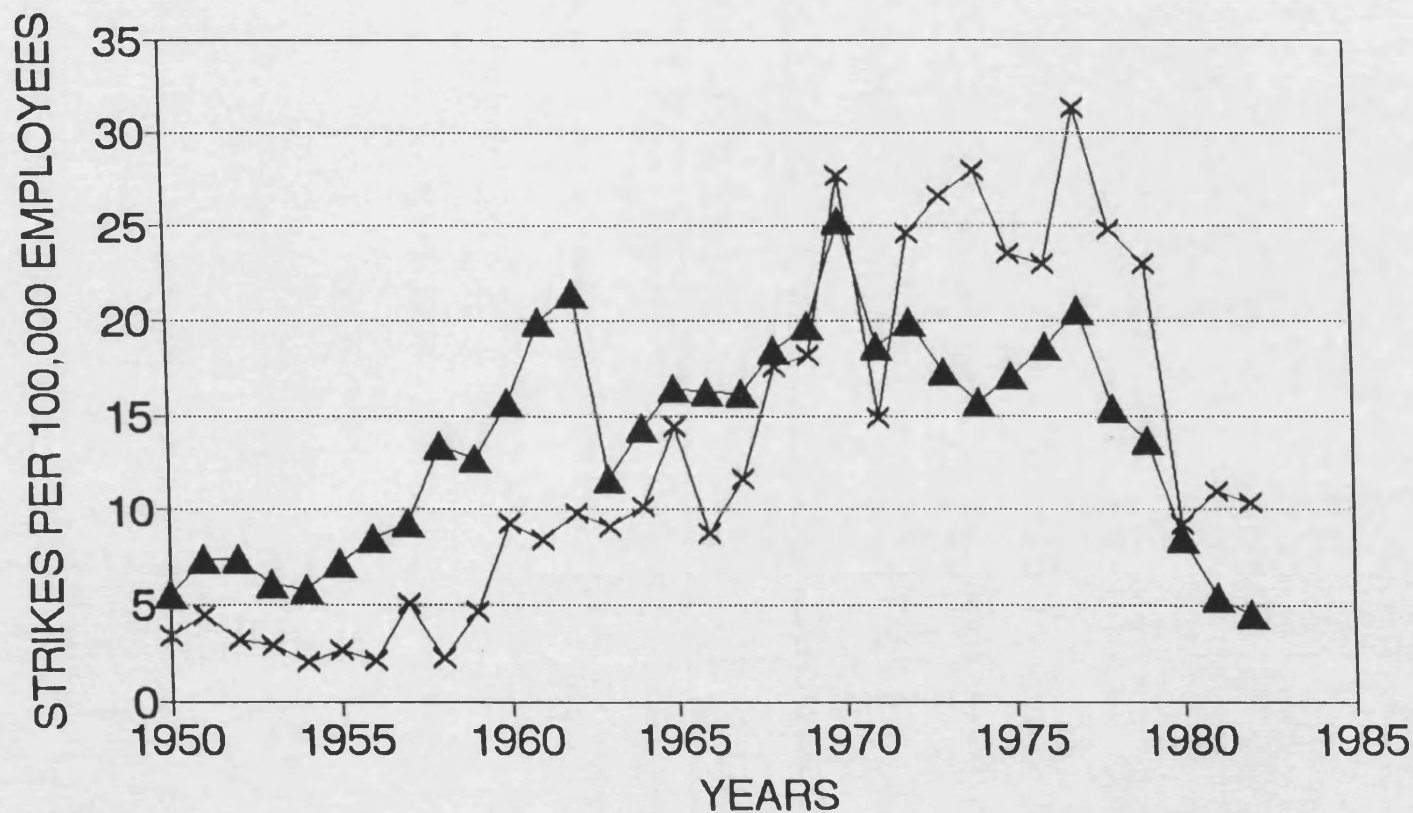


(Source: Strikes and Employment
Employment Gazette)

—*— SHIPBUILDING —□— VEHICLES

STRIKES PER 100,000 EMPLOYEES

SELECTED INDUSTRIES



(Source: Strikes and Employment
Employment Gazette)

—x— METALS (N.E.S) —▲— CONSTRUCTION

STRIKE ACTIVITY IN CONSTRUCTION AND METALS, ENGINEERING AND SHIPBUILDING: PENCAVEL REVISITED

Variable	Equation			
	CONSTRUCTION		MES	
	(a)	(b)	(c)	(d)
Constant	8.01 (0.44)	130.18	- 66.77 (1.33)	222.7
N1	+ 21.11 (3.22)		+ 49.02 (3.43)	
N2	+ 3.16 (0.6)		+ 38.47 (2.72)	
N3	+ 2.54 (0.47)		- 10.61 (0.7)	
Ut	- 6.14 (0.59)	- 47.15 (3.38)	- 15.01 (0.6)	- 350.3 (3.77)
Ui	- 1.93 (0.82)	+ 4.99 (0.72)	- 20.13 (1.47)	+ 191.79 (0.32)
Rt-1	- 5.65 (1.8)	- 4.69 (1.43)	+ 2.26 (0.23)	- 3.38 (0.32)
T	+ 0.88 (3.26)	+ 10.05 (5.44)	+ 4.16 (5.7)	+ 60.49 (8.18)
YP	+ 15.47 (2.6)	+ 22.6 (1.06)	- 8.2 (0.52)	+ 57.36 (0.59)
LG	- 26.64 (3.22)	- 11.67 (0.56)	- 9.36 (0.43)	+ 74.76 (0.8)
SEE	11.88	31.81		
SDE		50.13		237.6
F		10.89		14.5
R2	0.651	0.708	0.775	0.756
D.W	1.68	1.02	1.64	1.07

Notes:Equations (a) and (c) are the original Pencavel equations run with quarterly data for the period 1957-1967.

Equations (b) and (d) are run using annual data for the period 1949-1982.

N1, N2, N3; are seasonal dummies.

Ut, Ui; aggregate unemployment and industry unemployment.

Rt-1; rate of change of real earnings in construction lagged 1 year.

T; time trend, YP; dummy incomes policy variable, LG; labour government.

MEANS and STANDARD DEVIATIONS: Ut: 3.329 and 2.68. Ui: 2.59 and 2.71. Rt-1: 1.7 and 4.03.T: 17.5 and 9.81.

YP here refers to years 1948, 1949, 1961, 1966-69, 1972, 1973 and 1976-78.

Comparing the two Pencavel equations reveals that in both, the constant term, third seasonal dummy, aggregate and industry unemployment rates and the lagged real wage variable are all insignificant and that the political variables are only significant for construction. In the case of metals and engineering, Pencavel showed that an equation containing just the time trend and the seasonal dummies accounted for 69% of the variation in the dependent variable so the five additional variables employed in equation (c) are together accounting for less than 9% of the variation in stoppages.

Comparison of (a) and (b) reveals some interesting differences. First, for the extended time period the aggregate unemployment term is significant and exerts a strong negative effect on stoppage numbers. Given the results for the earlier period the strength and significance of this variable must be the result of the period after 1967 which would tally with the trend increase in aggregate unemployment from the second half of 1966. Second, the two political variables fail to achieve significance although the strength of the coefficient on the incomes policy variable for the extended time period is higher than that in the original Pencavel equation. In the extended period it again appears that the driving force is the combination of the aggregate unemployment and time trend terms, giving the equation its overall significance and explanatory power.

Comparing (c) with (d) also highlights some interesting contrasts. As was noted above, the original equation (c) relied very heavily upon the time trend and two seasonal dummies for its explanatory power and lack of specified variables. Equation (d) is more broadly based although the time trend is still significant and exerts a considerably stronger influence than in the earlier equation (see below). It is supported by the aggregate unemployment term which exerts a strong influence on stoppage numbers.

Examination of (b) and (d) reveals that the aggregate unemployment term is significant and exerts a strong negative influence upon stoppages, whilst the industry unemployment term has a positive association with stoppages and is not significant for either industry. The time trend is significant in both equations, with a dominating

effect in metals and engineering. Indeed the size of the trend term for this sector indicates that, *cet. par*, there would be 2100 more stoppages in the last year of the study than in the first (cf 350 in the case of construction). The strength and significance of the time trend for metals and engineering would appear to be most relevant for the period up to the early 1970's, a probable explanation for it being the growth in the number of shop stewards and the associated spread of workplace bargaining increasing the number of bargaining opportunities and thereby the possibilities of stoppages occurring. Pencavel suggests this explanation in his account of the growth of aggregate strike activity, supported by the work of Turner et al. (1967) and the report of the Donovan Commission (1968). In Cronin's terms, the decline of the 'post-depression mentality' made workers more confident, less deferential (see Goldthorpe 1977) and (possibly) more assertive. The full effect of the contribution the time trend to the two equations is realised when the term is removed from the equations.

With the time trend removed in (b) the R^2 falls to 0.39, D.W to 0.67 and the F statistic to 3.54, the only significant variables being the two unemployment terms. The effect of the removal of T in equation (d) is even more dramatic with none of the remaining variables significant. Furthermore, the F value falls to 1.23, suggesting the variables are not significant determinants of stoppages in the metals sector, the R^2 to 0.175 and D.W to 0.57. As with Pencavel's original equations it is clear that the time trend is accounting for a substantial part of the explanatory power and overall significance of both industry equations.

Unfortunately the continued dominance of the time trend does not permit us to assess clearly the impact of the aggregate and industry variables employed by Pencavel. However, there is little doubt from the empirical evidence that aggregate (and possibly industry) unemployment is an important determinant of stoppage incidence at the industry level. Further tests combining the aggregate unemployment rate with a broad economic activity variable (GDP) suggested an additional influence on industry stoppage activity.

In order to further test the robustness and significance of the Pencavel equations it was decided to run a selection of equations derived from the theoretical model developed in the earlier chapters. The equations (e) and (f) reproduced below are the most successful of those tested and combine economic, political and organisational variables at both the macro and the broad industry levels. The variables tested were as follows:

Macro-Economic

U_t = aggregate rate of unemployment in the UK

P_{t-1} = Rate of change of prices lagged one year

Political

YP = Incomes policy in operation (dummy variable = 1 or 0)

LG = Labour government in power.

RL = Repressive legislation, impact of 1971 Ind. Relations Act and 1980 E.A.

Broad Industry Level

Product and Labour Market Factors

U_i = Industry unemployment rate

R_{t-1} = Rate of change of real gross weekly earnings lagged one year

E_{t-1} = rate of change of average gross weekly earnings for a given industry (adult males) lagged one year

Y = Index of Industry output

$Y.$ = Rate of change of industry output

$\# / P$ = Index of real profit

E_i / E_m = Index of AGWE in engineering relative to AGWE in manufacturing

IMP = Index of import penetration: imports as % of home consumption + exports

Organisational

TUG = Rate of change in trade union membership for industry

TUD = Level of trade union density for industry

DP = 1976 Disputes Procedure in engineering

Combinations of these variables were run to assess their influence on the number of stoppages in the broad metals sector, that is metals, engineering, shipbuilding, vehicles and metals nes for the period 1948 to 1982. Overall, with the exception of the profits terms and the incomes policy variable (which appears on the basis of earlier equations to be significant up to the late 1960s) the equations perform extremely well and give considerable support to the underlying theoretical model. Particularly notable is the importance of the two trade union variables, both significant and both exerting a positive influence on stoppage numbers. The combination overall, of industry and aggregate variables seems to work well indicating the relevance of both in accounting for stoppages at the industry level.

A further result consistent with the model was the fact that the relative earnings variable was insignificant, supporting the view that if workers are concerned with relative pay, as seems likely, they are more concerned with immediate comparisons not with earnings in manufacturing as a whole. The results relating to unemployment are more ambiguous. As with the revised Pencavel equations the aggregate unemployment term exerts a strong and significant downward pressure on stoppage numbers, however the industry unemployment variable appears to operate strongly and significantly in the opposite direction. To anticipate an argument in respect of engineering, the industry unemployment variable needs to be treated with care as its effects are frequently perverse, with little explanatory power and when included, biasing the coefficients of the other variables.

The remaining variables 'explained' 79% of the variation in the number of stoppages and the D.W statistic fell to 1.45 suggesting the slight possibility of autocorrelation. Overall, it would seem that the driving force in these equations is provided by the unemployment terms (but with qualifications regarding the industry measure noted above) in conjunction with organisational and expectations/prosperity factors. Together these results give support to much of the underlying theoretical model and point to a number of important determinants of stoppages at the broad industry level which are taken further in subsequent chapters.

STRIKE ACTIVITY IN METALS, ENGINEERING AND SHIPBUILDING

1948-1982

Variable	Equations	
	(e)	(f)
Constant	- 1381.1	- 1618.3
U	- 420.9 (5.23)	- 423.1 (5.64)
Ui	+ 384.36 (5.15)	+ 387.14 (5.59)
Y	+ 10.37 (7.22)	+ 10.4 (7.81)
Et-1		- 17.58 (2.07)
YP		+ 75.6 (1.27)
TUG	+ 31.6 (3.37)	+ 31.73 (3.59)
TUD	+ 17.55 (2.38)	+ 23.6 (2.96)
SDE	166.7	154.75
F	40.95	34.9
R2	0.876	0.9
D.W	1.62	1.795

Notes: Variables as in equations above.

MEAN and STANDARD DEVIATIONS:

U: 3.289 and 2.65.

Ui: 2.59 and 2.71.

Y: 136.64 and 33.44.

Et-1: 8.73 and 4.84.

TUG: 0.29 and 5.43.

TUD: 59.83 and 9.4.

INFLUENCES ON THE NUMBER OF WORKERS INVOLVED AND WORKING DAYS LOST AT THE INDUSTRY LEVEL

The final consideration of this section on stoppage activity at the broad industry level is to examine the role of the variables outlined above as having an influence on strike numbers on other dimensions of stoppages, specifically workers involved and working days lost. This is particularly important in respect of the metals and engineering sector which accounts for over two-thirds of workers involved in stoppages outside of coal-mining for the period 1946-87 and for 55% of net working days lost. Factors identified as having an influence on these dimensions of stoppages in metals and engineering can be expected to be considerably affecting the aggregate net totals.

Before presenting the results it should be stressed that the underlying theoretical model would emphasise the important role of institutional factors in accounting for variations in numbers of workers involved in particular. In particular, the level at which collective bargaining takes place would be expected to exert a considerable influence on the numbers taking part in strike action. Writers such as Clegg (1979) would also expect factors such as procedural reform to exert a considerable influence on the numbers of working days lost (as well as workers involved) on the grounds that reform of procedures would be expected to resolve the majority of issues arising in dispute so that only intractable problems would surface as stoppages.

However, other factors such as unemployment might be expected to also influence the length of stoppages and the number of working days lost. The general point is then that we would not expect economic factors to exert a significant influence upon the workers involved series (but would expect an influence on working days lost), although organisational factors (by influencing the resources available to support strike action) and political factors might be expected to have some effect on the two series. The critical influence, particularly on workers involved would be expected to be institutional factors with procedural reform expected, following Clegg's analysis to influence both series.

**METALS, ENGINEERING AND SHIPBUILDING WORKERS INVOLVED
AND WORKING DAYS LOST (ADJUSTED FOR EMPLOYMENT)**

Variable	Equations	
	Workers Involved	Working Days Lost
	(g)	(h)
Constant	- 1259.4	- 18595.3
Ut		+ 1416.3 (1.19)
Ui	- 39.4 (0.18)	
Y	+ 25.5 (1.37)	+ 121.5 (1.56)
Et-1	+ 768.6 (1.56)	
Pt	- 55.3 (0.8)	
Pt-1		- 517.2 (0.96)
YP		- 513.9 (0.8)
RL	- 1010.1 (1.06)	- 5208.3 (0.97)
CG		+ 4588.8 (1.29)
EY		+ 2801.0 (0.78)
TUG	- 90.26 (0.93)	+ 150.6 (0.32)
Smest-1	+ 0.19 (0.14)	
SDE	1664.6	8642.7
F	0.87	2.75
R2	0.184	0.459
D.W	2.4	1.32

Notes

Equation (a), dependent variable; workers involved per 10000 employees

Equation (b), dep. variable; days lost per 10000 employees.

MEANS and STANDARD DEVIATIONS: Ut: 3.289 and 2.65. Ui: 2.59 and 2.71. Et-1: 8.73 and 4.84. Pt: 7.17 and 5.42. Pt-1: 6.94 and 5.53. TUG: 0.29 and 5.43.

In general, the equations for both workers involved and days lost performed poorly. In one equation the lagged strikes variable was removed and a time trend inserted in its place but its overall effect (cf stoppage numbers) was limited, raising the R² to 0.22 but with the F test still showing that the variables employed were not significant determinants of workers involved in metals and engineering.

These results suggest that neither economic nor political factors are important or significant determinants of workers involved in the broad metals sector. All the variables are insignificant and the F tests and coefficient of determination together indicate overall insignificance and poor explanatory power. Furthermore, because of the influence this sector exerts on the aggregate net totals it is likely that these factors have little influence at the aggregate level (but cf. Cronin 1979). The results suggest that the numbers of workers involved in stoppages are the result of chance factors or that the results provide support for the role of institutional factors in accounting for variations in workers involved, at least for this sector.

Before considering the working days lost series it should be noted that the number of workers involved and working days lost for engineering are subject to a number of disturbances through prolonged industry-wide stoppages, notably in 1953, 1957, 1962 and 1979. When considering variations in these dimensions at the aggregate level some studies have chosen to omit these engineering stoppages on the grounds that they bias the overall series (see DMR 1983). Whatever the appropriateness of this view for the aggregate series it does not seem valid for an examination of the industry. Nonetheless, the inclusion of such disputes where the numbers of workers involved is so obviously affected by the level at which collective bargaining takes place and could be over-playing the importance of institutional factors for the period as a whole.

The series for working days lost in the metals and engineering sector again uses working days lost per 10000 employees as the dependent variable. As with the workers involved series the results are very disappointing with only the industry output variable approaching significance and then only in equation (h).

These results, although an improvement on those for workers involved, suggest that the economic and political variables are again poor at offering explanations for variations in working days lost in metals and engineering, although the level of output again has a positive association with days lost. The results of the output variable for both series suggest that high output levels, or more broadly, periods of prosperity are associated with bigger and more protracted stoppages which would seem to conflict with the view that longer stoppages in particular are associated with downturns as employers harden their resolve in the face of declining demand whilst worker expectations remain high (Rees 1952, Edwards 1982). The results may be the result of using annual data and the significant factor may be that longer and larger stoppages are characteristic of periods when the gap between worker and employer expectations is greatest such as at the peaks of economic cycles (Rees 1952, Mayhew 1979), a hypothesis which would be easier to test using quarterly data.

Overall, in the equations, over half of the variation in the dependent variable remains unexplained and the F tests show that the variables are significant determinants of working days lost in only two of the equations run. Other equations were run with trade union growth as an explanatory variable but it was never found to exert a major influence on working days lost and never approached significance.

CONSTRUCTION

In the two equations below the industry variables including the two trade union measures all relate to construction, and the dependent variable is stoppages in construction per 100000 workers. The period of the study is 1949-1982.

Given the nature of the construction industry these results illustrate both the strength of the model and also its weaknesses, at least when applied at this level of aggregation. The industry structure is complex, characterised by a relatively small number of very large concerns surrounded by a enormous number of medium-sized and predominantly small organisations, frequently self-employed operators, and sub-contractors (Hillebrandt 1988). The size of the small firm segment coupled with the casual nature of much of employment in the industry accounts for the relatively

low level of density in construction and suggests that strike activity is likely to be concentrated in that segment, namely the largest firms, where union organisation is most developed. This point needs to be borne in mind when analysing the results and suggests similar caution is required when interpreting the results of other large, heterogeneous sectors such as engineering below.

The results are generally encouraging for the underlying model although the negative coefficient on trade union density is somewhat perverse. The overall measures suggest that the variables employed are significant determinants of variations in stoppages and that together, they account for over 80% of that variation. However, there are some interesting results obtained for construction which need to be discussed. First, neither the level of industry output nor its rate of change approaches significance in any equation and it was decided to substitute GDP on the grounds that construction was a sector heavily influenced by economic activity in the rest of the economy. Although GDP approached significance in some equations and was found to be significant in tests on the Pencavel model it was consistently insignificant despite performing better than the industry output series.

Overall, the time trend performed better than any of the output measures which accounts for its inclusion in equation (i). Second, the industry unemployment term although enhancing the significance of the aggregate variable when included with it was always insignificant. Third, in contrast to results in most of the other industries, the lagged nominal earnings and level of real profits approached significance at the 10% level, with the latter significant in the absence of the earnings term. Finally, it is the only one of the industries examined for which two political variables were significant when run together in the same equation. Given the importance of government contracts for parts of the industry and the role of industry agreements these results are understandable although the negative coefficient on the Labour government term is surprising unless it is perceived that Labour governments will provide more work for construction than Conservative governments, and a wish 'not to rock the boat' when labour is in office is an explanation of that result.

STRIKE ACTIVITY IN CONSTRUCTION: 1949-1982

Variable	Equations	
	(i)	(j)
Constant	41.17	46.82
U	- 1.6 (3.35)	- 2.23 (4.46)
GDP	+ 0.378 (1.85)	
T	+ 0.83 (1.5)	
Et-1	- 0.21 (1.85)	
#/P	- 0.06 (1.89)	- 0.007 (2.94)
TUD	- 0.95 (2.9)	- 0.78 (2.3)
TUG	+ 0.84 (3.92)	+ 0.69 (3.66)
LG		- 2.38 (2.13)
YP		+ 3.48 (2.8)
SDE	2.83	2.55
F	18.67	20.73
R2	0.806	0.848
D.W	1.76	1.89

Notes:

Sources as above with addition of GDP Index from Annual Abstract of Statistics.

MEANS and STANDARD DEVIATIONS: U: 5.329 and 2.68. GDP: 20.15 and 20.75. T: 17.5 and 9.81. Et-1: 9.706 and 6.388. #/P: 161.46 and 73.369. TUD: 37.132 and 5.095. TUG: -0.9 and 3.209.

The one area of concern is the negative coefficient on the trade union density variable. Given the nature of the construction industry trade union organisation is concentrated in the largest firms and when it spreads to other firms it is likely, in an industry where trade unionism has not been well established nor encouraged, to be fragile so that a decline in trade union density may be reflecting a decline in areas where trade union organisation is already fragile. For example a rise in unemployment may lower trade union density by disproportionately affecting those 'weak' areas of union organisation but the threat of unemployment may be met by a greater resort to strike activity in those areas where union organisation is well-established and 'strong'.

ENGINEERING

Engineering is defined here as comprising those industries covered by Standard Industry Orders VII, VIII, and IX (1968, or VI in 1958 SIC) and themselves covering Minimum List Headings 33 - 36, namely mechanical, instrument and electrical engineering (or non-electrical and electrical engineering using the 1948 and 1958 SIC). Together, these industries employed around 1.6 million people in 1950, rising to 2.3 million in 1969 before falling to below 1.5 million in 1982 and are all covered either directly or indirectly by national negotiating machinery regulating negotiations between the EEF and CSEU.

The equations run employed a combination of variables with stoppages per 100,000 employees as the dependent variable. The positive results from the analyses were the consistently good results for the organisational variables (TUD, TUG). These were shown to be strong, significant and positive influences on stoppage activity and together with the two unemployment terms and the level of output accounted for the bulk of the variation in the dependent variable. Indeed, the combination of the unemployment terms, the level of output and trade union growth accounted for over 88% of the variation in stoppage numbers in engineering. Taking these results and those of equations (k) and (l) together suggests that it is these four variables which are 'driving' the equations and accounting for the bulk of their explanatory power.

Equations (k) and (l) below both combine aggregate and industry level variables together with organisational factors at the broad industry level. It is clear that the major contributing factors to variations in strike activity are aggregate and industry unemployment, the level of output and the trade union variables with the unemployment terms exerting the greatest influence. Overall, these variables are consistently significant although the lagged nominal earnings term and the rate of change of output employed alongside them in equation (b) remain insignificant. The Variables employed in the two equations account for over 90% of the variation in stoppages, the Durbin- Watson statistic indicates an absence of autocorrelation and the F test shows that the independent variables are together, significant determinants of variations in strike activity in engineering.

Closer examination of the results however, does suggest some caution about their interpretation. First, whilst the coefficients on the two unemployment terms are very similar in strength, they are opposite in sign (as in the previous section). The aggregate term having a strong negative effect on the number of stoppages (a percentage point rise in the unemployment rate producing a fall of 10 stoppages per 100000 workers) whereas the industry unemployment rate has a strong positive effect with a percentage point rise in the rate producing an increase in stoppages of about 11 per 100000 workers.

STRIKE ACTIVITY IN ENGINEERING 1950-1982

Variable	Equations				
	(k)	(l)	(m)	(n)	(o)*
Constant	- 33.65	- 32.19	- 14.96	- 12.96	- 1743.9
U	- 10.0 (5.76)	- 10.6 (6.07)	- 0.69 (0.84)		+ 65.46 (2.6)
Ui	+ 10.78 (5.67)	+ 11.4 (5.97)			
P					- 19.64 (3.59)
Yi	+ 0.16 (6.04)	+ 0.164 (6.18)	+ 0.194 (4.97)	+ 0.164 (4.23)	+ 25.2 (2.5)
Y.	- 0.27 (1.46)				
IP					- 53.18 (2.4)
Et-1	- 0.258 (1.49)	- 0.315 (1.81)	- 0.24 (0.95)		
TUG	+ 0.61 (3.16)	+ 0.74 (3.54)	+ 0.29 (1.06)	+ 0.52 (1.9)	
TUD	+ 0.57 (2.23)	+ 0.5 (2.29)	+ 0.003 (0.009)		+ 9.4 (1.07)
DP					-392.4 (3.37)
RL					-163.3 (2.84)
SDE	3.26	3.187	4.78	4.74	81.77
F	41.38	37.33	20.1	49.7	16.97
R2	0.905	0.913	0.79	0.77	0.89
D.W	1.986	2.03	1.14	1.15	1.97

Notes:

U; aggregate unemployment, percentage unemployed.

Ui; industry unemployment, percentage unemployed. P; rate of change of retail prices

Y; level of output (industry). Y.; rate of change of industry output

Et-1; rate of change of industry money earnings in previous year

TUG; trade union growth in metals and engineering

TUD; trade union density in metals and engineering

IP; level of import penetration. RL; dummy, impact of 1984 T.U Act.

DP; dummy variable , impact of 1976 disputes procedure.

MEANS and STANDARD DEVIATIONS: (1950-82). U: 3.382 and 2.7. Ui: 2.482 and 2.27. Yi: 162.85 and 49.25. Y.: 2.78 and 4.392. TUG: 0.362 and 5.562. TUD: 60.19 and 9.559. (1966-87). U: 6.782 and 4.4. P: 9.132 and 5.68. Yi: 102.41 and 8.508. IP: 20.25 and 5.27. TUD: 66.68 and 7.07.

The concerns about the impact of the industry unemployment variable led to the use of stepwise regression analysis to obtain a more detailed examination of its effect. When run on its own the coefficient was marginally above zero and was insignificant, and contrasting the results for (k) and (l) with those of (m) and (n) revealed that significance multicollinearity existed with its inclusion seriously biasing the coefficients and significance of the aggregate unemployment, trade union growth and density terms. Equations (m) and (n) constructed using stepwise regression indicates that the main driving force is actually the output term rather than unemployment. Indeed, as equation (n) shows over three-quarters of the variation in strike numbers is accounted for by the level of output and trade union growth. The serious weaknesses of the industry unemployment variable need to be borne in mind for the remainder of this study, it is consequently used only with serious qualifications in the industry chapters.

Although the level of output is consistently significant and has a positive influence on stoppage numbers, it is included as a prosperity measure, combining the trend in output with a cyclical component and may be saying little other than that strikes increase with increasing prosperity and affluence. In contrast, the rate of change of output fails to achieve significance when included as an explanatory factor and, as a comparison of equations (k) and (l) reveals its inclusion marginally raises the D.W statistic and the coefficient of determination but actually lowers the F value. The negative sign on the coefficient of the rate of change variable implies that an increase in output is likely to reduce strike activity. As we argued in the theoretical model, increases in output may be associated with rising earnings through bonuses and greater overtime, increased profits and with a more optimistic economic climate generally. Together these are likely to meet worker expectations and permit employers to more easily satisfy such expectations. However, from the perspective of the underlying model it again stresses the need to focus upon how changes in output etc are brought about.

The two organisational variables show a significant and positive relationship to strike activity in equations (k) and (l). The level of trade union density is an important

influence, with each percentage point change in density being associated with a change of 0.5 stoppages per 100000 workers (in the case of engineering in the 1960s, approximately 10 strikes for each percentage point change). However, more important and significant is the change in trade union membership, with each percentage point change being associated with a positive change of up to 0.74 strikes per 100000 workers (about 15 strikes a year for each percentage point change in the 1960s), supporting the association between rapid trade union growth and strikes. A qualification to these results is that both variables appear to be affected by the inclusion of the level of output term. In the case of trade union density, its strength and significance falls considerably when run alongside the level of output and becomes insignificant when run with the unemployment terms, the level of output and trade union growth suggesting that in equation (k) it is the lagged earnings term that gives trade union density its significance. Overall there is a problem of multicollinearity between the two terms, a not surprising conclusion. Finally, the inclusion of the output term significantly raises the significance and explanatory power of the trade union growth variable, although it remains consistently significant in all equations.

In contrast, a number of equations included political variables, dummy variables denoting incomes policy or the presence of a Labour government, but in no case were these significant, neither were variables employed to measure managerial initiatives. This should not be taken as evidence that such variables are unimportant in accounting for variation in stoppages, although the results for political factors are disappointing, particularly in light of the importance of government contracts within electrical engineering, this may highlight the need to use a more specific variable, such as changes in government defence expenditure rather than the general variables tested here. Likewise for managerial initiatives, given the complexity and variety of response of managers to environmental changes, the requirement is to examine these in more detail than is attempted here.

Another surprising result was the lack of significance of the lagged earnings term for engineering and for many of the other industries examined, although it does approach

significance in equation (l). This result may be due to the heterogeneity of the industries examined and the variety of earnings associated with them. It should also be stressed that the nominal earnings variable performed consistently better than real earnings, so that whilst the results suggest that the larger the increase in earnings in the previous period the less the likelihood of stoppages in the current period they also suggest that workers in engineering (and other sectors) have, for much of the post-war period, suffered from money illusion.

One final point concerns equation (o) run for the period 1966-1987. In (o), the dependent variable is not adjusted for employment but again the results obtained offer considerable support to the underlying model. It appears that for the later period both aggregate unemployment and price inflation are significant determinants of stoppage activity (although the former has a positive coefficient when employed alongside the import penetration variable) but more importantly, the terms measuring import penetration, the impact of repressive legislation and the introduction and operation of the revised disputes procedure in 1976 are all significant determinants of variations in the stoppage totals. These factors are explored more fully in the more disaggregated work in later chapters.

SUMMARY

In this chapter we have introduced our operational model developed in the first section and applied this to stoppage incidence in the broad sector of metals and engineering, construction and the engineering industry suggest. The empirical tests show that the combination of macro and industry - wide variables accounted for a large part of the variation in the number of strikes with the variables consistently significant and with the absence of any severe problems of autocorrelation. The same combination of variables when applied to account for variations in the two other main dimensions of stoppages was considerably less successful. Although the results confirm the need to look elsewhere for explanations of variations in the two series the extent to which the economic and political variables were unimportant was surprising particularly in view of work undertaken by others suggesting their importance at the aggregate level, at least until 1974 (Cronin 1979, DMR 1983).

Before proceeding to the detailed industry studies a number of general points emerge from this chapter which should be stressed. In the broad metals sector and engineering, the main explanatory power comes from the output term, normally in conjunction with one of the trade union variables. The contribution of the macro-economic variables is mixed, but the evidence from engineering is that these became more important in the latter half of the period (see also Edwards 1983). The role of institutional factors gains some support from the 1976 disputes procedure in engineering although this may be an atypical result which needs to be seen in a broader context. Finally, the role of government initiatives receives some support from construction and engineering, with incomes policy, a Labour government and repressive legislation all having an impact at certain times.

The remainder of the study is devoted to a detailed examination of strike activity in four industries. Metals, and particularly iron and steel; shipbuilding and marine engineering, motor vehicles and coal-mining. The rationale for choosing these particular industries requires some explanation. First, that together they made a major contribution to the main dimensions of strike activity in the post-war period so that, as well as providing a deeper understanding of the mechanics at work in strikes they would illuminate developments at the aggregate level. Second, all were significantly affected by the activities of governments to varying degrees over the period and would permit a more detailed examination of the influence of government on strike patterns. Third, detailed examination of these industries would, provide a particularly rich source of data with which to test the long-run approach to strike activity and to enable further analysis of the short-term variations. Fourth, that they provide an opportunity to compare the experiences of high strike and relatively low strike industries. Metals, and to an extent motor vehicles, were not notably strike prone at least until the late 1950s and the experiences of these could shed much light on the factors contributing to increased strike propensity. Finally, the inclusion of motor vehicles and coal-mining permits a review and extension of the DMR work as well as an opportunity to test the validity of their findings over a longer time period. Coal-mining (along with shipbuilding) provides a particularly rigorous test of the model developed here. As other studies have found (e.g Pencavel 1970), equations

that have performed well for aggregate net strike activity (net of coal-mining), other industries or manufacturing generally have often proved incapable of accounting for much of the variation in coal-mining stoppages. The decision to include this industry permits an examination of 'why coal might be different', and a more thorough test of the model.

SECTION IV

STRIKE ACTIVITY IN SELECTED INDUSTRIES

STRIKE ACTIVITY AND CHANGING INDUSTRIAL RELATIONS

AN ANALYSIS OF THE UK METALS SECTOR 1948-1988

Metals and Iron and Steel

This chapter aims to examine and offer some explanations for, changing strike activity in the iron and steel industry and specifically that within the British Steel Corporation from re-nationalisation to privatisation. However, it is necessary to see the emergence of BSC within the broader context of the metals sector generally and to permit a longer time frame in which to test the underlying models. The chapter is therefore divided into two sections, the first concentrates upon strike activity in metals from 1948-1988, the second focusses upon BSC analysing year to year variations and broader movements in the strike series.

In brief, metal manufacture includes the manufacture of iron and steel, iron and steel tubes and non-ferrous metals and the manufacture of sheets and tinplate. The sector is characterised by significant employment concentration. Estimates for the 1970s suggested that the average employment size of establishment in iron and steel was over two and a half times that of the average for manufacturing as a whole and that 70% of the industry's output was concentrated in the five largest establishments. What is also evident from the table is the shift towards smaller plants in the 1980s as very large establishments were closed down in the recession of the early 1980s.

The size of plant is due much to the importance of economies of scale in the industry (Siberston 1958, Pratten 1976, Cockerill 1979, Pryke 1981) which has also contributed significantly to high levels of industrial concentration. On the basis of Hannah and Kay's (1977) estimates, the ten firm concentration ratio in metals rose from 58.7% to 74.3% between 1957 and 1969. More significantly evidence on the five firm concentration ratio shows a growth from 38.2% in 1958 to 42.1% in 1963 (Hart and Clarke 1980) and to 64% in 1972, although this figure is inflated as a result of the creation of BSC.

TABLE 1:**PERCENTAGE OF INDUSTRY WORKFORCE EMPLOYED IN PLANTS
WITH OVER 500 EMPLOYEES**

1948	1958	1968	1970	1978	1987
64.5	66.5	67.3	71.8	67.0	54.8
(261)	(232)	(210)	(188)	(N/A)+	(50)

Figures in brackets denote the number of establishments accounting for the percentage of employees.

+In 1978, 55.8% of the industry's workforce employed in ests with over 1000 employees (Purcell and Sisson 1983).

(Source: Historical Abstract of the Census of Production; Business Monitor: Summary tables 1989)

In addition to their importance in employment terms the metal handling industries are significant in their contribution to the economy in respect of output and investment. Iron and Steel alone accounted for 5% of manufacturing output and 12% of investment in manufacturing in the 1970s (Cockerill 1979, 1980) and this ignores the critical role the metals sector plays in providing basic materials for many other industries. One consequence of this is that the demand for the sector's output is very sensitive to the rate of growth of GDP and steel in particular exhibits strong cyclical fluctuations characteristic of capital goods industries subject to an accelerator effect (Cockerill 1979).

The pivotal role that these industries have played in the economy has particular relevance for the study of strike activity. In their study covering the period 1946-1973, Durcan, McCarthy and Redman (1983) assessed the relative strike proneness of a number of industries. On average, the number of strikes per year in

metals was 99.6, putting it fourth out of all industries for strike frequency, for workers involved as a percentage of employees the figure was 9.6, and for working days lost per 1000 employees it was 411.7, putting it sixth out of all industries. Metals therefore seems to fit into Cronin's (1979) category of an industry with a relatively high strike propensity. Cronin argued that workers most prone to strike are to be found in industries which are highly unionised, unusually susceptible to economic fluctuations, with a marked proclivity to the use of piece-work and, with a central role in the economic life of the nation. In metals, unionisation has remained consistently high throughout the period (see below), the industry is very susceptible to economic fluctuations and in the early 1960s nearly 60% of workers were on some form of payment-by-results scheme (British Labour Statistics: Historical Abstract 1886-1968). Furthermore, in providing essential materials for many other key industries e.g motor vehicles it would seem to satisfy the last element in his schema.

Industrial Relations in the Metals Sector

In discussing industrial relations within metals it is important to distinguish between the iron and steel industries and the other elements within the metals sector and, within the iron and steel industry, between (until recently) the public and private sectors of this industry. This said, the industries have important elements in common, in particular their traditionally high levels of trade union membership and density (Brown et al. 1981), the dominance of the ISTC and sophisticated local trade union organisation and as well as in the relatively early development of procedures for resolving disputes, arbitration and localised collective bargaining. Consequently the description of the industry's industrial relations here is confined to that in iron and steel.

The iron and steel Industry has, through its employment size and the fact that it is an important source of supply for other parts of the industry (BSC also provided much of crude steel for the private steel sector) exerted a considerable influence on the character of industrial relations and the strike propensity of the sector as a whole. It is therefore appropriate to briefly discuss the development and nature of industrial relations within iron and steel before progressing further.

Prior to the industry's re-nationalisation in 1967 iron and steel had a highly developed and sophisticated system of industrial relations. The main trade union, the ISTC was formed in 1917 as a confederation of five separate unions and this was mirrored on the employers side by the ISTEA, a powerful, if not entirely cohesive group representing employer interests (Bamber 1986). As early as the 1870s Boards of Arbitration and Conciliation had been established in the North (1869) and the Midlands, and out of these grew the Joint Wages Boards which became firmly established at all levels in the industry by the early twentieth century. Underlying these initiatives was a strongly held belief in a mutuality of interests and a joint acceptance of conciliation and constitutional procedures which in turn encouraged employers to grant 100% trade union recognition (Docherty 1983).

The ISTC saw itself and was seen by employers as being a moderate and accommodating union, advocating co-operation with employers and viewing industry as a joint enterprise (Docherty 1983). Morgan (1983) has described it more as a 'company union' achieving co-operation by being 'one of the most authoritarian (unions) in Britain' with a highly fragmented and conservative membership base. Support for which comes from Vaizey (1974) who argued that in the 1930s it was a relatively passive union (Vaizey 1974) dominated by well-paid senior men in the industry and, as such reflected the elitism within the industry, a consequence of the institutionalised seniority system, particularly in Steel. According to Docherty this system produced an 'orientation and commitment to the job which has shaped the attitudes of steel workers unions' in particular to militate against solidarity action amongst steel workers. Crucially, this impact on attitudes has been reinforced by other employer policies, particularly the explicit paternalism of many of the private steel companies, with successive generations of families employed and with attractive fringe benefits including the expectation of long-term job security (Bamber 1986, Docherty 1983). Overall, employers appear to have seen the ISTC in Bain's terms as 'wedded and educated into responsibility' which may have explained their willingness to concede recognition and negotiating rights.

The moderation of the ISTC continued into the 1950s and 1960s with a disciplined and directive leadership at national level and a high degree of self-determination at local level (Hartley et al. 1983). However, at local level, it was workplace branches and local officials which had this autonomy in the absence of both district committees and a shop steward system. Despite the moderation of the ISTC in its relations with employers the industry experienced considerable inter-union conflict involving the ISTC, (29 inter-union disputes between 1969 and 1981 within BSC alone; TUC Annual Report 1982) particularly over national recognition for white-collar unions in 1967 and over managerial unionism in 1972/3.

With the re-nationalisation of the industry in 1967, the 14 private companies which came together to form BSC agreed to recognise and negotiate with 23 separate trade unions with ISTC as the main union involved. One effect of this was to change the locus of collective bargaining, traditionally a very localised activity, and where, prior to the formation of BSC, no comprehensive national negotiations had taken place. After 1967, negotiation of non-pay issues took place through BSC and the TUC Steel Committee (representing all the recognised unions), whilst in pay negotiations each recognised trade union negotiated separately with BSC, although in 1978, the ISTC pay negotiations for different grades of worker were combined. Manning levels, productivity schemes, tonnage bonuses etc were all negotiated at local level albeit within the framework provided by a national agreement. One effect of the re-nationalisation was therefore to produce what Bamber (1986) describes as two systems of industrial relations, but where, in contrast to engineering in the 1960s, both systems were highly formal and with the considerable involvement of union branches and local officials and managers who had to implement agreements made centrally.

TABLE 2**STRIKE ACTIVITY IN METALS 1948-1985**

Year	Strikes per 100000	Workers Involved per 10000	WDL per 1000
1948	18.87	741.6	1001.5
1949	10.1	228.1	84.2
1950	8.3	169.8	96.0
1951	7.8	123.8	52.8
1952	5.54	118.0	55.4
1953	6.2	1559.5	188.1
1954	6.77	173.1	86.5
1955	7.7	148.9	42.0
1956	7.58	346.1	399.4
1957	7.4	1014.5	752.7
1958	6.18	160.6	61.75
1959	7.67	534.9	120.6
1960	11.0	259.3	79.4
1961	12.32	600.2	481.3
1962	14.77	4865.8	634.2
1963	11.49	405.4	179.1
1964	19.28	433.9	562.4
1965	20.57	626.6	340.6
1966	14.6	369.2	175.0
1967	23.32	811.1	322.7
1968	25.14	3271.3	721.4
1969	37.6	1469.8	974.2
1970	55.1	1352.0	1049.5
1971	26.22	1131.3	606.9
1972	41.08	1685.7	1273.0
1973	40.35	1872.6	996.1
1974	45.17	1932.9	1759.4
1975	29.74	1277.4	708.6
1976	30.49	1108.7	693.0
1977	36.97	1147.1	
1978	32.68	1039.2	784.3
1979	30.04	912.3	883.4
1980	12.31	4511.2	21539.0
1981	11.66	276.2	178.0
1982	8.88	1623.2	224.9
1983	7.36	333.3	307.4
1984	4.94	85.4	44.9
1985	5.86	123.9	135.1

Source: Strike series; DE Gazette, Employment Gazette.

Employment series: British Labour Statistics. Historical
Abstract 1886-1968, Employment Gazette.

Strike Activity in Metals: 1948-1985

The general trends in strike activity revealed in Table 2 show a significant increase in stoppage frequency from 1960, further rises in 1964 and 1965 and then averaging 36.7 stoppages per 100000 between 1967 and 1974 and 32.0 per 100000 for each year between 1975 and 1979. This compares with 7.1 per 100000 on average for each year in the 1950s. The figures for workers involved show a similar trend although these are disguised by national stoppages in 1948, 1953, 1957, 1962 and 1968.

Although there appears to be a slight increase in the average size of stoppage in the 1960s (excluding national stoppages the average is 325 workers) compared with the 1950s (where the figure is 294) much of this increase is a result of the generally small size of stoppage in the period up to 1956. In the 1970s the average size of stoppage involved 370 workers but a noticeable decline in average size is discernible after 1975. For each year between 1968 and 1978 around 15.7% of the industry's workforce participated in strike action, with 45% doing so in the 13 week steel strike in 1980. In contrast the working days lost series does not appear to exhibit the same tendencies although a clear cyclical pattern seems to exist with peaks in the series occurring in 1948, 1957, 1962, 1970, 1974, and 1980. Whilst these frequently correspond to national stoppages it is probable that their timing has much to do with responses to cyclical fluctuations affecting the industry. In steel, these cycles appear to operate through peak and trough approximately every five years (Cockerill 1979).

To permit a more detailed analysis of the trends in strike numbers a number of equations was run with strikes per 100000 in metals as the dependent variable. With the exception of equation a', which covers the period 1948-1969, the equations were run for the period 1948-1982 as this is the last year for which industry unemployment data is available.

STRIKES IN METALS 1948-1982: RESULTS

Variable	Mean	St Dev.	Regression Coefficients			
			a	a'	b	c
Constant			- 102.4	- 138.9	- 107.2	- 57.2
Aggregate Unemployment	3.29	2.65	- 11.53 (4.05)		- 11.8 (4.07)	- 11.86 (3.99)
Industry U.	3.43	4.24	+ 6.0 (3.75)		+ 5.87 (3.55)	+ 5.33 (3.16)
Output Index	105.03	12.09	+ 0.29 (2.63)	+0.19 (2.69)	+ 0.237 (2.09)	
TUG	0.291	5.425	+ 0.82 (2.1)		+ 0.67 (1.72)	+ 0.98 (2.54)
TUD	59.84	9.37	+ 1.78 (6.7)	+2.45 (3.31)	+ 2.02 (6.49)	+ 1.4 (4.03)
Inflation rate	7.168	5.425			- 0.386 (1.117)	
Time trend	18	10.1				+ 0.61 (2.4)
LG				+4.23 (1.85)	+5.56 (2.33)	
YP				+ 5.69 (2.34)		+ 5.5 (2.23)
SDE			6.32	2.72	6.34	6.43
F			20.96	55.5	18.03	20.1
R2			0.818	0.90	0.824	0.811
D.W			1.586	1.78	1.69	1.69

Note: a' covers the period 1948-1969.

Figures in parentheses are t statistics, values of 2 and over indicate the variable concerned is significant. SDE is the standard deviation of error and indicates overall significance, the lower the figure the better for the significance. The F statistic indicates the extent to which the independent variables are significant explanators of variations in the dependent variable. Values over 4 or 5 indicate overall significance. R2 is the coefficient of determination and gives an indication of the equation's overall explanatory power. D.W is the Durbin Watson statistic and measures the existence of autocorrelation between residuals, values between 1.4 and 2 indicate the absence of serious autocorrelative problems.

The four equations employ variables corresponding to the main areas of the theoretical model although they ignore the role of management in acting upon or anticipating the factors identified. Overall they perform well, with only two variables, trade union growth and price inflation in equation (b) failing to achieve significance. The lack of significance of the trade union growth term in (b) but not equations (a) and (c) suggests a possible problem of multicollinearity between it and the price term. The 'driving force' in the equations appears to be the aggregate unemployment term although the level of trade union organisation supports the strong influence of unemployment. However, for the period to 1969 it is the level of output combined with the trade union density term which appear to be the main influences, accounting for almost 87% of the variation in stoppage numbers. Unemployment, when included in equations for the shorter period was not significant and had a positive coefficient.

The importance of the density term is explicable given that, in contrast to much of engineering, the industry experienced very high density levels which pre-date the period of our analysis (Docherty 1983). It also helps to account for the fact that the trade union growth variable only just achieves significance in equations (a) and (c) and interestingly is insignificant in results up to 1969.

Examining the results in detail shows that the aggregate unemployment term exerts a strong downward pressure on stoppage numbers, with a rise of one percentage point in aggregate unemployment producing a fall of between 11 and 12 stoppages per 100000 workers, although the results for 1948-1969 suggest that its impact is concentrated in the period after 1969. The results for industry unemployment in contrast are misleading, when run separately the term had a negative coefficient, so that the strength of the coefficient together with its sign are largely a consequence of being run alongside the aggregate term (see discussion above).

Returning to the equations themselves, the underlying model receives additional support from the significance of the two political variables, Incomes policy and the existence of a Labour government. Both exerting a positive influence on stoppage numbers of a similar magnitude, between 5 and 6 stoppages per 100000 workers. This suggests that for the mid 1960s, the incomes policy in operation at the time caused between 30 and 36 additional stoppages. However, the two variables are only significant when employed separately suggesting a high degree of multicollinearity, which presents difficulties in interpreting the results. Given the importance of the Steel industry within the sector and the fact that it had a close relationship with successive governments for much of the period, political variables would be expected to exert an influence. What is more difficult is disentangling the effects of each factor. The fact that Labour twice nationalised the industry and was in office for nine of the last sixteen years of the study after steel was re-nationalised would suggest this would be of most importance. The closer state/industry links implied by public ownership would also have permitted greater government influence and pressure on negotiators (Winchester 1983) particularly during periods of wage restraint and these, coupled with more recent developments in the form of cash limits would suggest the incomes policy term might be picking up the effects of public ownership generally. Support for this view comes from a number of sources which stress the complexity of government relations with public corporations and the variety of forms of intervention or interference in their affairs can take (Cockerill 1979, Pryke 1981, Winchester 1983, Ferner 1988).

In the equations the level of output is a positive and significant influence on stoppages, stressing the importance of prosperity and economic affluence in affecting stoppages. Although equation (a) was run with a time trend inserted (equation (c)) replacing the output variable, we would place more emphasis on the former term given the cyclical nature of the industry and its reflection in the output measure. Turning to the organisational variables, their importance and particularly that of trade union density has already been highlighted. As was noted above, trade union organisation was well-established before the Second World War and the figures employed in the equation undoubtedly underestimate the true density level particularly

if the 1978 figures of 94% for manual workers and 62% for non manuals discovered by Brown (1981) are indicative of the earlier period.

Summary

The evidence presented above confirms the role of a mix of factors in accounting for variations in strike activity and the advantages of adopting a multi-disciplinary approach in analysing stoppages. Strike numbers in metals are mainly affected by the level of aggregate unemployment and possibly local labour market factors - although the evidence for industry unemployment is inconclusive - operating in conjunction with product market factors (notably, the level of output), organisational factors (trade union growth and density) and political influences (incomes policies, periods of a Labour government).

STRIKE ACTIVITY IN IRON AND STEEL

Before examining the interaction between strike dimensions and the changing economic fortunes of the iron and steel industry it is necessary to set out the main pattern of strike activity in iron and steel during the period of steel nationalisation. Because of the inadequacies of data the various strike measures used relate to the whole iron and steel sector (private and public) together with the manufacture of steel tubes and castings (1). After 1982 figures relate to metal processing and manufacture.

The pattern of stoppage incidence in iron and steel reveals a clear upward trend to 1970, a second, but lower peak in 1974 in common with strike activity elsewhere followed by a decline and then rise to 1977 and then a trend decline with sharp falls in 1980 and again in 1986. The workers involved series shows that for the entire period from 1968 to 1980 at least 11% of the workforce in iron and steel were involved in disputes in any one year with peaks in 1968, 1973, 1979, 1980 and 1982. Similarly, the working days lost series increased in the late 1960s and early 1970s together with the average length of strike, falls in the mid 1970s with a generally increasing trend towards the end of the decade.

It was decided to subject the three strike measures to econometric analysis taking advantage of more disaggregated data to see if our earlier results were supported and to further test for the reliability and robustness of the underlying model. All three measures were tested against a maximum of eight variables for the period 1967-87 which were; the rate of aggregate unemployment, the level of output in iron and steel, the share of imports in iron and steel, the level of real profit in BSC, the rate of change of prices lagged one year, the rate of change of earnings in metals lagged one year and three dummy variables for incomes policy, the period of Labour government and the impact of the 1984 Trade Union Act. The qualifications about the results given the small number of observations remains.

(1) Statistics kindly provided by BSC only record hours lost per employee through industrial action and have been omitted from the analysis. However, they confirm the domination of BSC in the days lost series.

STRIKE ACTIVITY: IRON AND STEEL 1967-1987

YEAR	STOPPAGES PER 100000	WI PER 10000	WDL PER 1000	AS	AL
1967	23.45	858.4	34.3	366	4
1968	23.93	2675	64.1	1118	2.4
1969	31.8	1548	96.4	408	6.2
1970	56.03	1408	98.9	251	7.0
1971	27.96	1376.8	74.4	492	5.4
1972	41.79	1892	146.7	453	7.8
1973	41.9	2465	118.0	588	4.8
1974	45.5	1974	151.1	434	7.7
1975	31.26	1487	76.1	476	5.1
1976	34.15	1297	76.1	380	5.9
1977	35.69	1132	160.0	317	14.1
1978	32.78	1117	80.4	341	7.2
1979	27.1	2055	156.1	758	7.6
1980	13.16	6240	3002.4	4729	48.3
1981	10.5	311	17.1	296	5.5
1982	13.96	3734	45.2	2676	1.2
1983	15.14	686	63.3	453	9.2
1984	10.42	180	9.5	173	5.3
1985	12.4	263	28.7	212	10.9
1986	3.98	219	62.7	550	28.6
1987	4.31	142	6.8	329	4.8

Figures: Employment Gazette (1968-1988 inclusive)

AS: The average size of stoppage in numbers involved, dividing workers involved by the number of stoppages.

