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Work and power in post-Fordist production: A case study of four machine shops

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four machine shops**

Sweet, Stephen A., Ph.D.

University of New Hampshire, 1994

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WORK AND POWER IN POST-FORDIST PRODUCTION:
A CASE STUDY OF FOUR MACHINE SHOPS

BY

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MA, University of New Hampshire, 1989

DISSERTATION

Submitted to the University of New Hampshire
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the Requirements for the Degree of

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in

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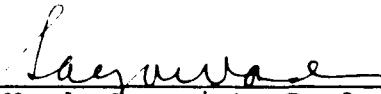
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Date

DEDICATION

To the best parents any son could wish

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ABSTRACT

WORK AND POWER IN POST-FORDIST PRODUCTION: A CASE STUDY OF FOUR MACHINE SHOPS

by

Stephen A. Sweet
University of New Hampshire. May, 1994

American industry is shifting to a "post-Fordist" approach to production. The post-Fordist approach includes expanding use of advanced manufacturing technologies, decreasing organizational sizes, decreasing bureaucratization of the work place, and the abandonment of Tayloristic managerial practices in favor of increasing worker participation in decision making processes. This study examines the effects of the post-Fordist approach upon power relations in four work places in the machining industry.

Interviews with 44 machinists, employers and community leaders in the case study site "Machinist Valley" show that the shift to post-Fordism is accompanied by declining incomes, fewer employment opportunities, lower benefits, and less job security in comparison to machining work during the Fordist era. While machinists exercise greater skills in the work place, they have less power to determine the pace and pay of their work. Declining worker power primarily results from

owners' abilities in Machinist Valley to instill and take advantage of the feeling of individual and collective job insecurity that pervades workers' consciousness.

These findings point to the need for further evaluation of the shift to "flexible specialization." Findings of this study suggest that the optimistic scenario of craft control theory (Piore & Sable 1984), which asserts that increasing craft skills enhance worker power in the work place, is unlikely to be born out of post-Fordism in the current market conditions. The experiences of workers in Machinist Valley are more consistent with the projections of fragmentation theory (Lash & Urry 1987), which projects decreasing worker power due to declines in workers' class capacities.

INTRODUCTION

In the early decades of the 20th century, a new approach to production dramatically changed the shape of American manufacturing work. Huge factories replaced the small craft shops of the 19th century. Highly specialized machines geared for mass production, such as the assembly line, replaced simple craft tools (Hounshell 1984). A bureaucratically organized work place replaced the informal "simple" methods of organizing and controlling work (Edwards 1979). A new method of "scientific management," that separated thought from execution, made it possible to replace skilled craftsmen with less skilled machine operators (Braverman 1974). These combined changes constitute the key features of Fordism, an approach to production which dominated American industry well into the 1970s.

In the last 20 years, however, new approaches to manufacturing are producing changes as dramatic as those seen in the early 20th century. Huge factories are being replaced with smaller "flexibly specialized" enterprises designed to capitalize on new markets for customized goods (Chandler 1990, Piore & Sabel 1984). Rigidly specialized machines are being replaced with programmable computer technologies. These new "smart machines" have the potential for liberating workers

from the degraded tasks of Fordism or potentially extending the degradation process (Zuboff 1988, Howard 1985, Shaiken 1984). Work organizations are increasingly becoming de-bureaucratized and companies rely on fewer formal rules and rigidly defined offices and job tasks (Tucker 1992). And a new management philosophy extols the desirability of returning decision making responsibilities to workers, replacing the Tayloristic practice of separating thought from execution (Thomas & Kochan 1992, Wood 1989, Dore 1986).

Taken as a whole, these changes represent a shift from the previously dominant "Fordist" approach to a new "post-Fordist" approach to production. This dissertation examines control in the work place in the machining industry during the Fordist and post-Fordist eras. By examining workers' experiences in a case study community long dependent upon the machining industry, I explore how the shift to the post-Fordist approach affects the power of machinists to assert their individual and collective wills in determining the terms of production. As Richard Edwards (1979) points out, the work place is a domain of "contested terrain," where owners and workers engage in conflict over the terms of production. The post-Fordist work place is a new arena for conflict between owners and workers. It may render old methods of control obsolete and potentially enable workers and owners to shift the distributions of power established under Fordism.

This case study analyzes worker experiences in "Machinist

Valley" to examine how workers' and owners' power in the work place changed under post-Fordist production. Machinist Valley is an industrial district in the Northeastern United States which was previously dominated by six very large machining enterprises. During the decades of the 1970s and 1980s, machinists have seen their opportunities decline compared to when the previously dominant Fordist enterprises were operating during the 1940s-1970s. By the mid 1980s, all of these large enterprises had closed or downsized during the period of "deindustrialization" (Bluestone & Harrison 1982). However, during the 1970s and 1980s there was significant growth in the number of small post-Fordist enterprises occurred in Machinist Valley, and these small shops offered new job opportunities in the same industry. Similar trends toward smaller organization size are occurring at the national level.

Machinists are the backbone of any industrial society, as they operate the machines that bend, cut and shape metal into precise shapes. They not only make machines, but they also make the machines that make machines. Almost all products produced in an industrialized society are in some way the product of machinists' work. Despite claims of an emerging "post-industrial society" (Bell 1973), and the "deindustrialization of America" (Bluestone & Harrison 1982) industrial production remains an important aspect of the American economy (Kutscher & Personick 1986), and machinists

will probably continue to be important to sustaining American industry.

Machinists are also particularly important to the study of post-Fordism because they have been affected by the organization and technological changes associated with this new approach to production. Machinists use the machinery associated with advanced manufacturing technologies, such as computer numerically controlled machine tools. And consistent with the shift to post-Fordism, the machining industry is restructuring to smaller enterprise sizes representative of the post-bureaucratic organization of work.

In Chapter 1, I examine changing markets which signal a shift from the Fordist era to the post-Fordist era. I detail how the Fordist approach to production affected power and control in the work place. I then examine the features of the post-Fordist approach and detail the projections of craft control theory and fragmentation theory and how new approaches to production affect power in the work place. Chapter 2 details the methodology I used to examine how control and power in the work place have changed as the post-Fordist approach to production was introduced in the case study site of Machinist Valley.

In Chapter 3, I examine how pay and benefits machinists receive for their labor have changed during the transition to smaller post-Fordist enterprises. Chapter 4 examines the methods that owners use to control production and workers in

Machinist Valley. Chapter 5 analyzes control from below, the methods workers use to exert their individual and collective wills on the production process in Machinist Valley. These findings suggest that post-Fordist production decreases workers' power in the work place by making obsolescent the forms of workers' control developed under Fordism. Chapter 6 examines the parallels between Fordism and post-Fordism concerning the development of owners' and workers' control in the work place. I conclude with a discussion of directions for future research.

CHAPTER 1

FROM FORDISM TO POST-FORDISM

This chapter examines the Fordist era and post-Fordist era and how Fordist and post-Fordist approaches to production influence control in the work place. I first discuss changes in labor markets and product markets which have caused companies in the United States to shift away from "American System" of mass production in order to exploit emerging markets. The changes in labor markets and product markets, and the decline of United States' hegemony of the global economy, signal a shift from the Fordist era to the post-Fordist era.

I then discuss how the Fordist era influenced production practices and the ways in which workers and owners attempt to advance their competing interests within the "contested terrain" of the work place. I show that owners' practices under Fordism were instrumental in reducing the effectiveness of methods of workers' control exercised in the 19th century craft production. But by developing new tactics of control specific to Fordist production, workers were able to retain power and advance their economic position.