AL: The average length of stoppages in days, dividing working days lost by the number of workers involved.

A number of general features of the results stand out clearly. In all equations the level of output is a strong and significant determinant of variations in the three measures. The rate of unemployment also appears to exert a strong influence on working days lost and workers involved, and, in the absence of the output term, on the number of stoppages. The four equations all perform well in terms of statistical significance and explanatory power and, with the exception of workers involved do not exhibit signs of autocorrelation. However, in none of the equations were the level of profit, lagged price inflation or level of import penetration significant. In the case of import penetration this may be due to the strength of the output term as it clearly had an impact upon management perceptions of the industry and in BSC's initiatives from the mid 1970s, whilst the insignificance of the profit variable is possibly the result of the 'insulation' of the industry and its link with government and government policy, as in the early 1970s where massive investment and finance was agreed in spite of losses incurred at the time. Furthermore, the losses in steel can be seen as having an impact after a significant time especially when exogeneous pressures in the form of declining output, over-capacity and government policy effectively forced a change of policy.

ECONOMETRIC RESULTS: IRON AND STEEL 1967-1987

VARIABLE	MEAN	ST. DEV	REGRESSION COEFFICIENTS				
			a	a'	b	c	d
Agg U			- 1.24 (1.62)		-234.7 (4.8)	-255.1 (5.29)	-542.97 (4.47)
Output			+ 1.34 (2.0)	+2.01 (2.19)	-204.5 (3.6)	-231.7 (4.16)	-385.9 (2.75)
TUACT				-10.56 (1.77)			
Real Profit					+0.49 (1.01)		
Et-1			+ 0.63 (2.1)	+0.70 (2.18)			
Labour Government					-513.5 (2.14)	544.0 (2.3)	-1176.6 (2.0)
Constant			- 0.05	-21.69	+6225.9	7014.2	13697.4
SDE			7.49	7.09	374.2	369.46	930.28
F			18.8	21.6	13.8	11.0	9.72
R2			0.77	0.79	0.71	0.73	0.63
D.W			2.29	2.68	2.07	1.98	2.59

Note: Equations (a, a') dependent variable is stoppages per 100000 workers.

Equations (b) and (c) dep. variable is working days lost per 1000 workers.

Equation (d) dependent variable is workers involved per 10000 workers.

MEANS and STANDARD DEVIATIONS: U: 7.529 and 5.03. Output: 20.338 and 4.926. Real Profit: -158.72 and 248.8. Et-1: 11.243 and 5.75.

In equation (a) the output and lagged money earnings variable both exert a strong and significant upward pressure on stoppage numbers reinforcing the role of product and labour market factors on strikes. Although money earnings was not significant in the earlier equations for metals the importance of earnings on stoppages in steel has been stressed by others (Eldridge 1968, Bowen et al.1976) although they emphasised the importance of relative earnings across industries (steel workers relative pay fell significantly during the 1970s) and between occupational groups (see below). The narrower industry focus may explain the differences between these results but it is also likely to be the result of the time period chosen, given the inflation rates, the erosion of money earnings and build up of expectations in inflationary periods. The lack of significance of the unemployment term may also be the result of the level of aggregation, a more appropriate measure might be the level of local or regional unemployment in steel communities. Finally, note should be made of the Trade Union Act dummy variable which approached significance on the basis of only a small number of observations. Taken in conjunction with the results for engineering, the legislation appears to have had an important depressive affect upon stoppage numbers.

Equations (b) and (c) indicate a very strong and significant relationship between unemployment, output, the existence of a Labour government and the number of working days lost with all the variables exerting a negative impact upon days lost. Taking the output term first, it is clear that a high level of output might tend to be associated with shorter stoppages as high demand provides the means to meet worker demands, similarly falling demand if perceived by employers as the prelude to recession would encourage them to 'sit out' a dispute and possibly avoid expensive stockpiling of goods. The negative impact of the Labour government term may be explained by the wish of such an administration to avoid prolonged disputes in a vital sector of the economy and as Upham (1990) has argued Labour governments certainly put pressure on the Corporation to raise pay demands where they saw the threat of conflict as a distinct possibility. However, what is also clear is that this result is likely to be significantly affected by the existence of the 1980 strike in the first full year of the Thatcher administration. Finally, the unemployment term is shown to

reduce quite sharply the number of working days lost. Until recently the conventional wisdom was that in periods of recession strikes tended to increase in length and become more protracted (see argument on output above). The table above shows that steel strikes did have a tendency to lengthen from 1982 to 1986 whilst numbers involved fell reflecting the decentralisation of the Corporation's activities after 1980. In addition, there were also short but large demonstration stoppages over redundancies (e.g 1982). In steel it is likely that the unemployment term operated in conjunction with major changes effected within the Corporation after 1980 to reduce the number of working days lost. Alternatively it can be argued that it is the nature of the product market rather than the labour market which is critical here. This argument rests on showing that steel faced a very tight product market in the early to mid 1980s and it was this which forced concessions in spite of the level of unemployment, but that the unemployment term in the equations is picking up this effect. Given the state of union strength and workforce resistance in steel in the 1980s coupled with the fact that a number of these stoppages were token makes this explanation unlikely. However, what clearly does take place in the 1980s in steel and elsewhere is a reduction in pay disputes and the impact of unemployment is probably falling on these disputes which in metals in the 1970s normally accounted for over two-thirds of days lost.

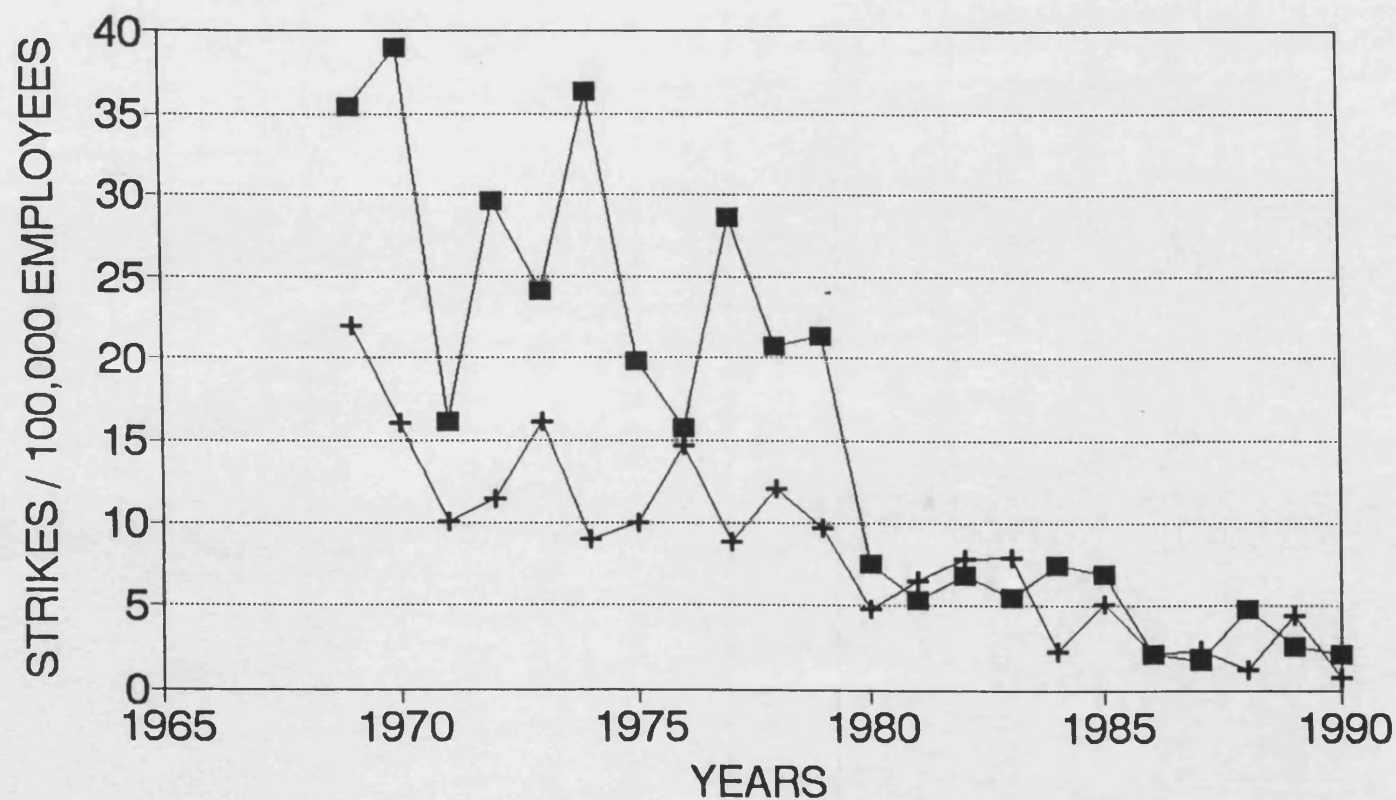
In equation (d) the same three variables, as with WDL are strong and significant determinants of workers involved, with all again exerting a depressing effect on the series. The output term again suggests that in periods of rising output the numbers involved is likely to reduce, this can be linked to bargaining structures and the tendency for an increase in local bargaining where, in the case of steel, production workers in particular have proved adept at gaining concessions. If fragmented bargaining is more likely then sectional disputes are likely to be more frequent in periods of high and/or rising demand and these are likely to be small and short. Similarly for the reasons detailed above a Labour government is likely to want to reduce the political and economic embarrassment of a steel dispute involving large numbers of workers not least because of traditional, if in practice fairly tenuous links via the 'Triple Alliance' with coal miners and railway workers. Finally, the

unemployment term shows a strong negative effect operating on workers involved whilst the rationale for this is again unclear it is likely and confirmed by further work (see below) that it is operating upon pay disputes in particular which have traditionally accounted for the bulk of workers involved.

In order to investigate these results further separate equations were run for pay and non-pay disputes for the period 1969-1990 using variables representing a similar combination of influences. The movements in the stoppage totals are detailed in the figure overleaf. The results of the econometric work are contained in the table overleaf. For pay stoppages aggregate unemployment remained significant but the results were dominated by product market factors (either the level of output or the level of UK steel consumption) and by the impact of the 1984 Trade Union Act. However, the major decline in pay strikes is after 1979 (as in other industries) and suggests that product market factors need to be seen alongside more general influences such as rising aggregate unemployment as well as the consequences of the 1980 strike. Again, the impact of the legislation may be linked to the collapse of the miners strike given the historical links between steel workers and miners.

The evidence for non-pay stoppages confirms the impact of the 1984 legislation and that of unemployment in reducing stoppage numbers although the qualifications about the former apply again. The results for working days lost and workers involved are less encouraging and only achieved any significance for pay stoppages. For workers involved, trade union density, output and aggregate unemployment were at or near significance and for days lost, aggregate unemployment and output approached significance but for both equations the variables never accounted for more than 41% of the movement in the dependent variable. Two probable reasons for this are the prevalence of national bargaining in the industry for most of the period and the increasing size of plant (in terms of employment). It is significant that workers involved and days lost in disputes (adjusted for employment) increased markedly after 1967 and remained at significantly higher levels until the early 1980s.

STRIKES PER 100,000 EMPLOYEES (METALS)



—■— PAY STRIKES —+— NON-PAY STRIKES

STRIKE ACTIVITY IN IRON AND STEEL 1969-1990

			PAY		NON-PAY	
	M	SD	(a)	(b)	(c)	(d)
Constant			- 39.5	- 36.7	14.7	- 10.57
Agg U					- 0.62	
					(3.01)	
Steel						
Consumption				+ 0.61	+ 0.23	
				(1.84)	(1.33)	
Output			+ 0.58			
			(2.9)			
Leg			- 15.4	- 9.12	- 4.43	- 5.14
			(2.66)	(2.29)	(1.51)	(2.5)
SDE			6.21	6.05	3.55	3.13
F			32.25	34.57	16.08	23.5
R2			0.77	0.78	0.63	0.71
DW			1.75	2.21	1.6	1.69

Notes:

Aggregate Unemployment: source as above

Steel consumption: source; Annual Abstract of Statistics

Output: Iron and Steel from Annual Abstract of Statistics

Leg: Dummy variable for impact of 1984 Trade Union Act

MEANS and STANDARD DEVIATIONS: U: 8.24 and 4.7. Steel Consumption: Output: 20.338 and 4. 926.

Circuit of Capital, Managerial Initiatives and Strike Activity

The empirical results from the econometric work give support to the view that broad environmental factors together with product market, labour market and organisational variables are significant determinants of variations in stoppage numbers in metals. However, the underlying model lays stress upon the responses of managers and workers to these broader influences and their associated implications for Industrial relations and industrial conflict. These responses are therefore the critical variables between the pressure on the parties from environmental factors and the emergence or otherwise of strike action.

The issue of industrial growth and development and contradictions within the industrial circuit of capital have been discussed in the earlier theoretical section of this work but some of the main points are worth repeating. In debates surrounding the labour process it has been argued that the incidence and form of conflict arising may owe much to the nature of that process and the extent of worker control within individual plants and organisations (Edwards and Scullion 1982). However, the emphasis on control of the labour process whilst important, tends to neglect or underplay the role of broader factors which affect the realisation of profit such as product market conditions in particular (Kelly, 1982, 1985). The argument for an appreciation of the changes taking place in the full circuit of capital rather than just the labour process rests on the belief that product and labour market conditions may not, for the most part be severe enough to warrant management responses to change the labour process, so that the latter assumes a degree of autonomy from these other elements in the circuit (Edwards and Scullion 1982). However at certain times the combination of product, labour market and labour process conditions may diverge to such an extent that managements are forced to initiate changes to ensure greater compatibility between elements of the circuit. The consequences for strike activity depend critically upon the nature of these initiatives and the extent of worker control and resistance.

Changes in the Elements of the Industrial Circuit of Capital

Product Market

The tables 3 and 4 together give a clear indication of the changing product market position of the metals sector. Allen (1971) has argued that until 1956/57 the consumption of steel rose considerably faster than that for industrial production as a whole due much to the expansion of the consumer goods industries, particularly cars, and that the industry flourished with output of metals around 36% higher in 1957 than 1948. However, he suggested that 1957 represented a watershed for the industry. Certainly steel was largely free from imports in the 1950s, due much to agreements with competitors (Docherty 1983) and after 1957 conditions in both internal and international markets were transformed as foreign competition intensified (Allen 1971). This is reflected in Britain's declining share of world trade, down from 7.5% in 1955 to 5.2% in 1966, and in steel, where profits declined from £400 millions in 1957/58 to £200 millions in 1962/63 (although in metals overall profits continued to increase until 1960).

In the 1960s output of the metals sector remained fairly static whilst real profits stood at around their 1960 figure at the end of the decade. This relatively poor performance was due much to the fortunes of the iron and steel industry which, in the financial year 1967/68 returned a profit of less than £60 millions with losses incurred at both Llanwern and Ravenscraig in the late 1960s (Pryke 1981). The steel industry's underlying problems began to be exposed more fully in the late 1960s and, despite cyclical peaks in 1969/70 and 1973/74 the problems for the industry intensified after 1974 when a major collapse in product markets took place.

TABLE 3**CIRCUIT OF CAPITAL: SELECTED VARIABLES:METALS**

Year	Output	P/Q	IMP	RE	IndU	RWB/Q	LP	L/VA
1948	100	100	-	100	1.3	100	100	-
1949	100.5	99	-	102.7	1.04	103.7	99.7	-
1950	105.6	113	-	103.4	0.96	102.1	103.4	-
1951	112.0	86.7	-	105.6	0.8	100.4	108.1	-
1952	115.3	63.1	-	106.0	0.97	102.3	109.4	-
1953	112.6	49.3	-	104.7	2.1	92.8	112.4	-
1954	120.2	64.5	-	105.7	1.1	88.5	119.7	-
1955	130.3	118.5	-	113.0	1.0	100.6	120.9	-
1956	132.3	125.4	-	118.3	0.6	107.1	121.1	-
1957	136.2	139.5	-	121.3	0.7	106.6	124.7	-
1958	121.5	127.7	-	129.9	1.8	126.1	110.1	-
1959	126.9	154.9	-	118.8	3.0	113.1	113.8	-
1960	147.2	182.4	-	127.8	0.9	120.4	123.5	-
1961	138.6	150.3	-	134.4	1.2	129.6	123.9	-
1962	131.0	124.5	-	132.3	2.5	119.7	124.3	-
1963	137.0	128.1	-	130.4	2.5	112.7	129.2	-
1964	137.6	134.2	-	135.7	1.0	129.4	123.1	-
1965	143.6	136.9	-	143.1	0.8	130.8	128.5	-
1966	135.2	106.8	-	148.4	1.1	128.2	136.0	-
1967	127.3	68.5	-	144.9	3.2	119.8	135.0	-
1968	135.0	74.2	18	147.4	2.3	111.0	145.6	74.0
1969	139.2	86.2	-	152.5	1.9	112.6	149.4	-
1970	138.2	90.3	19	157.8	2.4	119.9	146.7	74.6
1971	126.3	85.4	19	168.2	4.1	123.7	142.7	79.9
1972	125.5	84.0	18	161.8	4.6	103.5	152.2	78.3
1973	137.5	96.2	21	182.3	2.6	107.2	166.2	76.0
1974	150.0	108.2	24	193.8	2.2	100.3	184.8	74.4
1975	131.0	84.7	23	197.7	3.6	114.2	163.5	83.7
1976	135.0	79.2	24	190.8	5.4	94.5	178.9	83.3
1977	134.7	70.4	24	190.8	4.8	94.6	181.1	82.0
1978	134.6	60.8	24	181.3	5.7	84.4	186.0	89.2
1979	123.8	42.0	25	189.6	5.5	91.9	175.0	111.9
1980	95.9	35.6	36	192.5	8.3	98.5	149.7	112.2
1981	101.7	33.0	30	185.6	18.3	60.7	188.2	108.8
1982	98.9	34.2	34	181.6	19.8	-	199.4	110.6
1983	100.5	-	36	-	-	-	206.8	82.7
1984	100.1	-	43	-	-	-	213.8	81.9
1985	107.0	-	45	-	-	-	228.6	74.7

NOTE: All variables relate to metals sector as a whole. P/Q: Index of real profit, IMP: Import penetration, imports as a percentage of home market + exports, RE: Real earnings, IndU: Percentage of industry workforce unemployed. RWB/Q: Real wage bill per unit of output, LP: Labour productivity, LSVA: Labour's share of value added. Source: Output and labour productivity indices from Annual Abstract of Statistics. Earnings from Employment Gazette and British Labour Statistics: Historical Abstract.

TABLE 4**IRON AND STEEL: PRODUCT MARKET, LABOUR MARKET AND LABOUR PROCESS INDICATORS**

YEAR	S	WI	WDL	Y	IMP	RP	EARNINGS
1967	23.45	858	34.3	24.3	7.0	-10.7	4.2
1968	23.93	2675	64.1	26.3	9.1	-21.7	8.9
1969	31.8	1548	96.4	26.8	6.4	3.1	8.9
1970	56.03	1408	98.9	28.3	5.5	-4.2	12.9
1971	27.96	1376	74.4	24.1	9.1	-49.8	5.6
1972	41.79	1892	146.7	25.3	12.0	-5.4	19.9
1973	41.9	2465	118.0	26.6	13.0	3.6	15.5
1974	45.5	1974	151.1	22.3	16.7	62.8	18.0
1975	31.26	1487	76.1	20.1	19.1	-160.7	20.7
1976	34.15	1297	76.1	22.3	19.5	-112.6	16.6
1977	35.69	1132	160.0	20.4	20.3	-300.4	10.8
1978	32.78	1117	80.4	20.3	19.7	-314.5	12.9
1979	27.1	2055	156.1	21.5	23.4	-427.8	13.3
1980	13.16	6240	3002.4	11.3	27.2	-522.5	14.4
1981	10.5	311	17.1	15.6	24.6	-479.3	9.7
1982	13.96	3734	45.2	13.7	25.3	-710.9	11.1
1983	15.14	686	63.3	15.0	24.9	-390.5	0.8
1984	10.42	180	9.5	15.1	24.3	-334.0	18.8
1985	12.4	263	28.7	15.7	26.0	-65.6	7.0
1986	3.98	219	62.7	14.7	27.1	136.6	4.6
1987	4.31	142	6.8	17.4	28.2	339.0	3.5(est.)

Sources:

S: Strikes per 100000 employees; Employment Gazette (1968-1988)

WI: Workers Involved per 10000 employees; EG (1968-1988)

WDL: Working Days Lost per 1000 employees; EG (1968-1988)

Output: Steel output in million tonnes; Annual Abstract of Statistics

IMP: Import Penetration % of home market; Annual Abstract

RP: Real Profit in £ millions; BSC figures adjusted for calendar years and deflated by retail price index

Earnings: Annual change in average nominal earnings; NES.

The impact on profits was even more dramatic. In the metals sector the level of real profit peaked in 1960 but with a favourable performance between 1955 and 1965 and a mild improvement in 1974 at the last peak demand year. In the late 1960s and the period after 1974 the sector experienced low or declining real profits. In steel, the government view in the early 1970s was that the market was such that BSC 'could not help making profit' (DoI: quoted in Abromeit 1986). The Corporation made a profit of £70 millions after tax in 1974/75 but this turned to a loss the following year, losses continued uninterrupted into the late 1980s with total losses of £443 millions in 1977/78, £548 millions in 1979/80, £668 millions in 1980/81 and £869 millions in 1982/83 (Abromeit 1986).

The profits position of BSC after 1974 is returned to below but a few general points are necessary here. First, they were partly the result of a downturn in world demand and increased competition coupled with BSC having already embarked on an expansionary programme of long term investment leaving it with excess capacity (see below). Second, they were a consequence of increasing labour costs reflected in a dramatic increase in labour's share of value added in the second half of the decade. This latter point is considered in greater depth later but is critical in influencing the nature of BSC's responses after 1978.

Further support for the product market collapse in Steel is evidenced by the increase in import penetration, particularly after 1971 (see Table 4 above). Cockerill (1979) has shown that for steel alone the share of imports in the home market rose from 5% to more than 20% between 1970 and 1977 and that this disguised even greater penetration in the markets for sheet and plate steel. As Table 4 shows, this continued into the 1980s with a recent estimate putting BSC's share of the home market at 46% in 1982 (down from 52% in 1981), (Abromeit 1986). In the 1970s one major consequence of this collapse was chronic over-capacity within the industry with many plants operating at less than two-thirds of capacity (1976). Indeed, Port Talbot, Llanwern and Lackenby operated at only 75% capacity in 1973, a period of high demand (Pryke 1981). By 1975 BSC was operating at below 60% capacity, a figure it remained at for the rest of the decade (Pryke 1981).

Labour Market

Statistics for industry unemployment reveal a period of very strong labour demand throughout the 1950s and notwithstanding greater fluctuations in the early 1960s remained below 3% until 1967 (reflecting national trends). In the early 1970s it began to increase and averaged between 5 and 6% of the workforce in the period 1975 to 1980 when it accelerated further reaching over 18% in 1981 and 1982, the last year for which data were available. Alongside the trends in unemployment, real earnings in metals increased by over 3% per year until the early 1960s, and over 6% per year between 1967 and 1975 significantly outstripping the growth in productivity, before falling slightly in the latter half of the decade.

One aspect of earnings disguised by this industry focus is the trend in inter-industry earnings. Docherty (1983) notes that whilst steel workers were in the top three of the manual workers league table of earnings in the early 1950s, by the late 1970s they had fallen to about thirteenth position. Thus we have a group of workers who experienced a steadily worsening labour market position. In the 1950s with tight product and labour markets earnings remained high in both absolute and relative terms with little prospect of unemployment. By the 1970s this position underwent considerable change as product markets deteriorated, the labour market for those in the industry slackened and employment security undermined.

From the perspective of management there is little evidence that it encountered problems in recruiting skilled labour or those willing to be trained via apprenticeships in the 1950s and 1960s. Rather, that by the 1970s problems were perceived more in terms of 'over-manning' and the reflection of this in the contraction in employment and the significant increases in unemployment after 1979. The contraction of employment in BSC was at first gradual, 15% between 1970 and 1975, 13% between 1975 and 1978 and then rapid, with 50000 jobs lost from 1978 to 1980 and a further 76000 from 1980 to 1985. In 1980, the Corporation employed 119000 fewer people than in 1970, a fall of 45.9%. By 1985 the workforce had been reduced by a further 65% so that from giving employment to 259000 in 1970, by 1985 it could only offer work to 64000 (Bamber 1986).

In the 1980's management requirements emphasised a greater concern with flexibility, multi-skilling and the breaking down of traditional craft and seniority lines as well as reliance on the external market for sub-contractors, temporary workers and those on fixed term contracts (Fevre 1989, Blyton 1992).

Labour Process

Prior to the re-nationalisation of the industry in 1967 the system of work organisation in steel was one in which the interests of owner and labourer converged to a significant extent. Bowen et al (1976) suggested that the system allowed both sides to pursue their separate objectives with least resistance. The organisation of work offered a relatively high discretionary content to individuals and a degree of social advancement within the ranks of manual work, the development of jointly negotiated wage payment systems, determination of tonnage rates and relatively high earnings to maintain labour co-operation with employers and ensure production without disruption. Whilst this description is generally accepted it does disguise the fact that within the industry significant social divisions existed between production and craft workers, based upon skill, training, trade union membership and access to seniority lines reinforced by pay determination. Indeed after nationalisation BSC saw a clear need for a long term labour policy based upon increasing productivity and reducing the anomalies of the wages structure (see section on management strategy below). This productivity programme lasted from 1968 to 1974 and, together with the advances in technology, pursuit of economies of scale and rationalisation of some of the Corporation's activities produced significant changes in the nature of the labour process in steel.

In Tables 3 and 4 the level of productivity is used as a measure of the effectiveness of managerial control of the labour process and the intensity of effort. Given the capital intensity of these industries there are obvious weaknesses in using this variable which is further complicated by changes in the number of administrative, technical and clerical staff. Pryke (1981) and Upham (1980) note that in Steel much of the decline in employment in the industry was the result of cuts in production staff following the replacement of open hearth furnaces by BOS (basic oxygen steelmaking)

in the period 1968 to 1980 with non-manual staff increasing from 25% of total employment to 33% in 1985 (Bamber 1986). These points notwithstanding, productivity in metals rose by 25% between 1948 and 1957, by 4.7% per annum from 1958-1974 and in 1979 stood 75% higher than in 1948. However, in steel there was concern expressed about productivity levels relative to those of foreign competition particularly in the 1970s. According to Cockerill (1980) the 'major cause of low productivity was the chronic degree of over-manning' (also the view of BSC, see MMC Report 1988) and the lack of efficient labour utilisation (Pryke 1981). Pryke states that absence of work within BSC in 1978/79 averaged 26 days per manual worker per year, with a figure of 30 for Scotland. Similarly Kelly (1984) in a study of Corby noted that on average 14 days a year per worker were lost through absence (with absence and sickness combined accounting for 21 days per worker per year) and with turnover in the early 1970s standing at 20% per year. This suggests some support for Pryke's view that managers and workers at BSC had low expectations and lacked commitment and the perceived need in the late 1970s to increase efficiency and improve what was seen as poor labour utilisation. The productivity advances within BSC in the 1980s although exaggerated by the use of contract staff illustrate the extent to which this has been achieved.

In terms of advances in productivity it is important to stress that the 1960s and 1970s in steel were marked by significant changes in the nature of production and in associated work practices as the BOS system replaced open hearth furnaces. The shift to BOS and the greater application of technology in steel production changed the nature of work significantly and the break up of the traditional seniority system within the industry and is associated with the most strike-prone period in the industry's history. The scale of some of these changes is evident from the increasing size of blastfurnace. According to Allen (1971) the average blastfurnace in 1948 produced 79000 tons annually rising to 263000 tons in 1965, by the late 1970s the largest furnaces were capable of producing 3.5 million tons a year (Cockerill 1980).

One further way in which the problems of these industries can be seen and which permits an appreciation of the interaction between the main elements in the circuit is by examining changes in labour's share of value added. The figures apply to metals generally but given the state of BSC it is probable that the figures are if anything an understatement of the corporation's position. The figures reveal a general increase of over 20% from the late 1960s to 1978 and then to a level of over 100% between 1979 and 1982, signifying that for every £100 of value added to the product labour was contributing between £100 and £120. Thus, a major consequence of the product market collapse allied to less than expected productivity increases and the maintenance of previous manpower levels were products that were selling at prices well below the costs incurred in producing them.

Overall, the position faced by the steel industry indicates a fluctuating but generally expanding product market until the mid 1970s when the recession in the world steel market plunged BSC into a major crisis. Committed to a major expansion programme after 1973 (see below) and with a continually rising real wage bill which productivity gains only just managed to keep pace with and with a continual increase in the share of value added accounted by labour it is clear that by 1975 a contradiction within the circuit of capital was emerging within steel. A rapidly declining product market and attendant over-capacity co-existed with a relatively unchanged labour market and many of the established ways of working. Those areas where inroads were made into the labour process, for example at the plants with new technology, were frequently associated with pay disputes and production and manning problems (Pryke 1981). In this last respect the 1970s marked changes to the nature of working in BSC which challenged traditional attitudes and expectations of a workforce who in many instances had spent the bulk of their lives in the industry. What is also clear is that a considerable degree of resistance was present, not merely in terms of stoppage activity (see below) but also through informal conflict (absenteeism etc).

Managerial Initiatives, Worker Responses and Industrial Conflict

BSC Strategy

There is general agreement that BSC inherited an industry with considerable weaknesses. It was seen as technically backward, with a growth rate and rate of investment behind those of its competitors, with labour costs higher than the competition and with slower increases in productivity. Together these made for what Cockerill and Silberston (1974) described as 'sluggish performance'. Indeed, in its evidence to the Monopolies and Mergers Commission in 1986 BSC expressed the view that it had inherited a situation of 'inbuilt overmanning, high standard manning levels and unduly restrictive working practices' (MMC 1988 p.106). Notwithstanding the benefits of hindsight in this statement there was little doubt that much of the existing capacity was in small-scale and obsolescent plant, frequently under-utilised and in need of rationalisation and modernisation (Cockerill 1980).

This view also seems to have been held, albeit belatedly, by the private steel companies which, in order to try and pre-empt nationalisation commissioned their own report into the industry. The Benson report, as it became known, recommended the closure of 65% of existing steelworks over the period 1965-75. Whilst the report was largely ignored (although reappearing in a different guise under BSC's subsequent 10 year development strategy in the early 1970s) it has been argued that its findings were sufficient to challenge and undermine feelings of employment security of those employed in the industry and possibly contributed to the increasing number of stoppages in the late 1960s.

The Heritage Strategy

Undoubtably, BSC saw a need to proceed with rationalisation of the industry and to reduce unit costs. A move in the direction of the first objective came with re-organisation of the Corporation in 1968 and again in 1970 (the latter into divisions acting as profit centres). A further objective was that of investment in new technology and the shift to basic oxygen steelmaking. BSC opted for the concentration of large hot metal based plants using BOS as opposed to the open hearth

process, located at, or near coastal sites. In 1964, 20% of steel was produced by means of BOS, by the late 1960s, 25%, with a major investment programme in 1967-9 to convert Port Talbot and Lackenby in 1968, and Appleby Frodingham in 1969. Similar changes were also introduced at Llanwern and Ravenscraig so that by 1971 BOS plants had been installed at each of the five coastal plants. The aim of increasing productivity was also to be effected through the National Productivity Programme introduced in 1968 and which was to be a vehicle to reform industrial relations procedures and behaviour (Kelly 1985). Separate national agreements were concluded in 1969 and 1970 to ensure the reform of collective bargaining and wage structures at the establishment level.

In introducing the National Productivity Programme the Corporation was particularly concerned with developing a long term plan for labour management which would reduce the anomalies of the existing wages structure and standardise working conditions across production, service and maintenance grades of manuals in the industry. It was concerned with introducing a more equitable structure together with uniform time conditions, a new Guaranteed Work Agreement, re-deployment payments and industry-wide payments schemes as well as participation in joint job evaluation (Bowen et al. 1976). The existing structure had long been a source of concern to groups within steel. As Bowen et al. (1976) have argued, the technical and social organisation of steelwork had offered advantages to those workers with influence to negotiate increases in wage earnings consistent with increases in the technical capacity of steelmaking. Production workers, particularly those in ISTC were the main beneficiaries as they were able and willing to exploit the opportunities which arose but the stable relationships between steelmakers and production steelworkers were at the expense of unstable relationships with maintenance craftsmen and blastfurnacemen. As Clegg (1979) has shown the inter-occupational differences in strike propensity in steel originated from competitive wage bargaining between craft and production workers at plant level. In the late 1960s and early 1970s the changes in technology in steel reduced the importance of production grades and increased that of craftsmen (particularly maintenance) leaving the latter increasingly dissatisfied with the wages structure (Eldridge 1968).

Overall, the objective of the Heritage Plan was to raise profitability (Bryer et al. 1982) with the coastal heritage plants as a key element in achieving this together with the partial closures of old plant. Between 1967 and 1972, 32000 jobs were lost through plant closures and in 1971/72 alone 54 separate sections of works or plants were closed (Bryer et al. 1982).

The period of the late 1960s was one of intense industrial conflict. Kelly (1984) notes that strike frequency in Steel rose from an average of 128 per year between 1964 and 1970 to 148 per year in 1971-3 and at Ravenscraig alone he estimated an average of 22 stoppages a year between 1967 and 1970, roughly one every 2½ weeks, suggesting they were seen as an accepted and legitimate means of achieving results. Similarly at Corby, 127000 working days were lost through stoppages in 1970 alone, an average of 10 days per employee. Corby also experienced major stoppages in 1967 and 1968 (DE Gazette) and at Port Talbot large scale disputes occurred in the late 1960s and in 1971. Indeed in 1969 a seven-week unofficial strike by blastfurnacemen at Port Talbot prompted the establishment of a Commission of Inquiry but illustrated the growing dissatisfaction within this group about relative status and earnings (Bowen et al. 1976). Other BSC sites to experience large scale stoppages in the period to 1973 were Shotton, Bilston, all Scotland (over white-collar recognition) in 1968, Llanelli (Swansea) (1967 and again in 1972) and in 1971 blastfurnacemen undertook a national stoppage in pursuit of a 35% pay increase. Similar conflicts occurred at Scunthorpe (1972, 1973) and Llanwern (1973). It is significant that the strike activity in this period is concentrated upon those sites that were the major recipients of new technology and the shift to BOS production where the attendant disturbances to the established pay and seniority system were greatest.

The Ten Year Development Plan

The period 1971-3 is also marked by the emergence of a new strategy within the Corporation. The Ten Year Development Plan envisaged an expansion in steel consumption, and proposed an increase in liquid steel capacity of 36-38 million tons to match this together with reductions in employment at around 20 steelworks. The plan was finally ratified by the Conservative government in 1973 and was to achieve

the objective of making BSC fully competitive in international cost terms to obtain fullest benefits of scale (Bryer et al. 1982). The Plan consolidated the process enacted under the Heritage Plan to concentrate production at a small number of large integrated steelworks in order to reap economies of scale and reflected the model of Japanese steelmaking which carried considerable influence within the Corporation at the time. The main works would be at Port Talbot, Llanwern, Ravenscraig, Scunthorpe, and Teeside. The rationalisation of plants was to reduce the number of smaller steelworks and particularly those operating with open hearth processes. A measure of the extent to which the planned reductions conflicted with established workplace attitudes is given by the calling of an emergency conference by the ISTC in 1973 and a policy from the TUC Steel Committee to secure alternative jobs for those workers made redundant and to offer its help to individual steelworks to fight closures. Action Committees were established in response to the plan at Ebbw Vale, East Moors and Shotton (with only the latter enlisting the Steel Committee's assistance), and the resort to large scale strike action at both Ebbw Vale and Shotton in 1973 (DE Gazette 1974).

The Ten Year Development Plan created industrial relations difficulties in two main areas. The proposed closure of a number of smaller plants brought immediate resistance from the areas affected and it was a conscious policy of the TUC Steel Committee to encourage local action committees where redundancies were threatened. The second area, continuing from the Heritage Plan was that of new technology and the change to working arrangements and pay brought about by continuous process working, the transition to BOS plants and the Productivity Programme. It is in the context of these issues that continued stoppages took place at Llanwern, Port Talbot and Scunthorpe over pay and pay differentials. At Llanwern there were thirty separate disputes between May 1973 and May 1974, the two largest by craft workers including a seven week dispute by boilermakers which led to the establishment of a Committee of Inquiry into the state of industrial relations in the plant.

The gap between the Development Plan's forecasts and actual demand widened dramatically in the mid 1970s and the Corporation, although still committed to the

expansionist plan but apparently unable to achieve its closure programme sought to make a more concerted attack upon 'inbuilt overmanning' (Upham 1980). With the change in government in 1974 a Review of the closure programme was conducted by Lord Beswick, the Beswick Reports were published in February 1975 and, although altering the time horizon for closures, broadly accepted the original BSC proposals. Following this, BSC announced its intention to cut 20000 jobs as a result of adopting the Beswick recommendations with the immediate closure of Clyde Iron, Hartlepool, East Moors and Ebbw Vale (the latter prompting a major dispute) together with the suspension of the Guaranteed Work Agreement, a protection against slack periods which enabled workers to be paid where no work was available. The last element particularly incensed the unions and they managed to reach agreement through the TUC Steel Committee on voluntary redundancies, flexibility and weekend working (the latter a major area of contention in South Wales where disputes totalling over 26000 working days took place a month before the BSC and steel unions agreement) as well as ensuring that the GWA would remain the subject of local agreement.

In January 1976 BSC and the ISTC signed a 'joint statement on the reduction in employment costs and improvements in labour productivity' which agreed to raise productivity through increased production and de-manning (Sirs 1985). The BSC strategy had effectively become one of seeking labour economies (Upham 1980) and, at least in principle the ISTC accepted the inevitability of closures. In 1974 the Corporation signed Work Measured Incentive Schemes (WMIS) with craftsmen in the industry which was followed in 1976 with a deal with production workers but, even accepting the problems of using man hours per ton to measure productivity, little progress appears to have been made. The 1976 joint statement was greeted in Wales with another outbreak of strike activity, which over the economy measures alone totalled 133300 working days lost. Although BSC has consistently argued that the 1976 agreement achieved little, Upham (1980) argues that in the three year period following the deal employment fell, output rose and absenteeism declined. However, he goes on to point out that by mid-1977 BSC had been almost entirely unsuccessful in its closure strategy. This position was reversed suddenly in the latter part of 1977 when the local unions at Clyde Iron concluded a plant deal with local BSC

management which gave them enhanced redundancy pay in return for job losses. Only a few weeks later the TUC Steel Committee negotiated a slightly better deal at Hartlepool. Closures at East Moors, Ebbw Vale and Shelton followed in the first half of 1978 all with improved redundancy packages.

In the period 1977-1979 with the industry's competitive position worsening eight smaller works (part of Beswick review) were closed down with 12000 jobs lost all with successively enhanced severance payments. This also had the effect of bringing open hearth steelmaking to an end everywhere except Shotton.

Although it has been argued that the Ten Year Development Plan was effectively abandoned by the Civil Service in 1976 (Abromeit 1986) the formal rupture came in 1978 with the publication of the White Paper *The Road To Viability*. There is considerable evidence that 1978 was a critical year in management perceptions of the state of BSC and the realisation of the magnitude of the crisis affecting the industry (Taylor 1982). The White Paper in acknowledging the problems outlined the commitment to rationalising the industry in light of the serious product market collapse and the perceived need to match capacity and demand, a situation made worse by the investment made earlier in the Plan's life so that much of this was completed in the period 1977-79 adding to the problems of overcapacity. Neither was this new investment achieved without significant local difficulties. Frequent problems arose over manning levels and pay differentials with 320800 working days lost in 1977 at Port Talbot alone over a dispute concerning pay and differentials.

If the 1978 White Paper marked a response to a considerably worsening product market situation this is reflected in both the content of proposed closures and the manner in which they were introduced. In the latter case the unions had, since the early 1970s been concerned with the lack of prior discussion over changes having to respond to announcements made by the Corporation (as with the Ten Year Development Plan). The evidence suggests that this situation worsened considerably, Sirs in the preface to the ISTC pamphlet *New Deal For Steel* (1980) stated that

(The) blank refusal of BSC to discuss their plans with the unions prior to taking decisions has been the cause of much bad feeling not only between top management and national union officials but between Corporation senior managers and local workforces (p.4).

In terms of content, BSC had managed to close Shelton in the absence of a national agreement and then announced the closure of Bilston, not included in the original Beswick plans. The ISTC threatened a national strike over the issue and although the decision was rescinded, the plant was partially closed in 1979 and total closure announced in 1980. Despite the Corporation's delay in achieving the closure of Bilston it still managed to effectively end steelmaking at Glengarnock by the end of 1978. In late 1979, the Corporation produced its own document *The Return to Viability* where it proposed the closure of one of the main integrated sites, the closure of Shotton and much of Corby, electric arc steelmaking at Hallside and the run down of operations at Consett. In late 1979 it announced the closure of Shotton, Corby, Consett, Cleveland and Hallside and cutbacks at Scunthorpe, Llanwern and Port Talbot. In February 1979 BSC had already announced its wish to review iron and steel making at Corby but the decision to close Corby provoked an immediate response from the workforce and the unions culminating in a one day strike in the Autumn by the town. Unlike Shotton and the Beswick plants Corby produced steel by the BOS method and is indicative of the change in thinking within the Corporation given the product market position.

A further significant factor was the change in government. Although Labour had placed the Corporation under increasingly tight cash limits (Bryer et al. 1982) the incoming government endorsed BSC's intention to reach break-even point by the end of the 1979/80 financial year. A further constraint was the view that BSC was effectively bankrupt and that pay increases would have to be self-financing. This lay behind the Corporation's original offer to the unions in December 1979 to consolidate a pay settlement made under Phase II of the Labour government's incomes policy and to permit up to 10% to flow in quarterly payments arising from proposed local bonus schemes (Upham 1980). The response was a 13 week national stoppage in 1980,

which, although nominally over pay was also about the massive closure programme. Since 1980 major disputes in Steel have along with disputes generally, declined markedly and where they have occurred as in 1982 they have been in response to redundancies and closure plans.

Strike Activity in the 1970s: An Overview

The experience of strike activity throughout the decade reflects the importance of local trade union action. The importance of local action within steel is critical to explaining features of the strike pattern in the industry. Given the nature of industrial relations and the importance of local trade union organisation it is not surprising that most stoppages are also localised, frequently affecting one steelworks or sections within it. Pay disputes in particular are of this type and, given the ISTC position for much of the 1970s, also disputes surrounding closures. In support of this position the formation of action committees in plants identified for closure in the early 1970s were also subsequently sites of industrial action (e.g Ebbw Vale) and strong local union organisation was also critical in the strike record of Llanwern in the mid 1970s. The concentration of new investment at the main integrated plants and the disturbance to traditional differentials and seniority was a source of frequent disputes particularly in the Welsh steelworks. In contrast, the focus on closures and the local action these provoked became more important in the second half of the decade. The absence of national stoppages over this issue is largely a consequence of the fact that they affected specific plants in this period and the absence of a national campaign against them by the ISTC and the other unions. The culmination in a national stoppage in 1980 over pay is the result of a combination of factors. The precarious state of the industry evidenced particularly by the increasing share of labour in value added made closures and massive redundancies an inevitable response and one which would affect much of the industry rather than a few plants. The tightening of external cash limits by the government was also important and made it virtually impossible to offer any pay increase. The fact that it was a national dispute is also a consequence of the fact that pay bargaining was centralised and a dispute was likely to affect the entire industry and finally, the worsening relations nationally between BSC and the ISTC in particular. The latter point is important, there seems little doubt that the period after

1978 marks an era of growing estrangement between the Corporation and the major unions, particularly ISTC as the Beswick changes were superseded by the *Return to Viability* and the expressed intentions of the Corporation in 1979. The gap between the two sides was seen most clearly in the ISTC's *New Deal For Steel* published shortly after the 1980 strike and where the gulf between it and BSC appeared unbridgeable. This gulf seems to have persisted until 1983 as the steel unions, in disarray after the national strike confronted a determined and invigorated management concerned with reasserting control and effectively curtailed significant areas of involvement for the unions, although local resistance over redundancies has persisted as in 1982

BSC Strategy After 1980

In the Monopolies and Mergers Commission Report on the Corporation published in 1988 BSC declared that its overriding objectives in the 1980s had been to stem 'massive losses', break-even on trading account, to achieve 'financial self-sufficiency' and reach 'full viability'. Many of the structural changes deemed necessary to achieve these were in place by the end of 1980 most of which are associated in some way with the 'slimline' policy as a critical element within the Corporation's survival plan.

Slimline

The 'Slimline' policy was introduced in 1979 as an element in the Corporation's survival plan and although ostensibly concerned with manpower reductions was a comprehensive package of measures designed to improve manpower utilisation.

These measures are as follows:

- a) Plant closures
- b) Reductions in output
- c) Use of contractors
- d) Changes in organisation
- e) Introduction of labour saving technology
- f) More stringent manning criteria
- g) Changes in working practices
- h) New productivity incentives
- i) Privatisation

All of these to varying degrees have been implemented across the Corporation. Since 1980 there have been closures at Workington, Normandy Park (both iron blastfurnaces), Barrow (1983), Cragneuk (1984), Tinsley Park (1985), Aldvale and Templeboro (1986) (all steel furnaces) and at Hartlepool. However, more significant (in terms of numbers) have been cutbacks at all the major plants. Indeed 'Slimline' was first applied at Llanwern and Port Talbot in 1980 where the workforces were reduced by about 50% in the 1980/81 financial year (MMC 1988). Figures cited by Fevre (1989) show actual manning at Port Talbot declining from 12584 at the end of September 1979 to 11259 at end June 1980 and to 6636 by the end of the year. Further cutbacks brought the totals to 4746 by the end of 1985. These reductions mask the fact that much of the work previously undertaken by BSC employees has now been contracted out, with contractors frequently employing ex-BSC workers.

The arrival of Ian MacGregor as Chairman in 1980 ushered in a number of important organisational changes within BSC. In October the Corporation's structure was redesigned into a series of individual businesses with clear financial objectives each acting as a profit centre. The emphasis being placed upon decentralisation and

delegation, simplifying the chain of command and increasing individual managers responsibility for results. A further change, the OPERA 1 programme was introduced to facilitate reductions in head office personnel, and in 1982, OPERA 2 launched with the aim of improving the organisational effectiveness of large integrated steelworks.

The Local Bonus Schemes

The re-organisation of the Corporation in 1980 together with the introduction of the LBS can be seen as major initiatives towards the decentralisation of bargaining within BSC. Indeed, BSC have placed considerable emphasis on them, not just in 'radically changing pay bargaining' (MMC 1988 p.103) but as the main vehicle for securing co-operation with manpower changes and other performance improvements (Blyton 1992). They have been used to gain acceptance of plant closures, increased use of contractors, changes in organisation and working practices, new manning levels, flexibility and efficiency improvements. Indicative of the state of union disarray after the strike and the comprehensiveness of BSC's victory is given by the fact that in the first three months after the strike, works LBS arrangements had been concluded in respect of 99% of the Corporation's workforce (MMC 1988). In 1979 the Corporation argued that in order to reduce manning and increase flexibility it was necessary to establish a direct link between pay and performance at local level, with pay improvements conditional upon prior achievement of agreed performance targets. The local bonus scheme operating at works level and independently of the departmental group bonus was the mechanism to achieve this. Since 1981/82 its contribution to manual earnings has increased from 3% to over 9% in 1985/86 (MMC 1988).

These initiatives taken together represent a significant reassertion of management control. It is now the case that a number of issues previously the subject of joint control are now determined largely by management. This re-establishment of managerial prerogative has necessarily entailed considerable changes to the nature of the labour process in steel, which arguably was BSC's prime objective in the 1980s, and to the frontier of control between management and labour.

These initiatives must also be seen within a broader context. The Government tightened up borrowing targets for the Corporation considerably after 1981/82, particularly from 82/83 to 84/85 and again in 86/87 and a price collapse on mainland Europe in the Summer of 1982 seriously hampered recovery in 1982/83. However, these financial constraints were increasingly reflected in the Corporation's plans throughout the 1980s particularly after 1981/82 where emphasis is placed on reducing loss after interest and reducing external cash requirements although the broad objectives of the 1980 Recovery Plan, increasing exports and market share, reducing manpower and increasing capacity utilisation remain.

CONCLUSIONS

With hindsight it is difficult to argue with Allen's view that 1957 was a critical year for the steel industry. However, it is equally clear that this was only faintly perceived at the time. Indeed concern with the industry's position seems only to have been acknowledged, and then only by some, after the publication of the Benson Report in 1967, and more importantly by most only in 1978. Furthermore, the managerial conservatism of the 1950s remained largely hidden until the 1960s, at which point Official circles began to acknowledge that the industry was suffering from lack of investment leaving it technically backward, that growth rates were behind those of competitors and that labour costs were higher and productivity growth lower than those of steel's competitors. Nationalisation was seen as providing a much needed opportunity to rationalise and modernise.

The extent to which nationalisation aided the modernisation and rationalisation of the industry is an issue dealt with elsewhere (Pryke 1981, Abromeit 1986, Heal 1974) but the role of successive governments in influencing strategic direction and actions as well as more operational decisions critically affected its performance and industrial relations. This lends support to the view that it is government control per se (or at least the form of control dominant in public corporations in Britain) rather than the operation of incomes policies or the particular government in power which is critical. This is not to discount the role of incomes policies which seem to have had a clear influence on the number of pay stoppages in the late 1970s but that a focus on this

ignores the multi-faceted nature of government influence. These political contingencies operated in 1972 when the Heath government held down steel prices as part of its anti-inflation policy. Similarly, the closure programme after 1975 was affected by government action or inaction. As Upham (1990) has argued, the incoming Labour government changed the timescale for redundancies and that throughout their period in office Labour ministers were an unseen presence at national pay bargaining sessions and played a role in raising management pay offers closer to union demands. It should also be stressed that after 1978 there were government representatives on the main board of the Corporation. The strikes in South Wales which greeted BSC's announcement of job losses ultimately forced it to retreat from the programme, albeit temporarily as it failed to secure government backing for its intended programme (Docherty 1983). By 1979, the industry's position had weakened further and the Corporation found a willing ally in government to help push through its revised closure programme.

The role of the Thatcher government in relation to the British Steel has parallels with Ferner's (1988) work on British Rail. BSC had a major rationalisation programme as an element on a possible agenda for some time but to be implemented it required political backing. In the 1980s the 'commercial logic' became the motive force, placed at the top of the agenda, effectively activated by the incoming government, and with the requirement to further the 'public interest' subsequently removed from its objectives under the 1981 Iron and Steel Act, BSC was free to operate largely unencumbered by social objectives. Furthermore, by 1979 the contradictions within the circuit of capital had become so severe that it was easier for both BSC and the government to argue that alternatives were unavailable. However, it would be wrong to read too much into the change of government. Whilst Morgan is correct to argue that:

The government's initial refusal to extend BSC's own external financing limits together with its imposition of an impossible break-even target for 1980/81 represents the most stringent cash limits ever imposed on a nationalised industry in Britain. (Morgan 1983: Quoted in Fevre 1989)

Stringent cash limits had been introduced by the previous Labour administration and BSC's 'Radical Review', although not deemed radical enough by the incoming Conservative government proposed substantial cuts in the industry. What does seem clear is that a reassessment was taking place within the Corporation in the late 1970's and it was to a view of a future Corporation which had a greater chance of political backing under the new administration than under the old.

The difficulties in achieving Corporation objectives need also to be seen in the context of worker resistance; particularly to the closure programme and the uncertainty within the industry associated with changing work practices and the erosion of employment security. It is significant that BSC's perception of ISTC's power led it temporarily to withdraw its closure notice for Bilston in 1978 after the union had threatened a national stoppage over the issue, which stresses the critical role of perceptions of power and attitudes of the parties in industrial relations (Waddington 1987). Since 1980, the levels of organised conflict in steel and metals overall have declined rapidly illustrating that long and major conflict where success is achieved by management may well be followed by a period of relative industrial peace as one set of dominant workplace values is replaced by another (see Waddington 1987). To what extent this has occurred within BSC or, if it has to what extent these values are linked to the importance of the market and the Corporation's viability is debatable but it is clear that the labour process in the industry has been transformed (see productivity performance, especially at Ravenscraig in the mid 1980s) with the workforce and steel industry unions apparently powerless or unwilling in many instances to significantly influence outcomes.