The final section of this chapter examines how the Fordist era is currently being superseded by the post-Fordist era, and details the characteristics of the post-Fordist approach to production. The post-Fordist approach includes downsizing of organization, introduction of flexible technologies, and new managerial practices which favor increasing worker participation in decision-making. While there is some debate among scholars concerning Fordism and its effects upon workers, there is even less agreement on post-Fordism concerning its effects upon workers' power in the work place.

Two opposing theories will be examined to illuminate the points of contention concerning how post-Fordism influences power in the work place. Craft control theory (Piore & Sabel 1984) offers a positive assessment concerning work experience under post-Fordism. This theory suggests that worker power could increase by returning craft control to individual workers in a manner similar to that of craft production in the 19th century. On the other hand, fragmentation theory (Lash & Urry 1987) emphasizes diminished worker power resulting from the declining class capacities of workers to exert their collective wills in negotiating the terms under which production takes place.

Changing Labor Markets and Product Markets

This study is an analysis of how power in the work place is changing as American industry restructures to capitalize on new markets in a global economy. This study is not a study of global capitalism, but rather is concerned with the practices of employers and workers within companies as their firms find niches in these new markets. My primary concern is with relations within the work place, not the external factors which have produced these changes. Nonetheless, understandings of experiences in the firms studied in this dissertation must be grounded in an understanding of the changing labor markets and product markets which have brought about their emergence.

This section briefly outlines the central changes in labor markets and product markets which have influenced the emergence and structure of the new enterprises in this study. Since the early 1970s, labor markets and product markets have changed as industry in the United States has shifted to the global production of goods (Barnett & Muller 1974). These changes are having a profound affect on how work places are organized, the use of technology in production, and the experience of work.

Changing Labor Markets

Prior to the 1970s, manufacturing work was characterized

by a two tier opportunity structure, described both as a "dual economy" (Averitt 1968) and a "dual labor market" (Edwards, Reich & Gordon 1973). Dual economy theory argues that American companies can be divided into two groups, "core" and "peripheral" enterprises. Core enterprises constitute a sector of prosperous corporations that are large in size, create stable jobs, and have sufficient economic power to restrict threat from outside competition within their industry. Peripheral enterprises are smaller in size, less prosperous, and less stable (Averitt 1968).

Similarly, dual labor market theory distinguishes opportunities between a "primary" and a "secondary" labor market. Primary labor markets are characterized by jobs which offer high wages, better benefits, career structures, chances to acquire skills, and secure employment. Secondary labor markets offer lower wages, fewer possibilities for advancement, low potential for skill acquisition, and insecure employment (Edwards, Reich & Gordon 1973). Both conceptualizations, while differing slightly in focus, point to a sharp division between the "good jobs" and "lousy jobs" that emerged during the 20th century. They also point to the structural barriers to mobility and low life chances for those workers occupying positions in the peripheral firms or in secondary labor market. Prior to 1970, primary labor market jobs were predominantly found in core enterprises and secondary labor market jobs were predominantly found in the

peripheral enterprises.

While the dual labor market may still hold true for service sector employment, I believe it is of lesser relevance in examining the life chances of American manufacturing workers in the global economy of the 1990s. As industry increasingly takes advantage of the second world and third world labor, because of the cost advantages this labor offers, low-skill manufacturing jobs are of increasing importance in these countries (Sassen 1988, Portes & Walton 1981). As low-skilled jobs are exported to peripheral areas of the global economy, they are of decreasing importance in core countries such as the United States (Wallerstein 1991). An indication of the result of this process are the declining numbers of lower wage manufacturing jobs. According to the Committee on the Budget of the United States Congress (1988), low wage manufacturing opportunities (paying less than \$11,611) declined by 54,000 jobs from 1979-1987. Likewise, middle wage manufacturing opportunities (paying \$11,612-\$46,444) declined by 2,230,000 jobs from 1979-1987.

During this same time period, the core and periphery sectors of dual economy theory have also undergone important changes. Corporate restructuring is resulting in the downsizing of many of the previously dominant core firms, and there is an increasing reliance upon smaller peripheral firms for the "outsourcing" of production (Brown, Hamilton & Medoff 1990, Bluestone & Harrison 1982). Therefore, while the core

and periphery distinction of dual economy theory was generally consistent with the primary and secondary labor markets of dual labor market theory prior to 1970s, by the 1990s these relationships are proving much more complex. Given these concurrent changes, the contemporary labor market in manufacturing enterprises may potentially integrate primary labor market work within peripheral enterprises. As companies downsize, manufacturing work is argued by many to be evolving to a point where most manufacturing enterprises located in America will rely primarily on high skilled workers for stable production (Marshall & Tucker 1992, Thurow 1992, William & Packer 1987).

Changing Product Markets

Product markets also influence the experience of work, as the products influence the ways in which work is to be performed. Prior to the 1970s, 20th century American industry was characterized by the "American System," which relied upon the mass production of standardized goods (Chandler 1977). Internal demands in industrializing America during the first decades of the 20th century through World War II sustained the markets for mass produced goods, requiring little variation in product lines (Chandler 1990). For example, automobile models were limited and few options on cars were available. The 1945 Bretton Woods conference extended the American System, and gave the United States considerable advantages in marketing

mass produced American goods to war devastated Europe (Thurow 1992).

Piore and Sabel (1984) and Lash and Urry (1987) point to changing product markets as being one of the distinguishing features of the new era in industrial production. According to both studies, the increasing competition in the 1970s has reduced the United States' hegemony over markets for mass produced products. This has compelled United States' industry to shift toward production of more specialized commodities and away from the Fordist approach to mass production. Aside from growing international competition, Piore and Sabel (1984) point to two related forces compelling industry tend toward "flexible specialization." They argue that markets for mass produced commodities have reached a point of saturation and are therefore of declining importance. They also suggest that industries are starting to abandon mass production in favor of a new approach to flexible specialization, which increases the likelihood of innovating and capturing new markets.

Lash and Urry (1987) emphasize cultural changes which affect the markets for goods. According to these authors, media created desires have created a new "post-modernist sensibility" for unique products. Whereas the customized product was once used to distinguish bourgeois tastes (see Bourdieu 1984), post-modernity levels class distinctions by promoting individuality in consumption practices among the masses. Therefore, wide ranging markets are opening for

unique, specialized, and "funky" products. A comparison of the automobile industry of the 1950s and 1990s, for example, provides compelling evidence in support of their thesis, as the multitudes of automobile makes, models and options have grown exponentially. Companies that can provide these variations in products have a decided advantage in capitalizing on these cultural changes.

Standardized goods are suited to rigid technologies, such as the assembly line, and rigidly bureaucratic organizations. While these approaches to production are well suited the American System of mass production, they are a decided disadvantage for enterprises attempting to capture the new markets for specialized goods. These changes in markets are having a major impact on the ways in which goods are produced and the experience of work.

These changes in labor markets and product markets signal a shift from the Fordist era and the post-Fordist era in the United States. The Fordist era (1900-1973) constitutes the time period in which the United States held hegemony in the global economy with the American System of mass production. The post-Fordist era (1973-present) signals a new era in which American industry has lost its control of the global economy and is shifting away from the American System of mass production in order to exploit new labor markets and capitalize on new product markets. I discuss below how the Fordist era was also characterized by specific practices of

owners and workers to exert their wills in the production process.

Fordism

Defining Fordism

In an analysis of class relations in American society, Antonio Gramsci (1971) coined the word "Fordism" to describe Henry Ford's methods of successfully implementing assembly line technology in the early 20th century. According to Gramsci, Fordism had the effect of reducing the potentials for class conflict in America by linking the interests of big business with nationalistic ideology of "Americanism" through a skilled use of coercion, ideology and economic reward:

....it was relatively easy to rationalize production and labour by a skillful combination of force (destruction of working-class trade unionism on a territorial basis) and persuasion (high wages, various social benefits, extremely subtle ideological and political propaganda) and thus succeed in making the whole life of the nation revolve around production (Gramsci 1971:285).

Subsequent discussions of Fordism use the term to describe the significant events which enabled the United States to dominate the global economy in 20th century. Two explanations are given to explain this dominance: economic and industrial.

Economic theories of Fordism argue that because the United States was able to secure favorable trading relations

in the 1945 Bretton Woods Conference, it was able to prosper by gaining hegemonic control of the global market for goods (Sayer 1989). Economic theories also argue that Fordism operates by a "propulsive" force, whereby high wages promote consumerism, which in turn drives production in related sectors of in the economy (Sayer 1989). High wages thereby sustained the United States economy, as well as prevented class conflict by enabling American workers to experience personal prosperity.

Production in the United States during the latter half of the 20th century functioned with a mutual understanding between workers and owners that disruption of production would be minimal so long as workers' wages continued to increase (Reich 1991). Until 1973, wages increased and real family incomes consistently grew, thereby sustaining the Fordist approach (Levy 1986). A crisis in the Fordist approach occurred, however, in conjunction with the emergence of newly industrialized countries [NICs] and the OPEC oil embargo, which challenged the United States domination of the world economy. After 1973, incomes stagnated and declined (Levy 1986) and the high wages which supported hegemonic control could no longer be sustained in the face of increasing international competition (Thurow 1992). Because the United State's domination of the global economy is being replaced in a new era of "head to head competition" (Thurow 1992), economic theories assert that capitalism is entering into a

"post-Fordist" stage (Sayer 1989).

On the other hand, Fordism is also used to describe specific industrial practices which occur within the factory (Sayer 1989). In this section I concentrate my analysis on these practices and how they affect power relations within the enterprise. These include the use of assembly line mass production, large factories, start to finish production practices, and Taylorized job tasks. As these features of industrial production appear to be declining, again Fordism is argued to be shifting to a post-Fordist approach (Sayer 1989).

In the present analysis, I use the term Fordism to describe the approach to production that dominated manufacturing work in the United States during the first seventy years of the 20th century, which I have termed the Fordist era. In its most advanced form, the Fordist approach developed into production methods that used highly bureaucratized organizations to control large numbers of workers who labored at divided and repetitious tasks on machinery designed for mass production. Under this approach, laborers worked on highly specialized machines designed to mass produce component parts to be assembled on a final assembly line procedure. Each laborer performed tasks more simple than those types of tasks executed by skilled laborers under the craft approach to production. Work was guided by a system of scientific management which stipulated a separation of thought from execution, delegating design to management and

manual tasks to workers (Braverman 1974). In order to manage the large organization, formalized bureaucratic rules were implemented which stipulated job classifications, tasks, and wages (Edwards 1979).

My analysis is limited to post-Fordism as it operates within the factory, rather than the global context within which post-Fordism emerged. Global production and global markets are an important aspect of the post-Fordist era and global production significantly lowers workers' power because owners are not constrained by national borders in their efforts to employ workers at low wages (Barlett & Steele 1992, Portes & Walton 1981, Wallerstein 1979). At the same time, changing approaches to production are occurring within the factory walls and these changes are also influencing power relations between owners and workers. By concentrating this study within the place of employment and in the local community, I am highlighting how a changing approach to production influences power relations between workers and owners at a specific level of analysis that is analytically differentiated from other levels of analysis (Luhmann 1982).

Before addressing how Fordism changed power relations within the factory, it is also important to address the issue of the degree to which the concept of "Fordism" is appropriate to describe the experiences of all workers during the 20th century. In this study, I focus the analysis on the experiences of machinists and I use the term "worker" and

"machinist" interchangeably. However, machinists should be conceptually distinguished from workers laboring in other industries, especially those types of workers who labor in the secondary labor market (Edwards, Reich & Gordon 1975).

Machinists have occupied positions in the primary labor market under Fordism because they were required to learn generalized skills needed for stable production and sales. Machining work, despite the attempts at deskilling production (which I discuss below), has always required varying degrees of skill well above that needed for fully "deskilled" work. This differentiates their experiences from those of lesser-skilled manufacturing workers employed in the secondary labor market, where skill development and stable work behaviors are neither required nor rewarded (Edwards, Reich & Gordon 1975:xv).

To concentrate this study on the experiences of machinists was not an arbitrary decision. Manufacturing work in the secondary labor market is suited for low-skilled and low-educated workers, and because of this, secondary labor market work is especially suited to transplantation to less developed countries, where unskilled labor is plentiful and labor costs lower (Reich 1991). The primary sector, however, relies upon workers who can be expected to engage in consistent work behaviors and perform tasks with greater skill. These are the types of manufacturing jobs that are likely to remain in the United States in the 21st century

(Reich 1991, Johnson and Packer 1987). By studying the experiences of machinists under Fordism and post-Fordism, I am able to analyze a group of workers who are likely to remain an important component of the blue-collar labor force in the 21st century. The findings concerning changing power relations will be of importance in making policy decisions regarding the emerging needs of manufacturing workers in the United States under post-Fordism.

The concepts of "Fordism" and "post-Fordism" are used as ideal types (Gerth & Mills 1946) to describe distinctive production practices. Individual enterprises will certainly vary in the degree to which they conform to either the Fordist or post-Fordist approach to production. Nonetheless, the overarching concepts of Fordism and post-Fordism provide a useful framework to describe the general features which distinguish two eras of industrial production in the United States. During the Fordist era, there were enterprises which used other approaches to production. However, I argue that the Fordism approach was the distinguishing feature of industrial production which separates the experiences of workers in the 20th century from the experiences of craft workers in the 19th century.

I detail below the conflicts between workers and owners under Fordism, which ultimately resulted in the combination of degraded work with high wages. I treat organization and technology as separate components in analyzing Fordism, but

they should at all times be understood as coupled together and implemented by owners, in part, to wrest control from workers. Workers in turn used organization and technology, coupled together, in ways unanticipated by management and owners to retain power in the work place.

Organization of Work Under the Fordist Approach

This study follows the long tradition of viewing the work place as an arena of "contested terrain" where the conflicting interests between owners and workers are played out (Edwards 1979, Dahrendorf 1959, Marx 1970/1867). Owners desire maximum profit and therefore introduce measures to minimize labor costs and increase production. Workers, on the other hand, strive to obtain maximum wages and control over the intrinsic conditions of work (e.g., tasks, pace, hours) (Montgomery 1979, Thompson 1967). The conflicts are played out in the work place, as each group strives to maximize its own interests. I show below that workers and owners used the organization of work, specific to the Fordist approach, to advance their individual and collective interests. These efforts entail the tactical use of bureaucracy, scientific management, and large organization size to advance each group's power in the work place.

Bureaucracy

Edwards (1979) argues that the bureaucratic approach to

organizing production sharply differentiates 20th century production from the craft approaches of the 19th century. Craft production in the 19th century was organized with "simple control" which operates according to informally negotiated agreements between owners and individual workers concerning the pace and pay of work. Often owners worked side by side with workers, cultivating the loyalty of workers to the entrepreneur and the enterprise, and thereby minimized the conceptual division between the owner and worker.