Overall, the application of a circuit of capital approach together with our broader systems perspective would seem to have considerable value in accounting for the pattern of strike activity in Steel and highlights, as the analysis would suggest, the critical role played by management strategy and trade union and worker responses to these circumstances. Of particular importance is the fact that the strategy adopted by the Corporation and Conservative government in 1973 was extremely risky, depending as it did upon assumptions of a rapidly expanding market and resulting

economies of scale. The enormous capital requirements and financial outlay involved in the Plan imposed an immense burden after 1975 when the product market declined sharply. This commitment, with its associated level of fixed costs and escalating interest burden left BSC with no real alternative after 1975 other than to make cutbacks in the one area of variable costs which contributed to value-added, namely labour. Thus, the combination of its planning and the worsening market position made the attack on labour costs inevitable. The vigour with which this was pursued intensified as the pressure from governments to meet ever tighter borrowing limits became more acute.

STRIKE ACTIVITY AND CHANGING INDUSTRIAL RELATIONS SHIPBUILDING AND MARINE ENGINEERING

(1) INTRODUCTION

The shipbuilding and marine engineering industry permits a number of issues central to this study to be examined in depth. It has assumed an importance in studies of strikes as a classically strike prone industry in the same genre as coal-mining and the docks although such studies have tended to focus upon inter-industry strike activity rather than strike activity over time (Kerr and Siegal 1954, Cameron 1964). Furthermore, such explanations offered for the industry's strike record have tended to emphasise the significance of management and worker attitudes (Geddes 1966, CIR 1971, Barnett 1986) and the role of trade union structure and organisation (Cameron 1964). Indeed the system of industrial relations has frequently been attacked as a major factor in the industry's declining fortunes being variously described as 'guerilla warfare' (McGoldrick 1983) or, simply as a 'jungle' (Ferry*). The industry's performance generally and its industrial relations in particular have also been the focus of increasing political concern throughout the period with state financial assistance in the early 1960s, investigations initiated by state agencies leading to reports in 1966 (Geddes, which gave rise to the Shipbuilding Industry Act), 1971 (CIR and Hill Samuel) and 1972 (Booz-Allan), with ever increasing amounts of financial support going to a few particularly ailing companies, culminating in nationalisation in 1977.

Background

To appreciate the post-war performance of the shipbuilding industry and its associated pattern of industrial relations and strike activity it is necessary to briefly describe how the position in the late 1940s had emerged.

In the late nineteenth century ship construction moved increasingly towards iron and steel and away from wood which in turn required changes in both the human and technical aspects of building and led to the emergence of groups of workers with specialist craft skills working on specific aspects of ship construction. The late

nineteenth century also witnessed the development of a clear skill differentiation and hierarchy in the industry (McGoldrick 1983) and a further distinction between those deemed to be skilled (normally the steel trades) and those unskilled (e.g outfitters). As ships became more sophisticated in the early part of this century these crafts proliferated, with each skill defending its corner of the production process with 'the tenacity of a medieval power defending his rights within the village common field' (Barnett 1986: 109). The same author concluded that one consequence of the early development of shipbuilding was that a welter of different craft unions emerged with a destructive effect on productivity as a result of the rigid demarcations between them. Overall, he argued that

Britain entered the Second World War....with a shipbuilding industry that was a rusting, patially dismantled and partly unmanned hulk of essentially Victorian technology: and on the whole, no less rusting were its management and workforce and their operational methods (1986: 112)

However, as Reid (1991) has stressed, the role of employers in retaining a commitment to the general features of craft production was critical, despite their condemnation of union restrictive practices. Rather, the latter were a direct result of employer wishes to give work to groups of workers with high levels of manual skills and their failure to develop an adequate system of supervision or incentive payments. Contemporary accounts identify these and other concerns well. The Barlow Committee Report of 1942, whilst airing anxieties over the general complacency in the industry, slackness of work and general reluctance to work overtime, also pointed to the legacy of the unemployment of the 1930s (60% between 1932 and 1933 McGoldrick 1983) and the loss of skilled men to the industry. The subsequent technical survey by Bentham severely criticised the quality of management in the shipyards and the tendency to build an enormous variety of ships in each yard (a criticism made over twenty years later by Geddes) frequently with outdated machinery and equipment. The survey also pointed to inadequate planning in the yards symptomatic of a high degree of institutional inertia captured in Lithgow's description of the industry's 'worship of the status quo' (quoted in Barnett 1986). The extent of

concern in government circles led via the Shipyard Development Committee to a major capital investment programme so that the industry benefitted from much new machinery even if 'the technical and psychological shortcomings were still intact' producing a 'fossilisation of inefficiency' (Barnett 1986).

To a great extent these problems appear to have continued into the post-war period and provide an important backcloth against which the post-war experience must be seen. Shipbuilding has and continues to be male dominated with a very high percentage of workers designated as skilled (approximately two-thirds for most of the period) based around clearly defined crafts represented by a large number of separate and organisationally strong trade unions. Within these crafts the so-called 'black-squads' (steel-working trades) have been the most powerful and amongst the most willing to protect their position and status in the industry. The division of labour which produced this plethora of crafts has proved extremely resistant to change, demonstrating a high degree of rigidity and formalisation (Brown et al. 1972) as well as reflecting considerable distrust between yard managers and workers (Geddes 1966, Lorenz 1991) and giving rise to a narrow sectionalism amongst workers in the industry (CIR 1971).

One legacy of these historical factors has been that shipbuilding has remained a craft industry (Brown and Brannen 1970) when counterparts in other countries were adopting modern methods of technology (Barnett 1986). This was due much to management choice given the concerns over the adequacy of available technology (especially in the inter-war period) and the fluctuations in product demand which characterised the industry (Reid 1991) and led it to the view that productivity improvements would come through people rather than new investment. Consequently the industry responded slowly to technical developments particularly those of pre-fabrication and unit assembly.

Attitudes and Industrial relations

Work by Brannen and Brown (1970) in the late 1960s suggested that the shipbuilding industry exhibited a number of important social characteristics which profoundly influenced the nature of worker attitudes and responses to management. They identified seven factors they believed were critical; the occupational diversity within the industry with up to 20 different trades involved in production, the elaborate socialisation of new workers via apprenticeships of up to five years for entry into skilled trades, and the fact that trade unions frequently operated pre or post entry closed shops from which they derived considerable power and control over critical aspects of the work situation were all seen as particularly important (by the end of the 19th Century, 17 unions organised the majority of skilled workers and the closed shop operated in the major yards (Lorenz 1991). They also stressed the market situation experienced by firms, operating in internationally competitive markets subject to significant short term fluctuations, the market situation of shipyard workers as different numbers in different trades were required at separate stages in the production process and finally, they emphasised the considerable degree of worker control and autonomy which existed in many shipyards and the apparent lack of alienation from work of those engaged in the industry. In a subsequent study the authors argued that these factors produced workers with their own sense of identity which influenced how they perceived and related to factors such as management policy (Brown et al. 1972). This appeared to be particularly true for the boilermakers who exhibited a strong sense of identity, with shared norms and values and with a deep commitment to the industry seeking improvements in it by attempting to change it rather than by leaving it (Brown et al. 1972). Indeed, for some groups within the boilermakers work opportunities outside the industry were often limited, increasing the incentive to improve conditions within it.

For much of the post-war period the boilermakers dominated industrial relations. In addition to being more numerous than other groups in the industry they occupied a strategic position in the process of ship construction, maintaining an effective pre-entry closed shop together with apprenticeships and were willing and able to take industrial action against management with union support in competition with other

occupational groups (Brown et al. 1972). In addition they were numerically the most important group within the Shipbuilding Industry Committee of the CSEU. Not only did the boilermakers achieve results vis a vis other groups but within this group there was a considerable hierarchy reflected in earnings, with production welders being particularly successful. Overall, Brown et al. suggested that;

The pattern of industrial relations is seen as the consequences, intended and unintended of different groups pursuing strategies which appeared most appropriate to their changing situations.

This extreme pursuit of sectional interests at local level meant that in the 1960s shipbuilding represented 'almost a paradigm case of the informal system of industrial relations identified by the Donovan Commission' (McGoldrick 1983: 213) and indeed

remained the key characteristic of the conduct of industrial relations until the late 1970s'. (McGoldrick 1983: 204).

Formally, industrial relations involved national agreements negotiated between the Confederation of Shipbuilding and Engineering Unions (CSEU) representing the main unions (over eleven in the 1960s) and the Shipbuilding Employers Federation (SRNA from the mid 1960s) covering wages and other general conditions. However procedures covering disputes dating from 1913 with subsequent amendments in 1943, and the 1912 demarcation agreement negotiated by the CSEU and SEF were not signed by the boilermakers unions. Despite changes made to the nature of national agreements in the 1950s and 1960s (see below) it was local bargaining which was most important with no principle on the timing and pursuit of claims. Indeed in the 1950s and 1960s some wage claims were being pursued at national, district and yard levels simultaneously (McGoldrick 1983). The position of national agreements in the industry is indicated by the Geddes view that the power of the CSEU was 'more moral than constitutional' (1966: para 354).

The predominance of local bargaining and the success of the boilermakers within that was largely a consequence of payments systems within shipbuilding. For much of the

period around 80% of those employed were on some form of payment by results system. Those employed on hull construction work including boilermakers were traditionally on piecework whilst outfitters were on time-work systems. Boilermakers were therefore the main initiators of bargaining over wages at local level because the system of payment provided the opportunities for bargaining which were duly exploited. This had two very important consequences, first local bargaining helped to produce a myriad of pay rates and allowances for certain groups and jobs all offering the potential for conflict if they were infringed and second, conflicts which arose did so at yard and district level, were frequently short and unofficial and were mainly concerned with wages (Cameron 1964, on strikes in the North East shipbuilding industry between 1949 and 1959).

Management it seems was willing to tolerate this system but an important distinction needs to be made between the role of the employers association and yard management. As we detail below, the SEF seems to have been acutely aware of the parlous state of the industry by the late 1950s and attempted to initiate changes to tackle the perceived weaknesses in the industrial relations sphere. In contrast management in the yards appears to have acquiesced in maintaining the 'traditional' division of labour leaving much of the major initiatives in the industrial relations arena to the association. The perceived inadequacies of yard management in the wartime period have already been noted but a similar story emerges from the P.E.P study conducted in the early 1960s (P.E.P 1965) and noted earlier where traditional industries, including shipbuilding were seen as those with a preponderance of 'sleepers' reacting to situations rather than adopting a more 'thrusting' pro-active approach to managing. This view also characterises the work of Aldcroft (1964) who emphasised the degree of managerial conservatism within the industry, although recent work (Lorenz 1991) has suggested that this conservatism, whilst prevalent had some basis in rationality given the inter-war experiences of most shipbuilders.

2) SHIPBUILDING AND MARINE ENGINEERING: THE STRIKE RECORD

Table 1 documents the main dimensions of stoppages for the period 1948-1982. The first point to make is that they do not conform to the pattern in the rest of engineering or indeed most other industries. In the 1950s shipbuilding and marine engineering was the most strike-prone industry in the UK outside of coal-mining with stoppages typically small, local and unofficial* (Cameron 1964, Geddes 1966, CIR 1971). Significant peaks in strike numbers occurred in 1951, 1955 and 1958 with a general trend increase after 1953, but it is the period from 1964 to 1975 which experiences the major phase of strike activity with correspondingly high levels of workers involved between 1968 and 1974 and working days lost between 1970 and 1975. These phases do reflect strike trends elsewhere but the peaks are different; 1968 for stoppage numbers and workers involved and 1972 for days lost with 4.2 days lost for every employee. It is also noticeable that the days lost series increased after 1952 and particularly between 1956 and 1962 due much to the predominance of certain forms of non-pay stoppage such as demarcation which tended to be longer than disputes over pay (Cameron 1964).

An alternative approach to examining these statistics is to divide them according to the periodization employed by DMR (1983) with two additional phases representing the period up to nationalization and the years following nationalization up to and including 1982. These are detailed in Table 2 overleaf.

This periodization does not conform exactly to the phases of high/medium/low strike incidence in the industry but does illustrate variations and movements in the overall series. The high working days lost figures for the 1953-59 period is due much to two national stoppages in 1953 and 1957 although days lost did increase after 1956. Finally, table 3 breaks down the strike dimensions by cause and adjusts the figures by employment. Detailed industry data on strikes by cause were only published from 1959 and so the table covers the period from 1959-82.

*Defined as disputes arising without official trade union backing

TABLE 1**STRIKE ACTIVITY IN SHIPBUILDING AND MARINE ENGINEERING****1948-1982**

YEAR	STRIKES	WORKERS INVOLVED	DAYS LOST
1948	78	20200	237000
1949	57	14000	250000
1950	45	10800	53000
1951	103	14600	73000
1952	61	13500	87000
1953	52	143100	206000
1954	63	16100	521000
1955	94	16100	122000
1956	78	49100	324000
1957	74	188500	2328000
1958	97	22100	336000
1959	85	24100	324000
1960	74	40300	387000
1961	91	64200	388000
1962	78	322800	465000
1963	66	15300	103000
1964	91	64200	388000
1965	129	29300	165000
1966	84	8400	31000
1967	96	24500	153000
1968	134	51700	356000
1969	89	50200	192000
1970	121	40200	410000
1971	83	40500	563000
1972	64	53800	796000
1973	67	26700	268000
1974	87	57000	693000
1975	63	34100	509000
1976	40	22100	62000
1977	43	18500	163000
1978	44	17900	163000
1979	42	49200	301000
1980	27	13600	194000
1981	28	60800	230000
1982	30	80900	124000

Source: Employment Gazette 1951-1983

TABLE 2**STRIKE ACTIVITY IN SELECTED PERIODS: AVERAGE ANNUAL DATA**

YEARS	NUMBER OF STRIKES PER YEAR	WDL PER '000 WORKERS
1949-1952	66.5	273
1953-1959	77.6	1929
1960-1968	93.7	1061
1969-1973	84.8	2299
1974-1977	58.3	1921
1978-1982	34.2	1037

Source: DMR for years 1949-1973, Employment Gazette for 1974-1982

From Table 3 it is clear that strikes over pay were frequent between 1964 and 1974 with similar trends occurring for non-pay disputes but the workers involved series for pay and non-pay tend to diverge. Workers involved in pay disputes reach their highest levels in 1962 and between 1968 and 1974 (particularly 1968-1970) but in non-pay disputes there is much more variation although the tendency is for them to fall from the late 1960s to 1978 and to increase thereafter. Finally, the high levels of days lost in the period 1970-1975 is almost entirely attributable to pay disputes with days lost in non-pay disputes showing no clear phases but maintaining very low levels between 1970 and 1976.

TABLE 3**STRIKE ACTIVITY BY CAUSE**

YEAR	PAY STOPPAGES			NON-PAY STOPPAGES		
	S	WI*	WDL+	S	WI*	WDL+
1959	12.05	1.27	1.17	17.2	3.86	9.99
1960	14.7	11.44	13.1	11.84	1.0	0.75
1961	21.26	4.06	10.44	13.29	18.07	4.4
1962	14.78	121.8	14.5	16.37	4.07	3.99
1963	16.98	1.65	3.4	13.02	2.95	1.16
1964	24.1	6.2	4.4	18.05	2.73	2.64
1965	39.87	6.65	4.7	12.25	4.12	2.84
1966	20.13	1.31	0.66	19.20	1.83	0.8
1967	29.32	4.86	2.93	16.83	6.25	4.42
1968	44.07	18.9	7.09	23.81	5.17	12.3
1969	26.71	13.96	4.33	18.15	6.6	4.03
1970	45.73	10.9	19.09	15.07	4.92	1.5
1971	26.48	8.1	27.46	22.61	4.67	1.77
1972	21.82	19.56	41.84	12.47	2.63	0.75
1973	15.51	5.67	13.69	20.32	3.53	1.55
1974	31.3	16.68	37.18	15.65	2.97	2.05
1975	19.02	5.92	23.48	15.22	3.04	1.47
1976	8.1	4.92	2.27	13.52	1.68	1.14
1977	11.43	2.57	3.14	13.14	2.17	6.11
1978	16.57	8.8	6.1	8.57	1.43	3.2
1979	13.64	18.47	14.66	10.23	9.49	2.44
1980	10.22	4.57	8.79	8.18	4.7	4.43
1981	6.35	2.4	4.79	13.38	40.45	11.42
1982	9.6	50.99	5.62	12.57	8.79	3.55

Source: Employment Gazette 1960-83 for strike data and employment.

S is strikes per 100000 employees.

WI* is workers involved per 10000 employees.

WDL+ is working days lost per 1000 employees.

(3) STRIKE ACTIVITY IN SHIPBUILDING AND MARINE ENGINEERING: EMPIRICAL RESULTS.

In this section the results of econometric work undertaken on stoppage activity in the period 1950-80 and for 1959-82 are detailed. In the analysis of the period 1959-82 it was decided to dispense with the trade union variables and the time trend employed in the longer period analysis. In the case of the trade union variable the Bain and Price series was used, which applied to metals and engineering as a whole and did not reflect the consistently higher levels of trade union density prevailing in shipbuilding and marine engineering for the entire period of the study. The inclusion of a time trend raises problems of interpretation and arguably does little to enhance understanding of the determinants of stoppages (Mayhew 1979).

A range of variables was tested in the equations but political factors were again found to be insignificant and both the industry unemployment rate and the level of output failed to achieve significance. Overall, both equations performed poorly for time series studies and the best results, obtained with the addition of a time trend were achieved at the expense of the other variables, with only the rate of change of output remaining significant. However, even with the time trend included the coefficient of determination rose to 0.68, and the F value to 8.5, both considerably below the results obtained for the other industries in the sector.

Although a lower value for the coefficient of determination could be expected for the industry, the results obtained and the poor performance of the mix of variables is very striking. The structure of trade unionism and strike causes attributed to this are obviously an important factor in the results but these results are also symptomatic of a relatively closed industrial relations system, insulated for much of the period from the wider environment characterised by the predominance of adversarial relations between management and unions and between unions.

STRIKE ACTIVITY: SHIPBUILDING AND MARINE ENGINEERING
1950-1980

Variable	Equations	
	(a)	(b)
Constant	62.0	12.9
U	- 2.57 (2.18)	- 8.7 (3.7)
Y.	+ 1.5 (2.56)	
Y/N	- 0.83 (1.56)	
TUD		+ 0.985 (2.36)
#/P	- 0.28 (4.97)	- 0.197 (3.76)
SDE	9.2	9.29
F	7.55	9.35
R2	0.537	0.509
D.W	2.07	1.724

Notes: U; aggregate unemployment, percentage unemployed: Employment Gazette.
Y. rate of change of output, calculated from Annual Abstract of Statistics.
Y/N; rate of change of labour productivity in industry. Output from Annual Abstract
divided by employment from Employment Gazette. TUD; trade union density, Bain
and Price (1980) #/P; level of real profit in industry.

MEANS and STANDARD DEVIATIONS for variables are as follows: U, 2.832 and 1.66. Y. -0.944
and 5.68, Y/N, 1.362 and 5.5. TUD, 59.57 and 9.532. #/P, 63.46 and 34.625.

An encouraging result is the performance of the rate of change of output and the level of real profits. The significance of the rate of change of output, rather than its level, is the consequence of the nature of work within shipbuilding. It is characterised by a predominance of one-off, bulk contracts and a lack of orders would have a very severe impact on the amount of work available. The positive coefficient on the variable implies that new orders create rising expectations and greater confidence and these may give rise to more ambitious demands for pay etc. Such a situation is likely to increase the possibility of strike action, if employers believe that orders will reduce in the future thus making them unwilling to concede to trade union demands. Furthermore, by highlighting the fluctuations in output it focuses attention upon the employment and earnings insecurity in the industry, and may explain why short-term thinking appears to have dominated decision-making in the industry (P.E.P 1965) so that a form of 'rational' economic opportunism prevails (Lorenz, 1991).

The real profits variable appears as the most significant of the variables employed and is negatively related to stoppage activity. As with the aggregate results this suggests that employers share the benefits of profitability with their employees and, given the market power apparently possessed by the industry for at least part of the post-war period, their ability to share such profits was considerable. In addition, when the relative uncompetitiveness of the industry was exposed in the 1960s and 1970s and profits began to fall sharply, strike activity did not respond accordingly, again indicative of the prevalence of attitudes fashioned out of the deeply entrenched traditions within the industry. Finally, accepting the qualifications made above, trade union density is again significant and appears to exert a strong positive influence on stoppage numbers. Given the consistently high levels of density within the industry in the post-war period the failure of the trade union growth variable, to achieve significance is understandable.

1959-1982

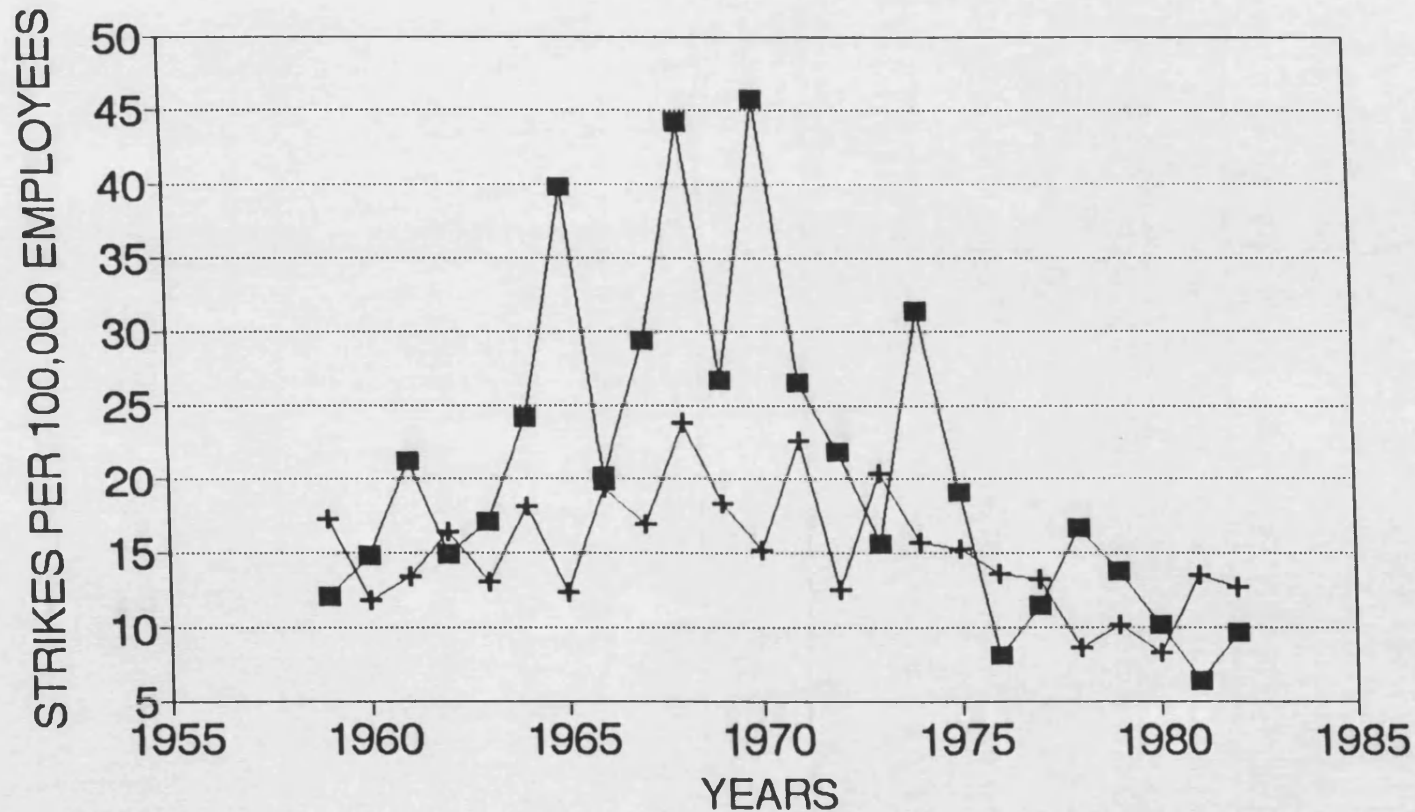
Pay Stoppages

The results described in the table below represent those from the equations which accounted for the most variation in the dependent variable. All the equations used included a combination of aggregate, labour market and product market variables together with dummies to identify the effect of procedural changes in the industry. The best of these accounted for around 70% of the variation in pay stoppages. The qualification about the results in view of the limited number of observations should again be noted.

The aggregate unemployment term (though not industry unemployment) was consistently significant in the equations and exerted a strong negative impact on the number of disputes. Similarly the dummy variable for the years 1967-70 was significant in equation (2) and was included to take account of the post-Geddes rationalisation of the industry and the impact of productivity agreements being negotiated at the time (see below). The rate of change of output was also significant (equation (2)) at least in the absence of the disputes procedure dummy, with the real profit variable approaching significance in the same equation. In contrast, the real and nominal earnings variables were insignificant in all equations, a finding which is discussed more fully below. Overall, aggregate and local product market variables, together with the effect of internal reorganisation account for a large part of the variations in pay stoppages with industry specific labour market conditions exerting a limited influence (cf Parkinson 1960, Cameron 1964). However, it is the contention here is that changes in internal pay relativities were critical influences upon strike activity at certain points and that the external labour market exerted a significant impact on the conduct of industrial relations through its impact on worker attitudes. This is developed further in the second part of the chapter. The record of pay and non-pay strikes in the industry from 1959-1982 is detailed in the figure overleaf.

STRIKES PER 100,000 EMPLOYEES

SHIPBUILDING AND MARINE ENGINEERING



(Source: Strikes and Employment
Employment Gazette)

—■— PAY STOPPAGES —+— NON-PAY STOPPAGES

STOPPAGES: 1959-1982

Pay Stoppages per 100000					Non-Pay Stopps p 100000		
Variable	1	2	M	SD	3	4	5
Constant	31.8	31.6			15.58	15.15	16.3
U	- 2.09 (2.26)	- 1.52 (2.8)	4.04	2.89	+ 0.55 (1.47)	+ 0.55 (1.47)	
Y.	+ 0.64 (1.63)	+ 0.73 (2.1)	- 2.84	4.52	+ 0.16 (1.0)		+ 0.17 (1.07)
#/P	- 0.12 (1.59)	- 0.01 (1.67)	42.7	25.6			
67-70	+ 8.87 (1.89)	+10.35 (2.35)					
Pt-1			8.1	6.09	- 0.27 (1.62)	- 0.29 (1.83)	- 0.15 (1.05)
DP	+ 4.6 (1.17)				+ 6.66 (3.05)	+ 7.78 (4.14)	+ 7.48 (2.34)
DA					- 5.06 (2.14)	- 5.46 (2.34)	- 5.84 (1.76)
NAT	+ 4.4 (0.55)						+ 3.55 (1.0)
SDE	6.78	6.68			2.83	2.83	2.92
F	7.13	10.66			5.55	6.68	5.03
R2	0.715	0.69			0.61	0.58	0.58
D.W	2.6	2.5			3.1	3.0	2.9

With U = aggregate unemployment;

Y., the rate of change of industry output;

#/P, the level of real profit;

67-70, a dummy variable for the years 1967-70;

DP and DA, dummy variables to represent the introduction of the 1967 Disputes procedure and 1969 Demarcation Agreement respectively;

Pt-1, price inflation lagged one year;

NAT, a dummy variable to account for Nationalisation and a new disputes procedure operative in a full year from 1978).

Figures in brackets are t statistics.

The results for aggregate unemployment would appear to confirm the view that general movements in demand have a direct impact on the willingness of groups to engage in industrial action. However, it is not clear why an industry with such an apparently 'closed system' of industrial relations should be so affected by changes in aggregate unemployment particularly as its impact on non-pay stoppages is so limited (see below). Furthermore, it has remained a strong contention that whilst certain groups such as boilermakers had limited job opportunities and would seek to try and change conditions within the industry other groups could find work relatively easily (Parkinson 1960, Cameron 1964, Brown and Brannen 1970). This would suggest that any fall in aggregate demand as reflected in a rise in aggregate unemployment would be more likely to affect these latter groups rather than boilermakers and that in any event the critical variable might be changes in the rate of unemployment within a particular locality rather than aggregate unemployment.

The results for the dummy variable 1967-70 are particularly interesting, though care is needed in their interpretation. Whilst strike activity was increasing elsewhere, in shipbuilding and marine engineering a number of industry specific changes were occurring in the wake of Geddes and the 1962 National Pay and Conditions Agreement which suggest a direct impact on the industry's industrial relations. Following the Geddes recommendations, new shipyard groupings were formed involving closures and the merger of yards with very different management structures, traditions and industrial relations practices. It is likely that one effect of these changes was to 'widen the orbits of comparison' for workers in the industry by allowing exposure to a variety of different work practices, payment systems and general pay and conditions prevailing in the different yards. The impact of the new disputes procedure in 1967 may also have exerted an impact on pay stoppages (but see discussion below) and it is interesting that in equation (1) the 1967-70 dummy is insignificant when run alongside the disputes procedure variable. Finally, the period 1967-70 is also characterised by increasing state support and initiatives to aid the industry and specific companies in particular and may have engendered the view amongst workers that 'strikes pay'.

The results for the rate of change of output confirm those for the longer period and would be expected in an industry characterised by 'one-off' large scale projects where cancellations or lack of orders would have a very significant impact on those working in it. The profits variable, significant in the longer period, does not achieve significance for the period after 1959 implying that it is in the period up to 1959 when the impact of profits is important for pay stoppages. It is notable that this earlier period is one of profitability for the industry and supports the view that in the 'boom years' managers were prepared to share profits with their employees. However, the background to the 1957 national dispute suggests that this applied until employers perceived that prosperity would not last (Clegg and Adams 1957). After this point the association between profits and strike activity remains but, in an era of largely declining profits, it fails to achieve significance. In addition it is likely that the impact of the profits variable was 'swamped' by other changes taking place after the turn of the decade which lessened its impact for employees.

Non-Pay Stoppages

For non-pay stoppages a combination of nine variables comprising aggregate, product, labour market and procedural dummies were used to account for variations in the dependent variable, the equations are detailed in the table above as equations (3), (4) and (5).

The first point to note about the results is that the equations have less explanatory power than those for pay stoppages with the equations cited accounting for around 60% of the variation in stoppages. However, an important finding is that the two dummy variables (disputes procedure and demarcation agreement) are consistently significant with the lagged price inflation term as the other variable approaching significance in the equations.

The price inflation result in equation (4) implies that low rates of inflation are associated with a higher number of non-pay stoppages. Whilst this is a plausible result it assumes that pay becomes less of an issue in periods of low inflation (or that there are fewer pay stoppages at such times, but price inflation does not appear to be

associated with more strikes over pay in the industry. Indeed pay and non-pay strikes are positively correlated in shipbuilding for the period). The result may also suggest that in periods of low or high inflation workers can secure what are deemed to be appropriate pay increases without recourse to strike action although the evidence suggests that the major periods of pay stoppages have coincided with high and rising inflation. Assuming that what appears to matter more to workers in pay disputes and especially periods of inflation is relative pay the finding that high inflation reduces concern over non-pay issues whilst low inflation increases such concern may not be surprising. In an environment of high inflation it would be expected that a traditional concern with pay relativities might be relaxed in order to push for rises to maintain high nominal earnings increases just to preserve living standards. At such times workers would be expected to devote more time and resources to the maintenance of living standards rather than pursue non-pay issues with any degree of conviction. Conversely, in periods of low inflation the ability to extract concessions on pay may be relatively easy without resort to strike action and may tend to focus attention on the pursuit of non-pay issues.

In contrast to pay stoppages, the aggregate unemployment term (as well as the industry unemployment variable) remained insignificant in all equations although the coefficient was positive. The latter point is important as it suggests that the effect of unemployment strengthened the resistance to the undermining of job security, particularly as such periods are frequently associated with attempts by management to change working practices, and it is probable that unemployment may exert a significant impact on certain forms of non-pay stoppage such as demarcation (see Parkinson 1960, Cameron 1964).

The results for the two dummy variables imply that the 1967 disputes procedure increased the number of non-pay disputes whilst the 1969 demarcation agreement reduced the number. However, there are difficulties in interpreting these results. The impact of the disputes procedure seems to have been to raise disputes generally in the industry (cf CIR 1971) and it is significant that after Nationalisation a new procedure was introduced. Evidence suggests that the procedure was often delayed

by managers and adherence to it rather piecemeal in some yards (Ferry*, McGoldrick 1983). Nonetheless its introduction at a time of substantial change in the industry needs to be borne in mind and the results may be picking up the effects of these. Indeed it may be that the number of disputes would have been even greater in the absence of such procedures (Blanchflower and Cubbin 1986). In the case of the demarcation agreement it should be remembered that this was introduced at the time of the full integration of the various components of the Amalgamated Society of Boilermakers and it is likely (see CIR 1971) that this had an impact on the reduction of disputes over demarcation. The 1969 agreement therefore appears to have had an impact on reducing stoppages but it is difficult to isolate its precise effect given the changes in union structure.

Overall, variations in the number of non-pay stoppages appear to be significantly affected by procedural changes, with aggregate, product and labour market factors exerting a relatively minor influence, although disputes over demarcation appear to be associated with changes in local unemployment (Parkinson 1960, Cameron 1964). This contrasts with pay stoppages where aggregate and local product market factors appear to be more important determinants of stoppage numbers. Furthermore, the fact that local product and labour market factors appear not to be important determinants of non-pay stoppages and the fact that 40% of the variation in such stoppages remain unexplained by the variables employed suggest that factors internal to the industry are of critical importance. These would include changes in trade union structure and organisation and the changing nature of the labour process. It is significant that non-pay disputes were high in the late 1950s and from 1966-73 when employer attempts to reduce employment, and in the latter period, reorganise and rationalise were at their peak. The resurgence of such disputes in the period after nationalisation can also be linked to greater job insecurity through actual and threatened redundancies.

Strike Activity: Workers Involved and Working Days Lost

In order to test for the impact of the variables on the other main dimensions of stoppages equations were run for workers involved and days lost adjusted for employment for both pay and non-pay disputes. In the case of workers involved, for pay stoppages none of the variables employed was significant and even when run with eight variables (U , U_i , Y ., $Et-1$, $Pt-1$, $\#P$, DP and the 1967-70 dummy) these only accounted for 24% of the variation in workers involved. However, for non-pay stoppages three variables were consistently significant and accounted for 45% of the variation in the dependent variable. The results are documented in the table overleaf in equation (1). The aggregate unemployment term exerted a strong positive influence on workers involved presumably because unemployment changes have a general effect on workers (although affecting them disproportionately) and as a proxy for the general state of demand can be assumed to influence management in resisting concessions. Also, in periods of high unemployment management can be expected to try and push through changes as pressure to cut costs is greater but also because the bargaining power of workers can be expected to have been weakened.

The lagged earnings term, implying that rising earnings in the previous year increase the days lost in the current year can be interpreted as satisfaction with one area of a job leads to a focus on other areas. For management an increase in earnings in one period may increase their willingness to try and cut costs via e.g redundancies and manning requirements in the following period particularly if pay increases are associated with an increasing wage bill as was the case in shipbuilding (see table below). The result on the lagged price term also points to lower inflation or falling inflation in one period increasing the willingness of those to try and secure greater improvements in other areas and is consistent with the result for non-pay stoppages. Taken together these terms could imply that increases in real earnings in a previous year increase days lost in non-pay disputes in a subsequent year a view which is consistent with the satisfaction argument and the management resistance view. In contrast to these results it must be stressed that neither the dummy variable for the demarcation agreement nor that for the 1967 disputes procedure were significant.

Equation (2) for working days lost in pay disputes shows that together the five variables accounted for 59% of the variation in days lost. An important finding from the results is again the strength of the procedural variables with the impact of the 1967 disputes procedure and that of nationalisation/new disputes procedure being to significantly increase the number of days lost. In the case of the latter variable it should also be borne in mind that changes in the structure of collective bargaining were also taking place with moves by British Shipbuilders towards company bargaining in the late 1970s which would be expected to contribute to an increase in the size of disputes (Clegg 1976, 1979). The procedural results can be interpreted in terms of the fact that there may be a tendency for procedural reform to lead to a resolution of a number of issues which might previously have become disputes (but see above) and for the more intractable items to lead to conflict which, by their nature would be more difficult to resolve (Edwards 1983).

STRIKE ACTIVITY: 1959-1982

EQUATIONS: RESULTS FOR WORKERS INVOLVED AND DAYS LOST

Variable	Mean	SD	WORKERS INVOLVED	WORKING DAYS LOST	
			NON-PAY (1)	PAY (2)	NON-PAY (3)
Constant			2.68	9.09	2.25
U	4.04	2.89	3.27 (3.85)		0.61 (1.8)
Et-1	8.717	6.816	0.67 (2.28)	0.56 (1.8)	
Pt-1	8.1	6.09	- 1.33 (2.65)	- 1.66 (3.27)	
67-70				- 14.8 (2.84)	
DP				22.9 (4.44)	8.5 (3.19)
DA					- 10.8 (4.0)
NAT				16.14 (2.47)	8.3 (2.36)
SDE				8.12	2.53
F				5.09	4.78
R2			0.45	0.59	0.50
D.W				2.58	2.2

Sources: As above.

Et-i; percentage change in average gross weekly earnings lagged one year.
Employment Gazette.

Turning to other results from equation (2), the 1967-70 dummy clearly operates to reduce the number of days lost in pay disputes. It would seem that the increase in pay disputes which arose in this period from rationalisation and productivity deals did not generally result in an increase in days lost and that rather, these disputes were resolved relatively quickly. From a management perspective it still appears to have been easier to concede quickly in the event of a strike over pay. In the new groupings, such disputes by involving a greater number of workers would have been more costly and in the context of wanting to effect change as quickly and as painlessly as possible the willingness to 'give in' in the face of a stoppage was significant. Although the 67-70 dummy is not significant for workers involved the evidence in table 3 shows a clear increase in workers involved in pay disputes in this period.

Finally, the lagged earnings term (which approaches significance) and the lagged price term require some explanation. The result for earnings suggests that increases in nominal earnings in the previous year are likely to increase days lost in the subsequent year whilst low/falling inflation in the previous year will tend to increase days lost in the next year. The earnings term might be explained by reference to the fact that if management concedes significant increases in one year they will be more resistant to such increases the next and more prolonged disputes might result. On prices high price inflation in one period appears to reduce days lost in the next, this result is surprising particularly bearing in mind the experience of high days lost in pay disputes in the industry in the early 1970s where high inflation appears to have contributed to disturbing differentials and 'leapfrogging' pay claims (see below). The result might be a consequence of what was happening in the 1950s and 1960s when real earnings were being maintained and, at least in the 1950s, profits were still being earned. Low or falling inflation in one year might have led to an increase in business confidence in the future and have increased management willingness to concede pay increases without recourse to protracted stoppages.

The results for days lost in non-pay stoppages have a relatively low explanatory power although with the addition of the nationalisation/disputes procedure variable this is improved and equation (3) overall accounts for around half of the variation in days lost. However, the inclusion of the nationalisation term reduces the power of the unemployment variable which falls to an insignificant level suggesting that whilst the dummy variable does contribute to days lost through corporate bargaining and the new disputes procedure it may also be affected by the steep rise in unemployment after 1979 given that the unemployment term suggested a strong upward influence on days lost. Certainly increasing concern over redundancy in the industry in the late 1970s led to a number of prolonged disputes (e.g at Robb Caledon in 1981). It is likely that the fear of unemployment coupled with management insistence on redundancies led to lengthy disputes but that these were compounded by bargaining and procedural changes which tended to make such stoppages larger (but see above) and lengthier.

ECONOMETRIC RESULTS: Summary and Conclusions

In terms of pay stoppages, changes in aggregate unemployment significantly affect both the number and duration of such disputes as does the industry's internal reorganisation of the late 1960s. changes in product market conditions also exert a significant influence upon the number of disputes, reflecting the cyclical nature of disputes in the industry and its impact on those who work in it. However it is procedural changes which appear to have a key influence upon days lost, although in the case of nationalisation this may be due to changes in the structure of collective bargaining with moves towards company bargaining in the late 1970s under the newly constituted British Shipbuilders.

For non-pay disputes procedural variables exert the major influence on both the number and days lost series with aggregate economic and industry labour market variables influencing the workers involved series. The results for both pay and non-pay disputes give considerable support to the underlying theoretical model in arguing for a combination of variables including economic, political and procedural in accounting for movements in stoppage dimensions. More specifically the results

give credence to an 'institutionalist' or 'refined institutionalist' account of strike activity such as that developed by DMR (1983). Procedural variables are important influences on both the number and the days lost in stoppages (especially those aside from pay), but as DMR show their effect is not necessarily to reduce stoppage numbers or to increase days lost (cf Clegg 1979). The effect of the 1969 demarcation agreement was to depress the main dimensions of non-pay stoppages (although this needs to be seen alongside associated changes in trade union organisation which almost certainly contributed to a decline in such disputes). In contrast, the results for the 1967 disputes procedure for both the number of workers and days lost in pay and non-pay disputes was to increase them. Although in the absence of these procedures the volume of strike activity might have been even greater. The reasons for the apparent increase appear to lie in the way the agreement was implemented in certain yards, the fact that it was introduced at a time of widespread change in the industry and when a number of substantive issues were under discussion and unresolved. This last point would support the view of DMR (1983) that procedural reform is unlikely to meet with success where substantive issues are still unresolved. This is consistent with the view that the groundswell of feeling about pay and pay relativities was such that it could not be contained under the revised procedural arrangements even if such procedures did reduce overt conflict to a level below that which would have otherwise existed.

Although the absence of data prevented an examination of the direct impact of trade union influence and collective bargaining structures it is clear that trade union structure and organisation in conjunction with highly decentralised bargaining have played a key role in the industry's strike proneness and in changes in strike frequency over time (Geddes 1966, CIR 1971). In particular, the changes that took place within the ranks of the boilermakers in terms of the increasing significance of welders contributed to greater strike propensity in the 1950s and 1960s both in terms of pay and non-pay stoppages. Similarly the inter-union changes following the amalgamations in the 1960s are argued to have had an impact on reducing non-pay stoppages in the late 1960s and early 1970s (CIR 1971, Booz-Allan 1972).

Together, the factors identified above are seen as having a major influence upon short-term movements in strike dimensions with political and procedural variables exerting an additionally longer-term impact. However, with the exception of the 1967-70 dummy, the econometric analysis largely fails to account for periods of heightened conflict which persist for a number of years in the industry. In order to examine these periods in more detail the final part of this paper analyses these periods in terms of employer and State responses to industrial change and contradictions in the circuit of capital facing the industry.

(4) STRIKE ACTIVITY, INDUSTRIAL CHANGE AND THE CIRCUIT OF CAPITAL 1950-1980

The previous section detailed a number of influences upon short and long-term variations in strike activity emphasising in particular the role of local and aggregate economic factors together with procedural changes. The circuit of capital approach attempts to uncover initiatives by both employers and the state to resolve contradictions in the industrial circuit in order to account for longer term movements in strike totals. The approach examines movements in and interactions between the three elements of the circuit, product market, labour market and labour process and critically the ways in which contradictions which emerged between these were dealt with by the parties involved.

The table overleaf relates changes in the main dimensions of strike activity to movements in the elements comprising the circuit of capital. In operationalising the circuit the following variables have been used; the level of output to indicate the product market position, the real wage bill and real wage bill per unit of output to denote the labour process and the level of industry unemployment and changes in employment to capture the labour market situation. In addition use has been made of labour's share in value added to give an indication of the combination of the three sets of influences.

TABLE 4**STRIKE ACTIVITY AND THE INDUSTRIAL CIRCUIT OF CAPITAL**

YEAR	S	WI	Y	NP	WB/P	WB/P/Y	VA	Ui
1950	16.98		93.5	23.6	141.1	150.9		5.3
1951	38.48		96.2	18.9	136.7	142.1		3.5
1952	23.03		99.2	21.0	143.3	144.5		3.1
1953	18.94		105.1	25.2	147.9	140.7		3.4
1954	23.35		100.0	24.7	150.5	150.5		3.5
1955	34.28		108.5	28.2	158.4	146.0		2.3
1956	27.67		117.4	26.9	162.6	138.5		1.7
1957	26.44		107.9	28.0	168.2	155.9		4.2
1958	36.10		108.8	24.1	160.6	147.6		4.4
1959	29.27	5.13	101.8	20.0	153.3	150.6		5.5
1960	26.54	12.44	92.3	11.9	151.8	164.5		4.6
1961	34.55	22.13	93.2	11.5	152.0	163.1		4.9
1962	31.15	125.87	94.2	3.7	143.2	152.0		4.5
1963	29.5	4.60	84.2	0.0	130.6	155.1	85.5	10.1
1964	42.15	8.93	81.5	0.9	134.4	164.9	-	5.9
1965	59.12	10.77	80.5	3.3	142.0	176.4	-	3.3
1966	39.33	3.14	80.4	0.8	143.9	179.0	-	2.7
1967	46.15	11.11	80.9	3.9	142.6	176.3	-	4.2
1968	67.88	24.07	82.7	5.2	139.6	168.8	76.5	5.1
1969	44.86	20.56	82.5	9.2	141.4	171.4	-	4.2
1970	60.8	15.82	87.0	6.7	150.6	173.1	81.8	5.4
1971	43.09	12.77	84.0	7.3	155.5	185.1	81.7	4.9
1972	34.29	22.19	79.9	9.1	154.8	193.7	76.1	6.3
1973	35.83	9.20	82.7	9.4	161.3	195.0	104.0	4.4
1974	46.95	19.65	86.0	1.8	170.5	198.3	110.6	3.5
1975	34.24	8.96	86.1	- 15.5	176.1	204.5	102.3	3.8
1976	21.62	6.60	84.0	0.1	174.5	207.7	97.2	4.6
1977	24.57	4.74	81.3	35.5	156.5	192.5	87.3	4.0
1978	25.14	10.23	75.2	2.2	170.6	226.9	110.7	4.9
1979	23.87	28.96	67.9	- 22.2	153.4	225.9	83.2	5.6
1980	18.40	9.27	60.2	- 8.9	139.1	231.1	89.0	8.2

Sources: S, strikes per 100000 employees; WI, workers involved per 10000 employees; WDL, working days lost per 1000 employees; Employment Gazette various issues.

Y; Index of level of output, Annual Abstract of Statistics.

NP; Real Net Profit, in £ millions: profit figures from CSO Blue book National Income and Accounts, deflated by RPI, Annual Abstract of Statistics using 1959 as base year

Index of Real Wage Bill and Real Wage Bill per unit of output, wages and salaries from CSO Blue Book National Income and Accounts deflated by RPI, Annual Abstract of Statistics.

Data on earnings and employment from Employment Gazette, data on prices from Annual Abstract of Statistics.

VA, Labour share of value added; CSO Blue Book National Income and Accounts. Wages and Salaries divided by industry contribution to GDP at factor cost. Industry Unemployment data and changes in employment in thousands; Employment Gazette.

A number of clear trends are discernible from the table although the critical issue for the circuit of capital approach and its relationship to strike activity is how these trends and contradictions within the circuit were acted upon by the parties involved and it is this issue which forms the basis of the remainder of the paper. However, a number of general points will be made here. First, the background to the strike experience of the post-war period is a steadily worsening product market position evidenced by a severe decline in output in the late 1950s and early 1960s and again after the oil crisis of the 1970s, which is reinforced by the UK industry's falling share of world trade and reflected in the collapse in profitability after 1957. Second, changes in the real wage bill reveal a significant decline after 1956 but an increase after 1963, and the fact that this increase was not generally matched by productivity improvements particularly after 1968. This would support the view that such labour process changes as occurred were slight in terms of raising productivity (e.g via greater flexibility and interchangeability) and controlling labour costs and that it was the persistence of a particular division of labour which hampered attempts to raise productivity (McGoldrick 1983). This said, the combination of these product and labour process issues, would appear to have eased somewhat towards the end of the 1960s as labour's share of value added declined with the reduction in employment of over 105000 between 1958 and 1969, and profits rose after 1966. Third, in terms of the labour market a number of forces appeared to operate. One factor not revealed in the figures was that in the late 1950s and early 1960s employers had difficulty recruiting certain skilled workers (McGoldrick 1983) a problem compounded by the maintenance of strict manning ratios by the boilermakers. In addition, whilst unemployment remained low for much of the period up to the late 1970s the shedding of significant amounts of labour in the period 1957-63 and again in 1966-69 heightened tensions and increased feelings of insecurity amongst workers (Cameron 1964).

Overall, crises within the industry in the sense of tensions between the product market and the labour process in particular can be inferred from the trends in profitability, labour's share in value added and the real wage bill per unit of output. Taken together these suggest these tensions and contradictions were most acute between 1959 and 1967/68, from 1972 until nationalisation, and for most of the period between nationalisation and 1987/88. The last two periods being marked by continued losses, rising total wage bill per unit of output and labour's contribution to value added frequently exceeding 100%.(*)

THE 1950s

The industry's strike record in this decade was described in the early part of this chapter but a number of important points will be highlighted here. First, the peak years for stoppages were 1951, 1955 and 1958 and for workers involved 1953 and 1957 when two national stoppages occurred. The peak year for days lost was also 1957 but it is clear that days lost increased significantly after 1953 remaining at high levels up to and including 1962. The significance of the national disputes may also lie in the fact that employers saw them as a cost to the industry as a whole rather than to them individually (Clegg and Adams 1957). Second, the trend towards increasing strike activity in the second half of the decade is evidenced from the table overleaf and becomes most marked after 1957 in terms of stoppage numbers and days lost.

(*) After 1982 figures for shipbuilding and marine engineering can be inferred from the 'other transport equipment' category of the SIC established under the 1980 revisions. In this labour share was over 100% in 1982, 1983, 1986, 1987 and 1988.

STRIKE ACTIVITY 1950-1959

DIMENSIONS	1950-1954	1955-1959
STRIKES	64.8 p.a.	85.6 p.a.
WORKERS INVOLVED	35620 p.a.	516640 p.a.
		(27850 excl. 1957)
WORKING DAYS LOST	188000 p.a.	746800 p.a.
		(276500 excl. 1957)

(Source: Employment Gazette)

For much of the 1950s the industry benefitted from the general post-war boom despite the fall in share of world trade from fractionally under 40% in 1950 to 24% in 1954 and 21% in 1956. The boom is reflected in the fact that the industry faced long order books, for three years ahead as late as 1957 (McGoldrick 1983) and continued profitability until 1957/58. Evidence from the econometric studies suggested that companies were prepared to share this profitability with their workforces (but see discussion above) but the levels of strike activity remained high (relative to other industries) prior to the problems of competitiveness which manifested themselves in the late 1950s and the slump which affected the industry between 1958 and 1963. Much of this strike activity was localised and short with the boilermakers playing a critical role (McGoldrick 1983). Throughout the decade they sought to consolidate piecework earnings into district rates with welders, rapidly expanding in numbers at the expense of riveters, at the forefront of these disputes. Under the 1950 national agreement the increases agreed only applied to those on base rates but local negotiations ensured that the bulk of the workforce retained their differentials. It is significant that in the 1950s wage drift became an increasingly important issue for the industry (Clegg and Adams 1957). The boilermakers claims were frequently backed by industrial action forcing settlements made in one district to be accepted in others.

The econometric work accounts for part of this increasing incidence and volume of strike activity in the late 1950s in terms of declining profitability but output was declining and aggregate unemployment relatively stable which together would have been expected to have reduced stoppages. What seems to be critical to the increasing volume of stoppages is the perception amongst employers of a worsening product market position against a relatively unchanged labour process and shortages of skilled labour and their responses to these.

In terms of the labour process, by the end of the decade employers had become increasingly concerned about what they saw as a lack of flexibility and interchangeability associated with demarcation in the industry, and the issue of 'restrictive practices' became a paramount concern to them. It should be noted that, as before the War, UK shipbuilders built an enormous variety of different ships with very little standardisation and this contributed to the complexity of payments systems and allowances as well as to managements concerns about flexibility. As McGoldrick argued in terms similar to those of Hobsbawn (1964) 'the organisation of the industry had not been seriously questioned until the post-war boom in Britain began to peter out in the mid to late 1950s' (1983 p.210). The employers responses included redundancies and, via the Shipbuilding Employers Federation the establishment of a sub-committee in 1958/59 to investigate the use of shipyard labour. This resulted in a new national agreement in 1962.