Edwards (1979) argues that under simple control, owners' authority rested chiefly on a combination of coercion and charismatic (entrepreneurial) authority. Coercion compelled workers to labor because they were either threatened with physical harm or expulsion from the company. Charismatic authority compelled workers to labor because of their commitment to the entrepreneurial spirit of the employer. While Edwards analyses simple control in a "top-down" analysis of power, Haydu (1988) shows that "bottom-up" power also is extended to workers under simple control because it enabled workers to develop tactics to protest work conditions particular to the craft approach to production. In the case of the machining industry, a strong craft ethic cultivated strong loyalty to co-workers, enabling workers to engage in spontaneous walkouts and strikes when owners actions were regarded as unjust (Haydu 1988).

Edwards (1979) argues that simple forms of control

extended into early experiments in large factory mass production, but were abandoned primarily because of their relative ineffectiveness at profitably controlling workers in complex large scale endeavors. Initially, large factories were hierarchically organized to operate under a system of internal contracting, where foremen operated as independent entrepreneurs who contracted for the use of the factory owner's property. Because foremen had no stake in maintaining equipment, this wreaked a great toll on equipment in these early endeavors at mass production. And because these organizations rested on simple forms of control (with coercive foremen replacing coercive owners), workers could use the same simple forms of control developed under craft methods of production (Edwards 1979:34).

The heart of Edward's argument is that bureaucratic organization, introduced in the early 20th century, provided owners with a more viable means of controlling workers, as well as foremen, maintain equipment better and produce stable patterns of production. The legal-rational basis of authority that underpins bureaucracy overcame the problems involved in using simple control in these large organizations, such as the need to rely on excessively coercive shop foremen. The formal rules of bureaucratic organization produced a more subtle means of gaining worker acceptance of work conditions because it provided a rational basis that obscured coercive elements of work (Edwards 1979:151). Promotions and small incremental

raises, for example, provided workers with a false sense of personal advancement that is impossible under simple control with its sharp division between owners (the controllers) and workers (the controlled). Bureaucracy makes everyone in the organization appear to be both controller and controlled, as all members of the organization submit themselves to the same system of impersonal rules. As Richard Edwards explains:

Above all else, bureaucratic control institutionalized the exercise of capitalist power, making power appear to emanate from the formal organization itself...."Rule of law" - the firm's law - replaced rule by supervisor command (Edwards 1979:145).

Edwards ignores, however, the ways in which bureaucracy enabled workers to advance their power under Fordist production. Because Edwards places too much emphasis on the advantages bureaucracy offers managers and owners, he ignores the ways in which workers used bureaucracy to advance their own economic interests. For example, rigid job definitions and classifications were not desired by owners. Unionized workers demanded these job definitions to enable them to negotiate job security, as well as restrict the number of job tasks workers would be demanded to perform (Montgomery 1979).

Workers also used managerial imposed rules as a means of disrupting and limiting production, again undermining the profitability of the organization (Jacoby 1985). For example, production often can be made more efficient by ignoring certain rules concerning safety or outdated methods. In

normal production, unnecessary rules are ignored as a matter of practice (Roy 1955). If, however, bureaucratically controlled workers are displeased with working conditions, "work to rule strikes" allow them to disrupt production with little fear of dismissal (Jacoby 1985).

Furthermore, as the basis of bureaucratic control rests on legal-rational authority, it must allow for legalistic methods of dealing with complaints. This opened the potential for workers to tie up manager, shop steward, and worker time in grievance procedures. Finally, workers have also used the factory organization itself against management. For example, tactics such as "rolling strikes," brief stoppages scattered from line to line according to an agreed timetable, were possible only in the time oriented factory system designed for mass production (Stark 1980). The manipulation of bureaucracy became one of labor's most powerful means of reasserting control in production. Beyond simply resisting bureaucracy, workers were able to harness potential sources of power by using bureaucracy for their own interests.

Edwards (1979) argues that hierarchy and bureaucracy exist in the work place because it is profitable. Outside of the problems associated with workers' control, bureaucratic organization itself may undermine the profitability of enterprises because there are a number of dysfunctions inherent in bureaucratic organization. For example, a common bureaucratic response to crisis is to add on offices and

departments. However, offices are seldom removed from organizational structure once introduced (Blau & Meyer 1987, March & Olsen 1976). While bureaucratic organization may be initially profitable, those profits may eventually be diminished as the organization continues to expand with non-productive workers and as offices and rules remain in the organizational structure long after their functions have ceased to be of importance.

Scientific Management

Braverman (1974), like Edwards, argued that production methods in the 20th century were introduced to depower workers and lower their capabilities to resist the terms of production set by owners. Braverman, however, stressed the effects of "scientific management," which he argued depowered workers through a process of deskilling job tasks. According to Braverman, the acceptance of principles forwarded in Frederick Taylor's The Principles of Scientific Management (1964) provided the distinguishing feature of 20th century production which distinguishes it from craft production of the 19th century.

Under scientific management, each step in the production process was reduced to its smallest component tasks. Time study men, armed with stopwatches, sought to determine the optimum pace of performance through careful observation. The work place was then to be redesigned so as to best facilitate

the greatest efficiency of production. This "scientific" method made work tasks highly divided between workers, each of whom labored at simple component tasks (Braverman 1974).

Fundamental to Tayloristic ideology is the need to separate thought from execution, or mental from manual labor. This need was guided by a taken-for-granted understanding of workers' "natural" tendencies to "soldier," to restrict the pace of production (Gini & Sullivan 1989). To counteract worker soldiering, Taylor recommended minute division of labor and careful time study methods to determine the optimum pace of production. Once work became organized scientifically, Taylor believed management would have complete knowledge and control over production methods and be capable of determining the pace of production. Jobs would be "deskilled" according to Braverman (1974), and the new strata of operators would be easily replaced like cogs in a machine when they proved troublesome to employers.

Braverman's thesis, while compelling, has been subject to criticism. Stark (1980) points out that it is fallacious to think that owners were acting in a class conscious way to deskill the working class. Nelson (1991) also shows that scientific management was seldom implemented to the degree Braverman asserted it was. Nonetheless, the ideology underpinning Taylorism had a great impact on work organization and manager-worker relationships under Fordism because of the widespread acceptance of the philosophy that advocated the

removal of control from the shop floor.

But the "top-down" power that scientific management offered owners was also confronted with "bottom-up" power from the shop floor, a dimension of power relations that Braverman ignored. In Workers' Control in America (1979) Montgomery shows that workers, contrary to Braverman's thesis, were not passive recipients of the new managerial agenda. Rather they sometimes were able to resist the implementation of scientific management, as well as use the scientifically managed work place to advance their power in restricting the pace of production.

Montgomery (1979) shows that "scientifically" managing work was fraught with problems for management, largely because it relies upon the participation of workers to obtain baseline scientific data. Determining the optimum pace of production rested on the cooperation of workers in the time study phase of analysis. In fact, workers on the shop floor developed a variety of methods to bar this effort, and even used Taylor's Principles of Scientific Management as their own guide for resistance. Workers' tactics of resistance included stopping work when directly observed, running machines "dry" (thereby appearing to work when not working at all), and hiding tools (such as jigs) which simplify work tasks. Thus, in actual practice the baseline time study data often proved neither scientific nor optimum.

Burowoy's (1979) study of the Allied Machine Shop shows

a second way in which scientific management extends workers' power. Once a pace was determined and a quota set, workers had to be motivated to produce according to this prescribed pace. A variety of incentive pay systems were developed to motivate workers according to the prescribed pace, ranging from strict quota systems to simple piece work. By 1930, 56% of the employees in very large manufacturing plants (3,500+ employees) were being paid through a combination of time, piecework, and bonus wages (Nelson 1991). Incentive pay systems in the machining industry were typically structured to give workers a quota to produce two-thirds of the optimum amount determined through time study methods. Workers were then able to earn "incentive" by producing beyond the quota to the scientifically determined optimum. Depending upon the job, workers could "make out" and potentially earn one-third above their base rate of pay by producing above quota to the optimum level of production (Burowoy 1979).

Burowoy (1979) showed that wages under incentive systems were not scientifically determined, they were socially negotiated with workers who still maintained some control over whether they would or would not produce according to managements' dictates. In his study of the large Allied Corporation's machine shop, Burowoy showed the incentive system to be an effective motivator for machinists only so long as machinists perceived they were winning at the "game" of "making out." However, if workers perceived that the

"rules of the game" were structured against them, either in the pace being too rapid or pay too low, they would withdraw from "the game" and produce at a self-determined pace. Therefore, the pacing of work still did not fully rest under the prerogative of management, even when it was "scientifically" determined and compensated.

Beyond the ways in which workers were able to subvert the agenda of scientific management, the scientifically managed work place also offers distinct disadvantages in maintaining a profitable enterprise. Although scientific management was implemented to increase the efficiency of production through bureaucratic organization, it greatly increased the number of non-productive workers (Jacoby 1985). Not only did scientific management require the employment of time study men and data analysts, it also forced the creation of a number of other new positions in the factory. For example, because workers were compensated for the volume they produced, quality control employees were needed to check on the quality of the pieces. As pay systems increased in complexity, payroll departments had to be expanded. And because management was deemed to be "scientific," control rested on bureaucratic legal-rational authority, rather than simple forms of control. This required forming personnel departments to dealing with worker complaints. Thus while scientific management was implemented to increase owners' and managers' power in the work place, it also entailed the employment of vastly increased numbers of

employees working in non-productive capacities, thereby incurring new costs not required in craft production of the 19th century (Jacoby 1985).

Large Organization Size

Fordist production was introduced to capitalize on new economies of scale and was oriented to the mass production of finished products (Chandler 1990). Under Fordism, work was organized for start-to-finish production, which required large organization sizes. While large organization size facilitated the Taylorization of work and the dilution of work tasks, it also facilitated the formation of workers' class consciousness, extending worker loyalties beyond their individual occupational categories (Vanneman & Cannon 1987). Craftsmen increasingly gained an understanding that their life chances were intertwined with those of laborers. Haydu (1988), Montgomery (1979), and Gutman (1977) show that craftsmen in 19th century craft production were not inclined to support or care about the situation of laborers. But by the mid-20th century, craftsmen and laborers were striking each others, as well as for workers in diversely related occupations.

Montgomery (1979) argues that in the 19th century, control was exercised by the functional autonomy of the craftsman, relying primarily on individualistic methods of control in bargaining over pay and work conditions. In the

early 20th century, workers exerted control through craft union responses, restricting access to skilled jobs and mobilizing collective responses to insure the rights of craft union members. By the 1940s, the industrial union expanded workers' control in the mutual support of diverse trades and unskilled workers. These shifting alliances from craft to class were in part produced by the large organization sizes, which disintegrated the sharp social divisions craft workers maintained with laborers (Haydu 1988). In the mid 1950s, 35% of the non-agricultural labor force were union members (Kochan et al 1986).

Large organization size enabled workers to increase their power through new collective forms of workers' control. In 1953 alone, over 30 million employee days were spent idle because of work stoppages (lockouts or strikes) in plants that employed one thousand or more workers (Bureau of Labor Statistics 1990). Thus under Fordism, the change in workers' control shifted from individualistic or small group methods to occupational group and finally to class methods of disrupting production. In large organizations, strikes had a very powerful effect, as the financial costs of strikes were compounded by centralized production.

In summation, the Fordist approach to organizing production replaced the simple forms of control owners exercised under craft methods of production in favor of bureaucratic forms of control. Guided by Frederick Taylor's

principles of scientific management, managers designed work places to manufacture products with highly divided workers laboring at simple tasks. This highly divided work was introduced by owners to increase managerial power (operating in owners' interests) to determine the terms under which production was to take place. With the shift from craft work to mass production work, the forms of control workers exercised changed as well. While Taylorized bureaucratic organizations were introduced to depower individual workers, these organizations had the unforeseen consequences of increasing collective worker power by facilitating organized workers' abilities to disrupt production.

Technological Development Under Fordism

Technology during the 20th century was designed for the purposes of mass production (Sabel & Zeitlin 1985). Braverman (1974) argues that it was also designed to extend the deskilling process, and pays specific attention to the assembly line as a means of depowering workers.

The first assembly line was actually a "disassembly" line used in the 19th century meat packing industry. This technology served as the model for Henry Ford's Model T assembly line (Hounshell 1984). The assembly line conveyor belt was designed not only to transport materials through the production process, but also to impose a pace of work outside of the control of individual workers. The best designed

assembly line will operate at the maximum possible pace, and coupled with Taylorism, it will require individual workers to perform low-skill tasks. Assembly line technology gives managers and owners direct cost savings through technological efficiency and hypothetically greater control over their work force, as workers can be easily trained and therefore easily replaced.

Montgomery (1979) points to less recognized ways in which the assembly line allows workers to extend their power in the work place. Although assembly line work does not advance individual worker skills, it vastly increases the degree of disruption individual and collective workers can unleash in the work place. Passing incorrectly assembled parts and "monkey-wrenching" are eased with large scale assembly line work and can greatly disrupt the entire operation. As illustration, Montgomery points to an assembly line worker whose task it was to drill three holes in a part as it passed his station. This creative worker found it easier to drill one hole incorrectly and chalk mark the part for further work off the assembly line (by another worker) than to drill three holes correctly (Montgomery 1979).

Hounshell (1984) also argues that workers' ability to disrupt production made the initial implementation of the assembly line problematic. One of the most remarkable aspects of Henry Ford's assembly line is not the technology itself (as this had existed prior to his Model T factory) but rather the

successful implementation of the assembly line in the production of a commodity as complex as the automobile. In part, the success of the Model T assembly line rested on the previously unheard of \$5.00/day salary workers received (Hounshell 1984). Because each step in the process of assembly line work is closely coupled with the preceding steps, workers must perform their respective tasks diligently. A high rate of pay was one means of producing compliant worker behavior, even when they were confronted with an intrinsically alienating task such as assembly line work.¹ Therefore, like the organizational development of Fordism, technology also changed (and in some cases extended) workers' power by increasing their collective abilities to disrupt production when dissatisfied with terms upon which production was to take place.

Noble (1984) extends Braverman's thesis, arguing that technology was designed and implemented to extend owners' and managers' control of workers in 20th century production, and to give owners increased power in determining the terms upon which production would take place. As machines were developed

¹ Similarly, Stephen Marglin (1982) shows that the industrial revolution relied less on technology than on owners' abilities to organize workers to labor on technology. Awkright's "water frame," the technology which is often heralded as the invention which started the industrial revolution, was in fact made 60 years after a very similar technology invented by John Wyatt. The reason for Wyatt's failure and Awkright's success rested in their abilities in disciplining workers to labor consistently and diligently on the new technology.

to incorporate computer technology, technologies which facilitated the Tayloristic agenda of removing control from the shop floor were favored over those technologies which relied upon workers' craft skills.

Noble (1984) shows that in the machining industry, managers and engineers worked together to design and implement those types of technologies that took control off the shop floor and away from workers. For example, Noble shows that numerically controlled (NC) and computer numerically controlled (CNC) machines were favored over record-playback machines, which literally recorded and replayed the actions of skilled machinists. Although record-playback machines in the 1950s and 1960s were less complicated, more dependable, and probably more profitable in normal practice, they had the distinct disadvantage of leaving power in the hands of the machinists on the shop floor. Record-playback technology was therefore abandoned in favor of more complicated and less dependable technologies (Noble 1984:84).