Whilst the general approach amongst employers seems to have been to leave the division of labour well alone in the boom periods, after 1957 employers in some areas cut back on employment and tried to address issues of flexibility which in turn appears to have heightened feelings of insecurity amongst workers and provoked a number of demarcation disputes (Cameron 1964). Overall, greater insecurity appears to have been experienced in the late 1950s and 1960s amongst a workforce many of whom had experience of the 1930s in the industry. Between 1957 and 1963 the industry shed over 85000 jobs, a reduction of nearly 30% with almost 28000 jobs lost in a single year 1962/63. This contraction was a direct response both to the recession which hit the industry after 1958 but also to the contradictions which had emerged

within the circuit of capital. The erosion of market share and collapse of profitability together with the perceived need to deal with low productivity and a labour process which gave considerable control to specific groups of workers. The introduction of labour-saving equipment and production methods did take place in the late 50s and early 1960s as ship construction moved towards pre-fabrication and unit assembly but the cost of this in terms of increased conflict was considerable.

The 1950s is characterised by a general increase in the main dimensions of stoppage activity culminating in a prolonged period of conflict through the recession period of 1957-1962. The earlier econometric work permits only a limited insight into the reasons behind this increase and the contention here is that the increases in the latter part of the decade are the product both of short term demand decline and the emergence of significant contradictions within the industrial circuit of capital. The fact that management initiatives to resolve these resulted in a rise in the main dimensions of strikes (numbers, workers involved and days lost) is a consequence of workforce traditions and particularly concerns over job security and erosion of traditional demarcations, a particularly sensitive issue in an industry where the age profile of the workforce was considerably higher even in the 1960s than in many others (Geddes 1966, Booz-Allan 1972). An additional, but significant factor is the fact that during the decade significant changes in personnel occurred within both the CSEU and the SEF with the emergence of new leaders less affected by the depression of the inter-war period (Clegg and Adams 1957).

The 1960s

The Shipbuilding industry in the 1960s is marked by a number of changes which set it apart from the preceding decade. As we have seen it began in the midst of a very severe world recession with the UK industry suffering disproportionately. The depth of this recession prompted the beginnings of what became extensive state intervention and support for the industry. Developing from a 'pump-priming' role with grants in the early part of the decade through reconstruction and the Shipbuilding Industry Act (1967) to massive investment in a few ailing companies at the decade's end (Hogwood 1979). Furthermore, as Thomas (1983) has argued, demand linkages changed from

the mid 1960s with the close relationships between shipbuilders and owners in the merchant sector becoming looser with owners increasingly looking abroad as their requirements changed to those which the UK builders could not fulfill. A further change was that the deliberations of the SEF sub-committee came to fruition in the form of the 1962 Plan and the commitment to deal with the issues of demarcation and working practices contained within it profoundly influenced industrial relations for the remainder of the decade. Lastly, following the recommendations of the Geddes Report (1966) a significant reorganisation of the industry took place leaving it dominated by a few organisations. In the early 1970s Swan Hunter accounted for 30% of the total workforce of merchant shipbuilders and Vickers for 47% of the workforce in the warship yards (Booz-Allan 1972).

In this section the focus is largely upon the period after 1962 and draws heavily on the reports produced by Geddes (1966) and by the Commission for Industrial Relations (1971). In the previous section the attempts by the SEF to examine the issues of demarcation were noted and in 1962 these discussions culminated in a plan which aimed to establish a formal disputes and demarcation procedure, to set up a division of the workforce into three groups as opposed to the multiplicity of trades that then existed and to encourage a greater flexibility of craftwork including a new training system to replace apprenticeships. These changes were tied to a national pay deal and provoked a national stoppage but did set an agenda for the negotiation of the division of labour in changed circumstances (McGoldrick 1983). Demarcation had remained a major concern in the late 1950s and 1960s and provoked a number of disputes. In 1959, reflecting the contraction of the industry, almost 60% of the disputes in the industry were over non-pay issues and the most prolonged of these were over demarcation with lengthy demarcation disputes occurring in 1961 and 1962 and again in 1968.

Following the plan's introduction in 1962 there followed a series of negotiations with trade unions representing the three groups of workers at district and local levels and led to Relaxation of Working Practices Agreements (ROWPs). The ROWP agreements allowed greater flexibility between trades especially within the

boilermakers, and interchangeability with ancillary workers. In the scheme introduced at Fairfields the scope of negotiations over changes in working practices was also defined (Alexander and Jenkins 1970). This form of productivity bargaining developed significantly after 1965 with most taking place following the 1965 National Wages and Conditions Agreement where improvements in pay and working conditions were seen as being conditional upon increased productivity. Most companies had introduced such schemes by 1971 (CIR 1971, para 270) which substantially extended areas of joint determination in the industry.

Changes after 1966 were dramatic in other areas particularly those relating to the structural reorganisation of the industry but it is important to set these and that of productivity bargaining against the industrial relations climate prevailing at the time. Geddes (1966) stressed the significant lack of trust which appeared to exist in the industry between both sides and that whilst the union structure contributed to poor industrial relations this was seen as being exacerbated by deep feelings of insecurity, suspicion and low trust. The report emphasised the need to change attitudes to effect change in the industry so that although there was a clear need to remove the wasteful use of labour the sine qua non for this was an improvement in industrial relations (1966, para 396). Geddes stressed the important role management had in this process not least as union perceptions were of an industry dominated by 'hire and fire' attitudes on the part of employers with strikes frequently the only way of securing speed and serious attention to a grievance (para 396). The report saw one important vehicle for improving industrial relations as the establishment of joint consultative committees, subsequently introduced at national level and at yard levels but with few established at district level (CIR 1971). However, it is doubtful whether they had a significant effect in improving industrial relations. Of more lasting significance were the proposals outlined by Geddes for the reorganisation of the industry and the increasing role of the State as the crisis within the industry became more acute.

In the earlier section a dummy variable was employed for the period 1967-1970 exerting a strong upward influence on the number of pay stoppages and on days lost. It was stressed that the late 1960s witnessed major changes in industrial relations and

structure through reorganisation of the industry which created a few relatively large groupings bringing together yards with different management structures, different industrial relations practices and custom and practice and a variety of payments systems and allowances. The managements in the new groupings therefore had to integrate company yards into a single management structure. Some companies attempted to counter the traditional sectionalism in the industry via unitary negotiations (Vosper Thorneycroft and Swan Hunter) and in general the reorganisation seems to have encouraged moves towards company bargaining. The reorganisation effected by 1969, though substantial, only loosely followed the criteria laid down by Geddes (Thomas 1983) and seems to have contributed significantly to the increase in stoppage activity in the latter part of the decade.

Earlier it was stressed that the changes brought about by reorganisation created larger groupings and widened the 'orbits of comparison' for workers. A factor of considerable importance in an industry with payments systems which generated a plethora of allowances and informal arrangements. However, the reorganisation also entailed a number of closures and the industry cut back employment by 13000 between 1967 and 1969. As Geddes remarked;

the past is very much alive in the minds of the workers in the industry....(and)....has created a deep feeling of insecurity which is at the root of most of the demarcation disputes and practices in the industry' (1966; para 365)

The attempt to 'buy-out' many of these practices via productivity bargaining re-kindled old fears and disturbed pay differentials established over many years. The changes created turbulence in an industry where change had for the reasons discussed by Geddes, been traditionally resisted and contributed to the generation of grievances and bargaining points which were not easily contained within the existing industrial relations framework. As the econometric results show, the introduction of a new disputes procedure in 1967 proved incapable of containing the explosion of grievances which the changes brought forth and may indeed have served to exacerbate the conflict both in terms of the incidence and cost of disputes.

It would appear from the earlier work that the economic variables in particular fail to account for much of the variation in stoppage activity in the decade nor for the significant increase in volume at the decade's end although they provide an explanation for the increase in days lost. However the procedural and organisational dummies employed in the equations to proxy changes at the end of the decade do seem to be more important influences. The changes and developments post-Geddes must be seen as attempts by employers and the State (which had formalised intervention through the SIA in 1967) to further address what had by then become a chronic situation for the industry. The product market collapse had continued, evidenced by falling output and profitability and a continually falling share of world trade and the overall problem of an inability to produce what was required or to do so competitively. The labour market situation, with problems of recruiting particular groups of skilled workers and with increasing employment insecurity for others remained and these two sets of market pressure led to concern with the labour process. Although employers had attempted to address the issue of the industry's division of labour and the issues of flexibility and interchangeability since the late 1950s the craft hierarchy remained deeply entrenched with little mobility and with the continued pursuit of sectional interests (CIR 1971). The real wage bill continued to increase (particularly with respect to output) as profitability fell and the effectiveness of closed shops in particular through the control of labour supply via apprenticeships remained into the 1970s. Thus, employer and state supported initiatives in the form of ROWP and reorganisation need to be seen against this broader context of substantial divergence between elements in the circuit of capital particularly a product market collapse and a relatively unchanged labour process. The state also had other concerns which stemmed from the regional concentration of the industry (Hogwood 1979) a factor which became increasingly important at the end of the decade with aid to UCS and to Harland and Woolf.

The 1970s

The product market problems which had deepened in the 1960s continued into the 1970s although there was a revival in profitability in the early 1970s. The industry was slow to adopt new production techniques, particularly block construction so that those large ships produced in UK yards were considerably more expensive than those produced by foreign competitors (Thomas 1983). Furthermore, the inflation of the late 1960s and early 1970s created difficulties for the industry as many companies had taken on fixed price contracts.

The problems of the industry were experienced in their most acute form at UCS and Harland and Woolf which became the main recipients of an increasing amount of state assistance. State aid in 1969 had been dominated by problems at both yards and both continued in 1970 and 1971. UCS experienced a major strike in mid 1970 and again in June 1971 before the UCS 'work-in' commenced in July 1971. Although the difficulties experienced at UCS dominated political concerns in shipbuilding, throughout the early 1970s aid went to both Harland and Woolf and Cammell Laird with the former brought into public ownership in 1975. The Court Line affair also brought the shipbuilders Sunderland and Appledore into public ownership in 1974. In that same year a Labour government committed to the nationalisation of the industry was elected into office and, despite a difficult passage, the industry was brought into public ownership in 1977. Between 1972 and 1978 the state provided over £201 millions in grants and subsidies to British shipyards (Taylor 1982).

In terms of stoppage activity it is the first half of the decade which experienced the major period of unrest as the table overleaf illustrates.

STRIKE ACTIVITY IN THE 1970s: AVERAGE ANNUAL DATA

	1970-1974	1975-1979
STRIKES	84.6 p.a.	44.4 p.a.
WORKERS INVOLVED PER 10000	15.92 p.a.	10.7 p.a.
WORKING DAYS LOST PER 10000	29.32 p.a.	14.43 p.a.

Source: Employment Gazette

Strike activity in the early period is significant in a number of respects. Strikes over pay remained at a similar level to those of the second half of the 1960s but continued the trends begun in 1968 of involving an increasing number of workers, the average size of strike (in terms of workers involved) between 1970 and 1974 being over three times larger than that of the period 1963-67. In addition, pay stoppages lasted longer with days lost reaching a peak in 1972. On average pay stoppages lasted 5 days between 1965 and 1969, between 1970 and 1974 they lasted nearly 24. Although not supported by the earlier work it is likely that these trends are linked to inflation and the general state of the industry. The dispute in 1972 for a basic increase of £4 per week cost the industry a quarter of a million days lost and reflected the problems of inflation and the industry's inability to meet union demands. In general, the period to nationalisation is marked by a number of major disputes over pay and pay parity particularly at Vickers Barrow in 1972, 1974 (when over 200000 days were lost), and 1976, at Cammell Laird in Birkenhead from 1974-1978 and at Sunderland and Swan Hunter on Tyneside. It is significant that as inflation declined in the late 1970s these issues became less important, although relative pay between yards remained a significant cause of friction and disputes at certain yards (e.g Scott Lithgow; Kelly, 1988). In contrast, non-pay stoppages declined but as a percentage of those in employment their overall tendency was to stabilise, whilst there was no significant increase in their size or length. This may be due to the fact that non-pay issues remained localised whereas pay frequently became determined at company or district

level and away from local regulation. Although national disputes were rare there was also a tendency for pay disputes to be official, in contrast to the traditions of the industry but in common with what was happening in other industries (DMR 1983). The table below illustrates some of the changes taking place in bargaining structure at the time.

BARGAINING STRUCTURE (ADULT MEN)

	1968	1973	1978	1985
National only	-	23.0	14.5	45.6
National + supp.	86.6	70.4	67.2	32.7
Company/ Local	-	1.7	10.3	8.6
No agreement	13.4	4.9	8.0	13.1
Total	100.0	100.0	100.0	100.0

Source: New Earnings Survey: figures relate to the percentage of workers covered.

These figures give an indication of broad changes but their terminology is confusing. In 1968 whilst national and supplementary negotiations formally applied to the majority of employees it was the local supplements which were most important. By 1973 this had changed as local bargaining was significantly curtailed in a number of companies a trend continued until after 1979 when national negotiations in the form of British Shipbuilders negotiating with its employees dominated the bargaining structure.

These changes are likely to have had an impact on the form of disputes in the industry particularly with a reduction in local bargaining and an apparent increase in the significance of national agreements for some companies. A factor behind this could also have been the development from 1969 of long term wage agreements between the SRNA (the re-named SEF) and the CSEU lasting until 1978 and with

bargaining increasingly concentrated at district level. This may also account for the increasing number of company only agreements between 1973 and 1978. However, given the parlous state of the industry it is not surprising that disputes which arose were long and protracted and despite the increasing profitability of the early period, the real wage bill per unit of output also rose. The problems were further exacerbated by the slump which hit the industry after 1973.

The 1970s represents an almost archetypal crisis within an industry. Failure to increase productivity and contain wages meant declining profits and increasing labour share of value added from 1973 to 1975. The government response, given the regional concentration of the industry was to bring the industry under public ownership in 1977 a move designed to placate the unions and which contributed significantly to altering the strike pattern in the industry. The fall in strike activity in the second half of the decade can be attributed to the interaction of a number of factors. The low figure for 1976, in common with that in other industries is due in part to the effectiveness of the Labour government's incomes policy and the TUC commitment to it (Hyman 1984) but the maintenance of these levels until 1979 seems to be attributable to the impact of nationalisation. This represented a significant success for the unions and particularly the ASB which had long campaigned for it and there appears to be tangible evidence of a change in worker attitudes from one of sectionalism to one of generalised concern for the future of the industry as a whole (McGoldrick 1983). The CSEU line of 'responsibility' seemed to have struck a chord amongst workers in the industry (Ferry*). The decline in pay stoppages after 1979 is probably also linked to the fact that from March 1979 one central bargaining unit replaced the 168 separate units which had previously existed (Kelly 1988). However, the decline after 1978 was also the result of the general increase in unemployment evidenced by the fact that the pattern of stoppages reflected what was taking place elsewhere, namely a significant decline in pay stoppages but a maintenance of the level of non-pay stoppages together with an increase in their average size with redundancies becoming the main focus of concern. More generally it seems that economic factors, in particular unemployment and a rapid fall in output exerted a more significant impact on the main dimensions of stoppages in this latter period than

before although as Edwards (1982) has argued this may be because bargaining arrangements had changed and as a result the impact of economic factors on stoppages changed with it.

BRITISH SHIPBUILDERS: 1977-1987 (*)

From the late 1970s industrial relations in the industry was again dominated by the issue of manning levels and pay structure (McGoldrick 1983) although the years immediately following nationalisation were marked by relative industrial peace despite problems at specific yards. The new Board at BS was staffed by individuals (Griffin as Chairman, Farningham as Industrial Relations Director) who had long experience in the public sector, were committed to public ownership and had considerable union support, even if some yards, such as Vickers remained hostile to public ownership. In terms of the 'professionalisation of industrial relations', the wish to have an industrial relations specialist in every yard, together with the formalisation and rationalisation of the myriad of allowances at yard level, and the reduction in the number of separate bargaining units necessary for effecting corporate bargaining, the period was a considerable success.

However, the developments took place against a background of falling output, an increasing share of value added taken by labour, static productivity and mounting financial losses as the table overleaf illustrates.

(*) This section draws heavily on material from BS; Annual Reports and Employment News, and upon minutes of the Shipbuilding Negotiating Committee kindly made available by the CSEU.

BRITISH SHIPBUILDERS: MAIN INDICATORS OF PERFORMANCE

1977-1987

Year	Mkt Share	Output	New Orders	Profit/Loss	Emp(*)		ID
1977	4	100.0	100.0	- 104.5	24	87.3	0.75
1978	4	63.3	54.7	- 63.6			0.76
1979	4	45.5	80.3	- 95.0	22.4	80.3	1.3
1980	4	42.6	93.4	- 58.6	18.0	70.1	0.98
1981	2	60.2	115.1	- 25.2	16.6	67.8	0.73
1982	3	48.2	49.4	- 88.6	16.0	66.1	0.55
1983	2	26.1	36.8	- 148.6	14.2	62.2	1.08
1984	2	15.2	19.8	- 127.0	11.1	48.6	
1985	1	14.2	38.6	- 53.0	10.1	40.8	
1986	1	16.4	27.1	- 148.0	7.6	10.0	
1987	2	12.3	20.2	- 37.0(+)	6.9	7.0	

Notes and Sources

Market Share: percentage share of world tonnage output, from British Shipbuilders Business Development Statistics Service.

Output and New Orders: Indices created from data provided by British Shipbuilders Business Development Statistics Service.

Profit/Loss: Trading profit/loss in £ millions for calendar years calculated from financial year figures, British Shipbuilders Annual Reports to 1983. Figures 1984-87 from Shipbuilding Negotiating Committee minutes readjusted for calendar years.

Employment (*): Numbers employed in thousands for merchant shipping (first column) and for Total BS (second column). Figures from BS Employment Statistics October 1985 and December 1988.

ID, Industrial Disputes, percentage of normal hours worked or lost, 1977-79 estimates based on DE figures and numbers employed, 1980-83 from Kelly (1988) adjusted for calendar years.

(+) 1987 losses for first three months of year.

The table illustrates the magnitude of the problems facing BS, with output falling after nationalisation only surpassing its 1977 level in 1981 and declining thereafter, with 1987 output 12% of that in 1977 and new orders only 20% of the 1977 level. The losses in every year are the consequence of this decline allied to a rising real wage bill per unit of output (despite rising productivity in the early 1980s) but the figures disguise the fact that the major problems lay with the merchant shipping areas rather than the warship yards which remained profitable. In the financial year 1984/85 the corporation made losses of £25 millions, but in merchant shipping the figure was £59 millions. Furthermore, it has been suggested that losses were concentrated on a small number of yards with Scott Lithgow contributing £140.5 million to the £278.4 million lost by BS between 1982/83 and 1983/84 (Kelly 1988).

Strike patterns within the industry under nationalisation altered significantly after 1979. In the late 1970s the main concerns remained manning levels and the pay structure (McGoldrick 1983) with major disputes at Aberdeen and Clydebank in 1979 over pay but the centralising of pay determination in March 1979 and the reduction in the number of separate bargaining units together with rising unemployment contributed to declining number of pay stoppages after this date. Non-pay disputes remained at a high level after 1979 focussing upon cutbacks and redundancies especially after 1980 as well as issues of flexibility, and these disputes were generally specific to particular yards and companies. This pattern of stoppages was clearly affected by the response of British Shipbuilders to the problems outlined above and it is significant that 1983-1986 was marked by some particularly acrimonious disputes in the industry as relations between the BS Board and the unions deteriorated.

To examine the changes introduced by BS since 1977 we have drawn upon the classification of restructuring into economic, labour process and technological developed by Leman and Winterton (1991). This is then used to account for some of the shifts in strike patterns throughout the decade.

Economic Restructuring

In late 1979, the BS Corporate Plan identified the need for a significant restructuring of the industry, with closures and job losses affecting some 10000 employees. Later that year the CSEU successfully negotiated with BS a 'programme for the orderly transition to handle the crisis in the yards affected by cutbacks' (the 'Blackpool Agreement') in return for no compulsory redundancies. Of the 18200 redundancies effected between 1977 and March 1981 over 5000 were the result of this agreement which was particularly important at Govan, Sunderland, Cammell Laird and Scott Lithgow. In addition in 1978, BS and the unions negotiated the Shipbuilding Industry Redundancy Scheme with very favourable payments and help with training and re-training and this also eased contraction at this time. However, the impetus for further restructuring gathered momentum in late 1980 and early 1981 under a new BS chairman (Atkinson) with closures announced at Doxfords, Haverton Hill, Burntisland and Robb Caledon. Although industrial relations remained relatively good until 1983/84 (Ferry*) when Day succeeded Atkinson and it became clear that the government would privatise the industry, a stronger management line was evident by 1981. Earlier that year BS stressed that there was no money for pay increases unless matched by productivity and identified the need for compulsory redundancies. Given the CSEU commitment on this issue threats of compulsory redundancies at Robb Caledon provoked a national overtime ban, and at Robb Caledon one-day strikes from September and a 'sit-in'. The dispute continued into 1982 but it indicated a worsening of relations within the industry, evidenced by Atkinson's remark at a meeting with union national officers that he 'could handle trade union problems better than (they)' (SNC Minute 1628).

With Day's succession as BS Chairman in 1983 further closures were announced at Goole, Henry Robb and Clellands in 1984 as were the privatisation of the naval yards and the sale of Scott Lithgow (to Trafalgar House), the latter having experienced considerable industrial relations problems in the early 1980s with limited control over industrial relations and the maintenance of long established practices (Kelly 1988). Significantly, Scott Lithgow experienced disputes in 1981/82 costing it over four times that of BS as a whole at a time when it appointed its first personnel director in

Autumn 1981 and corporate personnel policies began to be introduced (Kelly 1988). In 1985, cutbacks were announced at Austin and Pickersgill, Vosper Thornycroft, Cammell Laird, Appledore and Swan Hunter. At Swan Hunter the threatened closure of the Hebburn docks and the imposition of a new disciplinary code provoked a seven week dispute and at Austin and Pickersgill the issue of compulsory redundancies provoked a strike in November and one at nearby Sunderland Shipbuilders. The run-down continued through 1986 with the closure of Smith's Dock and the sale of Swan Hunter and into 1987 and 1988 with the closure of North-East Shipbuilders and further sell-offs towards full privatisation. It is notable that at North-East Shipbuilders the announcement of closure led to a dramatic increase in absenteeism, to over 22% in the last three months of 1988. Similar increases also occurred at Swan Hunter in mid 1985 against a background of mounting redundancies.

In addition to closure and redundancies which were inevitable given the state of the industry and the amount of value added contributed by labour, the industry also introduced a series of initiatives to raise productivity. Those relating to flexibility are dealt with below but in 1979, as part of the 'wages and conditions restructuring', self-financing productivity schemes were introduced, and operated locally. Although contributing to increasing productivity (especially up to 1982) they were a constant source of tension, provoking a major dispute at Vickers Barrow in 1980.

Labour Process Restructuring

The inheritance of well-entrenched practices and established hierarchies with enormous variations in pay scales and allowances between individual yards was gradually dealt with in phases under 'wages and conditions restructuring' begun in 1979 linked to the establishment of corporate bargaining, and completed in 1986 with agreements on harmonisation. In terms of labour utilisation BS introduced its National Productivity Proposals in 1983, involving greater flexibility, multi-skilling and interchangeability. Although effectively an enabling agreement, signed in March 1984, local agreements were made in a number of yards. Given the craft traditions in the industry there were a series of inter-union disputes in 1985 particularly involving AUEW(TASS). There is evidence (SNC minutes) of increased use by BS

of temporary workers and those on fixed term contracts by 1983, and in 1986 there was a major dispute at Austin and Pickersgill over the use of sub-contractors. However, by the mid 1980s BS had embraced a number of key elements of flexibility, making greater use of peripheral workers and those external to the corporation allied to a more functionally flexible but declining core workforce with financial flexibility provided by the bonus component of the self-financing productivity schemes. Similar developments were taking place, as we have seen at British Steel and at British Coal although only after major conflicts permitted a more concerted management offensive.

Technological Restructuring

Compared with economic and labour process restructuring, the historical preference for skilled labour and the overriding concern with reducing labour and labour costs, developments in this area have been more modest. The changes that have occurred have been in the area of design and the use of CAD, an issue which had its main impact on those in the AUEW(TASS) and may lie behind disputes at Govan in 1985. However, compared with coal the impact on production appears to have been limited, although its impact was acknowledged as increasing in importance by 1986.

Management responses to the crisis within BS can be divided into a number of phases. The first, from 1977-79 was one of close co-operation between the Board and the CSEU involving the latter closely in a number of initiatives culminating in the first stage of the 'wages and conditions agreement' in March 1979, and the 'Blackpool agreement' later that year. The period 1980-83 can be seen as the first phase of restructuring under a new Chairman, employment fell by 14000 and new initiatives were developed in the areas of flexibility. However, by 1983 losses remained high and productivity low as new orders dried up and output fell. The final period, 1983-1988 is one of further restructuring and privatisation, initially under Day's Chairmanship. The association of these phases with strike activity requires discussion. From 1977-79 disputes remained high, particularly over pay but considerably below the levels experienced from 1965-75, and given the changes to allowances and pay bargaining, considerably less than what might have been

expected. Due much to the degree of mutual regard and shared commitment to public ownership of senior members of the Board and the CSEU. From 1980-83 days lost in disputes declined but this is largely the result of the decline of pay stoppages under corporate bargaining and the period witnessed some major stoppages over closure and closure threats particularly where compulsory redundancies were involved, as at Robb Caledon. It is the period after 1983 and particularly from 1983-1986 which witnessed a number of prolonged disputes over closure, against a background of privatisation and limited alternative job opportunities as at Yarrow, Swan Hunter and Govan in 1985 and at Austin and Pickersgill in 1985 and 1986.

The fact that Shipbuilding did not experience a major confrontation in the way that coal, steel and parts of the motor industry did is due much to the relationship between the Board and the CSEU in the early years of public ownership (Ferry*) and the fact that, as the Robb Caledon dispute showed, the unions could still manage to marshal significant resources in defence of an issue they, and their members were strongly committed to. Thus management's continued attempts to seek agreement on issues, particularly closures. By 1983, the closure and sell-off programme was accelerated with the expressed aim to return the industry to the private sector. The failure to mount effective opposition nationally to privatisation and closures had much to do with the initial sale of the profitable shipbuilding yards and to the generally depressed state of many shipbuilding areas as well as to the continuation of the Shipbuilding Industry Redundancy Scheme. Local action remained important particularly where alternative job opportunities were scarce or where management attempted to impose changes seen as undesirable or inequitable (as at Swan Hunter in 1985).

CONCLUSIONS

By 1977 state and employer initiatives to deal with the industry's problems culminated in nationalisation. For the state this represented an attempt to meet a number of conflicting concerns including union hostility to incomes policy, regional unemployment in the event of the industry's collapse as well as resolving contradictions in the circuit of capital. In the context of the circuit of capital they indicate a concern with the industry's failure to deal with these problems through (in the labour process) raising productivity and efficiency via new techniques, reducing manning levels and increasing flexibility and in the product market field through reliance upon grants and subsidies.

Prior to nationalisation the main responses of employers and the state were concentrated in particular periods. For employers, the attempt to reduce costs and restore profitability against a backcloth of recession dominated their initiatives between 1958 and 1962 and contributed significantly to increased strike activity. This was followed by attempts to introduce ROWP agreements which gathered pace after the 1965 National Wages and Conditions Agreement and the post-Geddes reorganisation of the industry. The period after Geddes and the Shipbuilding Industry Act 1967 which enacted much of the Geddes recommendations saw changes to bargaining and payments systems as well as increasing state support (e.g to UCS and Harland and Woolf). The fact that the decade from 1965 to 1975 was marked by such an increased volume of strike activity owed much to the way in which these attempts to resolve the perceived inadequacies in the labour process represented for workers an attempt to undermine their established position in the industry and their expectations of their jobs and the industry (see Brown and Brannen 1970 above).

The decline in overt conflict from 1975 to 1978 can be attributed to a number of factors. The trade union acceptance of incomes policy in 1976 had a significant impact on strikes in most industries but in shipbuilding the commitment to nationalisation by the CSEU and particularly the leaders of the boilermakers seems to have been important. The resurgence of strike activity in the early 1980s (1979

figures are the result of the series of one day national stoppages in engineering in pursuit of a 35 hour week) was partly the result of changes in personnel at senior levels within BS and the tougher management line which resulted. At the time of nationalisation the company was staffed by individuals sympathetic to public ownership and with trade unionists on the main board (Ferry*) with the trade unions prepared to comply with management concern over manning as the 'Blackpool Agreement' testifies, but this clearly changed in the early 1980s as the privatisation of the industry was raised at an early stage in the life of the incoming Conservative administration.

The case of shipbuilding and marine engineering illustrates the complexity of influences on strike patterns. The problems of the industry, the nature of work in it and the attempts by both employers and the state to initiate change are all critical but need to be set alongside workforce traditions and their reflection in union structure together with the attitudes of workers and managers generally. Given these important conditions the attempts to account for short-term variations in strike activity using econometric analyses produced significant results with aggregate unemployment, output changes and procedural initiatives having a consistent influence. However, a major influence in the late 1960s was the role of broader changes in the industry initiated by employers and the state. These changes were largely the result of attempts to address the problems affecting the industry consistent with the view that contradictions within the industrial circuit of capital had become such that intervention became necessary. The fact that these interventions were frequently associated with heightened conflict is due much to the fact that the experience of those working in the industry led them to be highly resistant to change and conscious of the insecurity of their employment (see Barnett 1986). Additionally, as with the case of steel, the nature of enterprise calculation in an industry with high fixed costs and a number of 'one-off' projects was likely to restrict managers to looking to labour in their search for cost savings and together these sets of factors ensured that conflict (and given its history, strikes in particular) was likely to be inevitable.

STRIKE ACTIVITY AND CHANGING INDUSTRIAL RELATIONS

MOTOR VEHICLES

OVERVIEW

The motor vehicles industry from the end of the Second World War to the early 1970s established itself as a key sector of UK manufacturing, directly employing over half a million employees by 1973, and substantially more indirectly (Dunnett 1979). In 1975 the CPRS estimated that it was responsible for around 11% of industrial output, and between 1956 and 1966 for 27% of the growth in industrial output (Armstrong 1967). Furthermore, it contributed significantly to the UK's balance of payments and to capital investment but at the same time emerged as the most strike prone industry within manufacturing.

This Chapter has a number of aims. The first is to identify the major factors contributing to the emergence of increasing strike activity from the mid 1950s onwards. Second to examine the particular role played by shop steward organisation and governments in increasing strike activity and third, to extend the work of DMR (1983) beyond 1973 to examine strike patterns in the wake first, of the 1973/74 oil crisis and second, the reassertion of management authority and control in the 1980s.

The findings suggest that in the post war period to 1990 explanations for variations in the number of stoppages need to appreciate the relationships between four sets of factors. Changes in product and labour markets, management responses to these and the development of union capacity through the spread of shop steward organisation. The statistical work emphasises the role of product market changes (especially with respect to pay stoppages) with changes in product demand (as measured by the number of new car registrations) accounting for almost two-thirds of the variation in stoppage numbers from 1949-1982. Similarly the rise in stoppage activity from the late 1950s is association with the spread of shop steward organisation and union density, coupled with the nature of management responses and product market decline. The decline in strike activity in the 1980s can be interpreted using the same set of factors, with particular emphasis on the waning influence and power of shop steward organisation in a number of companies.

We suggest that the findings generally support those of DMR but with important qualifications. First, as Willman (1984, 1985, 1986) has argued, the role of institutional changes in the case of BL seems to have changed both the nature and incidence of stoppages and that this occurred without a significant change in substantive terms and conditions relative to those in other companies. This implies that the conclusions of Turner et al. (1967) have a greater permanence than DMR suggest and that institutional changes have potentially more significance in reducing strike activity than they and more radical writers would acknowledge. This argument can be taken too far and such institutional changes cannot be divorced from the broader environmental pressures (as Willman tends to do) such as the rise in unemployment in the early 1980s which contributed to a general decline in stoppage activity in the UK and particularly that of pay stoppages.

The second important qualification relates to the role of government which again exerts a more pervasive influence upon strike activity than is suggested by DMR. Directly, the government had an influence through incomes policy and legislation (e.g. strike ballots under the 1984 Trade Union Act which forced a proposed strike at BL in November of that year to be halted) but its indirect impact has arguably been more significant. Tolliday (1985) and Dunnett (1979) have both illustrated the unforeseen consequences of government policy on industrial relations in the industry. Certainly the use of the industry for demand management purposes significantly contributed to product market fluctuations and lack of investment but with a significant impact on industrial structure. The formation of BLMC and its subsequent nationalisation and privatisation, the financial support to Chrysler and the opening up of the UK industry to direct Japanese investment have all to varying degrees affected the nature of industrial relations in the industry.

Thirdly, from the late 1960s to the early 1980s it is our contention that events in the industry can usefully be seen in the context of management attempts to grapple with product market changes and major contradictions within the industrial circuit of capital, particularly severe at BL and Chrysler. Between 1969 and 1977 management attempts to resolve these contradictions led them to exert more control over payments

systems and reduce shop steward influence over pay. These led to resentments over inequities in reward and over curbs on steward influence and the period is marked by numerous disputes over differentials and pay rates at BL and Chrysler in particular. From 1978 to 1984 management responses again varied but were primarily focussed upon the reform of working practices and (at BL and Chrysler) pay bargaining. The more direct attacks on working practices and shopfloor control largely account for the persistence of non-pay disputes throughout the 1980s.

The Period From 1946-1973 Revisited

The period 1946-1973 spawned a number of important studies of strike activity in motor vehicles and before highlighting changes in a number of key variables pertinent to our analysis of strikes we provide a review of the main accounts of strike activity for this period. We begin by a consideration of the work of Turner et al. and the subsequent work of Willman detailing changes since 1973.

The explanations advanced by Turner et al. and by Willman are based largely upon disaggregated studies of individual companies and plants and reach broadly similar conclusions. The two studies focus upon factors internal to organisations and the industry in accounting for strike activity although the respective authors would argue that their conclusions have more general application. For Turner et al. the high levels of strike activity were explained by changing worker expectations encountering an institutional blockage, a problem seen as common to organisations covered by the 1922 Engineering Procedure. This 'institutional obsolescence' as it was termed, represented the failure of the institutions of collective bargaining to adjust to issues important to the workforce, a view influential in the deliberations of the Donovan Commission (1968) and in the work of Flanders and Fox (1969). Although the influence of other factors was stressed, particularly the irregularity of employment and instability of earnings, reflecting product and labour market pressures, the impact of multi-unionism and technological change, these were seen as secondary to these major influences.

The change in worker expectations, reflected in a concern over fair wages and job rights parallels our own perspective but the emphasis upon procedures, whilst important, tends to play down the role of changes external to organisations. Given the period in which the study was undertaken this is understandable; as Lewchuk (1982) has argued:

As long as the sellers market continued the British producers were able to avoid reconciling their deteriorating cost position. When the market position collapsed in the mid 1960s they were forced to consider switching to a Ford style direct control strategy (1982: p149).

However, a similar criticism can be levelled at Willman's work where the clear contention is that at BL Cars management

reformed the structure of collective bargaining and scope in such a way as to re-establish central control over wage determination and management control over work allocation
(1984: p9)

And that in so doing the reforms 'eradicated old forms of conflict typical in the past' (i.e small, sectional stoppages) and 'reduced BL's share of industrial conflict in the industry', so that adequate procedures and bargaining institutions can be expected to reduce conflict levels as well as their form. This contention is examined in more detail below but it should be remembered that the period in question (1977-1980) was one of intense competition in a shrinking UK market with BL experiencing a dramatic reduction in its share of that market reflected in mounting losses. The collapse in strike activity, particularly over pay, in the early 1980s has not been unique to the motor industry and would suggest that factors external to the industry and organisations within it have been exerting a critical influence upon the strike patterns.

The analysis of DMR concentrated on strike activity over a 25 year period to 1973 and examined the industry as a whole. They concluded that the high levels of strike activity were the result of the hardening of product markets and the loss of international competition rather than a reliance upon short-term instability characteristic of Turner's study. They were critical of Turner's focus upon

'institutional obsolescence' arguing that it was only valid if the institutions prevented management and unions from coming to terms with the industrial relations implications of changes in product markets. Given that DMR cover the period to 1973 they can be criticised for having 'an eye on future events' (Willman 1985) but their analysis highlights the role of long term decline due to increased competition as a factor in increasing strike activity, a view supported by the findings from our econometric work (see below), and largely neglected by Willman.

Before attempting a re-assessment of these studies in the light of our own analysis it is necessary to examine changes in a number of key variables throughout the period. It begins with a consideration of changes in industrial structure.

(1) Industrial Structure

By the end of the second world war the UK car industry comprised 32 firms, with six; Austin, Morris, Ford, Vauxhall, Rootes and Standard dominating the market both in the UK and the rest of the world. With the merger of Austin and Morris to form British Motor Holdings in 1952 and the absorption by Leyland of Standard in 1961 and latterly Jaguar, the degree of industrial concentration increased further. In 1968, under the auspices of the Government funded Industrial Reorganisation Corporation, BLMC was formed out of a merger between Leyland and BMH. In 1969 the ailing Rootes company was taken over by the American owned Chrysler corporation. By 1975, Ford, Vauxhall, BL and Chrysler accounted for 99.5% of UK car production (Hyman and Elgar 1981) and in addition to this greater industrial concentration, employment became concentrated into larger units. In 1951, 27.5% of the industry's workforce worked in establishments with 5000 or more employees and by 1972 this had risen to 51.3%, much of the change occurring in the period after 1968 (DMR 1983).

The change in establishment size is particularly important given the well documented associations between it and strike activity (Edwards 1981, Shorey 1978). The factor has additional importance in motor vehicles because of the detailed division of labour and interdependence between groups of workers. Such interdependence undoubtedly

increased in the post-war period and contributed to lay-offs and 'downtime' which in turn exacerbated instability and fluctuations in earnings.

(2) Product and Labour Market Factors

For much of the period until the mid 1950s, UK car firms faced a sellers market with UK manufacturers accounting for 55% of world car exports (Friedman 1977), with 70% of output produced for export (Ackrill 1987) and with an expanding home market. The home market grew substantially in the 1950s with output of 0.5 million in 1950 rising to 1.8 million in 1960. However, as Dunnett (1979) has shown the home market in the post-war period was particularly susceptible to the vagaries of government policy so that from 1951-1955, aided by expansionary policies the home market grew on average by 38% per year, but credit tightening in response to Balance of Payments weaknesses in 1955 led to a significant decline between 1956 and 1958 until HP restrictions were again lifted (Dunnett 1979). There then followed a period of expansion until 1960 when credit restrictions were re-introduced, these were relaxed from 1962-64 and then a further brake on demand occurred from 1965-69 followed by further expansion after 1970. The diagram below outlines the fluctuations in product demand. These changes, exacerbated and often caused by governments (Dunnett 1979), took place against and contributed to the UK industry's declining competitive position. The UK's share of world car exports fell to 29% in 1957 and to 17% in 1966 (Friedman 1977) and it therefore had to rely upon an increasingly volatile home market for its success. Not surprisingly companies were affected to varying degrees, in general they remained profitable throughout the 1950s although Standard, Vauxhall and Rootes experienced problems in the late 1950s and BMH distributed much of its declining profits in dividends (Lewchuk 1982). Rootes suffered losses from 1962 to 1970 (Dunnett 1979), and Ford and Vauxhall declining profits from 1965 to 1967. In 1956, Ford made an average of £45 profit per vehicle and BMH, £35 per vehicle. By 1961, Ford had increased this to £53 whilst BMC's profit per vehicle had dropped to £6.50 (Rhys 1971).

The expansion of the industry meant an increase in employment opportunities for semi-skilled workers, with relatively high pay albeit with considerable underlying

employment and earnings instability. Unemployment in the industry was consistently below the national average (DMR 1983), as were absenteeism and labour turnover, these last two possibly being a consequence of significant shopfloor control over aspects of the work situation (Hyman and Elgar 1981).

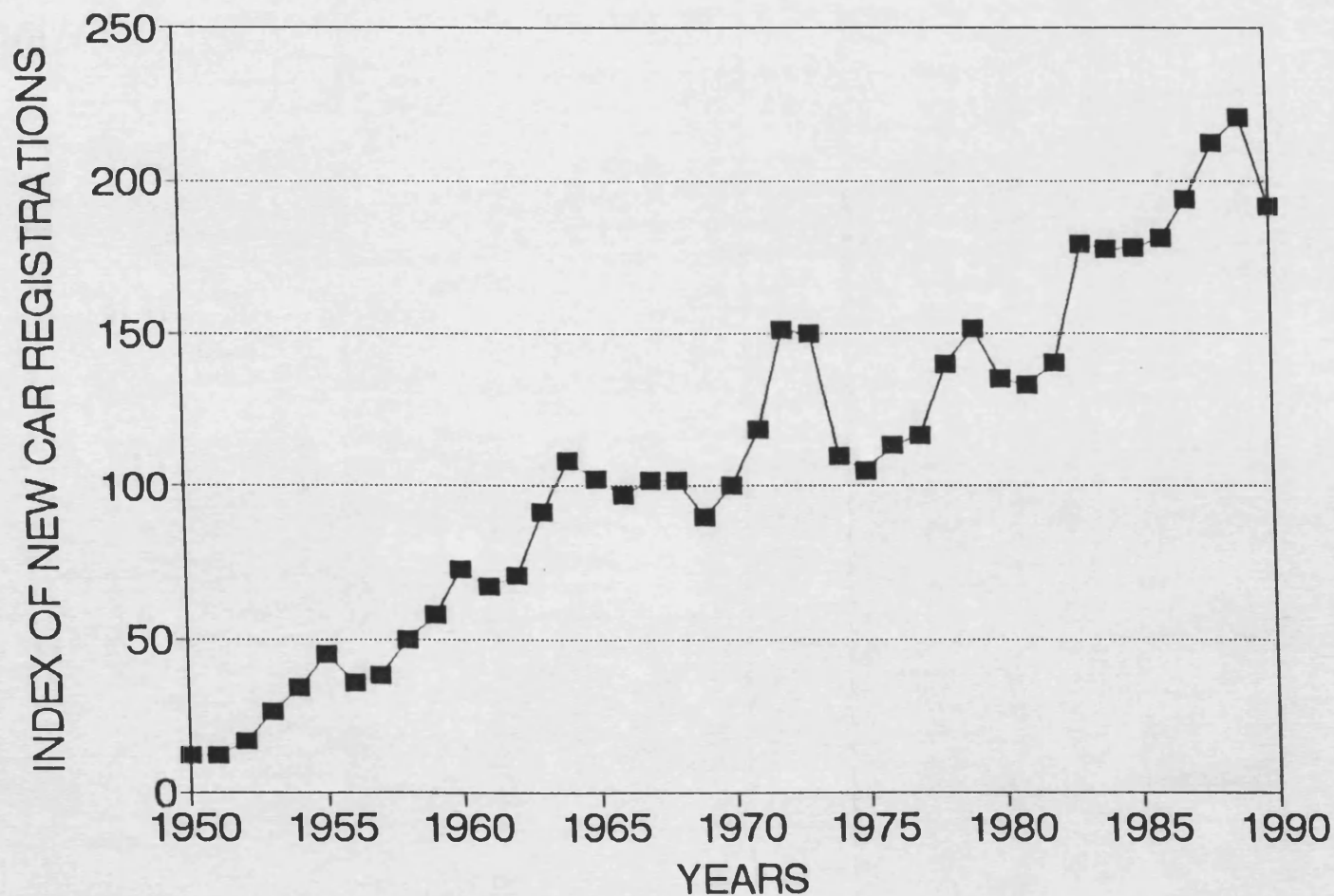
Given the fluctuations in product demand it is not surprising that these had a major impact upon the work situation and upon particular groups of workers. Although the industry made use of lay-offs and redundancies at particular times such as 1956, 1966 and 1967, and 1971 and 1972 in general product market changes were met by adjustments in hours worked (DMR 1983). In particular this occurred through numbers on short-time and more frequently through varying the hours of those on overtime, a group who comprised around 40% of operatives in the 1960s (DMR 1983). This significantly contributed to the instability of earnings of those on overtime, and with piecework as the main payment system for many workers variations in product demand meant often considerable fluctuations in earnings for workers paid by the piece. Furthermore, because of the specific division of labour within the larger car plants, shortages of parts and strikes in component manufacturers or shops within the car plants frequently involved periodic lay-offs or stoppages which again contributed to variability in earnings and employment instability, factors identified by a number of writers as having a critical influence upon strike activity (Turner et al. 1967, DMR 1983, Willman 1985).

(3) Management, Union organisation and Industrial Relations

In the inter-war period the car industry was characterised by 'hire and fire' practices (Dunnett 1979) and by a considerable hostility amongst the major manufacturers towards trade unionism to the extent that it was seen at the time as an industry which was practically impossible to organise (Hyman and Elgar 1981). Ford worked to prevent union organisation at its Manchester factory (Littler 1982) and sought in the 1930s to avoid shopfloor bargaining at Dagenham (Lewchuk 1982) by pursuing a direct control strategy, retaining managerial prerogatives and paying day wages (Tolliday 1991), a strategy also followed by Vauxhall. Austin also adopted a strong anti-union stance which continued well into the post-war period, as did Morris at

NEW CAR REGISTRATIONS

1950-1990 (INDEX: 1970=100)



(Source: Annual Abstract of Statistics)

Cowley but in these companies there existed a system of management control which relied upon piecework and a relatively loose control over labour (cf USA; Lewchuk 1982). This latter strategy, of piecework and loose control was followed to varying degrees by other companies (most notably the Coventry manufacturers) in the era of rising demand and weak trade unions (Lewchuk 1982).

The position of the Coventry manufacturers

At the end of the Second World War, Vauxhall and Ford had granted union recognition (in 1943 and 1944 respectively; Friedman 1977) but both had union density estimated at below 25%. At Morris without recognition union density stood at 30% and at Austin it was around 50% (Tolliday 1985). In contrast the smaller manufacturers, particularly in Coventry, had much higher levels of unionisation and systems of labour control which gave considerable autonomy to the shopfloor. By 1945, Standard had already granted a closed shop and shop steward organisation had gained considerable strength by the 1950s (Melman 1954) due much to the system of control which meant stewards performed quasi-managerial functions and permitted them to negotiate collective piece-rates on behalf of the gangs they led (Zeitlin 1980). It is notable that the number of supervisors at Standard was much lower than at other car firms so that stewards effectively filled a vacuum in the management hierarchy. In Lewchuk's view the approach adopted by Standard was 'to push the inter-war strategy to its limit' (Lewchuk 1982) through the use of high basic wages and piecework allied to a gang system in production. The average wage at Standard in the late 1940s was 65% above the industry level and although the lead was followed by other Coventry firms, the earnings differential of Coventry engineering workers was 35-40% above the rest of the industry between 1957 and 1966 (Friedman 1977). The gang system was also emulated by other Coventry engineering firms but it was arguably most developed at Standard. At the Canley plant there were 15 gangs operating in the 1950s with between 50 and 500 workers in each (Hyman and Elgar 1981).

At Rootes and Jaguar, similar policies were adopted. Although Rootes did not formally recognise unions until 1950, shopfloor organisation became quickly

established and exercised a high level of control over the booking in of work and pace and loading levels of the track. The extent of this control is revealed in the view that by 1960 the Ryton plant had become virtually a 'self governing republic' with considerable inter-union feuding (Thoms and Donnelly 1985). In contrast, at Jaguar the gangs which operated were small in size and limited in authority with management having more control over manning levels etc. Union structure may have contributed to this, being described as too disparate for effective organisation (Clack 1967).

A further important factor in Coventry was the existence, since 1940, of the 'Coventry Toolroom Agreement' whereby skilled timeworkers received the average earnings of pieceworkers in all Coventry plants plus a fixed differential. By publishing a league table of average piecework earnings it intensified demands from lower grades of workers and led to 'leapfrogging' pay claims (Zeitlin 1980). By the 1960s this had spread to plants in other districts seeking parity with Coventry plants within BL and at Ford.

In the 1950s and 1960s the system of workplace organisation in Coventry produced harmonious labour relations although carrying with it the problem of wage cost inflation (Thoms and Donnelly 1985) but it is clear that the system began to come under strain from the mid 1950s. Until 1954 disputes at Rootes and Standard were no worse than those at other companies, and those that did occur were generally short (Thoms and Donnelly 1985). However in the late 1950s Standard became one of the most strike prone of car firms (Friedman 1977) with the system of labour control unable to accommodate to a depressed market situation and requirements for lay-offs (Lewchuk 1982). Similarly at Jaguar, relative industrial peace prevailed until the late 1950s when the introduction of a new model led to changes in work patterns and job specifications and provoked strike action, as did the attempted introduction of new piecerates in 1961.

The Other Major Manufacturers

At Austin, Morris, Ford and Vauxhall shopfloor organisation was never as significant as in the Coventry firms, and with the exception of Vauxhall where it appears never to have been strong (Tolliday 1985), was powerful during specific periods in the 1960s. The operation of piecework or related bonus systems at Austin and Morris provided the potential for a degree of shopfloor control but it is increasingly accepted that the consolidation of shopfloor organisation occurred only in the late 1950s and early 1960s (Tolliday and Zeitlin 1986). After the formation of BMC in 1952, management does not appear to have exercised significant control of the workplace with considerable informal bargaining taking place and with the prevalence of an 'indulgency pattern' characterised by management leniency, often using high wages to keep unions out of plants (Tolliday and Zeitlin 1986).

As Jefferys (1988) has shown, despite a significant steward presence at Austin by the end of the war (170 stewards in 1946) they were rarely consulted by management. Austin's anti-unionism continued into the 1950s when the reassertion of management prerogatives frequently coincided with periods of falling sales and declining market share. At Longbridge, union density appears to have been closely linked to movements in product demand with notable increases in the period 1953-55 as demand rose but was dented with the dismissal of 15% of the workforce in 1956 following a downturn in demand. Strike action followed the announcement of dismissals and it is clear that in the second half of the decade shopfloor organisation became more firmly established with first line supervisors making concessions in the face of as many as two to three strikes per week (Jefferys 1988). It is therefore likely that the instability of employment and earnings in the industry (Turner et al. 1967)) were of particular magnitude and significance at Austin given the ways in which they were acted upon by management.

At BMC generally, the events of 1956/57 have been seen as a critical turning point in shopfloor relations as union organisation became firmly established against waning management resistance (Lewchuk 1982). By the early 1960s, 100% unionisation had been achieved at Longbridge and Cowley, a dramatic transformation at the latter since

1956 when union density was estimated at only 25% (Tolliday 1985, cf Jefferys (1988) who argues that 100% unionisation was only achieved at Longbridge in 1968).

At Ford and Vauxhall the operation of day-wage systems permitted greater management control of the shopfloor. Although Ford recognised unions in 1944 it adopted a strategy of dealing exclusively with national officials who were involved in negotiations on pay grading and day rates as well as general pay rates and conditions. This fact notwithstanding it has been argued that Ford's policy of tight management control within plants led to battles over job control which were more ferocious at Dagenham in the 1950s and Halewood in the 1960s than elsewhere (Beynon 1973). Despite increasing market share (also at Vauxhall) and increasing profitability in the 1950s and 1960s the pressures at Dagenham to 'speed up' production and raise productivity to match Cologne standards contributed to significantly higher levels of conflict in the 1960s particularly after the company's acquisition of the Briggs body plant with its much higher degree of unionisation and shopfloor control. Between 1959 and 1962 against a background of re-tooling and new work standards there were 59 strikes and 114 overtime bans at Dagenham (Friedman and Meredeen 1980). In 1960, 100000 'man-hours' were lost in strikes at Dagenham, 184000 in 1961 and 400000 in 1962 (Beynon 1973), the long campaign to bring Briggs into line with the rest of Ford culminated in the sacking of three core members of the stewards committee in 1962 and fourteen other stewards. According to Friedman and Meredeen this marked the virtual disappearance of significant shopfloor organisation at Dagenham for the remainder of the decade. In the following year only 3400 'man-hours' were lost at the plant through strike action. In contrast between 1958 and 1963 the Halewood plant experienced the development of shop steward organisation and significant conflicts in 1963, indicative of the growing militancy in the plant throughout the 1960s (Beynon 1973). It was not until after the strike activity of 1968-73 that Ford finally shifted from its position of exclusive dealings with national officials (Starkey and McKinlay 1989).