While NC machines were developed in the 1950s and CNC machines in the 1960s, these technologies were not in widespread use in the machining industry until the mid 1970s (Cornfield 1992). Thus most machinists until the 1970s continued to work primarily on manual machines. During the 1970s, however, machining work began to include computer controlled machines on a widespread basis.

Noble (1984) argues that the designs of machine tools

were guided by the hope of managers and engineers to produce an automatic (workerless) factory. As evidence, Noble points to the trade journal American Machinist which published a number of articles in the 1960s dedicated to the prospect of technological advance leading to the automatic (workerless) factory. At the same time, trade journals and manuals for CNC machines were claiming that the need for craftsmen was diminishing, as numerically controlled machines were so "fool proof" that monkeys could operate the machines just as well as people.

Noble argues that, like the assembly line, NC and CNC offered management a hope that they could technologically control the pace of production. In the early phases of machining production, the feeds and speeds on manual machines were determined by machinists turning dials and pulling levers, leaving machinists in control of the pace of production. Once NC and CNC machines were set up for operation, machining was largely reduced to placing parts on machines and hitting a start button. So long as managers could control writing the NC and CNC programs, they could determine how fast the machine would bore and grind the materials. Theoretically, machinists would be reduced to unskilled operators, performing simple operations of putting on castings and taking off finished parts (Shaiken 1984).

While CNC machines were designed to remove control from the shop floor, Shaiken (1984) shows that machining work

invariably involves some degree of task uncertainty which prevented the full transplanted of control into the hands of managers and owners. Materials vary in hardness and therefore operators may be required to slow feeds and speeds to get the desired finish or to keep the machine from being damaged. Also, computer programs often have initial bugs or develop bugs that can cause a great deal of damage to expensive machinery if left undetected. Machinists must be able to detect these bugs and be able to stop production in the early moments of disruption, or valuable machinery can be put out of commission. Therefore, NC and CNC machines are designed with emergency stop buttons, as well as direct controls (often in a locked panel) which can reduce the speeds of the machine. Machinists have sometimes used these controls as "job security switches" because they allow them to slow the pace of production (Shaiken 1984).

In his case study A Machinist's Semi Automated Life (1984) Tulin shows that CNC machine tools were not fool proof, and that CNC machining requires considerable skill. Even when CNC machine tools are set-up for production, they are prone to have bugs that require the immediate attention of workers, and workers must be able to alter programs when faced with variations in materials. Tulin forcefully shows that CNC machines were introduced to manufacturers as technologies that they could be operated by low-skilled workers, but in fact CNC machining requires considerable skills on the part of workers.

Jobs in the machining industry never became "deskilled," despite owners' desire to do so. For this reason, machinists were still able to exercise the power in the work place because of owners' needs for skilled workers.

As mentioned earlier, advanced technologies such as NC and CNC machines were necessarily complicated and expensive because these technologies were designed to be controlled off of the shop floor (Noble 1984). Like the assembly line, NC and CNC machinery are very prone to worker sabotage. Shaiken's (1984) study of machinists found a strong relationship between machinist's level of unhappiness and the number of problems experienced on CNC machines. Even if CNC machines deskilled workers and could technologically dictate the pace of production, workers still maintained some power in negotiating the terms of production.²

In summation, technology, like organization, was introduced by owners and managers under Fordism to deskill work tasks and depower workers. These technologies were not introduced as a class conscious effort of capitalists to dominate the working class, but rather were introduced to increase the profitability of individual enterprises by decreasing worker power in negotiating the terms under which production would take place. The effects of technology,

² For example, CNC machines theoretically ended the need for incentive pay systems, as there are very few worker operations involved. However, under Fordist production, unions often negotiated that CNC operators were to be paid incentive rates.

however, did not depower workers, and in some ways increased their power. Advanced and sophisticated technologies are expensive, and damage to these machines can halt production for long periods of time. Thus worker sabotage or neglect of these machines can have a profound impact upon the profitability of the enterprise. In order to protect machines from sabotage or neglect, workers were able to force owners to provide relatively high wages.

In the 19th century, workers' control relied primarily on the individual's possession of craft skills as he or she worked in small organizations with simple technologies. Fordist enterprises emerged during the 20th century to exploit economies of scale by mass producing commodities in start to finish production. While technology and bureaucratic organization were used to mass produce commodities at a good profit, they were also designed by owners and managers to undermine the methods of control exercised by craft workers of the 19th century. Workers responded by developing new methods of control specific to Fordism in order to assert power in determining the terms upon which production would take place. The question for contemporary workers is how the recent changes in the use of organization and technology affect their power and methods of control in the emerging post-Fordist enterprises.

Post-Fordism

Defining Post-Fordism

There is general agreement among social scientists that Fordist approach to production has declined during the decades of the 1970s and 1980s (Hirst & Zeitlin 1991). Two terms are commonly used to describe the new approach to production replacing Fordism: "post-Fordism" and "flexible specialization." In general, the term "flexible specialization" is used when analysts want to connote a positive context, emphasizing the innovating potentials and adaptability of new enterprises to capitalize on expanding markets for customized goods. The concept "post-Fordism" is generally used when analysts intend to critique the changes in production, because their analysis shows that these changes alter class relations in ways that hurt workers (Hirst & Zeitlin 1991).

I choose to use the term "post-Fordist" to describe the current features of production because I believe this term more accurately captures the significance of the decline of Fordism, as well as the complexity and variety of the current structure of manufacturing work. While flexible specialization is one important component of post-Fordism, the flexibly specialized firm is only one particular type of enterprise operating in contemporary production. Post-Fordist work also involves new approaches to mass production, such as

the practice of outsourcing to independent companies for mass produced component parts (Sayer 1989, Williams et al 1987).

In the previous sections, I outlined the distinctive features of Fordism. Post-Fordism, I define in terms of the ways in which it breaks from this previously dominant approach to production. These features include the decline of large factories designed for start-to-finish production, growing importance of small post-bureaucratic organizations, growing importance of small batch production, replacement of rigid technologies with flexible technologies, the emergence of a new managerial consciousness, and declining unionization.

One the most important events signalling the emergence of post-Fordism was the wave of factory closures which occurred in the 1970s and 1980s, and the subsequent restructuring of enterprises to smaller organization sizes. The closure of large factories led some analysts to theorize a "deindustrialization of America" (Bluestone & Harrison 1982). Although the service sector is of increasing relative importance, manufacturing enterprises remain a vital component of the American economy (Kutscher & Personick 1986). Counter to the deindustrialization theories, in 1990, over 19 million Americans were employed in the manufacturing sector, in comparison to 20 million in 1970 (Kutscher and Personick 1986, County Business Patterns 1992). Previous research has shown that the loss of the 1 million manufacturing jobs has had a decidedly negative impact upon workers and communities

(Holland 1989, Bensman & Lynch 1987, Bluestone & Harrison 1982, Lynd 1982). However, I argue that to view the United States as being "deindustrializing" (Bluestone & Harrison 1982) or becoming "post-industrial" (Bell 1973) is to ignore continued employment of the 19 million workers in the manufacturing sector.