Strike Activity: Some Explanations

As DMR (1983) have shown, stoppages in the motor vehicles industry increased tenfold between 1946 and 1973, workers involved ninefold and days lost sevenfold. They also showed that strike activity exhibited a clear seasonal variation with peaks and troughs related to production requirements. However, as a number of writers have pointed out, the industry was relatively strike free until the late 1950s (Turner et al. 1967, DMR 1983, Edwards 1983) and an adequate account of strike activity must account for this change.

A number of explanations can be offered for this transformation in strike propensity. First, that after nearly a decade of expansion in home demand the industry experienced a cyclical downturn, (see also metals and shipbuilding) provoked in part by government responses to an ailing balance of payments position. In contrast to the industry's normal policy of varying hours worked to cope with demand changes, managements responded by lay-offs, thereby exacerbating insecurity and instability in employment.

Second, that the critical development was the spread of unionisation and particularly the emergence of developed shop steward organisation outside the already strong organisation in the Coventry firms. The recession and the management responses to it may have provided the grievances but these needed a vehicle to allow them to be expressed and that came with shop steward organisation.

Third, that in BMC and the Coventry firms steward organisation and increasing strike activity were further stimulated by the prevailing payment systems. Piecework provided the basis for bargaining opportunities as piecework rates were negotiated and re-negotiated. Furthermore, the piecework system contributed to strike activity through variations in earnings (Turner et al. 1967) and through creating perceived anomalies in pay which acted to stimulate sectional claims and 'leapfrogging'.

Of further significance is the fact that the focus of strike activity appears to change throughout the 1950s. For much of the decade, most disputes were over union

recognition, wage rises, closed shops and dismissal issues, but between 1959 and 1964/65 they were mainly over hours and conditions of work, wage structures and workloads. This supports the evidence that most of the difficulties in gaining recognition and effective organisation had largely been overcome by the late 1950s and thereafter strikes became increasingly focussed upon issues of equity and control.

The case of motor vehicles illustrates the critical importance of effective shop steward organisation as a necessary condition in the emergence of strike activity, although as the Standard case shows strong shop steward organisation does not necessarily mean more strikes. Through such organisation came attempts at greater control of the work situation, achieved more easily at plants where piecework predominated. Overall, we see no reason to dissent from the view of Turner et al. (1967) that in such contexts worker expectations were changing and that the management responses to the product market changes of the late 1950s clashed with these expectations and contributed to the increased numbers of stoppages. More significantly these strikes achieved tangible results, so that by the 1960s car workers had learned that strikes frequently paid. In the next section we subject strikes to further examination through econometric analysis of the main measures of stoppage activity.

Strike Activity: 1949-1973, DMR Revisited.

Before detailing the results from our econometric analysis a cautionary note is required. As the Donovan Commission noted in the late 1960s, the 'strike problem' as it identified it was one of an increasing number of small, short, unofficial and unconstitutional stoppages which frequently did not enter the official statistics. Given the Commission's focus upon metals and engineering (Turner 1969) the official statistics, which severely understate the true extent of strike numbers, are likely to have even greater deficiencies when applied to these sectors. These data inadequacies do not apply to the same extent to the series for workers involved and days lost in stoppages.

Before considering strike activity for the long period to 1990, it was decided to run equations on the 1949-73 period studied by DMR. First, to provide a test of some of their conclusions by means of econometric analysis and second, to assess specifically the strength of the constructed trade union series. The equations run for 1949-73 are detailed in the table overleaf, but the results were dominated by the strength of the trade union density variable. Equation (a) illustrates the importance of the variable, where it alone accounted for 88% of the variation in the number of stoppages per 100,000 employees. In equation (b) it was run alongside the level of import penetration with both significant and exerting a strong upward influence on stoppage numbers. The rationale for the positive coefficient on the import penetration term for this period is not clear and it is likely that it is picking up the effect of other factors. However, the result may be a consequence of managerial responses to rising import penetration from the late 1960s onwards, and the resistance from workers that this engendered.

In equation (c), the number of new car registrations was substituted for TUD and Import penetration and was found to exert a strong and significant upward influence on stoppage numbers. However, when run in conjunction with trade union density it was insignificant, the impact of the latter swamping that of other variables (with the exception of import penetration). These results were confirmed through the use of stepwise regression analysis where the constructed trade union series dominated the impact of other variables. These results would seem to offer considerable support to the role of the spread of union and particularly shop steward organisation in the growing strike propensity of the industry particularly in the period after 1957.

STRIKE ACTIVITY: 1949-1973 ECONOMETRIC RESULTS

Variable	Equation (a)	Equation (b)	Equation (c)
Constant	- 66.34	- 42.99	+ 0.28
TUD	+ 1.19 (4.1)	+ 0.81 (6.67)	
IMP		+1.12 (3.94)	
NCR			+ 0.38 (2.69)
SDE	6.4	5.0	9.13
F	170.8	147.1	73.2
R2	0.88	0.93	0.76
D.W	1.13	1.08	0.82

Sources: **TUD:** A constructed trade union density series using company data at selected time periods from Turner et al. (1967), Seglow and Wallace, (1984), Thoms and Donnelly, (1985), Tolliday and Zeitlin (1986).

IMP: Index of import penetration, from Dunnett (1979) and Annual Abstract of Statistics. Imports as a percentage of home demand + exports.

NCR: New Car Registrations, from Annual Abstract of Statistics.

MEANS and STANDARD DEVIATIONS

TUD: 78.54 and 14.09.

IMP: 6.228 and 6.03

NCR: 70.64 and 40.637.

STRIKE ACTIVITY IN MOTOR VEHICLES: ECONOMETRIC RESULTS

Variable	Mean	St Dev	1	2	3	4
Constant			- 92.2	3.96	3.54	- 63.37
Agg U	5.16	4.65	- 12.8 (2.87)	0.29 (0.25)		
NCR	105.9	57.67	0.39 (6.0)	0.37 (2.44)	0.285 (1.94)	
REL	115.8	8.55	0.87 (2.3)			
Pt-1	6.73	5.1	0.5 (1.64)	0.49 (1.05)		- 0.84 (1.94)
TUAct					- 16.83 (2.13)	
Ui	2.4	4.15	4.76 (2.68)			
TUD	84.9	13.62				1.2 (4.09)
IMP	20.61	19.13	1.0 (1.9)	0.592 (1.14)		
Y/N				0.82 (0.15)		
YP					6.7 (1.64)	
SDE			9.05	12.15	10.69	8.87
F			14.38	9.42	23.16	58.6
R2			0.76	0.567	0.646	0.75
D.W			0.97	1.44	1.56	1.83

Note: Equation (1) for period 1949-1982, Equations (2), (3), (4) cover the period 1949-1990.

Agg U, Percentage average aggregate unemployment; NCR, Number of new car registrations; REL, average nominal earnings in motor vehicles relative to all industries; Pt-1, change in retail prices lagged one year; Ui, Average industry unemployment (percentage); IMP, level of import penetration; Y/N, Rate of change of output per person; TUACT, a dummy variable to capture impact of the 1984 Act; TUD, the constructed trade union density series.

MEAN and STANDARD DEVIATION: Figures above refer to 1949-1990, those for 1949-1982 are as follows; AggU: 3.33 and 2.68, NCR: 85.61 and 43.58, Pt-1, 7.0 and 5.57 and IMP: 13.73 and 14.24.

Strike Activity: 1949-1990

The best results for the period 1949-1982 are shown in equation (1). The product market variable NCR, (the number of new car registrations) dominated all equations run for this period (apart from when included alongside the constructed trade union density series) and alone accounted for over two-thirds of the variation in the number of stoppages. It also had a perverse impact on the percentage unemployed (aggregate unemployment), which run separately had a positive association with strike numbers but when run in conjunction with NCR had a negative association. The results for aggregate unemployment in equation (1) therefore need to be treated with extreme caution. For different reasons, the results for relative earnings (average nominal earnings in motor vehicles as a percentage of average nominal earnings in all industries) must also be treated with care. They imply that rises in relative earnings cause an increase in strike numbers but it is more likely that strikes are contributing to the rise in real earnings and so the direction of causation is from strikes to relative earnings rather than the reverse. Finally, the industry unemployment variable, not affected in terms of sign by the inclusion of NCR, shows a strong positive impact on strike activity. This implies a concern over job rights identified by Turner et al. (1967) and would suggest that its impact is concentrated upon non-pay stoppages but our earlier concerns over this variable need to be borne in mind here.

For the period from 1949-1990 the number of new car registration continues to exert a strong but declining influence upon stoppage numbers. In contrast to the shorter period, when run separately it accounted for 53% of the variation in strike numbers and failed to achieve significance, and taken in conjunction with the results for the period after 1969 (see below) suggest that its influence lay in the period of the 1950s and 1960s. This conclusion is reinforced by the results from equation (3) where the NCR variable is not significant when run alongside the dummy variable for the Trade Union Act and a dummy to capture the impact of incomes policies.

The results for the Trade Union Act support the view that the legislation of the 1980s has had a depressing impact on stoppage activity over and above the impact of rising unemployment. This adds considerable weight to those who argue for the

effectiveness of pre-strike ballots and it is likely that these coupled with the threat and use of injunctions to restrain strikes in breach of the legislation (Evans 1987). This is reinforced by the fact that the motor industry was one of the first to use the legislation (Austin-Rover successfully prevented action taking place in November 1984) and this could have demonstrated to car workers the companies willingness to use the law and its potential effectiveness against them. There can certainly be little doubt at an aggregate level that the legislation enacted since 1979 and particularly that of 1984 has exerted downward pressure on strike activity (in the case of the car industry by approximately 47 strikes per year) but other factors were operating in conjunction with the 1984 Act which could overstate its impact, in particular the initial signs of collapse of the miners strike in late 1984 and the final defeat in 1985.

The results for the 1949-1990 period indicate the declining influence of aggregate unemployment and the fact that the association with stoppages is now a positive one. This results from the fact that the aggregate unemployment term is normally negatively associated with pay stoppages which dominated the post-war strike activity in motor vehicles. After 1979, non-pay stoppages dominated with which unemployment has a positive association and for the period beyond 1982 the conflicting influences produce a positive but insignificant association with strike numbers.

Overall, the results obtained for the post-war period are mixed but they do offer support to the underlying model at least as far as pay stoppages are concerned. It is clear that product market influences are particularly important up to 1982, although the impact of NCR may have been declining from the late 1960s when import penetration and falling market share became a more immediate issue for UK car manufacturers. The evidence also offers support for the impact of legislation and the role of government more generally (i.e through product market changes), and confirms the earlier conclusions about the role of trade union organisation.

In order to gain a clearer picture of the influences upon strike numbers it was decided to run equations for both pay and non-pay stoppages for the period after 1969. This

year was chosen as it is the earliest year for which data on motor vehicles was available; prior to this it was available for vehicles only. The results are contained in equations (5), (6), (7) and (8) overleaf.

The evidence on pay stoppages appears to highlight the role played by incomes policies in conjunction with the level of product demand and the lagged price inflation term. However, the NCR variable has a negative coefficient (cf the results for 1949-82 and 1949-90) and the import penetration variable is insignificant suggesting that product market influences have become less significant or that their impact has changed. The results were investigated further using individual correlation coefficients and these revealed that the most important influence upon pay stoppages was import penetration, accounting for almost 60% of the variation in stoppage numbers and that the lagged price inflation term was only significant when included alongside other variables. The results for import penetration are important in confirming the continuing impact of product market pressure on stoppage activity and in offering support for the contention that the impact of NCR is mainly in the 1950s and 1960s, with increased competition exerting a stronger influence thereafter, a finding which supports the conclusions of DMR (1983) in their analysis of the industry.

In the theoretical model the relationship between import penetration and strike activity was left open with the proviso that managerial actions in response to it could directly affect worker attitudes and expectations. For the period until 1973 the variable was seen to exert a strong positive impact upon stoppage numbers whereas from 1969-1990 the variable is again significant but the sign is negative. A possible interpretation of the results for the later period is that its impact operates through management responses such as changes to collective bargaining or that it is picking up the effect of other variables such as rising unemployment. Although, import penetration did not show as a significant determinant of non-pay stoppages it is clear that it was a critical factor behind management attempts to regain control of the shopfloor in the late 1970s and 1980s.

STRIKE NUMBERS 1969-1990: ECONOMETRIC RESULTS

Variable	Mean	St Dev	PAY STOPPAGES		NON-PAY STOPPAGES	
			(5)	(6)	(7)	(8)
Constant			66.1	37.25	39.67	22.1
Agg U	8.2	4.66				0.52 (1.1)
YP			12.7 (3.24)			
NCR	149.5	36.89	- 0.27 (2.96)			
Pt-1	9.55	5.34	- 1.18 (3.43)	- 0.54 (1.3)	- 0.29 (0.89)	
IMP	36.1	13.77	- 0.04 (0.2)	- 0.53 (2.42)	- 0.387 (1.25)	
TUACT					- 9.03 (2.07)	- 11.1 (1.36)
SDE			5.16	6.36	5.82	4.55
F			14.4	28.9	13.48	5.08
R2			0.77	0.59	0.69	0.46
D.W			2.82	2.39	2.34	2.17

Note: Variables as in previous table.

Overall, the results point to the continuing impact of product market influences on pay stoppages, but not significantly on non-pay stoppages. The importance of the Trade Union Act dummy is confirmed as is the role of incomes policy but, unemployment and other labour market factors appear to be less important although this may be affected by our inability to test for the impact of industry unemployment after 1982.

In contrast the results for non-pay stoppages are disappointing, accounting for less than half of the variation in such stoppages and with none of the variables significant. However, these results are not surprising; in an industry where a contest for control was ever present in many plants (Beynon 1973) it is understandable that external factors exerted such a limited impact. This is not to suggest that external influences were unimportant, merely to stress that their impact was critically affected by management responses to them (see next section), and it is these responses particularly in relation to shopfloor control which contributed significantly to the number of non-pay stoppages.

The variables used to analyse stoppage numbers were also tested on the series for workers involved and days lost but their impact, with the exception of the Trade Union Act on workers involved in pay stoppages were insignificant. Although difficult to pick up in econometric work observation of the workers involved and days lost over pay stoppages showed an association with major pay negotiations, as at Austin Rover in 1982 and 1984, Ford in 1987 and Vauxhall in 1984, 1988 and 1989. This would confirm the view that changes in the level of collective bargaining may alter the incidence and the form of stoppages. The average size of pay stoppage (in terms of workers involved) increased from 570 (1970-1978 average p.a) to 1526 (average p.a 1980-1990) and it is probable that a critical influence upon this was the fact that from 1980 all the major manufacturers operated a system of company-wide bargaining. This issue is taken further in the final section on the period after 1970.

STRIKE ACTIVITY IN MOTOR VEHICLES 1970-1990

The aim of this final section is to examine strike patterns in motor vehicles from the late 1960s until 1990 focussing upon the years after 1974, in the wake of the first oil price explosion and the end of DMR's examination of the industry. It permits an assessment of competing explanations for those patterns particularly those of Turner et al. (1967), DMR (1983) and Willman (1984, 1985, 1986) and offers an additional interpretation in terms of contradictions within the industrial circuit of capital.

The analysis that forms the remainder of this section draws upon the econometric work presented above but concentrates upon developing a longer term perspective which examines the ways in which managements responded to product and labour market pressures through changes in the labour process and the consequences of these for strike activity. It begins by presenting an overview of strike activity and then sub-divides the period into that from 1970-1978, and from 1979-1990 with a particular focus upon the period of major change from 1977-1983.

The table allows us to draw out some general points about the strike activity in the industry over the twenty-three year period. First, that although pay stoppages exhibit peaks between 1968 and 1974 and between 1976 and 1979 they decline significantly both absolutely and relative to non-pay stoppages after 1979. Secondly, that non-pay stoppages remain important throughout the period with peaks between 1969 and 1974, 1976-1979 and from 1981-1984 (averaging 27.6 per 100000 employees per year).

A third factor is the general decline in strike activity in overall numbers and when weighted by employment. This clearly parallels the pattern in most other sectors of the economy in the 1980s as does the significant increase in the share of non-pay stoppages, never more than half in the period from 1969 to 1979 and never less than half thereafter. The maintenance of conflict over non-pay issues and its significance in the early 1980s in particular needs to be seen in the context of managerial attempts to change the effort bargain in a number of companies (Willman 1984, 1985) and in BL and Talbot to radically restructure industrial relations and the labour process. The

strike patterns will be examined in more detail later in this section but before doing that attention needs to be given to the years immediately preceding the changes in management strategy in the late 1970s.

STRIKE ACTIVITY A COMPARISON BY DECADE

YEARS	PAY STOPPAGES	NON-PAY STOPPAGES
1970-1979	25.2 p.a.	20.6 p.a.
1980-1990	10.77 p.a.	19.9 p.a.

(Source: as above)

1970-1978

From the late 1960s the car industry moved into a new phase following the formation of BLMC, the takeover of Rootes by Chrysler and the removal of hire purchase restrictions in 1971. The consequence of the latter was a significant expansion in demand which continued until 1974 when, in the wake of the oil crisis demand fell by nearly 40%. It appears that the early 1970s was critical for the industry as the expansionary government policies of the time ushered in a surge of imports (see table below) and in Dunnett's (1979) view the

linkage of the British public with British producers was irrevocably weakened' (1979)

This rapid increase in import penetration was particularly severe in the small car segment, thus affecting BLMC and Chrysler disproportionately. Imports' share of this market segment increased from 10.5% in 1969 to 29.5% in 1972 and to 45.4% in 1977 (Pryke 1981). UK producers were therefore being squeezed by a contracting market after the oil price increase and by a rapid increase in import penetration. Furthermore, productivity declined significantly between 1973 and 1975 and this coupled with the precarious product market position produced losses in all the major manufacturers except Ford and prompted the effective nationalisation of BLMC in 1975. As Dunnett (1979) has argued further;

**Overview of Strike Activity
in Motor Vehicles 1968-1990
STRIKE ACTIVITY 1968-1990**

	PAY		NON-PAY
YEAR	STRIKES	PAY%	STRIKES*
1968			
1969	27.66	50.9	26.65
1970	40.55	61.9	24.95
1971	24.8	51.7	23.2
1972	25.92	58.5	18.37
1973	29.8	51.2	28.43
1974	27.2	60.5	17.7
1975	17.5	53.4	15.3
1976	20.1	47.1	22.54
1977	25.43	55.7	20.26
1978	21.02	53.8	18.05
1979	20.18	53.3	17.66
1980	8.67	39.1	13.5
1981	10.58	27.9	27.3
1982	13.4	30.1	31.15
1983	7.44	25.5	21.68
1984	27.05	47.2	30.25
1985	8.76	38.1	14.23
1986	5.64	23.8	18.05
1987	16.54	43.0	21.92
1988	7.05	33.9	13.75
1989	7.01	33.9	13.65
1990	6.32	32.7	13.01

(Source:Strike statistics; Employment Gazette, figures on employment from Annual Abstract of Statistics, March each year)

Strikes*; Strikes per 100000 employees

By 1975....the UK motor industry had for the most part become unprofitable, outdated and uncompetitive (1979: p126)

The consequence of these factors was a rapid rise in labour's share of value added after 1978 with a decline only evident after 1982/83 when redundancies, the impact of technology and new working practices began to feed through into productivity. The movements in the main performance indicators are detailed in the table overleaf. The changes highlighted in the table also precipitated significant changes in the industrial relations sphere in the major companies which in Friedman's (1977) view constituted a move towards 'direct control' strategies over labour. We have already noted the high levels of unionisation in the industry and the highly developed nature of shop steward organisation and workplace control over the effort bargain which management had largely ceded in the late 1950s and 1960s. As Lewchuk (1982) has stated;

The interwar strategy of granting labour a degree of control over the pace of work through the piecework system could severely backfire. Under conditions of full employment labour was able to exploit weak management control through the establishment of formal trade unions' (1982: p148-9).

The piecework system, established in all the major companies except Ford and Vauxhall was therefore an area of management concern in the context of hardening product markets and limited productivity growth, in part because of its association with wage drift and workplace bargaining but also because of the control it gave to shop stewards. The first moves to change this came in 1969 with Chrysler's decision to abolish piecework and move to a measured daywork system, with BLMC following in 1971 at Cowley and 1972 at Longbridge, and with the introduction of new procedures in 1972. In both companies managements were concerned to regain control over workplace and pay and one consequence was the effective ending of the gang system in Coventry (Friedman 1977). Within BLMC the transition to daywork was associated with protracted strikes at both STI and Jaguar (Thoms and Donnelly 1985) but achieved with little difficulty at Cowley and Longbridge, in the case of the

latter because half the workforce were already paid as dayworkers (Friedman 1977). The conflicts that arose did so over the decrease in the power of shop stewards and over the loss of control within the workplace. Measured daywork appears to have brought a change of emphasis in bargaining towards issues of status, pensions, holidays, safety and other fringe benefits with stewards having to relinquish a number of quasi-managerial functions. In general it seems to have been associated with heightened conflict representing a considerable fall in earnings for those previously on piecework, compressed differentials (Scullion, 1981) and did nothing to raise productivity.

The failure to raise productivity was a consequence of management maintaining the manning levels of the 1960s and the fact that few foremen were trained to implement MDW (Pryke 1981). However, by the end of the 1970s at Chrysler self-supervision had ended, the number of supervisors doubled and a tougher management approach emerged with more use of discipline and frequent lay-offs (Hyman and Elgar 1981). Factors which probably contributed to the high number of disputes in the company in the second half of the decade.

Changes of a different nature were also taking place at Ford. In 1967 the company introduced a system of work measurement together with a complex operating system accompanied by a substantial pay increase but also by major strikes in 1968, 1969 and 1971 (Friedman 1977). Indeed the period 1968-1972 was a period of heightened conflict generally within Ford with 150 strikes and 11 overtime bans in 1970 alone (Dunnett 1979). The national stoppage in 1969 over pay led to the introduction of a procedure agreement with penalty clauses against 'unconstitutional action' and a change in the constitution of the NJNC (Friedman and Meredeen 1981, Tolliday 1991) and finally brought to an end the company's policy of dealing exclusively with national union officials and ignoring shop stewards (Starkey and McKinlay 1989). The early 1970's also saw the ending of the Coventry Toolroom Agreement in 1971 and the merger of the TGWU with the NUVB which placed the TGWU in the position of being the dominant union in the industry, with around 35% of the industry's unionised workforce (Seglow and Wallace 1984).

TABLE 3
MAIN INDICATORS OF PERFORMANCE IN MOTOR VEHICLES 1970-1990

YEAR	NCR*	IMPORT PEN.	RWB	LSVA	% Y/N	% PBR	IndU
1970	100.0	18	100	-	-6.4	N/A	2.5
1971	118.5	15	101.8	-	8.4	N/A	2.4
1972	151.0	18	103.8	-	13.5	N/A	2.6
1973	149.8	23	106.4	77.2	-12.7	39.9	1.4
1974	109.5	19	106.9	78.0	-9.9	30.5	1.2
1975	104.9	24	101.2	87.5	-14.2	30.0	2.7
1976	113.4	28	106.5	82.2	12.4	35.6	3.7
1977	116.5	34	103.2	76.4	-8.0	44.6	2.7
1978	140.1	37	106.6	76.3	-7.6	44.8	2.6
1979	151.3	41	97.3	91.0	-10.6	34.0	2.6
1980	135.2	39	89.0	107.6	-4.4	37.4	3.3
1981	133.1	42	75.1	105.0	34.6	45.5	9.1
1982	140.6	47	67.2	101.2	-1.0	53.1	13.7
1983	160.8	50	65.2	91.0	33.2	52.3	-
1984	156.5	50	63.8	88.6	-9.4	-	-
1985	160.1	50	64.2	83.6	9.5	62.7	-
1986	163.2	51	64.2	78.5	0.3	73.8	-
1987	174.2	48	63.3	75.3	14.9	72.9	-
1988	191.2	49	67.1	77.2	3.6	71.3	-
1989	198.9	51	67.9	70.4	5.0	70.5	-
1990	172.3	50(est)	66.3	-	0.6	66.7	-

Sources over page:

NCR; new car registrations from Annual abstract of Statistics.
IMPORT PEN.; Imports as a percentage of UK sales from DMR until 1973 and from Annual Abstract of Statistics 1974-1990.
RWB, Index of Real Wage Bill, calculated as for other industries.
LSVA, Labour's share in value added, from National Income Blue Book
PRODUCTIVITY; Annual change in productivity calculated from Index of output and employment figures both from Annual Abstract of statistics
%PBR; The percentage of workers in the industry on payment by results schemes, from New Earnings Survey.
Ind U; The percentage of workers unemployed in the industry calculated from Employment Gazette figures on unemployment by industry expressed as a percentage of total employment. These figures are not available after 1982.

The changes in payment systems at BLMC and Chrysler brought the companies in line with Ford and Vauxhall on day-rate systems and sought to eliminate piecework bargaining with the associated problems of short unofficial and unconstitutional stoppages (a general concern of employers in the industry; see evidence to the Donovan Commission 1968) and shop steward control and influence. However, many of the underlying problems remained and as late as 1976, BL Cars still operated with 56 manual bargaining units and settlement dates covering a nine month period (Willman 1984). This produced the associated problems of 'leapfrogging' pay claims and strikes over pay parity and differentials which reached a peak in 1977 with the toolroom workers dispute. Throughout the 1970s strike activity in the industry was dominated by events at BL and Chrysler with Ford's Halewood and Vauxhall's Ellesmere Port plants also having significant strike problems.

Throughout the 1970s Chrysler lost an average of a million man hours a year through disputes (Grunberg 1976) and between 1972 and 1974 the company estimated that it lost 129000 vehicles (Thoms and Donnelly 1985) through disputes, with Ryton characterised by numerous short duration stoppages over working conditions, discipline and safety reflecting an on-going contest for control over the labour process (Grunberg 1976). At Linwood and Ryton in 1978 there were over 700 separate industrial relations disputes which led one observer to describe the company as having been 'torn apart by appalling industrial relations' (Dunnett 1979). The situation at Chrysler has been viewed as a consequence of a falling market share and trading losses (as at BL) but also of the failure of the US parent company to appreciate the system of industrial relations in Coventry and the imposition of US style management techniques on an insecure labour force (Thoms and Donnelly 1985). However, the precondition for the levels of conflict was the very significant shop steward presence in the company and the strength of the shop floor movement often acting separately from shop steward organisation, especially at Ryton (Willman 1985).

The changes introduced by BLMC and Chrysler did little to increase productivity or profitability and both companies experienced a further deterioration in their trading position by the mid 1970s. At BLMC productivity fell from 1973 to 1976, unit costs

increased by 11% between 1972/73 and 1974/75 and by a further 10% between 1974 and 1978, and losses mounted. In response the government effectively nationalised BLMC in 1975 and supported Chrysler through massive financial injection in 1977. Indeed with the exception of Ford, by the mid 1970s the UK car industry was in Dunnett's phrase largely unprofitable, he added that;

By the 1970s not only were labour management relations in chaos and management shopfloor relations weak, but labour-labour relations were in disarray' (1979)

This was certainly the case at Chrysler, but at BL as Seglow and Wallace (1985) have shown union organisation was highly developed, if fragile as subsequent events proved (Jefferys 1988). The period 1975-77 was a period of severe conflict at BL Cars (Willman 1984) especially over non-pay issues despite the company's ailing position and the fact that BL introduced participation as part of the Ryder package of reforms. The extent of unionisation in the industry has already been described but at BL in the mid 1970s shop steward organisation was arguably more developed and advanced than elsewhere in the industry. The Cars Division recognised 17 unions for negotiating pay and conditions, with 100% unionisation for manuals and 70% for non-manuals in 1978 (Seglow and Wallace 1984). In the Cars Division there were 4000 shop stewards in 1976, eleven senior stewards at Longbridge and five at the Cowley Body plant. The Cowley Body plant had 268 stewards in total with 235 at the Cowley Assembly plant, Castle Bromwich had 530 stewards, Common Lane 90 stewards and in all the Longbridge plants there were approximately 700 stewards (Seglow and Wallace 1985; all figures relate to 1978). In addition to steward numbers there were also Works Committees at Longbridge and the Cowley Body plant with Works Councils at Castle Bromwich and Cowley Assembly. Shop Steward combines, comparatively rare outside the industry even in the 1970s and not recognised by the national unions had existed at BMC, Jaguar and STI from the early 1960s and after the formation of BLMC a new combine committee was formed.

It is clear that despite the attempts by BLMC and Chrysler managements in the period 1969-72 to regain control from shop stewards through the abolition of piecework the

latter had significant control and influence in both companies by the second half of the 1970s. It should be noted that this control and organisation was more highly developed in some parts of these companies than others, particularly at Ryton and at STI in contrast with Linwood and Longbridge and Cowley (Tolliday 1985). In contrast the position at Ford and Vauxhall indicates a less powerful shop steward presence due much to the operation of day-wage systems and significant management control. As Tolliday and Zeitlin (1986) have argued, at Vauxhall 'it is arguable whether there has ever been a powerful shop steward organisation' (p103), whilst at Ford there is a clear contrast between Dagenham, described as 'sporadically powerful' (Tolliday 1985) and Halewood, where stewards had a significant presence and a reputation for militancy with a well-established shop stewards committee by the late 1960s (Beynon 1973). At Halewood stewards also seem to have exerted a significant degree of job control, having learned from the experiences of Dagenham, although this control was seen as being ultimately frail (Tolliday and Zeitlin 1986, Beynon 1973). The Dagenham case is illustrated clearly by Tolliday and Zeitlin who argued that;

At Dagenham in the 1960s, stewards were not consulted over speed-up, the company was able to move workers around the factory more or less at will, and individuals were pressurized by supervisors into accepting additional tasks on their jobs for the same money (1986: p104).

These factors may go some way towards explaining why Halewood became the Ford 'problem plant' in terms of shop floor militancy from the mid 1960s (Tolliday and Zeitlin 1986) and dominated the company's strike record into the 1980s although Dagenham experienced a number of acrimonious disputes. As management attempted to ensure adherence to procedure and increase efficiency conflicts arose in both plants. The late 1970s witnessed major stoppages over working practices and lay-offs (particularly following unofficial stoppages) the latter provoking violent clashes at Dagenham from 1973-77. At Halewood, working practices were the major issue after 1976 with Ford 'declaring war' on informal practices such as 'welt working' (Tolliday 1991). Disputes concerning this issue contributed significantly to

the rise in hours lost in the plant in 1977 and 1978. The contrast between Halewood and Dagenham is also a product of significant differences in workforce composition. Historically, Dagenham has employed a large proportion of workers from a variety of ethnic backgrounds (currently over 60% of production workers) with different traditions reinforcing sectionalism in the plant. Halewood, in contrast has had a more homogeneous workforce (in terms of ethnic background) providing a more fertile ground for greater solidarity and class consciousness to develop (also Zeitlin (1980) on the significance of Welsh workers at the Cowley plant in the 1930s).

By the late 1970s the industry, faced by a crisis of profitability, stagnating productivity and increasing competition in a contracting UK market sought new strategies for future growth. At BL the position was precarious, it was noted above that competition in the small car segment was particularly intense and overall market share in the car market fell to 24% in 1978. These factors were compounded by the fact that the company was producing too many products with outdated designs in insufficient quantities (Bhaskar 1979), poor product quality and a production process which allowed shop stewards a significant degree of control and exposed the perceived weaknesses of the company's management (Edwardes 1983). The structure of collective bargaining in BL, little changed since the 1968 merger meant that in the company as a whole there were 246 separate bargaining units in 1976 (Willman 1984) and in the following year over 700 industrial disputes (Dunnett 1979). At Chrysler, as we noted, a similar set of circumstances existed both in terms of product market decline and competition and labour process control. The position at Ford and Vauxhall was less serious although the latter was experiencing losses and increasing import penetration and suffered through a series of supplier strikes in the 1970s (Willman 1985), management still had significant control over the labour process as it appears to have done at Ford, at least at Dagenham. Thus if there was a dominant view that in order to raise productivity and restore profitability attempts had to be made to restructure the labour process and 'wrest control from the shop floor' these pressures were much more acute at BL and Chrysler/Talbot than elsewhere.

STRIKE ACTIVITY 1970-1977: SOME EXPLANATIONS

We began this chapter by reviewing the work of Turner at al. and their focus upon changing worker expectations in terms of job rights, notions of fairness, and 'institutional obsolescence'. Despite the procedural and payments systems changes introduced in the late 1960s and early 1970s many of the managerial responses seem to have been a continuation of what had gone before. The product market changes between 1974 and 1978 were countered within the industry by the traditional method of adjusting the number of hours worked rather than by shedding labour. The numbers employed fell by 6% between 1970 and 1978 whilst the number of hours worked in overtime varied from 11.5 millions in 1970 to 14.6 millions in 1973, and the percentage of those on short time varied from 2.5% in 1970 to 9.8% in 1974. The continuation of traditional management responses into the 1970s suggests a reinforcement of the conclusions of DMR for the period up to 1973 that;

If loss of employment were resisted it was because its (the workforce's) expectations over job rights and earnings were violated rather than because of fears over the lack of alternative employment' (1983: p326)

This may also help to account for the relative unimportance of non-pay stoppages in the period to 1979/80 at least at BL and Chrysler where shopfloor control appears to have remained strong and where the structure of pay bargaining permitted relatively frequent bargaining and 'leapfrogging' of pay claims. At BL following the Ryder reforms the management approach changed towards one of encouraging more participation and joint decision-making but against a background of a company which was effectively bankrupt. It is likely that Willman (1985) is correct in his assertion that it is doubtful whether the output lost through strikes between 1974 and 1977 could have been sold. At Ford and Vauxhall with bargaining conducted at a company level annually the ability of the shopfloor to influence pay on a regular basis was very limited but major disputes did occur over dismissals, work allocation and manning levels between 1975 and 1978 at Ford and particularly at Halewood suggesting an on-going contest for control over aspects of the labour process. Within Vauxhall major disputes periodically occurred at Ellesmere Port as in 1976 and 1978 but were

absent from the company's Luton plant.

It was noted earlier that a consequence of measured daywork was the compression of differentials. This created considerable friction, particularly within BL, undermined notions of fairness and generated a series of conflicts between 1975 and 1977 involving toolmakers who were particularly aggrieved about the compression of their differentials (Scullion, 1981), and culminated in the introduction of a new incentive scheme in 1977. Similarly at Chrysler the period was marked by intense conflict and after Peugeot-Talbot took over the company in 1978 an incentive scheme was re-introduced.

Although we would concur with the view that pay strikes in the industry have tended to have more to do with internal rather than external relativities (see Turner et al. 1967, DMR 1983) the worsening product market position had a direct impact on the relative earnings of car workers. From being the fifth highest paying industry in 1970, by the early 1980s it had dropped out of the top ten (Marsden 1983). Average earnings in the industry relative to average manual workers earnings fell significantly from 1971-1974, rose slightly to 1977, stabilised and then fell again to 1983 so that by that date they were approximately 20% below the level of 1970. These factors coupled with the impact of inflation and the Social Contract on pay were probably significant in the build up to larger pay disputes towards the end of the decade, notably at Ford in 1978, whilst the Social Contract may have contributed to an increase in non-pay stoppages from 1976-78.

In summary a number of influences appear to be operating in the period from 1970-1978 to account for the changing strike patterns. First, as the econometric results show the product market position through fluctuations in new car demand and more significantly growing import penetration exerted a continuing influence upon the industry and its strike patterns. Second, the introduction of MDW, which by challenging established workplace control and shop steward influence gave rise to new grievances and as Friedman (1977) and Lewchuk (1982) have argued marked a significant shift in managerial approach towards labour management and control.

Third, the impact of MDW, as well as having implications for control also disturbed established differentials and thereby notions of fairness in pay which contributed significantly to strikes particularly at BL. Fourth, the relative decline of pay in the industry allied to the impact of the Social Contract may have been of some significance in the latter part of the decade. Fifth, the structure of collective bargaining also seems to have played an important role in the number of stoppages in particular. As Willman (1984, 1985) has stressed, the main types of stoppage at both BL and Chrysler were short, small and unofficial. The available evidence suggests that the frequency of disputes was much greater at these two companies than at either Ford or Vauxhall where company bargaining existed (Dunnett 1979, Thoms and Donnelly 1985, Willman 1985), although by the late 1970s Vauxhall had also introduced its own incentive scheme. Finally, the car industry provides a clear indication of the significance of shop steward organisation in relation to strike activity. Within BL and Chrysler strong and highly developed organisation existed although at times there appears to have been strong workplace organisation independent of this. At Ford such organisation was more fragile, at least at Dagenham but conflicts over control issues were a constant issue at both Dagenham and Halewood well into the 1980s, whilst at Vauxhall shop steward and union organisation was not as developed as in the other companies, reflected in the relatively low strike incidence within the company and particularly at Luton.

THE PERIOD SINCE 1978

The late 1970s marks a watershed in approaches to labour management in the industry. The strategies adopted by the main manufacturers have differed in important respects depending upon the severity of their respective problems but they have all been concerned with similar issues.

Some of these changes will be discussed in greater depth later in this section but for the purposes of our analysis we are concerned with the period from 1978-84 in terms of managerial responses to product market decline and to contradictions within the circuit of capital and their consequences for strike activity.

The analysis of the period until 1978 revealed an industry experiencing considerable difficulties, generally viewed as unprofitable and unproductive. By the late 1970s these problems had intensified with UK manufacturers' share of the British market falling from 52% in 1978 to 38.2% in 1979 (Seglow and Wallace 1985) and with particular concern over imports from Japan. This greater awareness of competitive pressures was reflected not just in a wish to emulate and better the Japanese performance but also within companies, particularly Ford and Vauxhall where productivity comparisons between UK plants and those in Germany and Belgium became more important. It is also arguable that this awareness of competitive pressures also filtered down to the shop-floor. In addition it was clear that product quality and design was lacking amongst some UK producers (CPRS 1975) and increasing the uncompetitiveness of the industry so that there was a need for greater flexibility in the product and in the production process to meet changing market needs, particularly the fragmenting of markets. These problems were further compounded in 1978/79 with the 'second oil crisis' which produced a significant fall in demand in 1979.

These pressures were felt in the labour market with a general decline in demand for labour, particularly semi- skilled and unskilled workers. This was coupled to skill shortages for some groups and a need for flexibility amongst employees and multi-skilling requiring an emphasis upon training.

Within the labour process all UK manufacturers have been concerned with raising productivity, achieving greater flexibility and making the most efficient use of new technology. Within BL, Peugeot-Talbot and Ford's Halewood plant this has involved a concentration on reducing 'downtime' and shop steward influence. Using the classification developed by Leman and Winterton (1991) the strategies developed by managements in the UK car industry since 1978 can be identified as follows:

Technological Restructuring:

The introduction of new technology especially within the assembly areas. BL at Longbridge in the late 1970s, and Cowley in the early 1980s. Ford at Halewood in 1980 and 1983 and at Dagenham between 1980 and 1983. Vauxhall at Ellesmere Port and Luton from 1984 and from this date at Peugeot-Talbot's Ryton plant.

Economic Restructuring:

Plant closures, as at BL's Speke plant in 1978 and in Belgium. Peugeot-Talbot's closure of Linwood and Dublin in 1981 and Ford's closure of its Dagenham foundry in the mid 1980's. The concentration of production on fewer sites together with a considerable reduction of employment on these sites. Employment in the industry fell by 44% between 1978 and 1983. Also, there has been a change in the way the main companies see their UK operations; Ford and Vauxhall in varying degrees seeing it as part of their wider European operations whilst Peugeot-Talbot view the UK essentially as an assembly operation.

Labour Process/Industrial Relations Restructuring:

Major changes have occurred through the introduction of new technology. Changes to working practices especially at BL and Peugeot-Talbot with a recent emphasis at Ford and Vauxhall. All companies have attempted to curb shop steward power and influence and at BL and Peugeot this has been accompanied by a strong reassertion of management control. Also at BL significant changes have taken place in collective bargaining and to the payments system in the late 1970s, and new work organisation was introduced in all companies in the 1980s.

The remainder of this section examines the strategies pursued by the main manufacturers and links these to changes in the strike pattern in each. The main indicators of which are detailed below for the period 1974-83. The following analysis of the strategies employed by the main companies since 1978 attempts to examine the linkages between the strategies and the nature and volume of strike activity. It begins with the well-documented case of BL and draws heavily on the work of Willman (1984, 1985, 1986) and Marsden et al. (1985).

Table

**WORKING DAYS LOST IN SELECTED UK MOTOR MANUFACTURERS
1974-1983**

	BL/ROVER		FORD		VAUXHALL	
YEAR	WDL	WDL*	WDL	WDL*	WDL	WDL*
1974	N/A	N/A	484.6	N/A	N/A	N/A
1975	7987.4	-	230.8	-	-	-
1976	N/A	-	185.4	-	12.5	-
1977	3375.0	17307	370.9	5080	413.5	13692
1978	1312.5	6836	2726.0	36837	52.3	1570
1979	1850.0	10452	71.2	937	637.4	19429
1980	437.5	2787	56.4	770	13.8	475
1981	380.0	3016	370.6	5434	15.0	714
1982	275.0	2546	157.0	2368	21.7	1033
1983	187.5	1820	207.2	3397	41.3	1966

(Source: Company figures quoted in Willman 1985; Chrysler/Talbot figures were unavailable for the period.

WDL ; Working days lost, figures in thousands.

WDL*; Working days lost per 1000 employees).

BL/Rover Group

Under the participation arrangements introduced as part of the Ryder reforms for the company, a Joint Management Committee reported in 1976 and identified a number of factors causing low productivity in the company. These were a high rate of industrial disputes, high relaxation allowances and high allowed non-productive time (Marsden et al. 1985). The significance of the Committee's conclusions only became apparent with the appointment of Michael Edwardes as chairman in 1977 with company reorganisation in 1978 and a strategic plan which identified the need for product led recovery and substantial investment in new technology. If such technology was to be utilised efficiently it required significantly greater management control over operations to reduce 'downtime' and potential 'conflict points'.

BL's strategy in labour relations had two components; the reform of collective bargaining, decreasing its frequency and its scope (Willman 1984), and the introduction of new working practices. The collective bargaining reforms were effected between 1977 and 1979, involved the establishment of a group-wide pay structure (finally introduced in 1980) and centralised bargaining in 1980 with two year pay agreements. These reforms effectively eliminated the problem of 'leap-frogging' pay claims between plants and the associated potential for strike activity and in Willman's view was critical in reducing the number of pay stoppages by effectively eliminating the previously large number of small stoppages.

The reform of working practices has arguably had a more significant impact on industrial relations within the company. By the late 1970s top management was losing patience with shop stewards and the relationship between the former and full-time stewards in particular was progressively worsening (Edwardes 1983). The relationship was strained further with the publication of two documents in 1979, one, 'Management in BL' provided a clear statement of 'management's right to manage', embodied further in the 'Blue Newspaper' which synthesised this philosophy, seeking to re-establish management control over working practices and manning levels and the abolition of 'mutuality'. The reforms, finally imposed in April 1980 meant the use of industrial engineering techniques to determine manning levels and standard

times and would no longer be the subject of negotiation. Stewards, already beginning to be marginalised through techniques of direct communications with the workforce and the 'purge' on certain full-time stewards over the instruction to vote against Edwardes recovery plan were to have their role further curtailed. They would exist to represent and communicate trade union information. As Willman has argued;

BL Cars reformed the structure of collective bargaining and scope in such a way as to re-establish central control over wage determination and management control over work allocation (Willman 1984: p9)

With the consequence that:

From April 1980 onwards, management had virtually complete control over work practices' (Williams et al. 1987)

Most of the changes, including teamworking and flexibility within teams, had been introduced by 1981, at least at Longbridge. The Longbridge plant had therefore experienced a dramatic change in its formal industrial relations machinery and in the nature of the labour process. The introduction of new technology in the late 1970s allied to the changes in work organisation and management control produced a particular pattern of strike activity with major stoppages in 1979, 1980 and 1981 (Willman and Winch, 1985). These stoppages, large and damaging in terms of days lost and workers involved, arose over non-pay issues and were largely 'won' by management which probably contributed to the relative absence of conflict at the plant in 1982/83 and after 1984. With the re-tooling of Cowley in 1981 the focus of strike activity shifted, particularly with the launch of new models. The apparent calm of Longbridge was mirrored by a worsening of management-steward relations at Cowley with some evidence that steward organisation had broken down in the plant in the early 1980s (Willman 1986). The 'early finishing' dispute at the time of the Maestro launch in 1983 indicated the deep feelings amongst the workforce about treatment by supervisors and that given an (albeit temporary) increase in bargaining power the workforce was still prepared to use the strike weapon. Like Longbridge, strikes at Cowley in the early 1980s were predominantly concerned with non-pay issues with the extension of management control and re-tooling. Overall, the Cowley plant

experienced further strike activity in 1984, including those surrounding the pay negotiations which also affected Longbridge and provoked one of the first uses made of the 1984 Trade Union Act, but in 1985 only 0.05% of man-hours were lost in the entire company (Williams et al. 1987) and since this date strike activity has remained at very low levels within Rover Group.

The evidence from BL would seem to offer support to Willman's view that the critical relationship is between changing work practices, re-tooling and strike activity. Within BL the centralising of pay bargaining channelled pay issues into formal machinery with negotiations every two years, and significant disputes occurred throughout the 1980s associated with these negotiations. The incentive scheme, with its high bonus component (Willman 1986) and associated instability of earnings was a source of some disputes but between 1978 and 1982/3 the levels and focus of strike activity were largely the result of the changes initiated by management in terms of control of the labour process. The evidence would also suggest that the size of these disputes was also affected by shifts in bargaining power with new model launches providing an opportunity to express deep grievances over aspects of the changes introduced. The importance of re-tooling is also the result of the fact that the initial period of a new product is often associated with 'teething troubles' as well as new working arrangements, bonuses and staffing levels so that the potential for disagreement is increased. When the product is established, management flexibility and willingness to concede on certain working arrangements is likely to be greater and fewer disputes would arise.

PEUGEOT-TALBOT

Given the trading position of the company when it was taken over by Peugeot in 1978 it is not surprising that the strategies adopted by management look similar to those pursued by BL. In the sense that at BL a hard line was possible because the costs of strike action for the company in terms of lost saleable output was low, at Peugeot the acquisition of the manufacturing operations was not of immediate importance, rather it wished to obtain Chrysler's dealer network in the UK. It is therefore possible that the prospect of the closure of manufacturing plants in the UK would not have been seen at the time as being disastrous.

Changes were introduced almost immediately, with the introduction of a new incentive scheme but the crisis point for the company came with a 14 week strike in 1979 ostensibly about pay, and in which management comprehensively triumphed. Subsequently, the workforce accepted increased output without an increase in labour (Marsden et al. 1985) and management mounted an assault on shopfloor power with the introduction of French working practices into its plants (Grunberg 1986).

At Ryton, new working practices were introduced in the wake of the 1979 strike with an increase in the authority of first line supervisors. Management also changed its style and developed new forms of communication with employees (Pettigrew and Whipp, 1991) which by-passed shop stewards and in conjunction with other changes, greatly reduced their number and influence, particularly full-time stewards. In the 1970s, as many as 60% of all stewards on each shift were full-time, by 1985 only two full time convenors remained in the company and the ratio of stewards to members rose from 1 to 20 in the 1970s to 1 to 35 in 1983 (Marsden et al 1985). Overall, stewards were stripped of functions and power and issues of manning became exclusively a management decision as at BL.

The changes were also associated with redundancies and plant closures (Linwood and Dublin in 1981) with a fall in employment from 25000 in 1979 to 6000 in 1983 and to 4000 in 1990. Effort levels in the company increased significantly after 1979 (Marsden et al. 1985) with productivity increasing by 40% between 1979 and 1983

due much to the reduction of 'down-time', increased track speed, cuts in rest periods and increased flexibility (moving workers around the factory and merging job areas) as well as the effects of the re-introduced incentive-based pay scheme (Pettigrew and Whipp, 1991). No significant capital investment was made at Ryton until the second half of the 1980s, yet the UK company achieved profitability in 1983 and 1984, with spectacular growth since 1987.

Peugeot-Talbot represents an interesting contrast with the other main UK companies in that having changed working practices significantly, re-tooled in the late 1980s and introduced new products, the company claims that it has had no major dispute on the shopfloor since 1979 and not within the company since a strike involving ASTMS in 1981. This may be due in part to the fact that until the mid 1980s the plant was a peripheral element within Peugeot's European operations, producing largely outdated products for export. Only in 1986 did this change with the decision to produce the 309 and 405 models at Ryton, so that until that time considerable uncertainty hung over the plant's long-term future. In contrast, Peugeot-Talbot argue that the absence of strikes has much to do with a significant culture and attitude change within the company. Unlike the other companies, it experienced a long and protracted stoppage which resulted in a defeat for the workforce and unions. The 1979 strike represents a tough approach from a management which had little to lose at the time (see argument above) and which represented a clear break with past actions. This approach met with seemingly entrenched shopfloor organisation and workplace attitudes. The fact that one big strike occurred rather than the number of large disputes at BL may have more to do with the issue (pay), and the level at which it was negotiated (company), uniting the entire workforce whereas at BL issues were generally about non-pay issues which often affected different plants at different times. As the cases of British Steel and the docks show, (but cf. coal) where one major stoppage occurs further widespread stoppages are unlikely and management can push forward unencumbered to effect broad and deep changes in industrial relations and the labour process. The case of Peugeot-Talbot would also provide tentative support for Waddington's (1987) argument that following a major confrontation and a 'victory' for management or workers, a set of new workplace values becomes established.

FORD

In the previous sections it was stressed that within Ford, Halewood was seen as the 'problem plant' in the UK. Like BL and Chrysler it was seen as being high on non-productive time, high manning levels with productivity comparing unfavourably with that at Saarlouis in the late 1970s (Marsden et al. 1985). Overall, the company estimated that the plant operated at two thirds of capacity between 1976 and 1982 and in an attempt to remedy these deficiencies it introduced new working practices at the plant in 1978 (which precipitated a protracted strike), a new efficiency package in 1981 and introduced new technology between 1980 and 1981 with further re-tooling in 1983 (Marsden et al. 1985). Halewood experienced major disputes over non-pay issues in 1980, 1981 and 1982 due much to a new disciplinary code introduced at the plant in November 1980 which created significant problems throughout 1981 (Tolliday 1991). The code coincided with the launch of the new Escort in 1980 and the problems associated with the former forced it to be rescinded by the company in 1981. The 'efficiency package' was also strongly resisted as were many of the companies initiatives between 1980 and 1983 in the areas of self-certification, on-line maintenance and the removal of demarcation and culminated in the Kelly dispute of March/April 1983.

According to Starkey and McKinlay (1989), Ford in the 1980s has pursued a twin strategy of greater rationalisation and efficiency allied to a long term approach designed to build more consensual labour management relations whilst safeguarding management prerogative. In 1979, the company attempted to introduce quality circles, taken further in 1981 with the 'After Japan' programme, aimed at reducing inventory holdings, eliminating a number of supervisory and manual grades and reducing the number of production workers by twenty percent (Foster and Wolfson 1989). In the late 1980s, the failure to gain acceptance of QCs (finally abandoned at this time) saw the emergence of the EI strategy aimed at building trust over a 10-15 year period but as with the QC experiment, union resistance has diminished the significance of the programme although the company's EDAP scheme has apparently been more successful and has been copied by both Jaguar and Peugeot-Talbot.

Within the general UK operations the company has attempted to gain greater conformity to procedures (Marsden et al. 1985). It has also sought to gain greater efficiency through rationalisation, redeployment and flexibility. The numbers employed in Ford UK fell from 58561 in 1979 to 37027 in 1985 (Tolliday 1991), and to less than 30000 by the end of 1991. Tolliday has argued that Ford's strategy towards labour changed from around 1983 onwards. Up to that point it had been based upon discipline, enforcing existing agreements and the control of work through technology. After 1983 (with earlier attempts the year before) the company has attempted to 'bring stewards on board' in terms of gaining their commitment to changes and made the pursuit of efficiency through greater flexibility a key objective with attempts to obtain agreement on this in 1982, 1985, 1987 and again in 1989. Based upon the acquisition of new skills and the elimination of demarcation lines (Starkey and McKinlay 1989). The 1985 Agreement marked a major breakthrough for the company involving broader job classifications with the new position of 'production operator' replacing 86 separate job titles (Tolliday 1991). The fact that Ford has made several attempts at agreement on flexibility linked to pay is indicative of the problems it has had in reaching agreement and illustrates the strength that the unions and workforce generally can periodically exercise within the company. Within Ford, union membership remains at around 100% and shop steward organisation is still strong with stewards increasing their involvement in certain areas of decision-making. However, the attempts to gain greater flexibility in both 1987 and 1989 produced major conflicts throughout Ford's UK operations although in general resort to strike action has been rare in the period after 1985. It is perhaps significant that absenteeism within the company and particularly at Dagenham remains high, to the extent that part-timers are frequently drafted in on Mondays and Fridays, and considerably above the levels of other manufacturers.

VAUXHALL

The general picture at Vauxhall in the 1970s appears to be one of few internal industrial relations difficulties although strikes amongst suppliers caused severe disruption at times. Those disputes that did occur took place largely at Ellesmere Port and it is indicative that the initial attempts to adopt a firmer line in industrial relations were at Ellesmere Port rather than at Luton. In 1979, the company focussed attention on attempting to resurrect long standing procedures to gain greater flexibility at the Cheshire plant (Marsden et al. 1985).

Although shop steward organisation does not appear to have been as significant at Vauxhall as elsewhere there is evidence that the company made efforts to reduce steward power and change the role of the steward in the 1980s. Significantly, as at Peugeot-Talbot, the Luton plant doubled output between 1979 and 1983 without significant changes in technology. The re-tooling at Vauxhall took place later than the other major manufacturers; at Ellesmere Port in 1984 for the launch of the Astra and in the late 1980s at Luton for the development of the Cavalier. Again there is a clear association between re-tooling, new models and strike activity. The company experienced major disputes in every year from 1984, initially at Ellesmere Port but latterly at both it and Luton. The major strikes at Luton are noteworthy in the context of broader changes in industrial conflict. In late 1986 the findings of an Industrial Society investigation into absenteeism revealed a widespread problem at Luton (Guardian 30/10/86). Absenteeism was well organised, implying significant workplace organisation in the 1980s (cf. Tolliday and Zeitlin, 1986). This finding may also account for the relatively low levels of strike activity in the plant for, as management responded with a 'clamp-down' on absenteeism, the response from the workforce was an immediate stoppage. The changes are important in that they suggest that a clear 'indulgency pattern' had built up at Luton which had been 'tolerated' or ignored by management until the pressures for more efficient use of new equipment and new model development forced management to confront it. The consequence for workers was a loss of control and a worsening of the effort bargain leading to a search for other sanctions against management.

POSTSCRIPT

The late 1980s witnessed significant changes in industrial structure in the motor vehicles sector which have important consequences for union presence and organisation, the nature of industrial relations in the short and medium term, and strike activity. As with the previous discussion the concern here is with car production although commercial vehicles also experienced important structural changes.

In 1986, the Japanese owned Nissan company opened a factory in Durham and secured a single union deal with the AEU. The deal, in providing for single status, harmonisation of terms and conditions and a compulsory conciliation clause broke new ground in an industry dominated by multi-unionism and low trust industrial relations. In practice, union density at the plant does not appear to have exceeded 30%, and by 1989 was below 20% (Garrahan 1988, Wickens 1989). In 1989 Honda established a new plant in Swindon, but decided not to recognise a trade union, making it the only non-union major car manufacturer in the UK and in 1991, Toyota after deciding to open a plant in the UK opted for a single union deal again with the AEU.

This influx of direct Japanese investment has had a number of important short term effects. First, the main manufacturers now number seven, diffusing the dominance of Rover, Ford and Vauxhall and by giving the Japanese better access to the UK and other European markets adds to the competitive pressures faced by the existing manufacturers. Second, the union density in the industry has fallen although it continues to remain high at Rover and Ford, and it is clear that the single union option or at least single table bargaining has been considered or adopted by the existing companies. Third, the new entrants have also placed a number of personnel and industrial relations issues to the forefront of the considerations of the existing companies. Whilst all had made moves towards adopting certain Japanese style practices, notably quality circles, teamworking and greater flexibility, the moves to single status, longer working weeks (47 hour week at Nissan including eight hours compulsory overtime: Oliver and Wilkinson 1988) and single union deals do not seem

to have been seriously considered. Companies like Rover appear to have incorporated aspects of Japanese work organisation without adopting personnel practices but in the late 1980s this approach changed. In 1991 the company announced its intention to move towards single status and harmonisation having earlier succeeded in gaining agreement to seven day working. A further illustration of the change is provided by Ford's attempt in 1988 to open a factory at a 'greenfield' site in Dundee which would have by-passed the existing multi-union agreements in the company by granting a single union deal to the AEU. Although the attempt failed, the intention to break away from existing multi-union agreements was clear. Fourth, the new deals have increased the importance of the AEU in the industry, it now stands as the only union with recognition in all the companies that have recognition agreements. Given the publicly more co-operative stance of the AEU, as compared with the TGWU this may be expected to have an impact on the conduct of industrial relations in the foreseeable future. Finally, the Japanese companies have tried to operate policies designed to build commitment and evoke high trust responses, similar examples of which can be seen at Rover, Peugeot-Talbot and Ford. To what extent they are likely to be successful may depend upon their ability to sustain and build market share, remain profitable and critically on their ability to allow their employees to share in the benefits of this. The latter would also seem to be a sine qua non for keeping unions at bay, or at least on the margins.

As yet the new recruits to the UK industry have not experienced a strike and given their meticulous attention to recruitment and selection, induction and training have sought to minimise the likelihood of such disruption occurring (see also developments at Rover: Smith 1988, IRRR, 514). However, the intense work regime did create problems initially at Nissan in terms of high turnover of staff, and lack of information prevents us knowing the current position although it is claimed to have fallen markedly (Wickens 1989).

CONCLUSIONS

At the beginning of this chapter we argued that someone wishing to understand post-war strike activity in the motor vehicles industry needed to appreciate the relationship between changes in product and labour markets, management responses to these and the development of union capacity. In the first half of the chapter we documented the development of union organisation and particularly that of shop stewards, the role played by these in strike activity and confirmed by econometric analysis and the critical role of product and labour markets in strike incidence. For the 1950s and 1960s changing demand conditions and, most significantly, the spread of trade union organisation were the key influences upon strike numbers. The peaks and troughs in product demand, exacerbated by government policies were further amplified by management responses in the form of variations in overtime and through lay-offs and served to heighten the instability in earnings and employment insecurity described by Turner et al. (1967).

The econometric work revealed that the main direct impact of product market changes fell upon pay stoppages and it is significant that in the 1970s and 1980s the main product market influence shifts from new car registrations in the UK to the level of import penetration. This reflects a growing concern with increasing competition and it is noteworthy that this exerted a depressing effect upon pay strike numbers. The argument of the second half of the chapter is that the level of import penetration has continued to exert a significant impact upon non-pay stoppages but indirectly through the various management responses to it and other product market failures. The ways in which the main companies responded to their unique difficulties have been documented at length with very different consequences at the level of strike activity. The general attempts to regain control of the effort bargain and the associated resistance explain much of the strike activity in the 1970s and 1980s particularly the persistence of non-pay stoppages. The evidence also provides support for two of Willman's propositions; namely that reform of collective bargaining can have an impact upon the number and form of strike activity although the timing cannot be divorced from other changes which could also have exerted an influence, and second,

that in the 1980s strike activity is concentrated in the periods of re-tooling and new model launches. Initially, at Longbridge and Cowley, then Halewood and Dagenham and latterly at Ellesmere Port and Luton. As Willman (1985) has argued;

Much of the strike activity since 1980 can be explained in terms of the refusal of those workers employed in plants where new product launch provides a modicum of security to acquiesce in effort and the surrender of job property rights (1985)

‘BUCKING THE TREND’
STRIKE ACTIVITY AND CHANGING INDUSTRIAL RELATIONS
THE BRITISH COAL MINING INDUSTRY

OVERVIEW

For much of the post-war period until the early 1960s, aggregate strike activity in the UK was dominated by events in the coal-mining industry. The industry became the focus for a number of studies which attempted to identify the precise causes of its strike proneness and the reasons for the subsequent decline in its strike propensity in the 1960s. Many of these studies are reviewed in the light of the evidence presented in this chapter, but it has a number of more specific aims.

First, it was felt valuable to re-visit the period of analysis examined by Durcan, McCarthy and Redman, to appraise and assess their conclusions together with those of other writers. Second, to set the strike record of the post-war period in the context of the experience of the industry and its workers in the inter-war period. Third, as with motor vehicles, to assess the industry's strike record in the period since the ending of the DMR study and the first oil crisis, a focus which until now has not been undertaken, and to further analyse longer term movements in strike dimensions. Fourth, to provide a further analysis of the role of governments in shaping the nature and conduct of industrial relations within a specific industry and finally, to examine and offer explanations for, the continuing levels of strike activity in the wake of the 1984/85 dispute, particularly within parts of the Yorkshire coalfield.

A further point is that a study of coal-mining provides an interesting test of the theoretical model. Previous studies have found that what worked well in accounting for strike activity in some industries did not work well when applied to coal (e.g. Pencavel 1970). In addition, the attitudes sections suggest that the model might permit an insight into the extent to which solidaristic orientations and the 'traditional proletarian' have persisted in coal-mining rather than the instrumentalism we have argued has become more commonplace in the post-war period. If this is the case it highlights an important continuing difference between coal (or parts of it) and other industries. A more fundamental issue concerns employer attitudes. These were

examined largely in the context of private organisations operating for the pursuit of profit. Coal, in being state owned for the entire period of study has not had the same requirement for most of the period. This said, it has had pressure imposed on it to control costs and has faced varying degrees of competition since the 1960s, and particularly since the late 1970s, when pressures towards a more commercial orientation for the industry are more in evidence. Taken together the evidence on attitudes would suggest that the model would be most applicable and most successful for the second half of the post-war period.

The evidence presented in this chapter confirms the results of writers who have laid stress upon the role of changing payments systems and product market factors in contributing to changing strike incidence and levels, but also highlights the importance of other previously neglected factors. In particular the spread of mechanisation through powerloading in the 1950s and 1960s and the productivity changes in the 1980s, the latter associated with new payment schemes, changing working practices and the intensification of effort.

The chapter begins with a consideration of the historical context of the industry and the experience of those working in it prior to nationalisation. It then reviews previous studies before analysing the strike experience of the industry from nationalisation to 1990, placing particular emphasis on the period from 1970 to 1990.

THE INDUSTRY BEFORE NATIONALISATION

The period from 1913 to 1947 witnessed dramatic changes in coal mining and inflicted considerable hardship on mining families and communities, the legacy of which continued long into the post-war period. As Supple (1987) has argued;

In the generation after 1913, the coal industry experienced a disastrous retreat from...(its)...position of international dominance, as output, exports, employment all fell (1987:10).

The consequences of which were that the industry;

came out of the second world war, a vulnerable, smaller and enfeebled industry (1987:10).

For those employed in coal mining the experiences of the wage cuts and unemployment of the inter-war period magnified already deep divisions between owners and miners. As Barnett (1986) points out a 'ferocious industrial struggle was a long tradition of the industry' (1986:67) with bad feeling and antagonism pervading it, manifested in low morale, non - co-operation and indifference. These, Barnett contends created problems of complacency and incompetence, the predominance of traditional habit and inertia and the failure to adapt to major changes in the operating environment. The consequences of which were that in the period 1935-38, although only accounting for 6% of the insured working population of Britain coal mining accounted for 64% of all disputes and 52% of days lost.

If the deficiencies of the industry described by Barnett are accurate their origins lay in the background and experiences of those who worked in it. Notwithstanding the impact of depression, throughout the inter-war period there was a constant shortage of able colliery managers and adequately trained engineers (Barnett 1986) and a deeper problem of managers obsessed with 'short-termism' constituting in Barnett's view a 'classic case study of the survival in Britain of the practical man' (1986: 68) whose horizon was bounded by short-term gain. Such a view is evident in the report of the Reid Committee in 1945 where concern is expressed about the 'insularity of

management' in the industry.

The position of the miners and their associated communities, Lockwood's 'traditional proletarian workers' has been clearly described by Supple (1987).

Miners employment and society were exceptional, his work and work situation gruelling, dangerous and calculated to excite his suspicion and antagonism to those who employed him. He lived in communities which were isolated and characterised by monolithic class structure which could enforce as well as reinforce 'militant' social and industrial attitudes, the very inward-looking nature of his daily social and cultural pre-occupations helped to perpetuate both his suspicion of the rest of society and a formidable mutual loyalty and solidarity in the face of adversity which was such a marked feature of miners lives and mining disputes' (1987:483-484).

Implicit in this passage is the view that communities based upon a single occupation produce considerable social convergence and solidarity (see Bulmer's (1976) ideal-typical mining communities) and made miners vigorous in the pursuit or defence of their own interests. In Berry's (1940) terms, the aspirations and demands of life were communal rather than individual in character (see also Dennis et al. 1956, for post-war support for this view). Critically, this communality and shared experience particularly of past defeats, 'fostered recollections, magnified and mythologized by time' and produced considerable bitterness albeit a 'bitterness of acquiescence' (Supple 1987:487). In Fox's (1974) terms this describes a case of 'institutionalised low trust' supported and reinforced by the communities in which people lived, it was in part a hope that through the nationalisation of the industry an improvement in relations between the miners and the mines new owners would materialise.

NATIONALISATION AND A NEW BEGINNING

The National Coal Board came into existence on 1 January 1947 charged with:

making supplies available, of such qualities and sizes, in such quantities and at such prices, as may seem best calculated to further the public interest in all respects'...(and to)...operate so that its revenues shall not be less than sufficient to meet its outgoings...'on an average of good and bad years'.

It was an explicit belief that in bringing the industry under social ownership industrial relations would improve and the achievement of the NCB's overall objectives necessarily made easier. A number of important developments in the period preceding nationalisation and particularly those subsequent to it offered hope for such an outcome.

In the inter-war period, union organisation in coal mining was far more developed than in most other industries with union density standing at around 75% of the workforce in 1913 (Supple 1987). Union organisation had been based on districts although large county unions emerged in the late nineteenth century in Northumberland, Durham and Yorkshire (Allen 1981). These unions were grouped under the Miners Federation of Great Britain (MFGB) in 1898 which rationalised some of the structure although in the wake of the 1926 General Strike a number of company unions were formed as 'Spencerism' took hold in some coalfield areas. During World War 2 the 36 county unions in existence amalgamated and after 1940 the MFGB acted 'as a national union even though formally it was not one' (Allen 1981:26). In practice the MFGB was internally unstable with divisive organisational uncertainties which were only begun to be dealt with by the formation of the NUM in 1944. Although not being the only union recognised in coal mining it consistently represented over 75% of the workforce, and from 1952 to 1969, over 80% (DMR 1983).

In addition to the potential centralisation and control which the formation of the NUM provided the Corporation, the government and the NCB encouraged the appointment of trade union leaders to serve the Corporation in the capacity of dealing with labour matters. These included prominent NUM figures such as Citrine, Edwards and Horner and although some in the NUM were hostile to those who took NCB positions the NUM, nationally, assisted the Board in recruiting from trade union ranks (Ashworth 1986).

In the immediate post-nationalisation period the NCB and the unions quickly established a new institutional framework for dealing with industrial relations matters. This centred around new conciliation and consultative committees established in 1947, the former consisting of a National Negotiating Committee and a National Reference Tribunal to deal with issues in dispute as well as a new pit conciliation scheme with unresolved disputes being referred to a Joint Disputes Committee and then to a pit umpire. The consultative framework involved a National Consultative Council agreed in 1946, strictly precluded from dealing with wages or terms of employment as these were matters for the conciliation machinery, Divisional Consultative Councils and Colliery Consultative Committees. By the end of 1947 all divisions had Councils and most collieries their own consultative committee.

The institutional framework for industrial relations described above remained largely unaltered until the aftermath of the 1984/85 strike although new procedures were developed in other areas, notably re-deployment, redundancy and colliery closures. There is considerable debate surrounding the efficacy of these initiatives and changes in remedying the industry's labour relations problems but it is clear from the vantage point of the 1990s that 'the advent of public ownership did little to resolve the tensions in the industry's industrial relationships' and that these; 'shaped the atmosphere as well as the structure of the public corporation' (Supple 1987:689, 620). The account presented in the remainder of this chapter attempts to illuminate the factors which contributed to the persistence and magnitude of grievances and tensions within the industry focussing particularly on the period after 1973.

AN OVERVIEW: 1947-1990: POST-WAR DEVELOPMENT AND STRIKE ACTIVITY

The period following the nationalisation of the coal industry can usefully be divided into a number of sub-periods associated with very different patterns of strike activity. Using Ashworth's (1986) periodization based largely upon product market changes the years 1946-57 are associated with a drive for high output with coal in a near-monopoly position in the fuel market, although declining in competitiveness towards the end of the decade. Output and inland coal consumption peaked in 1956/57 and from 1958 to 1972 the industry experienced a period of severe contraction faced by falling energy prices and increased competition, notably from oil which, from meeting 15% of fuel requirements in 1957 rose to 38% in 1968 (Allen 1970). The period of contraction was also one of significant internal changes particularly the spread of mechanisation through powerloading and associated changes (in 1966 and 1971) to the payments system. With oil crises in 1973/74 the industry found itself in a stronger competitive position with output stabilising between 1972 and 1982/83 but with inland consumption declining rapidly after 1979. Ashworth's sub-periods can then be extended from 1983 onwards with inland consumption stabilising in the second half of the 1980s at a level 10-15% below that of the late 1970s and with output standing at 75% of its 1978 level. The later period is characterised by the industry's responses to these changes following the 1984/85 strike and the fact that the output levels of the late 1980s have been achieved with a workforce a quarter of the size of that in 1975.

The phases identified by Ashworth of 1946-57, 1958-72, 1973-82 and that of the period from 1983 are also broadly associated with significant shifts in the personnel, policies, general approach and composition of the NCB and the NUM. The period of contraction in particular was associated with the appointment of Robens from 1961 as Coal Board Chairman and the adoption of more a more paternalistic approach and collaborationist policies (Allen 1981), with the NUM under the control of Ford and Paynter (until 1972 and 1968 respectively). Similarly in the 1973-82 period the industry was increasingly dominated by the close working relationship between Ezra

as Coal Board Chairman and Gormley. Their retirements in 1982 and succession by McGregor and Scargill respectively marked the move to a much more confrontationist era in the post-war coal industry.

Within the general context of product market changes the main actors have sought to develop policies and introduce initiatives to respond to changed circumstances. At a strategic level the NCB and governments have attempted at a number of points to restructure various parts of the corporation's operations and these are briefly considered here.

In the period of 'maximising output' the corporation embarked on a mechanisation programme with powerloading introduced to coalfaces, a process which gathered momentum between 1957 and 1968 and was virtually completed by 1970. This programme coincided with the falling demand of the period 1958-68, with significant changes in payments systems and prompted a process of economic restructuring throughout that period (Leman and Winterton 1991) which led to the closure of nearly 60% of the Board's collieries (between 1960 and 1970) and a reduction in employment of over 40% between 1958 and 1967. The continued deterioration of the product market led to a further period of economic restructuring in 1968 (Leman and Winterton 1991) which saw an additional cut of over 25% in workforce numbers between 1968 and 1971, many of which were enforced redundancies rather than adjustments via natural wastage.

The shift to powerloading also stimulated debates about methods of payment. With faceworkers traditionally paid by piecework, the spread of powerloading made pay less dependent upon worker effort and in a series of initiatives in 1955, 1966 and 1971 the industry moved towards a measured daywork system. In the 1970s as output stabilised the corporation embarked on a policy of modernisation and the introduction of new capacity particularly following the agreement to 'Plan For Coal' in 1975. However, the failure of productivity to rise in the daywork era led the NCB to revert to local incentive schemes, in 1977 following a failure to gain agreement to a national scheme. The emphasis upon incentive schemes has subsequently been

maintained, although modified in the wake of the 1984/85 strike and has been a critical element in the management of labour in the 1980s (Edwards and Heery 1989).

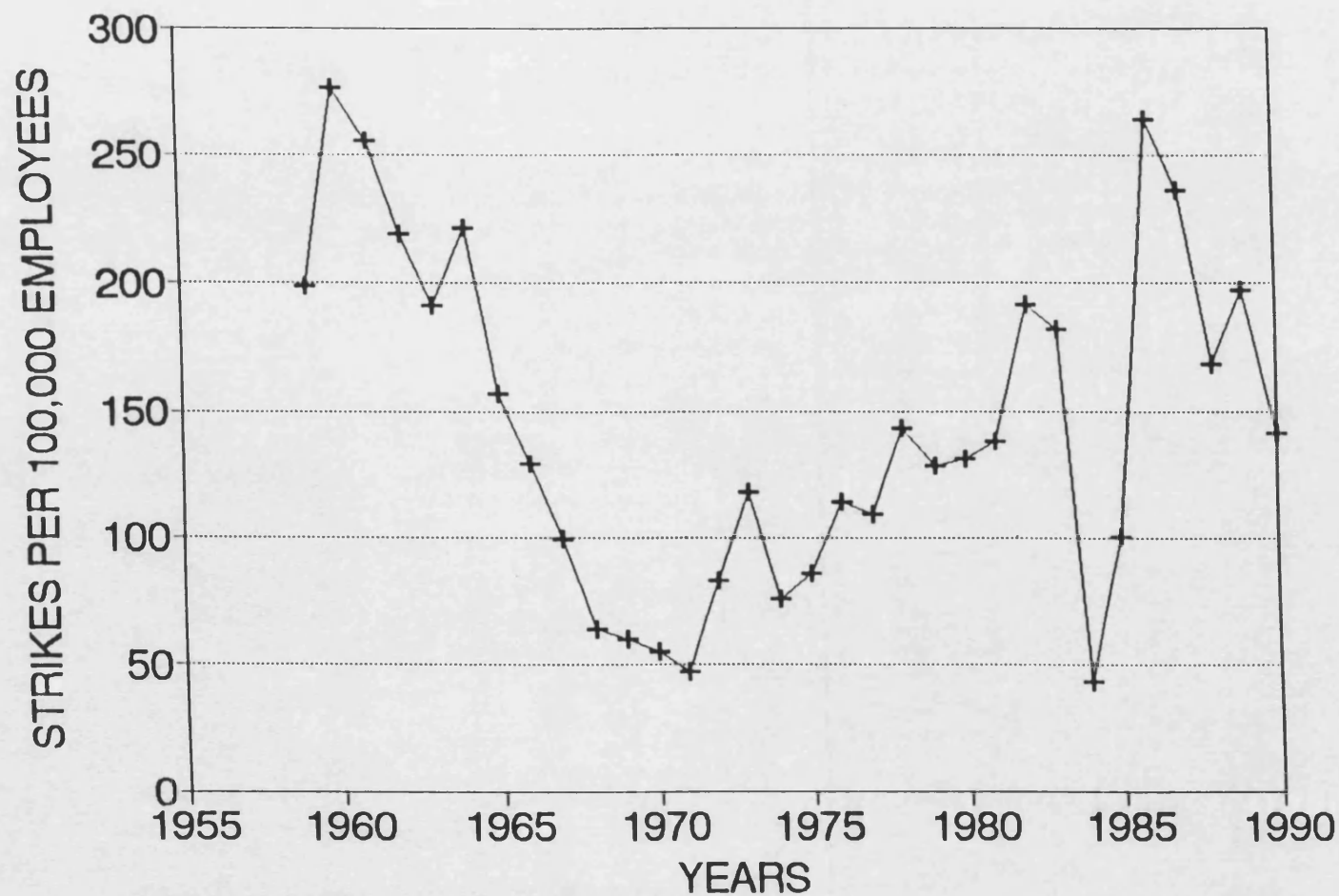
The mechanisation phase of the 1950s and 1960s constituted the last major development of production techniques in the industry. The technological restructuring in the 1980s has involved computer monitoring of faces and equipment to increase machine utilisation and reduce down-time (Burns et al 1985, Leman and Winterton 1991 on MINOS and FIDO). Alongside these changes has been a further phase of economic restructuring as demand has fallen further and the NCB has been required to adopt a more commercial approach and meet tighter financial targets. This has typically involved the elimination of 'high-cost' pits and the further concentration of output in the central coalfield. The number of collieries has fallen from 211 in 1980/81 to 73 in 1989/90, and employment by around 70% over the same period, with major redundancies in 1985-87 when nearly 78000 miners were made redundant or dismissed (NCB Report and Accounts). The significance of the 1980s also lies in the attempts of the NCB (British Coal from 1987) and the government to restructure the labour process (Leman and Winterton 1991) with significant changes to procedures, working practices and other substantive industrial relations issues.

STRIKE PATTERNS IN COAL MINING: SOME EXPLANATIONS

The phases described and the strategies and initiatives that were associated with them provide an important backcloth against which strike activity in coal mining has to be set. Coal mining dominated the strike totals in the 1950s and in terms of strike proneness miners have, with the exception of dockers, been the most strike prone group in Britain throughout the post-war period. Significantly, movements in strike activity in the industry have not followed the patterns found in manufacturing (see below), nor has the composition of stoppages been similar with coal experiencing a much higher proportion of non-pay stoppages than that found in most other industries. However, like the engineering sector strikes have for most of the period been small, short, generally unofficial and in breach of procedure (DMR 1983). The figures overleaf detail the movements in the main dimensions of stoppages and it can be seen that the movement of strike activity in coal closely follows the path of internal coal

STRIKE ACTIVITY IN COAL-MINING

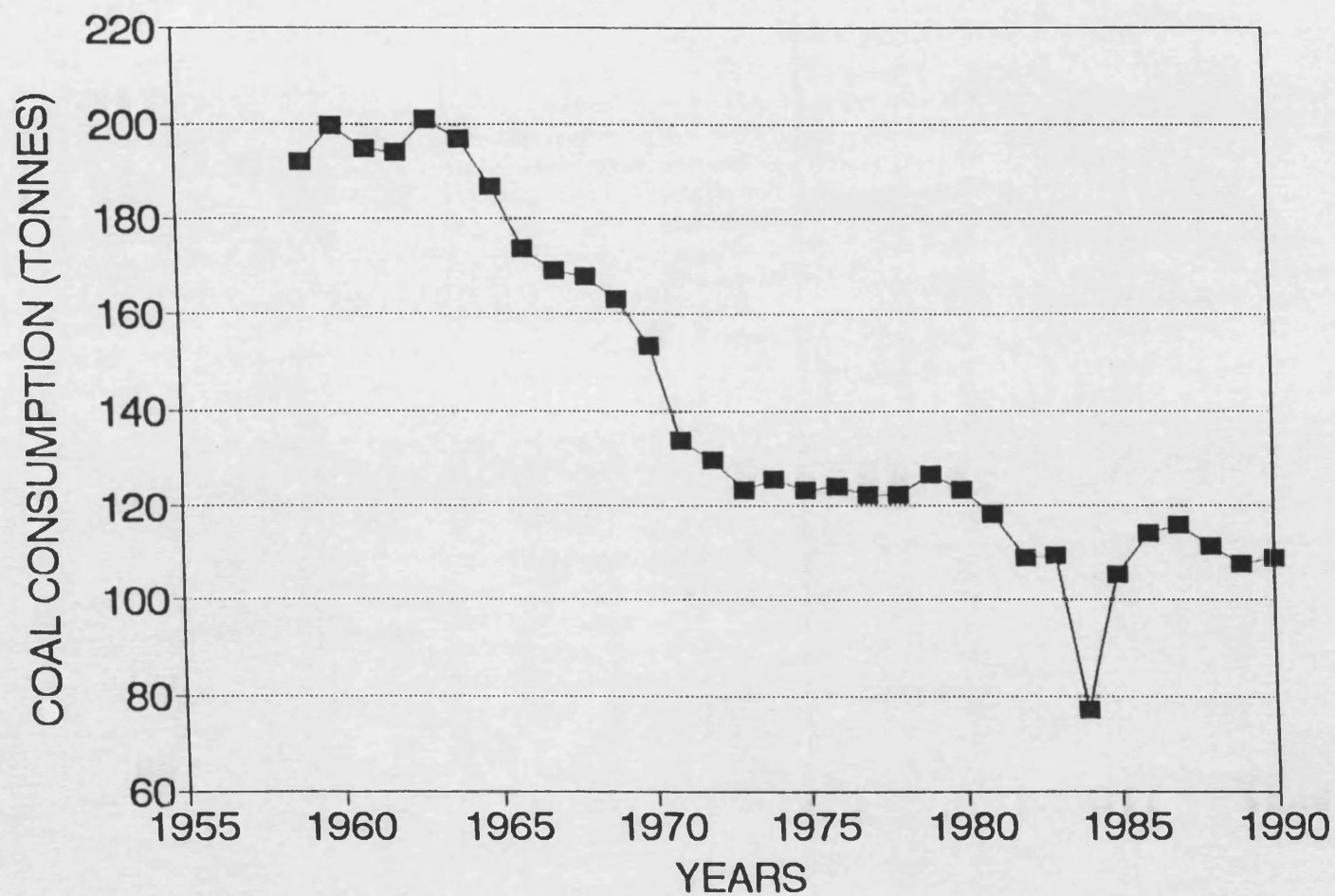
1959-1990



(Source: Employment Gazette)

INLAND COAL CONSUMPTION

1959-1990



(Source: Ashworth 1986)

consumption particularly from the mid 1950s to around 1971 with stoppage numbers per 100000 workers rising consistently from 1950 to 1957 and then declining markedly from 1960 to 1971 for both pay and non-pay strikes. In the early 1970s the emergence of large national stoppages were an important new development but the trend of stoppages, especially over non-pay issues is more erratic. These fluctuations continue into the 1980s but with the level of strikes per 100000 workers significantly higher on average than that for the 1960s or 1970s and particularly for non-pay stoppages.

Distilling from a number of studies of strike activity in coal-mining for various periods following nationalisation it is possible to identify a variety of factors exerting an influence on stoppage numbers and strike proneness. First, there is general agreement on the impact of the economic environment on strike activity, particularly strike numbers (McCormick 1979, Handy 1981, Winterton 1981, DMR 1983, Ashworth 1986). As DMR have argued for the 1950s;

Workers realised that high demand and limited stocks ensured that stoppages were likely to produce a more rapid managerial response than referring disputes through procedure (1983:210)

This would account not only for the number but also the form these stoppages took. Similarly, Winterton (1981) stressed the role of declining coal consumption in reducing the relative strike proneness of the coal industry but as both Handy (1981) and have Winterton argued, whilst the fall in demand led to a significant fall in strike activity this was due to a reduced willingness to strike not to a reduced number of grievances. Coal Board evidence supports the greater use of conciliation procedures after 1957 and as Ashworth has stated;

The greater willingness to use conciliation procedures rather than walk out, was in part a response to a perception of changed economic and employment conditions in the industry (Ashworth 1986:p.301).

Evidence also suggests that this greater use of conciliation machinery affected the form as well as the level of conflict (Scott et al. 1963, Winterton, 1981).

DMR emphasised that although the industry's economic position was important a focus upon this ignores changes in the use of capital equipment and in payment systems as well as the manner in which such changes were brought about. DMR did not develop the point in respect of mechanisation but it is clear that at least two issues are potentially important for strike activity. First, the increase in mechanisation and its level (McCormick 1973) and second, the associated introduction of district powerloading agreements. In an analysis of strike activity in the Yorkshire coalfield McCormick argued that, *ceteris paribus*, the level of mechanisation would be associated with fewer strikes, but that the increase in mechanisation through disrupting work organisation would be expected to increase stoppage numbers. He found no significant support for either of these propositions (although the direction of influence was as predicted) nor did Hepworth et al. (1973) in their study of technological change in the same location. For Clegg (1979) the role of district power loading agreements in the 1950s were critically important in accounting for the decline in stoppages between 1957 and 1965. However, the impact of district PLA's was uneven (Winterton 1981, Handy 1981), in Yorkshire the decline in strike activity preceded the District Agreement in 1958 whilst in general the fall in the percentage of stoppages over wage issues did not take place until the early 1960s (Handy 1981). The role of district powerloading agreements is discussed further below in consideration of changes to the payments system.

A further factor seen as affecting the strike proneness of the industry and changes in this has been the nature of payments systems in operation. From 1947-1966 between 40 and 50% of the industry's workforce were on some form of piecework system, declining to around 22% between 1966 and 1971 and to a daywork system for all between 1971 and 1978. Since 1978 local incentive schemes have operated for the workforce with modifications in the 1980s until the present day. The work of Scott et al. (1963) testified to the problems associated with piecework and its abolition in stages to 1971 clearly contributed to a decline in stoppage frequency. Of the changes

to the payments system those introduced under the National Powerloading Agreement of 1966 have generally been seen as the most important in terms of declining strike activity (although see discussion of Clegg above) by diminishing the range of earnings and the scope for fragmented bargaining (Clegg 1979, DMR 1983). Apart from reducing the numbers on piecework, the daywage structure had the effect of centralising wage bargaining and thereby changing the form of strike activity (DMR 1983) but they stress that by compressing internal differentials the NPLA created grievances which contributed to the rise in militancy in the late 1960s and early 1970s (see also Handy 1981). As Ashworth (1986) has argued

By starting a move towards greater uniformity...it contributed to greater solidarity. By compressing differentials it made men who lost most by the compression feel they had less to gain by remaining restrained' (1986:p.301)

Winterton (1981) is also more cautious than Clegg in ascribing declining strike activity to the NPLA and district PLAs and it is clear that the period after 1960 and particularly after 1964 was associated with a fall in both pay and non-pay stoppages which might suggest the economic context (and possibly union acceptance of contraction) rather than the NPLA was exerting the major influence.

A number of writers have also stressed the role of alternative work opportunities and union support for closures in the period of contraction as factors in the decline in stoppage numbers (McCormick 1979, DMR 1983). DMR have argued that the alternative work opportunities (and arguably the Board's own re-location and transfer schemes) helped to reduce the incidence of overt conflict but that by the end of the 1960s when enforced redundancies took place the ability to obtain alternative work diminished with 52% of those leaving the industry between 1967 and 1973 finding 'difficulty in obtaining alternative work' (DMR 1983) with a peak of over 80% in 1972/73. It is likely that this contributed to the conflict which manifested itself at the end of the decade and may have particular application to the heightened levels of conflict in the 1980s.

Others factors cited as influencing strike activity, particularly the increased militancy of the 1969-74 period include the erosion of external pay differentials (Hughes and Moore 1972, Handy 1981, DMR 1983, Ashworth 1986), the change in NUM leadership (Handy 1981, Ashworth 1986), the changed market position of coal and particularly the shortages of certain non-craft occupations (Handy 1981).

Taken together these explanations confirm Handy's view that although cyclical patterns in economic activity probably accounted for much of the variation in strike activity up to 1957 it is factors within the industry which must account for what happened after that date. In order to test this and the factors identified above further a number of equations were run using our own theoretical and operational models for various periods up to 1990. In the following section the results of these are presented and analysed.

ECONOMETRIC RESULTS AND ANALYSIS

The results detailed in this section benefitted greatly from access to data on a wide range of variables and in testing the underlying theoretical model use was made of 22 operational variables for the period 1947-1990. To ensure compatability with the approach in previous chapters the dependent variables were deflated by employment with the number of strikes per 100000 workers as the main variable used.

Equations to account for variations in stoppage numbers were run for the periods 1947-1985 and 1947-1990 with the best results for the longer period run for the sub-periods 1947-68 and 1969-1990. From 1959-1990 the data permitted an analysis broken down between pay and non-pay stoppages and as with other industries equations were run for stoppage numbers and for workers involved and days lost by type of stoppage.

Summary of main results

In general the results for the econometric work provided a good deal of support for the theoretical model with the variables providing an overall significance and explanatory power considerably in excess of that normally found in analyses of coal

ECONOMETRIC RESULTS 1947-1985 AND 1947-1990

All Stoppages per 100,000 workers

Variable	M	SD	1947-1985	1947-1990	
			(a)	(b)	(c)
Constant			- 98.6	- 309.4	- 148.58
Agg U			- 9.65 (4.63)		
TUD			+ 3.01 (2.9)	+ 3.46 (3.8)	+ 2.76 (3.26)
NPLA			- 76.0 (4.53)	- 29.9 (1.41)	- 34.8 (2.23)
LG			- 31.76 (2.13)	- 34.83 (2.45)	
STOCKS			+ 1.37 (1.65)		
PL					+ 3.13 (6.25)
ICC				+ 0.84 (2.5)	
%OMS				+ 5.91 (3.95)	+ 5.86 (4.5)
SDE			40.73	38.73	36.3
F			17.4	21.58	31.7
R2			0.725	0.74	0.76
DW			1.49	1.328	1.71

Sources:

Agg U is the percentage rate of aggregate unemployment; Annual Abstract

TUD; trade union density figures from Milner and Metcalf (1990)

NPLA and LG are dummy variables for the periods 1967-77 and 1947-50, 1965-70 and 74-78 for full years.

STOCKS; level of stocks both distributed and at coalfields: NCB Report and Accounts

ICC; Inland coal consumption: NCB Report and Accounts

PL; percentage change in powerloading: calculated from NCB Report & A/c

%OMS; percentage change in faceworkers OMS: NCB Report and Accounts.

MEAN and STANDARD DEVIATION: AggU: 5.06 and 4.61 (to 1990), 4.74 and 4.61 (to 85).

Stocks: 29.0 and 9.47 (to 1985), PL: 9.45 and 12.85 (to 1990), ICC: 159.7 and 42.3 (to 1990).

%OMS: 4.62 and 4.76 (to 1990). TUD: 95.013 and 7.583 (1947-1985), 94.518 and 7.32 (to 1985).

mining stoppages. In all the equations a few variables exerted a consistently strong and significant influence upon stoppage numbers and accounted for much of the variation in this variable. In particular the level of trade union density (+), the percentage change in output per man shift (+), the percentage change in mechanisation (+) (as measured by powerloading faces) and the operation of the National Powerloading Agreement (-). From the sub-period analysis the trade union density variably emerged as a consistent influence whilst the main impact of the productivity changes fed through after 1969 and particularly after the 1984/85 strike (see below). In contrast the impact of the spread of powerloading is concentrated in the period up to 1968.

1947-1990

The best results of the equations run for the period 1947-1985 and for 1947-1990 are described in Table 2 in columns (a), and (b) and (c) respectively. Equation (a) utilising aggregate unemployment, trade union density, the NPLA, Labour government and the level of coal stocks accounted for over 72% of the variation in stoppages with all variables other than stocks having the expected sign and significant at the 5% level. Of particular interest are the results for the NPLA and for the Labour government, with the existence of the NPLA effectively reducing stoppages by around 230 a year in the late 1960s. The use of a dummy variable to proxy the NPLA is necessarily imprecise and covers the period which includes the introduction of the Third Daywage Structure (1971) which could have served to further reduce the number of disputes. In addition, as subsequent analysis shows, the impact of the NPLA expectedly fell upon pay stoppages. The existence of a Labour government further acted to reduce stoppages in coal mining, a result which supports Cronin's (1979) view that workers would not wish to threaten their 'friends' when they are in power. A Labour government was shown to be significant in other industries (e.g Metals, although its effect was to increase strike numbers) but the depressive impact on stoppages gives support to those who stress the close supportive relationship of NUM leaderships to Labour governments and may also offer support to those who see a close integration of political and industrial consciousness on the part of miners (Allen 1981, Supple 1987).

Equations (b) and (c) confirmed the results of the shorter period and permitted a closer examination of additional variables. Equation (b) accounted for 74% of the variation in the dependent variable and with only the NPLA variable failing to achieve significance, a problem which arose when it was run in conjunction with the ICC variable suggesting an element of multi-collinearity. Equation (c) provided the best results for the longer period with TUD, NPLA, the percentage change in faceworkers productivity and the spread of powerloading accounting for over three-quarters of the variation in stoppage numbers. The impact of the mechanisation and productivity terms are particularly strong, however care is needed in their interpretation. Increases in productivity are closely linked to the payments system in operation and the associated levels at which collective bargaining is conducted (Handy 1981, Pryke 1981). The strong positive coefficient may be the consequence of a shift to incentive schemes, particularly after 1977 and the departure from the pre-eminence of national bargaining, the main impact of which would fall on wage stoppages. Alternatively, or simultaneously, changes in productivity may be the result of increased mechanisation, the working of better, thicker coal seams and/or of greater intensification of labour. In the case of mechanisation it could serve to de-skill workers or to re-skill some or to remove some of the more mundane or unpleasant jobs, overall the impact on stoppages is uncertain. Certainly mechanisation made productivity much more dependent upon machine speed and utilisation and there is evidence that it was associated with increased supervision of work (Allen 1981). In the case of the intensification of labour, the pressure for extra effort *ceteris paribus*, would tend to lead to pressure for wage increases to compensate and increase the probability of wage stoppages arising. Pressure for greater effort *per se* would be likely to increase the possibility of non-wage stoppages particularly if these are associated with redundancies, reductions in manning on faces etc, and would also be expected, to be associated with a rising incidence of accidents and absenteeism. If the results for productivity are linked to pay systems then the major impact would fall on pay stoppages before 1966 and after 1977, whereas if the effort/intensification argument is correct it would show up in the 1980s and specifically after the 1984/85 strike. Finally, if the mechanisation/work humanization view has validity it would tend to operate between 1955 and 1968 and serve to reduce the number of stoppages.

An attempt to test these competing views is taken further in the analyses by sub-periods and of stoppages by cause.

Given the results for equation (c) it was decided to test for the stability of the relationships by undertaking a sub-period analysis covering 1947-68 and 1969-90. The relatively small number of observations (22) means care is needed in the interpretation of the results particularly those of NPLA in the first period and the spread of powerloading in the second. The results are presented in equations (d) and (e) in Table 3 overleaf.

Both equations performed well in terms of explanatory power and overall significance which differed little between the two periods. Although the Durbin-Watson statistic for the former period suggests a problem of autocorrelation. Significantly, the trade union variable maintains a consistent influence across the two periods but the other variables are exerting an influence in only one period and in the case of the NPLA in neither, a result which is probably due to the small number of observations in the former period and the dominance of other variables (e.g %OMS, percentage change in faceworkers output per man shift) in the latter. The change in productivity exerts little influence in the 1947-68 period despite significant changes in the period 1957-67 and has a negative coefficient (cf equations (c) and (e)). It is likely that the variable is picking up the effect of other changes notably the fall in product demand in this period. In contrast it is exerting the major influence in the period after 1969.

Given that productivity growth was slow between 1969 and 1977 (Handy 1981, an increase of around 15% for the entire period) it is the period after this date and the associated introduction of local incentive schemes which probably gives the variable its significance. The spread of powerloading conforms to the expected pattern achieving significance in the former period when it increased from 2.4% in 1947 to nearly 90% by 1968. It reached a peak in 1977 of 93.8% but the increase in faces affected from 1969-77 was negligible and probably accounts for the lack of significance in the later period. In addition to the differences in significance of the variables between the two sub-periods there is a clear difference in the strengths of the coefficients on the variables. Although continuing to exert a strong influence the

impact of trade union density declines in the second period, this could be due to the magnitude of changes in density in the earlier period with significant increases in density in the period 1949-54 being associated with rising stoppage numbers and major falls in density in 1966-67 coinciding with a declining incidence of stoppages.

The strength of the coefficient on the change in OMS in the later period is particularly notable. It implies that, *ceteris paribus*, in the early 1980s a 1% increase in productivity was associated with an increase of over 20 stoppages per year. Given that productivity increases between 1980 and 1990 averaged 8.8% per year it is clear that this variable was exerting a major influence on strike totals. Indeed the coefficient suggests that in 1986 the variable was contributing 240 stoppages to the total, which in that year stood at 351.

ANALYSIS OF STOPPAGES BY CAUSE

Pay stoppages

The results presented in equation (e) illustrate the strong influence of the change in OMS, trade union density and the NPLA operating in conjunction with product market demand on pay stoppages. All the variables are significant and together account for 88% of the variation in the dependent variable. To test the impact of these variables further a number of equations were run over the period 1959-1982 with the objective of testing for the impact of industry unemployment. Although the latter variable was insignificant in all equations it was found that two variables, the spread of mechanisation and the NPLA accounted for 94% of the variation in pay stoppages and with the addition of the lagged nominal earnings variable and trade union density this rose to over 96% with all variables significant.

ECONOMETRIC RESULTS: SUB-PERIOD ANALYSIS

Variable	1947-1968		1969-1990
	M	SD (d)	(e)
Constant		- 358.12	- 238.6
%OMS		- 2.7 (0.71)	8.8 (5.57)
TUD		5.53 (3.25)	3.4 (3.04)
NPLA		- 17.2 (0.45)	- 4.17 (0.2)
PL		1.8 (2.14)	15.22 (0.46)
SDE		36.15	30.67
F		14.29	15.89
R2		0.77	0.789
D.W		1.22	2.314

Sources: As above.

MEAN and STANDARD DEVIATION: %OMS: 3.76 and 2.85 (to 1968), 5.48 and 5.98 (1969-1990). PL: 18.77 and 12.5 (to 1968) and 0.13 and 0.26 (1969-1990). TUD: 93.55 and 7.438 (1969-1990). 95.514 and 7.021 (1947-1968).

For the longer period 1959-1990 the results for ICC confirm the arguments of Handy (1981), Winterton (1981) and DMR (1983) that the decline in product demand fed through to workers willingness to strike which, combined with the collaboration between the NCB and NUM over pit closures and the general contraction of the industry reduced strike activity and proneness. The impact of the change in faceworkers OMS served to increase the number of stoppages, an expected result given that faceworkers were traditionally on piecework (until 1966) and more sophisticated incentive schemes after 1977. However, in the equations run for 1959-82 the change in OMS was not significant and its main impact is therefore operating after this period and particularly in the years following the 1984/85 strike.

The trade union density variable again exerted a strong and significant influence upon stoppage numbers emphasising the role of trade union organisation in strike activity. One caveat to this is that changes in TUD are closely related to employment changes which are in turn linked to changes in product demand and it could be the latter which is most critical.

Notwithstanding the imprecise and unsatisfactory nature of a dummy variable to capture the impact of the NPLA, the results appear to support the view of Clegg (1979) and DMR (1983) that with the move towards centralised bargaining and removal of piecework, the frequency of pay disputes fell. One qualification to this is the earlier point that the fall in stoppage numbers pre-dates the introduction of the NPLA and applies to both pay and non-pay disputes. Furthermore, it is probable that the NPLA served to increase the size of pay disputes increasing the likelihood of national stoppages (as in 1972 and 1974) and by narrowing internal differentials created new sources of conflict which emerged in the late 1960s (Handy 1981).

ECONOMETRIC RESULTS : STOPPAGES BY CAUSE

Variable	M	SD	Pay stoppages		Non-pay stoppages	
			(e)	(f)	(g)	(h)
Constant			- 173.6	- 55.26	- 156.5	- 154.5
ICC			0.52 (3.27)			
%OMS			1.88 (2.89)			3.86 (2.96)
TUD			1.63 (3.38)	1.2 (3.58)	2.19 (3.76)	2.3 (3.26)
NPLA			- 27.27 (3.13)	- 27.4 (5.02)		
86-90					32.28 (1.87)	
Et-1				- 0.39 (2.15)		
PL				2.43 (9.84)	2.59 (4.2)	
LG						- 14.59 (1.33)
RED					4.81 (3.87)	2.17 (1.62)
<hr/>						
SDE			12.88	7.71	21.96	25.86
F			49.69	134.4	20.2	12.69
R2			0.88	0.966	0.75	0.65
DW			1.59	2.24	1.95	1.72

Sources: As above.

MEAN and STANDARD DEVIATION: ICC: 141.46 and 34.77. %OMS: 5.72 and 5.07. Et-1: 9.98 and 9.94. PL: 4.12 and 7.33. TUD: 94.55 and 7.585.

The lagged nominal earnings variable (but not lagged real earnings) was significant in equation (f) and had the predicted sign with its impact likely to have been particularly important in the early 1970s. Variables employed to measure changes in external relativities were not significant (cf DMR 1983) but this could be due to the fact that the erosion of such differentials occurred slowly over a period from the mid 1950s to the late 1960s and again from 1972-74 and the inadequacy of the variables used, so that there is a considerable lag between reduced differentials creating grievances which then led to overt conflict as in the period 1969-1974.

Finally, the results for the spread of mechanisation show a strong positive influence which runs counter to the established views on the impact of mechanisation. We have discussed the possible consequences for strike activity above but in general the changes brought about by the spread of powerloading would be expected to affect established working patterns (see non-pay stoppages) and alter pay systems as well as creating demands for new craft groups to operate power-loading faces. In addition, the spread of District Powerloading Agreements did not signify an end to piecework. As Hepworth et al. (1969) have shown a number of pits in Yorkshire operated on a contract system after the DPLA was signed there in 1958 and some pits operated with a daywage system on some faces and a contract system on others. These changes together would have served to accentuate workforce divisions and disturb established differentials and provide a basis for heightened grievances. Overall, the results point to the importance of a hitherto, largely neglected variable in analysis of coal-mining strikes. That mechanisation, and the associated changes in payment systems, would have reduced the opportunities for bargaining and therefore the possibility of stoppages arising (although the level of mechanisation in equations was not significant), the process of adoption of powerloading generated a considerable amount of conflict as the changes necessarily involved disruption to what was a very complex system of allowances and the rationalisation of job titles (of which there were over 600 in the mid 1950s, Handy 1981).

Non-Pay Stoppages

The results for non-pay stoppages are described in equations (g) and (h), and although having a lower explanatory power than equation (f), they again support the view that factors internal to the industry have exerted the major impact on stoppage numbers since 1959. Again the trade union density, spread of powerloading and changes in faceworkers OMS contributed most to the explanatory power of the equations and all were significant. The 86-90 dummy was only significant in the absence of the redundancy or OMS terms and when OMS and the number of redundancies were run together only the former was significant, again confirming the dominance of this variable in the 1980s in accounting for stoppage numbers.

In comparing the results for pay and non-pay stoppages it should be noted that although the same variables are important, both TUD and %OMS exerted a stronger influence on non-pay than pay stoppages with the impact of PL broadly the same. Overall, the evidence suggests that changes in the level of trade union density have been a critical influence upon the number of pay and non-pay stoppages throughout the period 1959-1990 contributing to the decline in stoppages in the mid 1960s, the rise in the early 1970s and continued maintenance of those levels throughout the decade.

The high levels of non-pay stoppages particularly in the period 1959-64 are significantly affected by the spread of powerloading to new coalfaces and the slowdown in that spread after 1968 contributed to declining strike activity at least until 1972. For the 1980s the most significant influence on all stoppages has been the rapid rise in productivity and the changes associated with this particularly the operation of incentive schemes and the more general attempts to restructure industrial relations (Leman and Winterton 1991) given the maintenance of strong trade union organisation, notably in Yorkshire. The issue of the Yorkshire coalfield is taken further in the section on trends since 1973 but it should be noted that from 1985-1990 Yorkshire accounted on average for nearly 72% of all the strikes in coal mining (Employment Gazette) and further analysis of this may provide a useful insight into the factors underpinning the results for the productivity variable.

WORKERS INVOLVED AND DAYS LOST: 1959-1990

Variable	M	ST	Workers Involved		Working Days Lost
			Pay	Non-Pay	Non-Pay
Constant			- 1005.2	355.6	- 37739.7
U			- 4.86	+ 38.51	+ 5815.7
			(0.19)	(4.6)	(6.48)
Pt-1				- 16.6	- 3984.4
				(2.23)	(4.94)
65-69			- 185.1		
			(1.1)		
ICC			- 3.27		
			(0.98)		
Stocks				- 6.83	- 1117.9
				(1.44)	(2.39)
OMS*			+ 15.9		- 4004.3
			(1.12)		(5.28)
TUD			+ 17.08		+ 954.8
			(1.69)		(1.66)
NPLA			+ 335.2		- 1815.1
			(1.81)		(0.18)
Soc. Con			- 435.0		
			(2.3)		
LG					+ 24337.6
					(3.05)
SDE			284.4	157.3	15487.0
F			1.51	14.63	9.1
R2			0.31	0.61	0.726
DW			2.81	2.11	2.34

Sources: As above.

MEAN and STANDARD DEVIATIONS: AggU: 6.29 and 4.86. Pt-1: 7.32 and 5.5. ICC: 141.46 and 34.77. Stocks: 33.6 and 6.91. OMS: 5.72 and 5.07. TUD: 94.55 and 7.585.

Workers Involved and Working Days Lost

For these dimensions of stoppages there emerged a clear distinction between pay and non-pay stoppages. In general the variables employed in equations for stoppages explained no more than 20% of the variation in days lost and workers involved in pay stoppages with correspondingly low figures for overall explanatory power. In contrast the same variables accounted for over 60% of the variation in these dimensions for non-pay stoppages. A tentative interpretation of this discrepancy is that it may be the result of the changes in the level at which pay bargaining was conducted over this period which had much less of an impact on non-pay stoppages. Although this would be reflected in the NPLA dummy it is notable that this variable approached significance in the equation for workers involved in pay stoppages and was never significant in equations run for non-pay stoppages. Indeed it is only NPLA and the Social Contract dummy which were or approached significance in the equations for pay stoppages and then only for workers involved.