Since 1970, increasing percentages of manufacturing workers are employed in the smaller manufacturing enterprises and these small enterprises are replacing the large Fordist factories which closed during the "deindustrialization" wave (Brown et al. 1990). The small company, unencumbered by bureaucratic organization, is one of the features of post-Fordist production. With the global production of goods, and practices such as outsourcing for component parts, fewer companies engage in start to finish production of commodities (Henderson 1989), another feature of post-Fordism. There are indications that American companies are shifting away from mass production, which exploited economies of scale, to a flexibly specialized orientation to production designed to exploit economies of scope (Chandler 1990). Growing attention is also being paid to emerging post-bureaucratic organizations (Tucker 1992), which may be able to adapt more quickly to changing markets than slowly adapting bureaucratic organizations.

There is widespread acknowledgment of the importance of computers and robotics in the work place, but the ways in

which these new technologies are being implemented vary. On the one hand, Howard (1985) argues that computers are being used to structure the "brave new work place," and to extend owners' control to degrade work tasks. Zuboff (1988), on the other hand, argues that computers are often being used to degrade tasks, but that is a result of a cultural lag. Because managers desire to maintain their position under hierarchical control and because workers resist engaging in "hands-off" production, the positive potentials of computer technology are being resisted or perverted. At the same time, Zuboff also shows that in many ways computers are upgrading the intrinsic experience of work, once workers and managers acclimate themselves to the new imperatives of computerized work. Zuboff's analysis suggests that while some of the present day technologies were developed under Fordism to deskill tasks and depower workers, the computer technologies which emerged in the post-Fordist era may be being used in new ways which gives control back to workers.

Relationships between managers and workers are also changing in ways counter to the Tayloristic practices which advocated the rigid separation of thought from execution. A new "consciousness of manufacturing" is emerging as managers abandon Taylorism (Thomas & Kochan 1992).³ "Total Quality

³ As an example of changing managerial philosophies, the MIT professor W. Edwards Deming recommended worker participation in decision making practices in the 1950s. This advice fell on deaf ears in America but was used extensively in Japan. Currently Deming's approach is now widely regarded in American managerial

Management," "Quality Circles," and "Just In Time Production" are just a few of the new approaches to production that are increasingly being used to in the work place (Lazonick 1992, Schonberger 1982). As new managerial practices advocate worker participation in decision making aspects of production, this indicates a shift away from Taylorism as practiced under Fordism.

Chandler (1990) argues that mass production was introduced in the early 20th century to capitalize on new markets of scale. Chandler further argues that these markets are now diminishing in importance, while new markets for specialized goods are expanding. Because production is shifting to small batch production, suited to economies of scope, technological development and use is increasingly guided by needs for flexibility production rather than rigid production. Rigid technologies are well suited to markets for mass production, but are not well suited to accommodate changing customer demands and small batch production. Flexible machines, while suited for customized production, also increase the need to employ workers capable of quickly adapting machines to new specifications and new product lines.

Another important change signalling the emergence of a post-Fordist era is the increasing geographic distribution of the production process. "American" companies are less likely

circles as one of the important factors in the rise of Japanese industry (Schonberger 1982).

to be relying exclusively upon American labor as they were in the Fordist era, and are now more likely to be enmeshed in a global web of production (Reich 1991). Whereas prior to the 1970s, the relationship between big business and government was mutually compatible, in the post-Fordist economy this is not necessarily the case (Nash 1987, Habermas 1973). Following Gramsci, Nash (1987) argues that hegemonic control in the work place may be more fragile in the post-Fordist era, because "Americanism" is less closely tied to "Fordism."

TABLE 1.1: SUMMARY OF THE DIFFERENCES BETWEEN FORDIST AND POST-FORDIST ERAS

<u>FORDIST ERA</u>	<u>POST-FORDIST ERA</u>
U.S. Hegemony of the Global Economy	International Competition
The American Company	The Global Corporation
Mass Production/Economies of Scale	Small Batch Production/Economies of Scope
Start to Finish Production	Outsourcing and Component Manufacturing
Use of Large Bureaucratic Organizations	Use of Small "Post-Bureaucratic Organizations"
Rigidly Specialized Machinery	Flexibly Specialized Machinery
Tayloristic Management Ideology	New Managerial Consciousness
Unionized Labor	Non-Unionized Labor

The behaviors of workers also suggest an abandonment of the types of workers' control developed under Fordism. One important change is signalled by dramatic declines in union memberships. In 1960, 35% of all non-agricultural workers belonged to a union, but by 1990 that percentage was halved to 17% (Reich 1991). The declining percentage of workers belonging to unions is, in part, a result of the increasing numbers of workers employed in white collar work. White collar workers have traditionally been less inclined to join unions (Heckscher 1988). However, the actual number of workers joining unions has also significantly declined during the decades of the 1970s and 1980s. Union membership peaked in 1974, when 22 million workers belonged to unions, but by 1986 only 17 million workers belonged to unions (Clark 1989). Organized labor, one of the strongest means of workers' control under Fordism, is in a state of crisis and is having less influence upon the production process in the post-Fordist work place (Heckscher 1988, Kochan et al. 1986).

In summation, Table 1.1 shows that the post-Fordist era is signalled by changes in markets and the United States position in the global economy, as well as the combined changes in organization, technology, and owner-manager-worker relationships. Post-Fordism is defined in opposition to the concept of Fordism, and as an emerging approach to production, its form is currently evolving.

While there is general consensus that changes described above have occurred, there is much less agreement on the meanings these changes have for the experience of work and the exercise of power in the post-Fordist work place (Hirst & Zeitlin 1991). I discuss below two theoretical orientations to post-Fordism, craft control theory and fragmentation theory, and their arguments concerning control and power in the work place. On the one hand, the craft control theory forwarded by Piore and Sabel (1984) stresses the increasing autonomy and skills individual workers exercise in the post-Fordist work place. They argue that the increase in skill demands increase worker control in the work place, returning workers to a position of power similar to that held by 19th century craftsmen. On the other hand, Lash and Urry's (1987) fragmentation theory stresses the declining class capacities of workers in the smaller geographically dispersed post-Fordist organizations. Therefore while these two general sets of theories agree that work is being restructured, the implications concerning power in the work place diverge markedly. By studying the experiences of machinists in the case study site, I will provide information concerning which theoretical projection more closely matches the experiences of workers laboring under the new post-Fordist approach to production.

Craft Control Theory and Post-Fordism

Possibly the most optimistic interpretation of the emerging post-Fordist era is represented in The Second Industrial Divide (Piore & Sabel 1984). Piore and Sabel argue that markets for mass produced goods are breaking down and markets are opening for more specialized goods. Therefore there is a growing demand for workers who are able to exercise craft skills in the production of wider ranges of commodities outside of the system previously designed for mass production. To exploit these new markets, Piore and Sabel advocate organizing work and using advanced technologies in a strategy of flexible specialization:

[Flexible specialization is] a strategy of permanent innovation: accommodation to ceaseless change, rather than an effort to control it. This strategy is based on flexible - multi-use - equipment; skilled workers; and the creation, through politics, of an industrial community that restricts the forms of competition to those favoring innovation. For these reasons, the spread of flexible specialization amounts to a revival of craft forms of production that were emarginated at the first industrial divide (Piore & Sabel 1984:17).

Whereas Fordist mass production took place in centralized factories operating under a Taylorized system, flexibly specialized small batch production occurs in smaller organizations located in emerging industrial districts. Piore and Sabel argue these industrial districts will be guided by a community ethos which supports industrial innovation and the economic livelihood of workers:

Short-term employment security is provided not by seniority rules, as in mass production, but rather by a hiring hall system....It serves the employer by ensuring that the requisite skills are always on call. It serves the worker by ensuring that available work is rationed equally among the members of the community - under conditions that make allocation of work by seniority meaningless. This principle of equal allocation of work is modified only by communally sanctioned judgments of equity: in periods of adversity, workers with large families, extraordinary medical expenses, or other exceptional needs may be given priority in job assignments (Piore & Sabel 1984:116).