The results of days lost in non-pay stoppages are encouraging in light of the results for other industries. The two macro-economic variables, the political variable (Labour government), together with stock levels and changes in productivity were all significant although the variables together have a low explanatory power. The results confirm the strong upward impact of unemployment on days lost, although this is clearly biased by the affect of the 1984/85 dispute and the strong effect of changes in productivity on reducing working days lost. This latter result is likely to be the consequence of the fact that the productivity results are tied to area or pit-specific incentive schemes, so that disputes that do arise (cf. under the NPLA) are likely to be localised.

STRIKE ACTIVITY 1974-1990

The decision to focus on the analysis of coal mining stoppages in the period after the oil crisis of 1973/74 has been made in order to meet a number of distinct aims. First, that hitherto, no attempt has been made to undertake an analysis specifically of strike patterns in coal since the first oil crisis. Second, that it permits an extension of the work of DMR beyond 1973 and third it provides a case study of increasing strike proneness in a period when strike activity and strike proneness in almost all other industries has been declining.

The section draws on the previous econometric work and uses this to support the contention that the period of heightened conflict in the 1980s was the consequence of NCB and government initiatives to address major product market weaknesses which contributed to contradictions in the circuit of capital, and to redefine industrial relations within the industry, albeit that many of the problems at the time were themselves 'engineered' through government policies towards the industry. It is our view that contradictions can also be seen in the late 1950s and 1960s but that in contrast with the 1980s these did not manifest themselves in heightened levels of conflict and we attempt to show why the contradictions worked themselves out in conflict in the later period rather than in the former.

The Changing Context

In 1974 the industry found itself in a significantly changed economic situation, the previous fifteen years had witnessed a sustained decline in demand, with increasingly severe effects for those employed in the industry (Jackson, 1974). The redundancies from 1968-1973 came at a time when unemployment generally was rising making it increasingly difficult for those leaving the industry to find alternative work and there was evidence that miners were becoming disenchanted with the Labour government's attempts at introducing legislation and in maintaining wage restraint (Allen 1981). More significantly there was evidence of general discontent amongst miners and the re-emergence of radicalism after years of apparent compliance. Evidence for these trends can be seen in the shift of the Yorkshire area to the left in the late 1960s,

Daly's election to General Secretary in 1968 and the major disputes in 1969, 1970, 1972, and 1974. The strikes of 1969 and 1970 may be seen as the direct result of the radicalism begun by Daly's campaign, but as Turner (1986) has argued, the 1972 strike had more long-lasting consequences (also Gormley 1982). Not only was the self-confidence of miners restored but it also provided the basis for the emergence of Scargill, who became Yorkshire President in 1973 and an increasingly important figure on the NEC (Turner 1986, Taylor 1984).

Of perhaps greater significance, at least for the 1970s was the election of Gormley as NUM President in 1972 and Ezra as NCB Chairman. In the previous section the relationship built up between them was noted and it would appear that the nature of the political exchange and what Edwards and Heery (1989) describe as 'sectoral corporatism' following the 1974 strike and 'Plan For Coal' owed much to the degree of trust between the two men (see also Pendleton (1988) on the 'tacit alliance' at BR during this period).

The national stoppages of 1972 and 1974 had a marked impact upon those involved in the industry and on the incoming Labour government. The pay award following the Wiberforce enquiry in 1972 was quickly eroded by a rise in earnings in manufacturing and in 1974 the NUM campaigned hard for a restoration of that differential. Their bargaining power was significantly enhanced by a four-fold increase in the price of oil in 1973/74 which dramatically improved coal's relative competitiveness. The Pay Board established in 1974 recommended pay increases of around 32% and although these were eroded throughout that year they were restored in 1975 when miners accepted a 19% pay increase (Ashworth 1986). Overall, miners earnings rose by 23% relative to those in manufacturing between October 1968 and October 1978 (Pryke 1981).

1974-1982

The immediate period after 1974 provided a halt to the decline of the previous decade and a half. The 'Plan For Coal' agreed in 1974/75 was an expansionary programme, involving modernisation and the creation of 42 million tons of new capacity (incl. Selby) together with the closure of older capacity on grounds of exhaustion or economic reasons. The Plan made explicit the assumption that OMS would increase by 4% per year but with a relatively stable output so that within the logic of the Plan closures were necessary (Ashworth 1986).

Both the NUM and NACODS had a national policy of opposition to closures other than those caused by a total exhaustion of reserves or for safety reasons (Turner 1986). The NCB's wish to maintain good industrial relations precluded faster progress with pit closures particularly following the introduction in 1973 of the Colliery Review Procedure which reviewed colliery performance quarterly and through which decisions to close could be processed. In practice, between 1973/74 and 1979/80, 61 collieries were either closed or merged but the majority were on the grounds of exhaustion. The 27 pits closed in the five years to April 1980 involved the loss of 14000 jobs, approximately 5.4% of the workforce (Turner 1986). But this disguises the fact that after 1974/75;

closures on economic grounds effectively ceased
(Ashworth 1986, also Pryke 1981)

As the table overleaf shows, by the end of the decade the NCB began to experience considerable difficulties in its operations. In what follows we make considerable use of the NCB's accounts and figures which have been the subject of considerable criticism (see Glyn 1984, Berry et al. 1985, Fine 1990). It is not our aim to examine the merits or otherwise of the Board's accounting conventions but rather to stress that the increasing shift towards commercialism and associated accounting frames of reference by the NCB and government after 1979/80 gave additional importance to the Board's accounts and in representing a major break with other objectives made the potential for conflict more likely.

A number of clear trends are discernible from the accounts. First, that despite the profitability of opencast mining, deep mined coal generated losses from 1972-75 and from 1978-81 and in the later period these losses increased dramatically, standing at £226.1 millions in 1981/82. The significance of this lies in the fact that deep mined coal accounted for 80% of the value of turnover and 88% of total output. On the basis of evidence presented to the MMC, of the 198 collieries in 1981/82, 141 made an operating loss with the majority of these concentrated in the peripheral coalfields of Scotland, Wales and the North-East (MMC 1983).

It was noted earlier that although government imposed cash limits were introduced in 1976 and significantly tightened after 1979/80, the industry's costs increased significantly throughout the decade (operating costs were 80% higher in 78/79 than in 68/69; Pryke 1981) and it was forced to borrow heavily in 1977/78 with an attendant rise in interest payments. From 1979/80 the Corporation had to rely on the government to finance deficits incurred which, by 1981/82 had risen to £428 millions, with total government assistance to the industry in that year amounting to over £570 millions. In the context of the requirements laid down in the 1973 Coal Industry Act for the Corporation to break-even after payment of interest and receipts of government grants, the performance in the 1970s was highly satisfactory. However, as product demand fell at the turn of the decade (by 7% between 1979 and 1981) and coal was stockpiled, the nature of the difficulties faced by the industry became apparent, exacerbated though they were by increasingly stringent financial controls imposed by government.

TABLE 3**MOVEMENTS IN INDICATORS OF PERFORMANCE: 1972-1983**

Year	Real Wage Bill per unit output	ICC	Operating Profit/(Loss)	OMS	Wastage Rate	LSVA
1972	100	129.8	(59.9)	2.33	10.6	88.0
1973	96.8	123.5	(135.7)	2.15	14.6	86.4
1974	97.9	125.7	(35.7)	2.29	10.0	96.1
1975	99.7	123.5	(31.1)	2.28	9.0	92.0
1976	120.4	124.0	31.9	2.21	9.0	92.5
1977	115.9	122.4	0.3	2.19	13.1	93.9
1978	117.6	122.3	(26.1)	2.24	11.5	95.0
1979	123.3	126.9	(121.4)	2.31	10.8	90.8
1980	115.8	123.5	(106.5)	2.32	8.0	86.5
1981	126.0	118.4	(226.1)	2.40	8.9	86.4
1982	123.4	108.9		2.44	7.7	83.7
1983	124.0	109.5		2.43	12.5	78.2

NOTE: Real wage per unit of output; calculated from NCB Report and Accounts refer to calendar years.

ICC: Inland Coal Consumption from NCB Statistical Tables, refers to calendar years. Operating profit/(loss); for deep mined output only from NCB Report and Accounts, figures refer to financial years.

OMS; overall output per manshift for deep mined output from NCB Report and Accounts, figures refer to financial years.

Wastage rate; total wastage as a percentage of average numbers employed, calculated from NCB Report and Accounts, figures refer to financial years.

LSVA (Labour Share Percentage of Value Added); National Income Blue Book.

The table reveals that for much of the 1970s productivity was static with OMY (not shown) virtually the same in 1979/80 as ten years previously. The succession of pay increases to restore differentials meant that miners were at the top of the earnings league in 1978, 1979 and 1980 and second in 1981 and 1982 (Ashworth 1986) but without increases in productivity and/or reductions in employment, unit labour costs rose. It is clear that the NCB hoped that a combination of relatively high earnings and an incentive element (after 1977) would lead to higher productivity (Ashworth 1986) and although productivity rose after 1978 and absenteeism declined, strike activity increased (wage stoppages were over three times higher from 1977-83 than 1970-76) and that overall the real wage bill per unit of output was over a quarter higher in 1981 than in 1972. In contrast, labour's share in value added fell after 1978 presumably reflecting rising productivity following the introduction of the new incentive scheme and by 1983 was lower than at any point in the previous decade. Interestingly this suggests that the justification for a massive closure programme was much clearer in the mid 1970s than in the early 1980s, however by the latter period the 'goalposts' had shifted and a new agenda of commercialism and changing industrial relations had become priorities for the government and the NCB.

The changes in the industry's fortunes and the perceived need to cut costs in the early 1980s led to confrontation in 1981 with the NCB, under increasing financial pressure from the government to increase the rate of closures and to stop restricting them to cases of the physical exhaustion of resources (Turner 1986). In February 1981, the NCB announced its intention to close 23 pits amounting to 10 million tonnes of capacity with this to be effected quickly involving a departure from the normal Colliery Review Procedure. The threat of industrial action following a ballot forced the government to back down and agreed to make more finance available to the industry but closures took place through local agreements in 15 of the 23 pits listed by July 1982 (Fine 1990). The climate was worsened further in November 1982 by a 'leaked' document identifying 75 'short-life' pits employing 50000 miners and in June 1983 the Corporation announced its intention to shed 70000 jobs in the following five years. From March 1981 to March 1983, 20 pits were closed or merged and from March 1981 to March 1984, 41000 jobs were lost with local industrial action

over closures in a number of locations.

An additional factor of importance not revealed by the figures and one that suggests a significant 'hidden agenda' behind government and NCB actions is the issue of the alleged erosion of managerial prerogative that took place in the late 1970s. Edwards and Heery (1989) have argued that from 1976-1981 the NUM gained significant involvement in areas of managerial prerogative; work organisation, deployment, overtime allocation, safety, shift organisation and incentive pay although they stress that this increase in union power occurred in areas where management was happy for it to go although it is likely that it went much further in some areas (e.g Doncaster) than others. If this was true for management in the late 1970s the attitude of the NCB changed dramatically with the appointment of McGregor as Chairman and the assertion of the 'right to manage'. As McGregor stated after the 1984/85 strike;

There was no way I was going to let their (NUM's) leadership stand in the way of establishing management's right to manage.....we were going to exert our right to manage the enterprise. From now on there didn't need to be a ritual genuflection to the NUM everytime we wanted to do anything (McGregor 1986: 237, 358).

This view reflected an element in the revisionism in government circles following the Conservative election victories in 1979 and 1983. Particularly the broader issues of management's right to manage' and the alleged role of trade unions in undermining and hampering that 'right'. More specifically it reflected the government view that the price of the political exchange and neo-corporatism after the 1974 strike and embodied in the 'Plan for Coal' had been too high (Edwards and Heery (1989), a view which was reflected in other areas of the public sector (e.g British Rail, Pendleton, 1988).

STRIKE ACTIVITY: 1970-1982

The description of the changes that took place within the industry in the 1970s can now be married to the evidence on strike patterns to develop a more complete picture of strikes than that provided by the econometric work. The detailed movements are described in the Table 4 overleaf.

The trend of pay stoppages is upwards for the period with a particular jump in 1978, the first full year of the new incentive scheme's operation. The incentive scheme undoubtedly contributed to a marked increase in the number of pay stoppages after this date and given the wide disparities in earnings it generated both within and particularly between pits in the same area was a source of constant friction (NUM: 1983). In Yorkshire, the NUM estimated that of the 235 stoppages occurring in the year September 1982 to September 1983, 50% were attributable to the incentive scheme (NUM: 1983). There is also a clear trend for pay stoppages to involve more workers after 1976 although not for them to become longer. The increase in size of stoppage may be due to the nature of the new schemes, which as well as increasing bargaining opportunities and enhancing worker motivation (Edwards and Heery 1989) were based on groups rather than individuals. The impact of the Labour government and the social contract should also be noted, as the econometric work suggested that both contributed to reducing particular dimensions of stoppages. It is difficult to disentangle the effects of the two but the post 1974 settlement in the industry did involve the NUM in an explicit compliance with the Social Contract provisions and this could be exerting the major influence (Allen 1981). It is also probable that the operation of the incomes policy and the disillusionment with the Labour government contributed to the increase in stoppages in the late 1970s. These factors are held to have influenced the leftward shift in the NUM and may have directly contributed to higher strike activity in the 1980s (Campbell and Warner 1985).

Table 4**STRIKE ACTIVITY IN COAL MINING: 1970-1982**

Year	Pay Stoppages			Non-Pay Stoppages			Yorks Coalfield		
	S	WI	WDL	S	WI	WDL	WI%	WDL%	TL%
1970	19.2	353.4	3630.4	37.4	47.3	113.1	44.2	47.1	-
1971	12.0	16.6	81.3	36.8	46.3	148.5	44.9	23.1	-
1972	18.4	1163.2	39594.7	66.0	84.0	199.0	27.0	25.2	29.8
1973	19.5	35.2	62.5	99.6	137.5	293.0	65.2	60.4	30.6
1974	20.2	1081.2	22618.2	59.0	73.1	121.2	30.3	26.4	39.0
1975	17.8	27.6	89.1	70.1	80.2	137.8	50.8	48.2	52.0
1976	23.0	31.6	69.9	93.3	127.0	258.9	68.7	51.3	69.4
1977	31.6	106.7	195.1	81.4	104.6	224.2	36.0	29.7	49.1
1978	75.3	237.0	588.2	73.2	85.9	237.0	39.4	41.0	56.7
1979	60.1	128.3	416.1	72.5	77.6	133.0	36.0	28.1	50.3
1980	57.7	111.1	282.0	76.8	227.3	438.2	39.4	41.0	56.7
1981	62.8	112.5	302.6	75.0	292.7	722.7	42.6	32.2	64.5
1982	63.2	884.0	1497.9	128.9	156.0	280.6	37.1	42.5	43.0

S; Stoppages per 100000 workers using average numbers employed.

WI; Workers Involved per 10000 workers, deflating as with S.

WDL; Working Days Lost per 1000 workers, deflating as with S.

Yorks figures are percentages of the total for WI, WDL and tonnage lost. All figures Employment Gazette, except TL (NCB Report & A/cs).

The trend of non-pay stoppages is less clear with peaks in 1973, 1976 and 1982 but on average running at levels well above those of pay stoppages. In the late 1970s there were a particularly large number of disputes over manning levels, work allocation and working conditions which may have been linked to the operation of the incentive scheme and in 1980 and 1981 the figures are affected by the TUC Day of Action and NUM action over pit closures and redundancies. In 1982 and 1983 it is again issues of manning and work allocation which dominate the strike figures. Following Edwards and Heery's view that the NUM encroached significantly into areas of managerial prerogative after 1976 this would have increased the probability of strikes arising as the bargaining scope was extended and would account for the increased number of disputes over manning and work allocation in the late 1970s.

Overall, the rise in stoppage activity in the 1970s for non-pay stoppages and after 1977 for pay stoppages should be seen in the context of the slowdown in contraction of the industry, increased competitiveness of coal as a fuel, changes in the payments system and the growing encroachment of the NUM into new areas of influence. In addition the decade saw significant increases in trade union density especially 1973-1976 and 1978-1982 (Milner and Metcalf 1991) and changes within the NEC of the mineworkers union with the increasing influence of left-wing areas.

By the early 1980s the relative stability experienced by the industry began to be challenged. First, by the increasingly stringent financial controls and commercial requirements imposed by the Conservative governments after 1979, reflected in a changing NCB position, particularly after Ezra's departure. Second, the decline in demand in the recession of the early 1980s together with the rise in unit operating costs of the previous decade meant a renewed search by the Board and the government for areas of cost saving. Third, the increasing pressure from the late 1970s to increase productivity and utilise equipment more fully. Together these developments led to a focus upon two related issues which dominated industrial relations in the 1980s, the perceived need to eliminate 'high cost', 'uneconomic' pits, and to concentrate output and investment on the central coalfield where productivity gains could be greatest. As Winterton and Winterton (1989) have argued;

As restructuring proceeded without increased demand for coal, pit closures on grounds other than exhaustion became inevitable (Winterton and Winterton 1989:41).

The first signs of the difficulties in effecting such a strategy by the Board came in 1981 (discussed above) the subsequent attempts and the post-strike regime of the Board and its implications for strike activity are the subject of the final section.

1983-1990

The growing climate of distrust in the industry particularly over pit closures in the early 1980s is evidenced by the election of Arthur Scargill to the NUM Presidency and the significant increase in strike numbers in 1982 and 1983. The worsening relations between miners and the Board was further exacerbated by the appointment of Ian McGregor in 1982 as Chairman and worsened a period of already growing estrangement between the NUM and the Board. Given the experience of McGregor at BL, and British Steel, the NUM saw the appointment as a highly provocative act and one which was almost bound to engender conflict. As a one-time economic adviser to the NUM put it;

Ian McGregor.....appears to have moved around the input-output table of the British economy, a kamikaze personification of the Keynesian multiplier in downward spiral (Fine 1990:155).

The fact that the most contentious issue at this time was the perceived need to rationalise the industry through the closure of 'uneconomic pits' presented the NUM with difficulties. Historically, the union had always experienced problems in fighting closures nationally because their impact was concentrated in specific areas (Turner 1986) and attempts by the union to get national action over closures again failed in 1982 and 1983. The overtime ban which began in October 1983 was designed both to reduce coal stocks (partly a response to declining demand and also to a conscious NCB policy) and to highlight low levels of basic pay (Fine 1990). The NCB responded in early 1984 with the announcement that Cortonwood colliery in Yorkshire would close, in breach of the colliery review procedure and so began the longest and most bitter strike in the post-war era.

In interpreting the strike of 1984/85 and its aftermath as the consequence of contradictions having emerged in the circuit of capital a number of initial points must be stressed. Whilst the economic context significantly worsened in the early 1980s this was accentuated by government policies which operated to artificially create a situation which was more problematic than it could have been. Given the nature of

many public sector organisations and the close relationship between any nationalised industry and the government of the day it is always possible to create a crisis situation by imposing a new set of strategic and operational criteria (e.g more commercial objectives) and that this would be particularly acute when an industry is so dependent upon the government for finance, pricing decisions and where subsidies are critical for continued production. Therefore, in the early 1980s product market changes led to stockpiling of coal and losses worsened by the increasingly severe financial constraints imposed by government. These took place against a backdrop of modernisation of capacity but static productivity and a relatively unchanged labour process. The focus of the Board became one of a concern to increase productivity and reduce costs quickly, the strategy one of eliminating high cost capacity and concentrating investment and new technology in bigger pits in the central coalfield to reap benefits of economies of scale. The increased modernisation and computer monitoring equipment would necessarily raise productivity (In experiments at Wistow colliery in the late 1980s with the latest developments in technology a figure of 254 tonnes per man-shift was achieved; FT 20/3/89) and reduce numbers and dependence upon labour (Burns et al 1985, Leman and Winterton 1991).

It is not our aim to discuss the strike in any detail (see e.g Adeney and Lloyd 1986, Goodman 1985, Winterton and Winterton 1989) rather, our concern is with its causes and its aftermath in terms of changing industrial relations and strike activity. Although the immediate cause of the dispute was the announcement to close Cortonwood it is clear that behind this was a belief within parts of the Board and government that coal should 'pay its way' and that tighter financial discipline and a greater commercialism were necessary and would necessarily involve pit closures. As was argued earlier, a further 'hidden' or 'opaque' agenda was that management should be able to manage unencumbered by being answerable to the NUM and the wish to marginalise the latter was clearly a factor in McGregor's calculations as well as some of those in government (see above). From the perspective of the NUM, the attempt to accelerate the closure programme in 1981 significantly worsened its relations with the Board, and the climate of distrust between the two sides was damaged further by the personalities of Scargill and McGregor who rarely disguised

their dislike for each other. Similarly the growing distrust between miners and the Board is clear from the strike patterns and accentuated further by Scargill's 'counter-hegemony' (Turner 1986) particularly the propagation of the view that the Board had a 'hit-list' of over 60 collieries for closure, considerably more than was admitted in 1981.

TABLE 5
MOVEMENTS IN THE CIRCUIT OF CAPITAL: 1983-1990

YEAR	REAL WAGE BILL/Q	ICC	OMS	EMP. CHANGE	LSVA
1983	124.0	109.5	2.43	-14.8	78.2
1984	N/A	77.3	2.08	-16.5	58.6
1985	N/A	105.4	2.72	-19.2	73.0
1986	104.5	114.2	3.29	-27.0	77.7
1987	93.0	115.9	3.62	-23.1	81.2
1988	82.0	111.5	4.14	-18.4	77.3
1989	79.0	107.6	4.32	-17.2	84.6
1990		108.8	4.52	-12.3	90.8

Note: All figures relate to calendar years except OMS.

Emp. Change; Change in numbers employed (thousands), source NCB and Ashworth (1986) adjusted for calendar years.

Sources: As table for 1970-1982.

The preceding table illustrates changes in a number of elements in the industrial circuit of capital prior to, during and following the strike of 1984/85. Inland coal consumption stabilised at a level it had declined to at the beginning of the decade with the nationalised coal industry's deep mined coal output meeting around 80% of this demand after the strike. Significantly, output of deep mined coal from 1985-1990 stood at between 75 and 80% of its 1978/79 level with around 200000 fewer miners. The deterioration in the miners labour market position is evidenced by the continued reductions in employment through pit closures (from 169 pits in the mid 1980s to 50 by August 1992) and voluntary redundancies with over 100000 leaving the industry from the end of the dispute to 1990. The consequences for those who remained is illustrated by the significant increases in productivity after 1984 and considerably understates the productivity advances made in certain areas such as Selby which has benefitted from substantial investment in technology. The productivity changes and declining real wage bill per unit of output suggest major changes in the labour process following the dispute which are discussed further below and overall the performance since 1984/85 indicates a greater congruence between product market, labour market and labour process than that existing in the early 1980s. One qualification to this 'encouraging' view is the increase in labour's share of value added particularly in the late 1980s. Part of the explanation for this lies in attempts by the industry to reduce coal prices to remain competitive with imported (and often heavily subsidised) coal to satisfy its major customers, the electricity generating companies. This consideration, and the fact that the generating companies are likely to reduce their requirements of coal, which in 1992 stands at 65 million tons (80% of output) means further closures and redundancies are likely (if the requirement falls to around 40-45 million tons as has been suggested (Independent; 30/8/92) around 30 further pits and 25000 jobs would be lost. Currently the Selby complex alone supplies around 15 million tons annually).

The important point for our analysis is that since 1982 and particularly since 1985 there has been a concerted attempt to redefine the criteria of success in the industry and to realign employment and labour utilisation in light of this criteria and the precarious product market position. The nature of the strategy embarked upon by the

Board and its implications for strike activity are the subject of the next two sections.

STRIKE ACTIVITY: 1983-1990

The table below identifies the main dimensions of stoppages . It is clear that far from declining, strike activity in the wake of 1984/85 has increased, particularly amongst non-pay stoppages. A brief comparison with the 1970s reveals this clearly. From 1971 to 1980 pay strikes per 100000 workers averaged 33.6 per year, and non-pay 72.9; in the period 1981-1990, the figures were 51.3 and 120 respectively giving an overall increase of nearly 61%. Taking the period 1980-84 and 1985-90 shows how this increased in the decade;

TABLE 6

STRIKES PER 100000 WORKERS

	1980-1984	1985-1990
Pay	49.2	54.1
Non-Pay	89.4	138.4

Source: Employment Gazette

The evidence from the table presents a marked contrast with the experience of other industries in the 1980s, notably steel, printing, docks and areas of motor vehicles and runs counter to Waddington's (1987) view that in the wake of major conflicts such as that of 1984/85 there is a tendency for new workplace values to emerge. The evidence in coal-mining is that the legacy of the 1984/85 strike is one of considerable distrust particularly in areas such as South Yorkshire where industrial relations has remained poor and probably worsened (Taylor 1988).

TABLE 7
STRIKE ACTIVITY:1983-1990

YEAR	Pay			Non-Pay		
	S	WI	WDL	S	WI	WDL
1983	49.6	511.5	1938.6	134.0	385.2	2005.1
1984	12.9	231.3	1050.3	32.4	878.2	146541.9
1985	20.1	93.9	400.5	79.5	1020.0	25525.7
1986	85.1	301.2	549.7	179.2	338.9	519.6
1987	71.1	273.5	601.6	198.7	619.9	1376.5
1988	46.0	635.3	1719.6	123.8	372.4	701.0
1989	45.9	94.5	283.4	153.8	242.9	418.4
1990	56.6	64.7	356.0	95.5	453.1	1116.5

Note: All figures relate to calendar years.

S, WI and WDL as in Table 4 above.

Sources: as previous tables.

The aim of the remainder of this section is to identify some of the main reasons for the persistence of stoppage activity and the increasing importance of the Yorkshire coalfield within the strike totals. An insight into the main factors was provided by the econometric work which stressed the particular role of changes in faceworkers productivity on the totals. The impact of this variable was so strong that other attempts to capture changes since the strike, such as the percentage of workers dismissed and made redundant, and the use of a dummy variable for the period 1986-1990 were insignificant when run alongside it. However, the earlier discussion highlighted the problems in interpreting the changes in productivity given that they have been associated with a variety of other changes as part of a new management strategy (see overleaf) and had an impact on both pay and non-pay stoppages.

Management Strategy Since 1984/85

In the 1980s the increased pressure upon the Corporation to meet financial targets via closures and redundancies has already been noted but the strategy adopted has a number of distinct elements which stem from this context. According to Leman and Winterton (1991) with the publication of the Board's 'New Strategy For Coal' in October 1985 the NCB's (Hereafter referred to as British Coal or BC as it was renamed in 1987) overriding priority is profit and the containment of costs, and more specifically the extraction of surplus value, first through increasing productivity through the intensification of labour and, second, increasing productivity through the introduction of new technology. In Winterton and Winterton's terms the strategy is concerned with moving;

To a form of production entailing a higher organic composition of capital and an increased rate of surplus value (Winterton and Winterton 1989:215).

Certainly there is clear evidence of a different strategic approach since the 1984/85 strike (Winterton and Winterton 1989, Fine 1990) and a greater managerial self-confidence at an operational level (Richardson and Wood 1989). Fine notes BC's wish to turn 'an institution into a business', that 'BC is no longer a social service' and a significant attempt to change culture 'from tonnes to money' with investment criteria linked closely to world coal prices, stressing the perceived importance of international competitiveness. A further example of the latter is the requirement that the marginal cost of new investment should be £1.00 per gigajoule for new output and overall operating costs in the colliery to be below £1.50 per gigajoule (approximately £38 per tonne, NCB 1985 quoted in Fine 1990). The revisions to the payment system, notably the 'Doncaster option' are also explicitly linked to financial targets rather than physical output (see below).

For Leman and Winterton (1991) the new strategy consists of three elements, parts of which existed before the strike. First, economic restructuring; the introduction of new capacity (e.g at 'super pits' such as Selby), the greater use of ATM (Advanced Technology Mining) with microelectronic control and monitoring equipment (manning

levels at fully integrated MINOS pits only 53% of that at conventional pits (Leman and Winterton 1991) and the increased use of retreat mining, developments which have been concentrated on the central coalfield. The last arm of the restructuring has been the closure programme concentrated on the peripheral coalfields, in shedding these high profits would accrue to low cost collieries free from the burden of cross-subsidy (Winterton and Winterton 1989). The second element in the strategy has been described as technological restructuring and consists of the increasing use of computer monitoring of machinery and faces to reduce 'downtime' and increase productivity. These two elements it is argued have facilitated the restructuring of the industrial relations and the labour process which has constituted the third element, particularly since 1985.

In the wake of the 1984/85 strike it is possible to identify a number of broad changes in industrial relations strategy which reflect the sentiments contained in the statements from Ian McGregor outlined above. As Richardson and Wood (1989) have argued the new industrial relations strategy essentially involved an attempt to reduce the authority of the NUM and to take advantage of the new opportunities to reassert managerial prerogative and change working practices. Specifically BC has attempted to confine NUM access to decision-making at lower levels in the industry and to issues covering only a limited agenda of collective bargaining (Edwards and Heery 1989), a policy of 'labour exclusion' and marginalising of union influence which marks a formal abandonment of the 1974 settlement. This can be seen at a local level with branch officials by-passed, changes in working practices imposed unilaterally (and precipitating strike action in some areas) and management making much more use of direct communication with the workforce (Winterton and Winterton 1989). The policy has been aided considerably by the emergence of the UDM and BC's encouragement to the latter. For Taylor (1988) the growth of the UDM was critical to BC's strategy as it provided an opportunity to split the workforce and further weaken the NUM. How BC attempted to encourage the UDM had important if indirect consequences for strike activity which will be briefly discussed.

Following the 1984/85 strike, management saw with the rise of the UDM an opportunity to develop differential pay awards between the NUM and the UDM and in effect to by-pass the national bargaining procedure by conducting separate negotiations with the UDM, so that since September 1986 industry wide terms and conditions have been negotiated with the UDM alone (Leman and Winterton 1991). In addition, BC terminated the 1946 Conciliation procedures which effectively ended the NUM's exclusive representation over mineworkers grades and which provoked an overtime ban in 1987. Under the new scheme BC would operate separate agreements with the NUM and UDM with each agreement covering all employees at collieries at which either the NUM or UDM had a majority in membership based on the premise that the UDM would expand. The core of the new scheme was a majority/minority principle, that the majority union at a pit would have exclusive negotiating rights with the majority decided annually by BC on the basis of the 'check-off' system (Taylor 1988). Whilst the UDM agreed to the new procedures in 1987, the NUM rejected the majority/minority principle and remained outside the formal conciliation machinery at local level (Leman and Winterton 1991). This effectively meant that from early in 1987 there were no effective procedures for resolving local issues and this contributed significantly to the large increase in tonnage lost through disputes in South Yorks (Leman and Winterton 1991).

The UDM has also been a significant weapon in BC's attempts to expand the use of numerical flexibility especially in the 'high-tech' pits such as Selby, and in attempts to extend the working week and move to 6 day working and 4 continental shifts (Taylor 1988, Leman and Winterton 1991). The representation of the UDM at the new pits at Margam and Asfordby has allowed it to develop a foothold outside of Nottinghamshire where it has largely been confined.

Other elements in the new industrial relations include a modified colliery review procedure agreed at the end of 1985, although it appears that its effect in practice has been limited as pits have been closed without opposition as miners have opted to take what have been for some, considerable sums in redundancy pay. One consequence of which has been a substantial reduction in the average age of the workforce. A

further important development has been the new disciplinary code, which extended to action away from the workplace and which created additional difficulties with miners sacked during the 1984/85 strike, a particularly sensitive issue in Yorkshire. In 1987 South Yorkshire experienced a major stoppage over the new code and a threatened stoppage in North Yorkshire.

Productivity, incentive schemes and strike activity

Central to our account of stoppage activity in the 1980s was the role played by increases in productivity for both pay and non-pay stoppages. The point was made that there was some ambiguity attached to the variable in that it could act as a proxy for a number of changes taking place particularly in the industrial relations environment. In order to investigate this further there is a need to identify where the productivity changes have arisen from. The conventional view has been that in coal the major increases in productivity have arisen from technological developments and particularly mechanisation (MMC 1983, BC evidence to MMC 1988, Ashworth 1986, NUM 1992). However in the 1980s there have been few developments in mechanisation but rather an attempt to make more effective use of existing capital equipment through computerised monitoring (Burns et al 1985). Work by Richardson and Wood (1989) suggests that productivity gains in coal mining in the 1980s were due partly to the closure of 'high cost' pits and shift towards greater use of retreating faces but that the major influences were changes in the payments system and industrial relations more generally and the raising of productivity in previously 'lax' pits. Additionally, they stress that these influences may be contingent upon the situation in South Yorkshire where their study was undertaken and where there was considerable evidence of greater management self-confidence.

Richardson and Wood stress caution in interpreting the results given the relatively small number of observations but a number of inferences can be made from their results. First, the increases at previously 'lax' pits supports the view that managers have moved swiftly to limit custom and practice, reduce manning levels and the number of coalfaces and increase sub-contracting as well as the use of improved monitoring techniques. Second, the changes to the payments system in the form of

the 'Doncaster option' which Richardson and Wood suggest raised productivity by over 30% in the pits in which it operated combined with other industrial relations changes would imply that this could be a major factor in accounting for high strike levels in the second half of the 1980s particularly as these new incentive schemes are now determined unilaterally by management on the basis of work study techniques (NUM 1992). However, the expectation would be that its impact would fall mainly on pay stoppages and although the earlier econometric results confirmed the link between productivity changes and pay stoppages the main impact was upon non-pay stoppages. Additionally, Richardson and Wood focused upon overall productivity whereas the productivity variable employed in this work was that of faceworkers as they have traditionally been the most strike prone group in mining and whose productivity is likely to have been affected more by the technological developments in pits between 1982 and 1986.

A tentative conclusion could be that the high level of stoppages associated with rising productivity in the 1980s is due much to management attempts to change the labour process and overturn the system of industrial relations in the industry so that the variable is acting largely as a proxy for these. This probably does constitute a greater 'intensification of labour' (Leman and Winterton 1991) and it is significant that the number of accidents in mining rises appreciably after the strike (NCB Report and Accounts). However, it is clear that the management offensive has frequently been stifled by the cohesiveness of miners in the core of the coalfield and by managers need to secure the co-operation of the workforce (Winterton and Winterton 1989) with local managers still retaining some discretion in securing such co-operation (Edwards and Heery 1989). These points also provide an important qualification to Richardson and Wood's view of a new industrial relations based upon rising productivity, rising wages and falling strike activity at least for coal. A point not lost on British Coal as it stated in 1988 in respect of stoppages;

The Corporation is determined to continue their policy of bringing about a cultural change which will eradicate this damaging feature of the industry (Report and Accounts 87/88:10).

It is clear that resistance in some areas is still strong and as Richardson and Wood point out miners do not appear to have undergone a significant change in attitudes towards the job. Quoting one manager who highlighted the huge continuation of mistrust in the industry, worsened by the strike and described a void 'almost insurmountable in terms of trust' (1989:54). In that this mistrust manifests itself in terms of strike activity its severity would appear to be much greater in Yorkshire than elsewhere. Although strikes in Yorkshire coalfields were 'an important percentage of an important percentage' in the 1950s (McCormick 1973) this appears to be even more true in the late 1980s and early 1990s and a consideration of Yorkshire's strike activity is provided below.

Yorkshire: An Aberrant Case?

The continuing high levels of strike activity in the Yorkshire coalfield following the 1984/85 dispute has important implications for this study as a whole. First, it appears to conflict significantly with the trends in strike activity elsewhere although replicating the general decline in pay stoppages. Second, it contrasts with the experience of other industries and companies that have undergone a major dispute and where the aftermath is one of workforce compliance or the establishment of new workplace values (see B.Steel, Peugeot-Talbot and Ansell (Waddington 1987)). Third, as Waddington et al. (1991) have suggested, Yorkshire may represent the persistence of collectivist values and attitudes in a general environment where these have either disappeared or gone into recess.

The changes introduced as part of the new strategy in BC have intentionally been highly divisive; between central and peripheral coalfields, between pits within the same coalfield and between miners. It is also the case that in the peripheral coalfields where the closure programme has been concentrated resistance has been muted. In addition, within the central coalfield strike proneness has varied considerably, with South Yorkshire having tonnage lost due to industrial disputes thirteen times higher than in Notts in 1986-87 (Taylor 1988). The figures for the Yorkshire coalfield are given overleaf.

The figures are not adjusted for employment so they significantly understate the maintenance of strike activity throughout the period but they highlight the increasing share of the coalfield in the strike record of the industry. This is due in part to the decline in other traditional areas of militancy such as Scotland and Wales but we have seen that overall strike proneness in coal significantly increased in the 1980s despite the decline of these areas so that Yorkshire becomes an increasing percentage of an increasing percentage.

STRIKE ACTIVITY IN THE YORKSHIRE COALFIELD: 1983-1990

YEAR	STRIKES	WI	WDL	S%	WI%	WDL %	TL
1983	N/A	55.7	140	N/A	31.8	18.2	40.8
1984	N/A	114.2	8647	N/A	57.5	32.7	42.6
1985	83	76.0	1844	50.9	42.7	44.5	42.6
1986	230	50.0	91	65.5	58.8	64.1	57.8
1987	207	57.0	145	69.9	58.2	66.8	54.9
1988	120	46.0	109	77.4	50.0	49.3	59.8
1989	128	16.0	35	86.4	64.0	67.3	84.7
1990	74	13.0	27	78.7	40.6	29.7	

(Source: Employment Gazette for S, WI and WDL; NCB Report & A/cs, TL)

In a general context the Yorkshire coalfield has been a key component in BC's strategy for raising output, productivity and achieving profitability. Constituting a large part of the central coalfield, pits that have remained open (currently numbering 21, August 1992) have benefitted from investment in new technology and incentives to increase productivity through revisions to the payments system and opportunities to work substantial amounts of overtime (on average fourteen hours per underground worker in 1991/92). The consequences of which have been very high productivity and earnings. In one pit in Yorkshire all underground workers were earning over £20000 per year and within the Selby complex, some over £30000 (NUM figures). Thus, the pressure for output has increased the bargaining power of miners but has also raised

the costs of industrial action, particularly action short of a strike. However, these factors are not exclusive to Yorkshire and many areas of the central coalfield and Notts particularly fit the Richardson and Wood description of rising productivity, rising wages and falling strike activity. This suggests that the Yorkshire experience needs to be seen in the context of a combination of these general factors with those that are more specific to the Yorkshire coalfield.

The Yorkshire coalfield now comprises two elements; North Yorkshire, largely the Selby complex, and South Yorkshire, mainly the Barnsley and Doncaster areas. Although both have experienced strike activity significantly higher than the rest of BC, it is South Yorkshire and especially Doncaster which have been most strike prone. A number of writers have stressed that the legacy of the 1984/85 dispute and the continued bitterness over sacked miners has been especially significant in Yorkshire (Taylor 1988, Winterton and Winterton 1989) but it must be emphasised that the Doncaster area and particularly pits such as Frickley have a history of militancy and although there is evidence that branch officials may be a factor, Doncaster pits show evidence of strike activity across generations. As McCormick (1973) showed in his study of Yorkshire strikes between 1960 and 1974, Yorks accounted for 46% of all days lost in mining but only 20% of those employed and emphasised the importance of South Yorkshire in that total. He cited an NCB Report of 1952 which highlighted the concentration of stoppages in the Doncaster and Rotherham areas and it appears to be the case in Doncaster that the same pits that were militant in the 1950s and 1960s are also militant today. It is also true, that in the aftermath of the 1984/85 dispute, BC saw Doncaster as a 'lax' area (Richardson and Wood 1989). In Edwards and Heery's terms union involvement had probably gone further there than in many other areas and BC saw it as a test-bed to reassert management control and raise 'unduly low' levels of productivity. The fact that the Doncaster option began there, although subsequently extended to most other areas in Yorkshire, is no accident. This said, the strike record indicates that the changes were not introduced without considerable resistance and many management initiatives do not appear to have gone as far in Yorkshire as elsewhere (e.g in the use of contractors).

From the perspective of union organisation the NUM's powerbase is increasingly within Yorkshire given the decline of the peripheral coalfields, where membership is still around 100% and where loyalty to the leadership remains strong. In addition the NUM has not accepted the majority/minority principle nor the new conciliation procedures so that effective constitutional mechanisms for resolving disputes at pit level have largely been absent.

In terms of management, we have noted the tougher line in certain areas of the Yorks coalfield. In addition, management changes have meant a new breed of younger manager at pit level with limited experience of the industry and with a clear remit to meet strict commercial objectives. Where unofficial disputes have occurred BC has consistently sought to remove 'check-off' arrangements in the pits affected and to use the legislation enacted since 1980 to seek damages from union officials where such action has taken place.

Although strike activity declined in Yorkshire in the early 1990s, in 1992 the only areas to experience disputes within BC have been North and South Yorkshire (BC Monthly returns August 1992). In general therefore although miners have been affected by the harsher discipline and working environment in the wake of the 1984/85 dispute and have become increasingly disaffected by the industry their responses have differed widely. Some have responded individually by leaving the industry or by 'grudging compliance' (Fox 1974) or by adopting a more instrumental orientation to work (as in Nottinghamshire), others a more collectivist response by resurrecting the credibility of the union (Waddington et al. 1991). In Yorkshire given the traditions of mining communities, the legacy of the strike and the centrality of the union the response has tended to be more collectivist.

The Yorkshire experience therefore illustrates an interaction of many of the factors relevant to our explanation of strike activity. The push for high output, productivity and profits on the central coalfield through a harsher management strategy and operational approach continues to provoke clashes with a strongly unionised and cohesive workforce with long collectivist traditions. It may also remain true as

Dennis et al. (1955) identified that, in contrast with instrumental workers where the divisions between work and non-work are distinct, for Yorkshire miners the work, union and community are inextricably linked so that preservation of a satisfactory working environment is paramount. A factor made more potent where the opportunities for alternative employment are limited.

CONCLUSIONS

We have attempted in this chapter to provide at first an account of stoppage activity and patterns for the entire period of nationalisation up to 1990 and a more detailed analysis of these in the period since the oil crisis of 1973/74. The econometric work for the post-war era illustrated the consistent influence of trade union organisation and strength, the impact of changing payment systems and of the introduction of new machinery and latterly of productivity and labour process changes on variations in stoppage numbers. The results for changes in mechanisation are particularly important in that they highlight a factor which has previously been largely ignored in accounts of strike activity in coal-mining. Significantly the impact of broader economic factors was slight with their impact confined to an influence upon workers involved and days lost although political variables were more important influences particularly in the 1970s. However, we wish to emphasise some of the more intangible factors in our analysis, particularly the role of leadership and the relationships between the Board, governments and the NUM.

At the beginning of the section on the period from 1974-1990 the issue of changes in the circuit of capital in the late 1970s and 1980s was addressed and the point was made that changes and contradictions emerged to an extent in the late 1950s but that these did not materialise in the form of intensified strike activity as they did in the 1980s. A critical difference between the two periods was the leaderships of the actors within the system. In the late 1950s and early 1960s the Conservative government largely continued the policies towards the industry begun under Labour so that a genuinely bi-partisan policy towards the industry was followed (Ashworth 1986). The period of the Presidency of Ford at the NUM was one of collaboration with the NCB, accepting the logic of closures and attempting to make the closure programme as

painless as possible. As Allen (1981) has argued one effect of this was to depoliticise miners and in turn to make contraction easier. Similarly the paternalistic style of Robens at the NCB and the attempts to ease contraction through redeployment again served to reduce overt conflict.

The contrast with the 1980s could hardly be more different, discontent which emerged in the late 1960s and reflected in a shift in the NEC of the NUM towards the left gathered momentum in the 1970s and culminated in the election of Arthur Scargill to the presidency in 1982. Scargill's election was obviously a product of deeper changes taking place in the industry and arguably a changed consciousness after 1974 signifying that 'miners were no longer subdued or disillusioned' (Allen 1981) but his leadership, as with those before him was significant. As Allen has argued;

Miners had to be persuaded about the nature and extent of the deterioration in their work situation and convinced that they had the industrial power to halt it (Allen 1981:320)

Similarly the change in government and the break with the settlement reached after 1974 together with the appointment of Ian McGregor served to increase distrust in an industry where a considerable amount of distrust already existed.

This reinforces the points made in previous chapters, that the emergence of crisis situations in terms of contradictions between product market, labour market and labour process make the possibility of conflict more likely to arise but whether such conflicts do emerge is dependent upon how these crises are responded to and the extent to which these responses and initiatives undermine established practices. To an extent the crisis in the early 1980s was manufactured by the government in its wish to shift the NCB towards a more commercial orientation and possibly through its wish to defeat the miners on a battleground of its own making. In the event it is clear that the legacy of 84/85 is one of continued distrust which in Yorkshire still manifests itself in very high levels of strike activity. Trade union organisation remains strong in many pits and the willingness collectively to respond to what may be seen as managerial excesses is still significant. Coal-mining solidarity has been

weakened considerably by a succession of initiatives which served to divide miners, notably the incentive schemes, the decentralisation of collective bargaining, decisions on new investment and the central/peripheral coalfield split. These have made the possibility of effective national action more remote but in those areas with strong collectivist traditions the potential for strike action remains real.

ADDENDUM

POOLED DATA ANALYSES

In view of the small number of observations available for some of the equations and the consequent lack of significance of some variables it was decided to run a series of equations using pooled data in order to try and overcome some of these shortcomings. It was hoped that this would permit a more considered evaluation of some of the variables employed in the econometric work. Three sets of pooled data were analysed; the first, covering the period 1950-1982 examined the three industry groupings of construction, engineering and metals giving 99 observations in total. The second covered the period 1969-1990 and examined iron and steel and motor vehicles, and the third, the same period and industries with the addition of engineering. The third set of equations were examined as it was felt that they would prove to be particularly illuminating for the strike experience of the 1980s, and, because they constituted a significant part of manufacturing industry would give valuable insights into the factors affecting strike activity in that sector and, for the economy as a whole. Equations for the period 1969-1990 were also run with the inclusion of coal-mining, but the dominance of that industry in terms of strikes per 100,000 workers seriously biased the results and in consequence further examination of that industry was not undertaken.

The results for the pooled data analysis for the period 1950-1982 are detailed in Table 1. They confirm the importance of aggregate unemployment and the output term operating in conjunction with trade union density and growth, with incomes policies exerting an influence when they were in force. Despite the hope that by pooling the data a more considered assessment of the industry unemployment term would have been possible, in practice the variable continued to have a negative coefficient when run separately but a positive coefficient when run alongside the aggregate variable. A similar problem was found with the price inflation term, whilst the lagged nominal earnings variable never approached significance in any equations in which it was contained as an explanatory variable. Overall, the results from pooling the data confirm the influence of a combination of macroeconomic, political, product market

TABLE 1**POOLED DATA: Construction, Engineering, Metals: 1950-1982**

	(i)	(ii)	(iii)
CONSTANT	-25.0	-22.88	-22.28
IND 1 (Eng)	-20.29 (5.75)	-20.84 (5.9)	-19.64 (5.55)
IND 2 (Metals)	-9.87 (3.41)	-10.57 (3.6)	-9.48 (3.28)
AGG.U	-4.14 (4.27)	-2.59 (2.12)	-3.17 (2.71)
Pt-1	-	-0.324 (1.37)	-
YP	-	6.29 (3.18)	4.04 (2.01)
LG	2.46 (1.37)	-	2.16 (1.2)
Y	0.11 (3.9)	0.102 (3.48)	0.1 (3.4)
UI	1.82 (3.52)	1.47 (2.6)	1.49 (2.64)
TUD	0.81 (6.04)	0.78 (5.38)	0.74 (5.25)
TUG	-	0.4 (1.9)	0.297 (1.45)
SDE	7.14	7.08	7.1
F	15.3	14.11	14.0
R ₂	0.58	0.59	0.59
DW	1.51	1.536	1.46

Notes: IND1+2: dummy industry variables for Engineering and Metals
 AGG.U: percentage rate of aggregate unemployment
 Pt-1: price inflation lagged one year
 YP: dummy variable, incomes policy
 LG: dummy variable, Labour government
 Y: output by industry
 UI: percentage rate of industry unemployment
 TUD: Trade Union density by industry
 TUG: Trade Union growth by industry
 Sources: As in Industry chapters

TABLE 2

POOLED DATA: 1969-1990
TWO INDUSTRIES

	(i)	(ii)	(iii)
Constant	-12.47	49.31	-25.08
IND 1 (Eng)	-	-	-
IND 2 (1+S)	3.31 (0.26)	-15.99 (3.0)	6.23 (0.46)
AGG.U	-	-	0.162 (0.25)
Y	0.218 (3.41)	-	0.23 (3.1)
IMP	-0.7 (4.29)	-	-0.83 (3.1)
TUD	0.512 (1.2)	-	0.646 (1.39)
TU Act	-11.16 (1.87)	-11.83 (2.93)	-12.2 (1.86)
1980-1990	-	-14.93 (2.88)	3.42 (0.5)
SDE	8.73	8.87	8.89
F	23.24	36.5	16.08
R ₂	0.754	0.732	0.758
DW	1.92	1.8	2.08

Notes: IND 1: a dummy variable for Engineering industry
IND 2: a dummy variable for Iron and Steel industry
AGG.U: percentage rate of aggregate unemployment
Y: new car registration and steel consumption
TUD: Trade Union density
TU Act: dummy variable 1984 TU Act
1980-1990: dummy for Conservative government

TABLE 3

POOLED DATA: 1969-1990
THREE INDUSTRIES

	(i)	(ii)	(iii)	(iv)
Constant	12.78	14.9	7.08	4.19
IND 1 (Eng)	-7.4 (1.15)	-7.22 (1.33)	-5.92 (1.01)	-6.26 (1.06)
IND 2 (1+S)	-3.34 (0.52)	-3.18 (0.59)	-5.82 (0.98)	-7.6 (1.29)
AGG.U	-1.1 (3.9)	+0.24 (0.58)	-0.39 (1.05)	-
Y	+0.12 (2.1)	+0.1 (2.08)	+0.17 (2.71)	0.236 (4.62)
IMP	-	-	-0.54 (2.6)	-0.75 (5.39)
TUD	+0.23 (1.44)	+0.26 (1.86)	+0.39 (2.58)	0.31 (2.15)
TU Act	-12.62 (3.21)	-12.46 (3.64)	-11.09 (2.87)	-9.54 (2.57)
1980-1990	-	-16.33 (4.05)	-	
Pt-1	-	-0.67 (3.26)	-0.42 (1.82)	
SDE	8.76	7.41	7.95	8.06
F	26.4	30.9	25.9	32.97
R ₂	0.729	0.813	0.78	0.77
DW	1.0	1.54	1.61	1.69

Notes: IND1: a dummy variable for Engineering industry
IND2: a dummy variable for Iron and Steel industry
AGG.U: percentage rate of aggregate unemployment
Y: new car registration and steel consumption
TUD: Trade Union density
TU Act: dummy variable 1984 TU Act
1989-1990: dummy for Conservative Government
Pt-1: price inflation lagged one year

and organisational factors, with trade union density, output and aggregate unemployment particularly important determinants. The results for trade union density, suggest that the results for construction (where TUD had a negative coefficient) were inconsistent with the general direction and strength of its influence.

The results for the period 1969-1990 are presented in Tables 2 and 3. In both sets of data analysis it should be stressed that the variable with the highest individual correlation coefficient was trade union density. Interestingly, for the two industry equations in Table 2 the combination of product market, organisational and, to a lesser extent, political variables were the major determinants of movements in stoppage numbers. In contrast, for the three industry results in Table 3 aggregate unemployment appeared to have a more direct influence upon variations in stoppage numbers although again in conjunction with product market, organisational and political factors.

The role of political factors merits further discussion. The pooled data equations confirmed the importance of the 1984 Trade Union Act in reducing strike numbers although it should be again stressed that the Act cannot be divorced from other factors in operation at that time, most notably the collapse of the miners strike. Given the opportunities provided by pooling the data, it was decided to try and test for two other political factors, the operation of the 1982 Employment Act and a dummy variable to capture the period of Conservative governments from 1980-1990. The former was not significant for any equations in which it was included but the latter was a strong and significant influence in reducing stoppage numbers. However, a number of cautionary points are necessary here; first, in stepwise analysis the individual correlation coefficient of this variable was very small (at least for the two industry equations) and smaller than that of any other variable. Second, its inclusion significantly reduced the coefficient on the aggregate unemployment variable and changed its sign. In the analysis of the three industries the 1980-1990 term was substituted by a time trend operating from 1980 to signify that the effect of these governments may have been to an extent cumulative in their depressive effect upon stoppage numbers but this variable was not significant. It should be stressed that the

Thatcher governments variable exerted a strong and significant effect on stoppages when run alongside the Trade Union Act variable implying an impact additional to that of the legislation and was particularly important in the three industry equations, but these points need to be interpreted with care. There is foremost a problem of cause and effect, the variable may be picking up the impact of other factors (notably unemployment) and may be acting as a proxy for another variable or variables, such as a change in attitudes towards striking. Given the electoral promise to 'curb union power' in 1979 it is possible that these governments merely reflected deeper changes taking place at the time. Overall, although the impact of these governments may have been considerable it is likely that in respect of strikes, their main influence (independent of the legislation enacted) probably operated at an ideological level through the elevation of issues of market forces, non-intervention and 'managements right to manage'.

The results for the product market variables are particularly interesting. Although consistently stronger and more significant for the two industry rather than the three industry analyses they confirm the increasing importance of competitive pressures for managers. This reflects the findings of work on managers generally in the 1980s (Storey 1992) and it is notable that the import penetration term is particularly important in the equations for iron and steel and motor vehicles where competitive pressures have been so acute. Two points follow from this; first, that for these two industries product market factors appear to have been a more significant factor in declining strike activity than labour market factors and, second, that the ways in which managers have responded to competitive pressures have had a significant influence upon declining strike activity. This latter point has more general relevance in the context of debates surrounding HRM but it would appear that management actions have been important albeit within contexts which have made such initiatives easier to introduce.

The three industry pooled data equations confirm the continuing importance of aggregate unemployment in strike activity since 1969. The fact that this finding is achieved largely because of the engineering industry suggests that it has more general

applicability. Engineering employed around 1.4 million people in the second half of the 1980s and represented a significant proportion of manufacturing employment. It may also be the case that the impact of unemployment on strike numbers alters after the former has reached a certain critical level. Additionally, there may be a more significant attitudinal consequence of high unemployment which operates during and long after unemployment has fallen. Cronin's description of a 'post-depression mentality' in the years immediately following the Second World War provides an illustration of this. It should also be stressed that in addition to its direct impact on strikes the unemployment term is also heavily influencing both the level of trade union density, the level of product demand and the ability of managers to effect changes in work organisation.

Overall, the evidence presented for the period 1969-1990 confirms many of the findings of the individual industry chapters and suggests that an adequate analysis of strike activity in the 1980s needs to take account of macroeconomic factors (principally aggregate unemployment), product market factors and particularly the increasing competitive pressures on organisations, trade union organisation and direct and indirect political influences. The pooled analyses suggest that future research on the strike experience of the 1980s and 1990s could profitably focus upon the ways managers have responded to increased competition in ways which have not led workers to have recourse to the strike weapon, and to the role of political factors particularly the cumulative effect of legislation and a more considered assessment of the role of the Thatcher governments.

SECTION V

CONCLUSIONS

CONCLUSIONS

In the Introduction to this study we aligned the approach with Cronin's observation that an adequate analysis of strike activity 'must be above all multi-dimensional, encompassing factors that affect the attitudes and desires of workers and those that affect their ability to translate consciousness into action'. Our attempt has been to develop a theoretical and operational framework which is faithful to this and which makes adequate provision for the attitudes of employers in order to account for variations in post-war strike activity in the UK. In doing so it has also drawn heavily on Cronin's work in two other important respects. First, through a methodology which attempts to link 'the dynamic concerns of historians with the more rigorous methodological techniques of other social scientists' and second through the acknowledgement that a time-series study of strikes needs to offer an explanation not just of year-to-year variations in the totals but also broader peaks and troughs in the overall series.

As well as the aim of developing a comprehensive model of strike activity which would allow some prediction of future trends in addition to accounting for past movements a central objective of the study has been to provide a test and extension of the work of Durcan, McCarthy and Redman (1983). In this final section we present our conclusions and contrast them with those of DMR and other writers.

At the outset it should be stressed that the model has been tested on a range of industries which have different histories of management and workplace organisation, different market and organisational contexts and contrasting strike records. However, the four main industries together with construction and engineering have accounted for the bulk of aggregate strike activity (numbers, workers involved and days lost) in the post-war period. In addition, excluding coal-mining they have accounted for most of aggregate net strike activity and the broad metals sector has consistently made up the majority of stoppages in manufacturing. The lessons from these industries can therefore shed considerable light on movements in aggregate totals and in particular sectors. Overleaf is a summary table of the main results for the industries examined.

SUMMARY TABLES (to 1982)

	Metals (49-82)	Eng (50-82)	Con (49-82)	Vehicles (49-82)	Coal (49-90)	S & M (50-80)
Constant	-107.2	-32.19	46.82	-92.2	-309.4	62.0
Agg. U	-11.8 (4.07)	-10.6 (6.07)	-2.23 (4.46)	-12.8 (2.87)		-2.57 (2.18)
Pt-1	-0.386 (1.117)			+0.5 (1.64)		
Ind.U	+5.87 (3.55)	+11.4 (5.97)		+4.76 (2.68)		
Et-1		-0.315 (1.81)				
REL				+0.87 (2.3)		
Y	+0.237 (2.09)	+0.164 (6.18)		+0.39 (6.0)	+0.84 (2.5)	
Y.						+1.5 (2.56)
IMP				1.0 (1.9)		
TT			*-0.007 (2.94)			-0.28 (4.97)
TUG	+0.67 (1.72)	+0.74 (3.54)	+0.69 (3.66)			
TUD	+2.02 (6.49)	+0.5 (2.29)	-0.78 (2.3)		+3.46 (3.8)	
Y/N					+5.91 (3.95)	-0.83 (1.56)
LG	+5.56 (2.33)		-2.38 (2.13)		-34.83 (2.45)	
YP			+3.48 (2.8)			
NPL A					-29.9 (1.41)	
SDE	6.34	3.187	2.55	9.05	38.13	9.2
F	18.03	37.33	20.73	14.38	21.58	7.55
R2	0.824	0.913	0.848	0.76	0.74	0.537
DW	1.69	2.03	1.89	0.97	1.33	2.07

*Con: Variable is ratio of profit to total compensation

Sources: as in Industry Chapter

Notes: Agg U: Percentage rate of aggregate unemployment.

Pt-1: Percentage retail price inflation rate, lagged one year.

Ind U: Percentage rate of industry unemployment.

Et-1: Percentage change in nominal earnings lagged one year.

REL: Ratio of industry earnings to average manufacturing earnings.

Y: Level of industry output/product demand.

Y.: Rate of change of industry output.

TT: Level of real profit (net).

TUG: Percentage change in trade union growth by industry.

TUD: Level of trade union density by industry.

Y/N: Level of productivity, output per person.

LG: Dummy variable for periods of Labour government.

YP: Dummy variable for periods of Incomes policy.

NPLA: Dummy variable to denote period of National Powerloading Agreement.

MACRO-ECONOMIC FACTORS

In common with the studies by Pencavel (1970), Shorey (1977) and Cronin (1979) this study confirms the importance of macro-economic factors on a number of dimensions of aggregate and industrial stoppage activity. The level of aggregate unemployment, the level of gross domestic product and earnings (real or nominal) all exerted an influence on strike numbers with price inflation having an impact at certain times, although the disaggregated analysis revealed that these factors operated very unevenly between industries (see summary table). Aggregate unemployment had a strong negative impact on pay stoppages in all the industries examined with the exception of coal-mining. It also operated differently for pay than non-pay stoppages (as the theory predicted) and exerted the major influence upon pay stoppages. Its impact also varied between periods (in motor vehicles the sign on the coefficient actually changed) having a much stronger depressive influence after 1968. The evidence also suggests that whilst the decline in stoppage activity in the early 1980s owes much to the impact of high unemployment operating on pay stoppages it also points to the possibility of their being some threshold level of unemployment above which strike activity declines significantly given the reduced significance of the variable in the second half of the 1980s.

One interpretation of the results is that macro-economic factors have exerted much less of an influence on the more traditional areas of conflict such as coal-mining and shipbuilding (see also Pencavel for coal) where militancy and a relatively 'closed' system of industrial relations have persisted and where strike activity owes much more to factors internal to the industries and organisations within them than to broader economic changes. If this is correct, the results for the effect of macro-economic factors on aggregate strike numbers are obtained because their impact is greatest where workplace organisation is relatively underdeveloped or fragile (and where workforce attitudes are instrumental), although these areas also tend to have more decentralised bargaining structures and are more susceptible to the influence of broader external factors. It is also clear that the impact of high unemployment has been particularly significant in those areas where the threat of job losses has been greatest (the private sector generally) where pay stoppages were

important (e.g much of manufacturing) and where the degree of shopfloor control was limited.

Macro-economic factors have also affected the numbers of workers involved and working days lost in three of the four industries. The main factor has been aggregate unemployment, reducing workers involved and days lost in iron and steel but increasing them for non-pay stoppages in coal-mining and for workers involved in non-pay stoppages in shipbuilding. For coal-mining and shipbuilding an additional influence was the lagged price inflation term which reduced the number of workers involved in non-pay disputes in both, and days lost in non-pay disputes (coal) and pay disputes (shipbuilding). These results need to be set in the context of organisational and bargaining changes in these industries which may have made them more susceptible to these broader influences (cf metals and engineering generally where they do not appear to be important).

POLITICAL INFLUENCES: THE ROLE OF THE STATE

For DMR, the role of government is a key factor in the changing volume of strike activity but our analysis suggests that it is more helpful to view governments as performing a number of roles in respect of strikes some direct (as with legislation and arbitration) others more indirect (macro-economic policies, industrial policy) and that frequently its role and impact is one of mediating or exacerbating the effects of developments at international, national and industry levels. Taken together these factors directly affect broader movements in strike totals and indirectly through management initiatives in response to product market decline and stagnation, and to contradictions in the industrial circuit of capital.

Despite considerable difficulties in testing empirically the role played by many government initiatives the industry studies revealed a number of important influences. In terms of those factors identified by DMR the role of incomes policies was particularly important. Our industry analyses revealed that incomes policies did have an impact on strike activity in metals, motor vehicles and construction and that the effect was to increase the number of stoppages. The data did not distinguish between

pay and non-pay stoppages and it might be that, as Davies (1979) suggests, they serve to reduce pay but increase non-pay stoppages, although our evidence from motor vehicles would contradict that view. Given the nature of such policies in the UK it is likely that their major impact has fallen on those groups where the potential for additional earnings increases such as PBR or overtime has been most limited and where governments have been most able to apply pressure on management to resist pay increases in excess of policy targets (e.g its own employees). Thus, where pay and earnings are determined largely by national agreements or significant company agreements (e.g Ford) and the scope for local bargaining is limited, incomes policies may be most effective in controlling pay and may be associated with the biggest build up of grievances over the policies' operation.

The impact of industrial relations legislation on strike activity was confined to the impact of what Cronin terms 'repressive legislation'. Such attempts at legal control of aspects of industrial relations were seen by DMR as significantly contributing to enhanced strike activity but the evidence for the 1980s is that the legislation of the 1980s (especially the 1984 Trade Union Act) served to reduce overall strike activity with particularly strong effects in certain industries. At the aggregate level the 1984 Act may have reduced stoppages by around 420 per year, with a reduction of 160 per year in both motor vehicles and engineering. These results suggest that the impact of the legislation has fallen mainly on manufacturing and give support to Brown and Wadhwani's (1990) view that the legal changes since 1979 have served to reduce stoppages independently of the impact of unemployment, although the main impact of the legislation may have fallen in the period after 1984 and operated as a background factor leading the parties to change their behaviour.

Evidence for the role played by state sponsored conciliation and arbitration since the formation of ACAS is more difficult to assess. Movements in the number of conciliation cases and stoppage numbers are closely related with both falling significantly in the 1980s, although the two series move against one another between 1976 and 1978, suggesting ACAS may have had an important influence on keeping strikes below the level they would otherwise have been in that period. More

significantly, ACAS has dealt increasingly with individual conciliation cases in the 1980s which may reflect a move from collective disputes to individual grievances in the context of declining trade union membership and workplace organisation.

The results at both an aggregate and industry level for Cronin's additional variables was mixed but the existence of a Labour government appears to have had an important influence on a number of dimensions of strike activity (see also Pencavel). In aggregate analysis the existence of a Labour government was seen to increase the number of stoppages by over 300 per year for the period 1946-1987 but the disaggregated analysis revealed contradictory trends. In coal-mining the existence of a Labour government appears to have significantly reduced strike numbers supporting the view that the strong links between politics, the union and mining communities has served to operate in such a way that miners tend not to undermine their 'friends' when they are in power, but in metals it is associated with more stoppages (although a reduced number of workers involved and days lost). This result may be due to the fact that in metals the closure programme coincided with the 1974-79 Labour administration which represented a clear break with post-war practice of viewing the inherent inefficiencies of the industry as less of a cost than industrial conflict.

In the course of the analysis it has also become clear that governments have influenced stoppage activity in other important respects. The impact of monetary and fiscal policies on the general strike pattern and on specific industries is particularly notable as at a micro level is the active encouragement to productivity bargaining in the 1960s, government sponsored reorganisations of industries, (BLMC, GEC), and the post-Geddes reforms in shipbuilding. However, one of the most important, but essentially background influences has been the operation of cash limits since the late 1970s. Our evidence shows how the tightening of these was a critical precursor to strike activity in both steel and coal, and in the latter case it is significant that these were relaxed after the government's climbdown in 1981 but tightened again three years later.

The fact that our industries were all nationalised or part-nationalised provides a further insight into the impact of government policies on strike activity. The example provided by shipbuilding illustrates a number of factors which are relevant to our argument generally. In shipbuilding it is clear that one aim of the government in public ownership was to placate the unions and the initial period of nationalisation was one of considerable optimism. The nationalisation was also associated with the centralising of collective bargaining and the greater numbers of workers involved and days lost in the industry after nationalisation is probably attributable to this. Significantly the initial board members of British Shipbuilders were long serving individuals who had a commitment to nationalisation and were to an extent trusted by the union leaders in the industry. Personnel changes in the early 1980s coupled with tighter cash limits and shifting priorities towards a more commercial orientation led to growing estrangement between the board and the unions and to increasing conflict.

The period from 1979-87 and beyond can be viewed as one in which the state attempted to dismantle much of the neo-corporatist machinery which had been established in the preceding 15 years, and move much of the public sector away from an essentially production orientation towards a more commercial market orientation. Given the importance of the 'logic of market forces' argument to the Conservative government in 1979 and the belief that union power had to be curtailed legally and within organisations in terms of management's 'right to manage' the fact that the public sector became the source of prolonged conflicts in the 1980s is not surprising. If a form of 'indulgency pattern' had developed in the nationalised industries the period after 1979 can be seen as an incremental attempt to change this industry by industry with the ultimate objective of privatisation, further emphasising the fact that the state has objectives of its own.

The important point for our purposes is that attempts at incorporation by the state in the 1960s and 1970s were, with exceptions associated with heightened conflict and that the deliberate attempts to dismantle these in ways that were surprisingly similar to each other produced a series of major public sector conflicts in the 1980s. The fact that moves to open up the sector to competition and to dismantle bureaucratic

structures led to greater conflict is consistent with our theoretical approach and emphasises the point that the process of change, by challenging existing ways of working and heightening uncertainty and insecurity may produce greater conflict particularly where sectors are still relatively insulated from the worst elements of recession.

INDUSTRY LEVEL INFLUENCES

THE ROLE OF PRODUCT MARKETS

The four industries on which most of this study is based are characterised by relative and absolute decline for most of the post-war period. Strike activity in these industries is critically affected by product market conditions and that these are particularly important in accounting for year to year variations in pay stoppages. More controversially we have argued that product market stagnation and decline are the main determinants of longer term movements in pay and non-pay strike activity within these industries as managements (and governments) have attempted to respond to disarticulations in the circuit of capital prompted by product market decline and labour's increasing share of value added.

Product market changes account for much of the short-term cyclical nature of strike activity particularly in those industries, such as motor vehicles and shipbuilding where variations in demand and output have been particularly marked. These findings largely confirm those of other writers (Rees 1952, Mayhew 1979, DMR 1983) and it is significant that as Rees has argued, their impact falls mainly on pay stoppages. The evidence also shows that industrial strike activity exhibits longer term cycles, even when allowance is made for employment changes, which appear to be the result of management responses at particular stages in the industries growth and development.

The approach to analysing long-term movements in strike activity suggested that strike activity would tend to be concentrated in periods of product market maturity and stagnation and at critical turning points such as those between growth and maturity and maturity and stagnation. All the industries examined here experienced

some combination of these developmental stages in the Post-War period. The turning point for them all seems to come in the late 1950s, representing a short term recession coming at the end of prolonged expansion as government sought to redress a balance of payments problem. In three of the industries greater competition was experienced after 1957 and strike activity increased significantly, a fact which endorses Cronin's view that the market and competitive pressures are critical to the emergence of stoppages, and their persistence to industries being entangled in the pressures and tensions of the market.

The nature of changes introduced in periods of maturity, stagnation and decline have an impact on both pay and non-pay stoppages. Whilst critical turning points may be reflected mainly in pay stoppages (see motor vehicles in the late 1970s) attempts to reorganise work and regain control over the labour process show up mainly in non-pay stoppages. The effects on strike activity are greatest where attitudes are most sympathetic to the use of the strike weapon, where union organisation is most developed and where the workforce has a significant degree of control over work and the effort bargain. In coal, shipbuilding and parts of motor vehicles stagnation phases have been associated with changing payments systems reforming collective bargaining and procedures together with other industrial relations changes and technological restructuring. Indeed in all four industries many of the most significant changes have been at the end of stagnation phases and into decline. Linking these phases to strike activity shows that in coal mining strike activity was highest at the peak of the stagnation phase, at the turning points back to stability in the early 1970s and again as stability gave way to contraction in the 1980s. In motor vehicles increased strike activity emerged towards the end of a growth phase in the 1950s and continued to rise during a period of maturity/stagnation peaking in 1970 and continuing throughout the 1970s. Non-pay stoppages persisted throughout the 1980s as managements continued to restructure operations and reassert control. In shipbuilding the main period of strike activity occurred between 1964 and 1974 in a stagnation phase and was characterised by considerable restructuring and reorganisation. Similarly, in metals between 1968-78 a period of stagnation was associated with high levels of strike activity with major conflict arising in 1980 as the

industry turned towards contraction.

A final point to stress on product markets is the consequence of increased competitive pressures for strike activity. The evidence for motor vehicles and iron and steel provide support for the influence of competitive pressures through increasing import penetration, emphasised further in the results from the pooled data analyses. The fact that these competitive pressures operated to reduce strike activity, in contrast to the view presented by Cronin (1979) suggests that attention needs to be given to how managers and employees experience these pressures and how managers have sought to respond to them in ways which have not provoked strike action.

LABOUR MARKET FACTORS

The evidence from the industry studies established that local labour market factors exert an influence upon a number of dimensions of stoppage activity but their impact needs to be interpreted with care, particularly that of industry unemployment. The existence of alternative employment opportunities, or lack of these was clearly an important factor in rising strike activity in the late 1960s and in a number of industries in the 1980s.

General movements in industry earnings were found to be significantly related to stoppage numbers in iron and steel and to non-pay working days lost and workers involved in shipbuilding and marine engineering. In addition, those groups with most bargaining power and workforce organisation (as in coal, shipbuilding and motor vehicles) were the groups most able to secure increased pay without recourse to strike action and help to account for the discrepancy between the aggregate results, where earnings are clearly important and the results for these industries.

It did not prove possible to adequately test for the impact of movements in intra-industry earnings on stoppages but it is clear from the historical analysis that these were an important source of grievances in shipbuilding and motor vehicles where piecework systems predominated and at BLMC and Chrysler after the introduction of measured daywork where differentials were eroded. Further, the

existence of the Coventry Toolroom Agreement allowed direct comparisons to be made of earnings in the industry and evidence suggests that notice was taken of other pay agreements within the industry most notably at Ford. In coal it is the deterioration in inter-industry earnings which appears to be an important motor behind increasing strike activity suggesting that restricted 'orbits of comparison' have not applied to the same extent there as in other industries.

UNION ORGANISATION AND CAPACITY

For DMR the development of shop steward organisation was a necessary precondition for the emergence and persistence of strike activity and was responsible for the spread of strike activity across different industries, a phenomenon they termed the contagion effect. Thus, the increase in stoppage activity in many industries and the spread to new industries in the 1960s was directly attributable to the consolidation of shop steward organisation and its emergence in hitherto unorganised areas.

Our evidence strongly confirms this interpretation. In the general metals and engineering sector the emergence and growth of shop steward organisation in the 1950s and 1960s was closely associated with rising strike activity. The case of motor vehicles is particularly informative, where workplace union organisation became firmly established in most of the major plants in the 1950s, the exact period in which strike activity underwent a marked increase. In coal-mining it is also clear that much of the persistence of strike action in the Yorkshire coalfield after the 1984/85 dispute owes much to the continuing strength of workplace organisation and the NUM generally (where 100% trade unionism has survived in Yorkshire) allied to workforce grievances and hostility to many of the changes.

Where trade union organisation is under threat or in decline, the evidence suggests a significant depressive effect on strike activity. The results of the pooled data for the period 1969-1990 highlight the contribution made to declining strike numbers in the 1980s by the fall in trade union density. This provides additional support for the role of organisation in strike activity and its absence or decline to the inability or difficulty of undertaking effective strike action.

There is a further aspect of trade union organisation which merits some discussion in its effects upon strike activity. From our studies of coal-mining, shipbuilding and metals in particular the role of the national union leadership and its relationship with senior management emerged as a key factor in strike propensity. The role of leadership in strikes has long been recognised (see Lane and Roberts (1974), Batstone et al. (1978)) and shop steward leadership particularly within decentralised bargaining structures and its relationships with line managers and supervisors may also be critical in the emergence or avoidance of stoppages. However, where bargaining is more centralised, national leadership appears to have an important affect. Whilst we would not wish to exaggerate the impact of leadership, the role of leaders and personalities in the collective bargaining process may serve to help reach compromise and understanding, or conversely prevent agreement (or negotiation taking place) when other factors are working in contradiction to this (Stephenson and Allen (1987)).

MANAGEMENT INITIATIVES:

Collective Bargaining, Payment Systems and the Labour Process

It has been a repeated theme throughout this study that management initiatives have played a key role in strike activity and nowhere is this more true than in the management of change. That is the nature of the changes and the manner in which those changes are introduced. Daniel (1987) noted in his study of technical change that the most difficult changes in terms of how they were received and the grievances they generated were those associated with organisational change; such as closure, structural reorganisation, merger and the organisation and control of work.

Daniel noted that in most cases such changes were achieved peacefully. In contrast the evidence here is that organisational change in the form of restructuring has frequently been associated with very considerable conflict, a fact that may have much to do with the different periods of study and the fact that our industries are unusual for their high levels of union organisation and workers who have experience of successful disputes. Further, periods of technological restructuring have also generated heightened conflict, the spread of powerloading in coal in the 1950s and 1960s, the application of BOS furnaces in steel in the early 1970s, re-tooling in motor

vehicles between 1978 and 1986 and the replacement of riveters by welders in the 1960s in shipbuilding all support this contention.

In the four industries many of the periods of most intense conflict were associated with attempts by management to reorganise and regain control over aspects of the work situation. In general non-pay stoppages were especially prevalent in those industries where there was an ever present contest for control of the labour process and were affected more by factors internal to particular organisations, requiring analysis at a more disaggregated level than that examined in this study. The argument here is that at particular points in time, notably in periods of industrial maturity and stagnation, management initiatives to achieve greater integration between the elements of the industrial circuit of capital were often most frequent and far-reaching, generating a greater volume of grievances and involving a greater number of workers in non-pay disputes.

The study also confirms the role of payments systems in affecting the level of pay stoppages in particular. In coal-mining the decision to move to a day wage system in the 1960s, and the succession of district agreements as well as the NPLA, contributed to the decline in the number of stoppages. In contrast, the decision to move back to a payment by results system in the late 1970s was associated with increasing pay stoppages. The evidence from shipbuilding and motor vehicles reinforces that in coal-mining with motor vehicles illustrating the potential for conflict associated with changing payments systems.

The association between strike activity and management initiatives in institutional and procedural reform are mediated by a number of important factors and in general are dependent upon the context in which they are introduced. The 1980s has seen a major shift towards decentralised bargaining (WIRS 1 and 2, Batstone 1984), but as the case of motor vehicles and British Steel shows, one which has not been associated with heightened levels of strike activity. As Edwards (1983) suggests, this may be because the impact of broader economic factors, and market forces generally have undermined the ability to contest issues and generally have a more direct impact on worker

resistance within decentralised than centralised structures (see also the evidence from the pooled data analyses). Thus the different contexts are likely to account for the apparently greater effectiveness of institutional reform in the 1980s than the 1960s and 1970s in reducing stoppage numbers. In both periods it is clear that institutional reform does affect the numbers of workers involved although the evidence on days lost, particularly in the 1980s is less clear given the impact of product markets and legislation (see discussion above). Second, whilst many of the reforms when in place appear to have reduced stoppage numbers the process of change has often been associated with heightened conflict (see Goldthorpe 1974) as at BL in the late 1970s.

The impact of procedural changes on stoppages also suggests that deeper attitudinal issues play a critical role. The evidence from the shipbuilding industry is particularly instructive. Whilst the 1967 disputes procedure appears to have operated to increase the number of disputes and to increase the number of workers involved and days lost in pay disputes. New procedures, introduced in the more co-operative climate of nationalisation appear to have met with more success. One implication is that where grievances are deep-rooted and low trust prevails, procedural changes are unlikely to meet their objectives at least in the short-term and may themselves be a source of grievance. This is particularly likely where procedures have not been agreed or imposed unilaterally. In contrast where procedures have been agreed in 'good faith' and reflect some trust between the parties their chances of success are significantly improved. Additionally, changes such as decentralisation of bargaining, may by enabling established practices to be 'bought out' and earnings enhanced be welcomed by workers and this may be a factor in the relatively peaceful transition to decentralisation in the 1980s.

THE GENERAL THESIS AND PROSPECTS FOR THE FUTURE

In this section we draw together the main strands of our argument to account for observed strike patterns at both the industry and aggregate levels. In addition we will seek to outline directions for the future course of strike action, an exercise which necessarily addresses the question of attitudes and the extent to which these have undergone significant change in the 1980s.

The model developed in the early chapters confirmed much of the DMR study particularly the preconditions for the emergence of strike activity and the factors affecting variations in stoppage numbers on a year-to-year basis. The role of attitudes favourable to the use of the strike weapon and effective union organisation emerge as critical prerequisites for strike activity as the evidence from motor vehicles testifies. The spread and sophistication of shop steward organisation in manufacturing in the 1950s and 1960s against a backcloth of tight product and labour markets contributed to a greater volume of strikes, a change in their form as well as to their emergence in hitherto 'virgin' territories. The contrast with the slack labour markets but tight product markets of the early 1980s characteristic of much of private manufacturing exposed the apparent fragility of such organisation in the face of more sophisticated management approaches. Significantly, where such conditions were not in evidence, workplace trade union organisation continued to retain some strength.

Where favourable attitudes and union organisation existed, the influences upon short-term variations in strike activity comprised a combination of general macro-economic factors (particularly aggregate unemployment and to a lesser extent price inflation), political factors (notably incomes policy and the government in power), labour market conditions, management initiatives in the form of changes to payment systems and institutional and procedural changes and product market conditions. The latter consistently emerged as a critical influence on pay stoppage numbers and indirectly on non-pay stoppages through its impact upon managerial initiatives.

In the first decade and a half after 1945 aggregate strike activity is largely a story about coal-mining. Whilst the period from 1945 to 1950 is one of falling strike activity in coal and other industries due much to the popularity of the Labour government and the strong links between it and the TUC (DMR 1983) coal mining dominates the statistics. In coal and shipbuilding where union organisation and attitudes favourable to striking had been established well before the war strike activity is affected largely by variations in product demand and factors internal to those industries. In coal-mining, the spread of technology in the form of powerloaded faces and in shipbuilding to the level of profitability and to the persistence of inter-union conflicts over demarcation. In both industries strike numbers and their form were affected by the predominance of piecework payment systems. More generally the emergence of higher strike levels throughout the decade owes much to changing competitive pressures, especially in metals and engineering in the late 1950s coupled with product market fluctuations (themselves partly a consequence of government policy) and the emergence and re-emergence of shop steward organisation. National engineering stoppages in 1952, 1957 and again in 1962 which dominated working days lost can be seen as a consequence of these competitive pressures and emerging trade union strength in the context of national bargaining and near full employment.

In the 1960s all our industries with the exception of coal exhibit trends characteristic of much of the rest of manufacturing with product market and to a lesser extent labour market pressures dominant against the backcloth of trade union growth and the spread of workplace organisation. However, political variables assume a more direct role than in the 1950s with both incomes policies and the Labour government exerting an influence upon stoppage numbers, workers involved and days lost (see metals). In coal-mining, strike activity declines consistently as home demand falls and the NPLA in 1966 and 1971 effectively replace piecework by a day-wage system. Additionally, the NUM leadership's loyalty to the Wilson government and the collaborative relationship between senior personnel in the NCB and NUM further served to reduce strike activity.

The emerging interventionist role of the state in the 1960s requires further discussion.

In addition to legislation and proposed legislation ('In Place Of Strife') and its continuing influence on product markets through 'stop-go' policies, the state intervened indirectly through the IRC and directly, with the nationalisation of steel in 1967. However, it was in shipbuilding where the range and impact of government initiatives was seen to greatest effect. Government investment grants and aid began in the early 1960s and encompassed active encouragement of productivity bargaining and reorganisation of the industry following the Geddes Report. Notwithstanding the good intentions of the government, given the product market position and increasing labour share of value added the reforms of the late 1960s significantly contributed to increased levels of strike activity. In addition by accepting the Geddes recommendations the government endorsed the proposals for procedural changes, the effects of which have more general application in the context of the time.

From 1968-1973 aggregate strike activity reached historically high levels, an experience replicated in three of our four industries, the explanations for which lie more in long-term than short-term factors as Cronin and others have suggested. What is beyond doubt is that the strike activity is a general phenomenon and explanations based on individual industries are inadequate. The strike activity was not only of a greater volume but spread across more industries with strikes frequently larger, longer and more often securing official trade union backing. The evidence suggests a continuing role for shop steward organisation and for greater links between shop stewards and union officials with the latter bolstered by a significant rise in trade union membership in the late 1960s. These combined with the growing unpopularity of the Wilson administration, antagonism over incomes policy and proposed legal curbs on trade unions, rising unemployment (and lack of alternative job opportunities) and the general slowdown in the world economy. The consequences of this were that expectations built up in periods of growth and full employment were not met by the economy's capacity to deliver rising incomes. Additionally, the late 1960s was characterised by merger activity and rationalisation (e.g shipbuilding and motor vehicles) which served to further increase insecurity and at the same time widen 'orbits of comparison'. Whilst the responses in shipbuilding were a direct result of contradictions in the circuit of capital and increasing share of value added taken by

labour it is arguable that these factors were more general (Glyn and Sutcliffe 1972) if not as marked as in shipbuilding.

In the years following 1973, the pressures of competition, macro-economic factors and government have become more intense and more important as influences upon the strike patterns in our industries and the economy overall. Changes in product markets were significant in the re-emergence of coal-mining stoppages throughout the decade, as was the reversion to incentive payments in 1977 following the stagnation in productivity and a dramatic rise in labour's share of value added. In contrast the competitive pressures in metals and motor vehicles served to dampen strike numbers as import penetration increased, although management's responses to these competitive pressures initially contributed to heightened levels of strike activity. The state's role was enhanced further, through incomes policies (especially the Social Contract), the establishment of ACAS, increasing public ownership of which BL, UCS and British Shipbuilders are directly relevant to this study and the passing of new labour laws. The incomes policies certainly served to reduce strike activity in the 1975/76 period but contributed significantly to raising it in the 1978/79 period (Hyman 1984) although this may also have been linked to the increasing unpopularity of the Callaghan Government. Macro-economic factors, particularly inflation and unemployment also increased their influence on all three main dimensions of stoppages although unemployment had its main effect upon the number of stoppages over pay. It is likely that in a context of static growth, the pressures arising from inflationary expectations met very gloomy managerial expectations about the future and in a context of slack demand meant that many managers were prepared to 'take a strike', leading strikes to be longer and more protracted (see for example Willman's (1985) account of BL in the 1970s).

In contrast, the 1980s exhibit marked changes in the main dimensions of aggregate strike activity. First, strike levels fell dramatically in 1980, again in 1984/85 and experienced a further decline at the end of the decade. Second, the decline has been much more marked amongst pay than non-pay stoppages (at least until the late 1980s). Third, major stoppages have been concentrated in the public sector and in

parts of this sector strike activity has continued to increase into the 1990s. Finally, despite high unemployment stoppages have tended on average to remain short affairs with protracted disputes being confined largely to the public sector or areas of the private sector facing slack product demand.

The evidence from the industry studies shows that the major determinants of strike numbers in the decade have been product market factors, aggregate unemployment and the impact of labour legislation. The rise in unemployment in late 1979 has been the major factor responsible for the decline in pay stoppages after 1980, with labour legislation feeding in from the mid 1980s for both pay and non-pay stoppages. Whilst the decline in pay stoppages after 1979 owes much to the rapid rise in unemployment, its impact may have weakened in the second half of the decade so that the impact of a rise in unemployment from two to three millions has less of an effect upon strike numbers than an increase from one to two million. This reflects the way unemployment is perceived and suggests a possible threshold effect of unemployment in relation to stoppage numbers. The fact that many of the stoppages have also been short (especially over pay) is partly the result of the fact that many firms, especially in manufacturing, experienced tight product markets and in the event of a stoppage wished to settle quickly in spite of the slackness evident in labour markets.

The fact that the decline in strike activity has been most marked in the private sector, manufacturing and construction particularly is mainly due to their relative exposure to competitive pressures and the impact of unemployment. Whilst this has probably served to dampen worker expectations it has also exposed the frail nature of much workplace union organisation even in places such as Longbridge and Ryton where it was perceived as being powerful.

The rise in unemployment and the introduction of new legislation have combined with changes in collective bargaining and procedures and new management approaches to significantly reduce strike activity in much of the UK in the 1980s and early 1990s. In motor vehicles particularly the strike pattern in the decade closely reflects the negotiating timetable of the major manufacturers. In addition as Edwards (1991) has

shown, strike activity in the 1980s has been significantly affected by changes in the structure of the economy away from mining and manufacturing where strikes have tended to be more plentiful towards the service sector where they have been rare (but cf the experience of other countries; see Jackson 1987). This said those remaining in manufacturing and construction have clearly been less willing (or able) to have recourse to the strike weapon. From accounting for around 940 stoppages a year between 1960 and 1968, and 1901 a year between 1969 and 1973 (39.6% and 65% of stoppage totals respectively) strikes in manufacturing dropped to 253 per year in the period 1985-90, representing under 30% of the total. In metals and engineering the average for the latter period is around 45% of the 1969-73 totals, in textiles, footwear and other manufacturing around 20%, and construction below 10% of the 1969-73 levels. These results give added potency to the view that it is in those areas most exposed to competitive forces and the recessionary climate of the early and late 1980s which have seen their strike totals (and particularly pay strikes which are most susceptible to changes in unemployment) diminish the most. In addition, for those who have remained in work, earnings increases in manufacturing have remained well above the rate of inflation which may give a further indication of the reasons for the decline in pay stoppages in this period. As we have repeated, where sectors have been relatively insulated from the impact of unemployment and/or where workforce organisation has remained strong and prepared to confront management (i.e where organisation is relatively recent or well entrenched) strike activity remains and in many areas has increased.

THE WITHERING AWAY OF THE STRIKE; 1990's STYLE?

A further issue is the extent to which the decline in strike activity is likely to be a permanent phenomenon or merely a temporary decline in a world of limited alternative job opportunities and a diminished ability to mount effective action.

With strike activity in the 1980s having fallen to levels associated more with the early post-war period it has become a commonplace in journalistic accounts of this phenomenon to cite changing attitudes amongst workers and unions (e.g Bassett 1986,) and to new enlightened management approaches to employee relations (Armstrong 1987). Whilst these views may be correct, and we have stressed the possible long-term effects of high unemployment on attitudes, there are a number of reasons for treating them with care, or at least to locate them within a broader context. As we have shown above, one factor in declining strike activity has been structural shifts in the economy away from areas of manufacturing where union density has traditionally been high (at least amongst manual workers) towards the service sector, where apart from the public sector elements and that of financial services, union density and collectivist attitudes have been largely absent. There is little reason to suppose that such a state of affairs is permanent, workers within the service sector have not been averse to joining unions or engaging in strike activity (see evidence from Scandinavian countries, Jackson 1987) and the increase in competitive pressures that many service sector companies are beginning to experience, may as Cronin's work suggests be likely to provoke managerial responses that make the possibility of overt conflict more likely. In addition, productivity in the service sector is much lower than in manufacturing (Gershunny and Miles 1980) and the scope for savings and efficiency is considerable if competition intensifies.

Second, the decline in strike activity in the 1980s is not a phenomenon unique to the UK. Although the decline is more dramatic here, most European countries have experienced a decline (ILO statistics 1991), suggesting that an analysis based upon nation - specific influences is necessarily inadequate. If attitudes are a key factor the evidence on strike patterns implies they are changing across countries at the same time, or that more general influences are at work. The increasing levels of

unemployment, decline in trade union organisation and membership and structural shifts in the economy are developments in many countries and it is probable that they are exerting the major influence with legislation playing an additional role in the UK context.

Third, and to reiterate an earlier comment, the decline in strike activity at the aggregate level has a number of distinct components. Most notably, the decline has been concentrated particularly on pay stoppages, and has been most marked in manufacturing and construction (although in the late 1980s the decline in non-pay stoppages has been considerable). Whether this marks a more fundamental change in attitudes or a temporary display of compliance with the 'necessity of circumstance' is more difficult to say. Our assumption that instrumental attitudes have become more prevalent in the UK within the post-war period suggests falling strike activity as a result of a calculative or at best compliant response by workers to rising earnings and high unemployment together with limited opportunities for alternative employment. Our own industry studies tentatively suggest that where instrumental attitudes have been most in evidence strike activity has significantly fallen. In coal-mining most evidence points to the continuation of distrust, with high productivity and earnings more a response to 'making hay whilst the sun shines' than to any long term commitment to the industry. Attitudes would appear to differ between coalfields and the apparent persistence of Lockwood's 'traditional proletarian', at least in parts of the Yorkshire coalfield contrasts with the instrumentalism of many Nottingham miners (Waddington et al. 1991) but Nottingham miners have been willing to use the strike weapon when they have had grievances and perceived injustices. In motor vehicles, the willingness to use the strike weapon is still present at certain times as it is in metals but in these sectors the ability to use it given the collapse of workplace organisation in some areas is considerably diminished. The experience of metals and motor vehicles and the 'marginalising' of trade unionism may be more widespread as may the willingness not to 'rock the boat' in an uncertain economic environment. One point of interest is that although coal-mining has increasingly dominated stoppage activity in the 1980s as has the public sector more generally, most industries still experience some strikes as do

all regions (Edwards 1992). This may suggest that the combination of shop steward organisation and a willingness on the part of workers to resort to strike action has remained intact in industries outside of the established areas of manufacturing and the public sector and provide a vehicle for transmitting grievances into strike activity.

Although the redundancies of the 1980s and 1990s have significantly altered the age profile in many industries and younger workers may be less willing to invoke the strike weapon, it is doubtful that workers generally have rejected the use of the strike weapon. Indeed the evidence of those sectors relatively insulated from unemployment such as the public services sector suggests that the exposure to competition and the organisational changes which are associated with it are capable of generating grievances which are increasingly channelled into strike activity as Cronin's work suggests (see discussion of the possibility of such a situation arising in services, above). Furthermore, in those sectors which have retained some significant workplace organisation, redundancies themselves have been a source of considerable resistance and strike activity as in coal, metals and shipbuilding in the 1980s.

The role of management in strike activity has been stressed throughout this study. The focus of DMR on management initiatives is particularly relevant here, as it implies ad hoc, largely reactive responses to circumstances that arise. Given the increased attention to HRM, and its purportedly more strategic, pro-active focus it is reasonable to ask whether this will make much difference to strike activity. Since such initiatives are relatively recent and outside the scope of this study any comments are necessarily tentative but much would seem to depend upon external factors, the extent to which HRM can develop genuine trust and commitment, the future development and concerns of trade unions and the manner in which changes are introduced and managed (although the role of new management approaches in competitive contexts receives some support from the pooled data analyses). In addition, given the pressures on many organisations for short-term results, arising from ownership and other structural constraints (Scott 1985) and evidence of the ad hoc or pragmatic approach to corporate planning (Connock and Brewster 1990) the ability of organisations to develop and implement strategic initiatives in the UK

context appears to be very limited.

Reflecting upon the changes in strike activity from the vantage point of the early 1990s suggests the maintenance of current levels of strikes for the foreseeable future. Whilst unemployment has served to dramatically curtail pay stoppages, the new legal framework has had an impact upon both pay and non-pay strikes (see Millward et al. 1992). In addition the significant decline in non-pay strikes in the late 1980s could suggest considerable management success in gaining control of the labour process in many workplaces and with weakened local organisation a continuing contest over control would be largely absent. It follows that in such circumstances any discontent would be more likely to manifest itself in individual responses rather than strikes or other forms of collective action.

The increasing impact of macro-economic factors and legislation has had its main influence in the private sector where sectors are most 'open' and the environmental pressures most intense. The continuation of these for the foreseeable future suggests that strike activity in the public sector is likely to increasingly dominate the statistics. A further reason for this is that pressures for greater efficiency through cash limits and more commercial objectives remain and sectors of transport and communications, notably British Rail, London Regional Transport, and the Post Office all face pressures for change in the short-term.

Additionally, the likely continuation of high unemployment (and possibly rising real earnings for those in work) and restrictive legislation will further undermine trade union organisation and limit the ability to mount effective action outside of parts of the public sector. Although collective bargaining changes in these areas may generate conflicts, the decentralisation of bargaining more generally will continue to reinforce the impact of broader and more local economic changes and ensure that action that does arise will be relatively small-scale.

CONTRASTS WITH OTHER APPROACHES

In the Introduction to this study, we outlined a range of approaches which have sought to explain various aspects of strike activity. Our general concern was that many, particularly those advocated by some economists and sociologists tended towards mono-causal explanations of what are highly complex phenomena. In contrast our approach started from the premise that to explain strike activity what was required was a framework which recognised this complexity and sought to draw upon insights from a range of disciplines. We have attempted to do this by developing a framework which permits an explanation of both short-term and longer term movements in strike activity and of variations in pay and non-pay stoppages. We believe that the results obtained throughout confirm and endorse that approach as well as supporting the view that detailed historical studies of particular industrial and organisational contexts contributes significantly to the understanding of the factors at work in strikes.

Much of the inspiration and focus for this study came from the work of Durcan, McCarthy and Redman and the wish to develop a model of strike activity which could provide a test of their conclusions and an extension of their study beyond 1973. The model developed in the earlier chapters to account for year-on-year variations in stoppage numbers provides support for many of their conclusions although the stability of the operational form varies significantly across different time periods. The variables they identify are generally significant determinants of stoppage numbers although the model performs better for pay than for non-pay stoppages and for stoppage numbers than for other dimensions of strike activity. The evidence from the industry studies confirms the emphasis they place upon the role of attitudes and union organisation, and suggests that these have a particularly important role to play in diminishing the impact of broader economic factors so that the broader influences have their greatest effect where attitudes are most instrumental and union organisation most fragile.

Compared with DMR, macro-economic factors, aggregate unemployment, price inflation and movements in real earnings have had a much more pervasive influence

upon strike activity since the early 1970s than in the period of their study. Our evidence in testing for the period after 1973 also suggests a greater role for product market factors and changes in technology, although their stress on the role of industry product and labour markets together with managerial initiatives is supported by the results of this study. Where we depart from DMR is in the determinants of longer term movements in strike dimensions and specifically the role of government. Although the evidence offers considerable support for their interpretation of the importance of institutional factors (see below) and government initiatives (as they define them), governments have clearly affected strike activity in ways not identified by DMR (see discussion below). Additionally, general movements in strike activity at the industry level appear to owe much to general phases in industrial development and to managerial responses to product market crises, particularly where the latter generate dislocations between elements in the industrial circuit of capital most notably between product markets and the labour process.

Contrasting our results with those of other approaches, whilst economic factors have undoubtedly increased in importance throughout the period of study in affecting all dimensions of stoppages they have done so within changing political, institutional, organisational and socio-cultural contexts, factors which are generally given scant consideration in most economists accounts of strike activity. Indeed, although this study confirms the role of economic factors in strike activity it supports the criticisms of economic approaches. In particular, the failure in theoretical formulations to adequately model worker (and employer) attitudes, and empirically, problems with the stability of the equations and the weaknesses they encounter when extended into the 1970s and 1980s. With their original equations run beyond the late 1960s both Pencavel and Shorey's approaches had a much lower explanatory power and relied for that explanatory power on one or two variables included despite their dubious theoretical rationale. In the case of Pencavel, the time trend accounted for much of the variation in stoppage numbers as it did in his original equation. However, his tentative interpretation of the positive coefficient on this variable in terms of the growth of shop steward organisation is questionable in light of the experience of the 1980s in particular. Shorey, like Cronin made use of the lagged dependent variable

as an explanatory factor and in the 1970s and 1980s it is this factor that accounts for most of the equations explanatory power. In the case of both Pencavel and Shorey, the two approaches when extended perform superficially well but when examined in detail add little to our understanding of the factors causing variations in stoppage numbers.

Turning to some of the major sociological studies of strikes, we would concur with recent revisionist work on the validity of the Kerr and Siegal thesis (Church, Outram and Smith 1991), support for which comes from our own study of Yorkshire coal-mining. Yet, whilst the Yorkshire case indicates that some pits remain strike prone across generations, the general experience of the coalfield in the 1980s needs to set this in the context of particular product market conditions, union organisation and a much tougher management approach to industrial relations rather than a reliance upon structural factors characteristic of the Kerr and Siegal approach.

The work of Edwards and Scullion and their focus upon the nature of the labour process in conditioning the form of conflict in specific organisational contexts also merits further attention. Given the industry focus of this work any discussion of their study is necessarily qualified but some general points are relevant. First, the evidence from the industry studies confirms the relative autonomy of the labour process. In coal-mining, shipbuilding, and parts of motor vehicles, trade unions were, for much of the period, able to maintain a significant degree of job control and to resist attempts at incursion into these by utilising a variety of weapons including strikes. Second, in all the industries there were critical periods when the pressure from external product market forces provided managements with the opportunity and ability to introduce significant changes to labour processes which had important consequences for strike activity. This confirms the view that it is more illuminating to view the labour process as an element within the full circuit of capital, something which a time series analysis permits much more effectively than the largely cross-sectional approach adopted by Edwards and Scullion. Third, it is not clear how various forms of conflict emerge in the first place in specific organisational contexts. In common with Cronin, our evidence suggests, product market competition allied to

an effective vehicle to translate grievances into action would appear to play a critical role. Where these continue strikes may become viewed by both management and workers as an accepted and legitimate means of achieving results.

Of particular interest to this study was that of institutionalist approaches, the 'strong' variants of which find little support from our industry studies. In accounting for the differences in response to procedural changes in coal-mining and docks, DMR distanced themselves from Clegg and the Donovan Commission's view of the efficacy of procedural reform by arguing that procedural changes per se would have little impact upon strike activity unless underlying substantive issues were resolved. The evidence from this study generally confirms that of DMR and supports the role institutional change plays in affecting the numbers of workers involved and days lost in disputes. However, the effectiveness of institutional change in reducing the number of disputes is greatly affected by the economic, organisational and industrial contexts in which they are introduced. The experience of shipbuilding in the 1960s, the 1976 disputes procedure in engineering, and motor vehicles (particularly BL) in the late 1970s and 1980s clearly illustrate the importance of broader influences upon the efficacy of institutional and procedural change. At BL, the reform of collective bargaining needs to be set against the backcloth of the Speke closure, the purge of senior stewards and the product and labour market contexts. The 1987 disciplinary procedures introduced in coal mining in contrast, met with considerable resistance in some areas where they were seen as unfair and open to abuse, reflecting the distrust that was the legacy of the 1984/85 strike, and where workers still retained significant bargaining power.

The arguments of political approaches, particularly those of Korpi and Shalev are also called into question on the basis of the evidence. Although a range of political factors are clearly important in short and long term movements in stoppage activity, the lack of significant working class representation at the political level would, in their terms have served to increase strike activity in the 1980s. The fact that the reverse occurred only serves to further emphasise the need to take account of the array of factors outside of the political sphere which operate upon strike activity.

In general, although the work endorses the view that movements in aggregate strike totals are crucially affected by the activities of governments, it argues that the impact of government is more pervasive and complex than they suggest. In particular there is much support in this study for Tolliday's (1985) view that it is often the unintended consequences of government action and particularly those in response to ailing economic performance at both national and industry levels which have had a key impact on industrial relations, and as a consequence on strike activity. Specific examples would be the effects of the post-Geddes reforms in shipbuilding and the subsequent nationalisation of that industry and the formation of BLMC in the motor industry. More generally, macro-economic policies, particularly fiscal and monetary policies have played an important role in creating uncertainty and instability in specific organisational and industrial contexts as have the operation of cash limits. The latter have been discussed at length above, but the progressive tightening of these served in three industries as a critical precursor to major periods of strike activity. These points together emphasise the breadth of government influences upon strike activity and suggest the need for more detailed case study research into the relationship between governments and strikes and how this alters over time as contexts change.

Consideration also needs to be given to the work of Cronin and the ways in which our conclusions differ from his. His work is an extremely important and valuable contribution to the understanding of strike activity and much of our analysis owes a considerable debt to the insights that his work provides. Our concerns about aspects of his work have been discussed already but one very serious weakness emerged in extending his period of study, and the results from the equations run. One variable (the lagged dependent variable) accounted for much of the explanatory power of his equations and for the consistently good results for the Durbin-Watson statistics. Whilst Cronin offers a rationale for its inclusion (incidentally different from that offered by Shorey when using the same variable), theoretically its meaning is at best ambiguous and his econometric results must accordingly be treated with caution. In addition, the movement of broad economic cycles fails to explain why strike waves occur in different industries at different times and why a significant strike wave has not emerged in the 1980s. Our analysis endorses the role played by broader economic changes, in the world and national contexts but argues that what is more important for strike waves is the responses of governments and critically managements in specific industrial and organisational contexts to these factors particularly where they manifest themselves in contradictions in the industrial circuit of capital and an increasing share of value added accounted for by labour.

In addition, Cronin's model of industrial strike activity appears to apply but with important qualifications. In terms of the industries examined here, the critical variable of competition operates to increase strike activity initially but as industries contract as a result of the effects of greater competition strike activity declines even when the effects of employment decline are allowed for (cf coal, but see textiles in the post-war period). This raises questions about how workers experience the effects of competition, and how this changes over time, but it also focuses attention upon the role of management in mediating between those factors and its actions in dealing with competition and managing change more generally.

The role of management is a common omission from much work on strikes. Although a role is identified by both DMR and Cronin which is a considerable advance on many previous formulations, particularly those of economists, management actions and attitudes are left largely undefined. Whilst there are clearly problems with the essentially structural formulation of attitudes developed in this work we would argue that in spite of its deficiencies it is an advance over 'managerial blindness' in accounts of strike activity, and that the model from which it, and worker attitudes is developed performs well over a 40 year period.

In one sense it is an obvious truism that management action is a critical factor in strike activity, which makes the lack of attention paid to it even more surprising, but this study has permitted the nature of that action in particular contexts to be explored more fully. One important result has been the consequences for strike activity of the ways in which managements have responded to perceived crises at specific points in time. Coal provides an interesting contrast between the managed decline in the 1960s, where NCB and NUM liaison proved crucial in effecting a relatively peaceful contraction, and the highly conflictual period of the 1980s, characterised by a more aggressive management style and predominantly low trust relationships between the Board and the NUM. Similar effects of the gradual dismantling of higher trust 'neo-corporatist' frameworks can be seen in steel and to a lesser extent in shipbuilding. More generally, managerial acquiescence in strikes emerged as a key factor in strike levels in shipbuilding, where the desire to maintain the main features of craft production appeared to dominate concerns about the costs of strikes, the latter seen as an accepted consequence of this concern, at least until the pressures of competition forced managements to change.

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