The above quote is specifically describing construction work. However, Piore and Sabel later liken work in the construction trades to the types of work involved in the skilled machining trades (1984:120). The community ethos is further enhanced by cooperative owner-worker relationships that replace the antagonistic relationships previously experienced under Fordist mass production:

....flexible specialization opens up long-term prospects for improvement in the condition of working life - regardless of this system's effect on the balance of power between currently existing organizations of capital and labor...Mass production's extreme division of labor routinizes and thereby trivializes work to a degree that often degrades the people who perform it. By contrast, flexible specialization is predicated on collaboration. And the frequent changes in the production process put a premium on craft skills. Thus the production worker's intellectual participation in the work process is enhanced - and his or her role revitalized (Piore & Sabel 1984:278).

Because workers exercise increasing amounts of skilled work,

workers are hypothesized to have significant power in determining the terms upon which production will take place. So much power, that at times it appears Piore and Sabel suggest that workers' power in the post-Fordist work place is placed nearly on a level footing with that of the employer:

Those who violate the norms of the craft community may be informally but effectively disciplined: the employer who sends back too many workers referred by the hiring hall will begin to receive only the poorest craftsmen; the worker who refuses too many assignments will end up at the bottom of the list for jobs. If provoked, the craftsmen will simply pick up and walk off the job as a group; their capacity to do so always stands behind their voiced complaints (Piore & Sabel 1984:117).

It is important to note that Piore and Sabel (1984) are pointing out the positive potentials of post-Fordism, not that this is what is actually happening. They also recognize that in order to produce such cooperative worker-owner relations involves government support of industry that promotes flexible specialization and innovation (1984:265). By studying the experiences of machinists in the socio-political context of their community, I will be able to examine how closely post-Fordist work exemplifies the positive potentials advanced by this craft control theory.

Despite the popularity and influence of Piore's and Sabel's theory of the second industrial divide, it has also been subject to criticism. A number of potentially negative aspects of flexible production are left unexamined by Piore

and Sabel, leading some to label their analysis as a "romanticization" of the restructuring of production (Sayer 1989, Williams et al. 1987). Flexibility is one of the great catchwords managers use under post-Fordism, but as Boyer (1988:299) points out, flexibility "is sometimes a euphemism for downgrading most of the rights of wage earners." And Pollert (1988) criticizes the "flexibility" discourse for its hegemonic implications:

In each approach, all labour flexibility is celebrated as work enhancing, while decentralizing and fragmentation are embraced. As such, the informal and secondary economies are legitimized, and the significance of the disjuncture between organized, collective and directly employed labor, and isolated, atomized production is masked" (Pollert 1988:71).

Others argue that well documented changes in the experience of work do not support flexible specialization as increasing worker economic prosperity. For example, the increasing prevalence of part-time work, freelancing, subcontracting, all potentially reduce worker earnings, especially when employee benefits are considered (Pollert 1988, Offe & Heinze 1992). Recent examinations of the informal economy show that non-paid work activity is increasing as a result of restructuring production. As examples of non-paid work activities, workers are now often responsible for advancing their education (and skills) on their own time, earnings are used for personal investment in tools to be used on the job, and participation in self-help

groups is increasing as company-sponsored benefits for professional services decline (Offe & Heinze 1992, Mingione 1991). This suggests that post-Fordist production is increasing the demands upon workers, without the compensation they would have received for these activities under the Fordist approach.

This study opens craft control theory to critical examination. The emerging forms of production are studied to determine the degree to which they are flexibly specialized and using craft methods of production. Piore and Sabel repeatedly stress that flexible specialization is only a possibility, not a necessity. For example, small firms may be engaging in very limited forms of rigidly specialized mass production. This requires an examination of the types of firms that are replacing the large factories that closed during the 1970-1980 period of deindustrialization. I also examine whether flexibly specialized firms are operating on the basis of the community ethos postulated in The Second Industrial Divide, which asserts a relatively equitable balance in power between workers and owners under post-Fordism.

Fragmentation Theory and Post-Fordism

Fragmentation theory is forwarded primarily by marxian analysts who assert that post-Fordism undermines worker power, primarily due to the global production of commodities. As

production is carried out in smaller manufacturing companies spread throughout the United States and the world, worker power is decreased and working class life chances are thereby diminished (Scott & Storper 1986). Lash and Urry's The End of Organized Capitalism (1987) examines the negative implications of post-Fordism and global production. I explore the implications of their argument below, concentrating on the issue of worker power in the work place under post-Fordism and how fragmentation theory differs from the optimistic account presented in The Second Industrial Divide.

In The End of Organized Capitalism, Lash and Urry argue that the post-Fordist approach is evidence of a new stage in the development of capitalism, a stage of "disorganized capitalism" which frees industry from many spatial constraints of organized capitalism:

....new spatial configurations are exceptionally significant and result in the constant revolutionizing of the spatial constraints of production...[and involves]...the tendency for capital to see-saw from place to place seeking locational advantage, resembling a plague of locusts, settling on one place, devouring it, moving on to a new place, while the old restores itself for another attack..[and]...The tendency for capital to be come spatially indifferent, through reducing its dependence upon particular raw materials, markets, sources of energy, supplies of skilled labor, and so forth (Lash & Urry 1987:86).

Lash and Urry agree that in some industries skills will become moderately more important as workers increasingly need to exercise craft skills to produce the variety of commodities

sought by members of society socialized in the fickle consumption conscious post-modern culture. However, while individual members of the working class may have more control in the work place, the primary effect of disorganized capitalism is to reduce the potential of the working class members to exert their collective wills in the work place and the political arena.

One overriding consequence of these spacial changes has been (and this is perhaps the key explanatory factor, though not ultimately the crucial determinant, of disorganized capitalism) the decline of working class capacities. "Class capacities" are a matter not just of the numerical size of a social class but the organizational and cultural resources at its disposal. Not only has the size of the working class and especially its "core" declined in disorganized capitalism, but spatial scattering has meant the disruption of communicational and organizational networks, resulting in an important diminution of class resources. If class capacities of the proletariat have been diminished in disorganized capitalism, the size and resources of the professional-managerial strata, or "service class," have enormously increased (Lash & Urry 1987:11).

Finally, outside of relations in the work place, Lash and Urry point to the broad post-modern cultural transformations that serve to fragment working class power. Post-modernism has the effect of undermining a class orientation to social relations by promoting diverse alliances with wide varieties of interest groups that cut across class lines. Environmental organizations, women's rights organizations, etc. may benefit special interest groups, but at the same time they dilute the

power of working class groups and draw attention away from the salience of class as a primary determinant of social relations. Beyond this, life in post-modern culture involves the experience of absorbing wide varieties of alternate understandings of social events from "infotainment" shows, newspapers, radio, etc. This has an effect of saturating individuals with such a wide variety of perspectives that no one perspective can reasonably be treated as "truth." With no absolute truths, a cynical social climate may prevent collective action to change existing conditions (see also Gergen 1988).

For Lash and Urry, the chief effect of disorganized capitalism (of which post-Fordist production is a vital component) is a decline in the workers' class capacity to advance their collective interests. As class action constituted the primary means of exerting control under Fordism (Montgomery 1979), the shift to post-Fordism works against the interests of members of the working class, even if they are exercising more craft skills than under post-Fordism. Where Piore and Sable see the emergence of communitarian industrial districts, Lash and Urry see a one sided relationship that allows capital to move from community to community with fewer and fewer legal and social constraints.

Critiques of fragmentation theory are primarily leveled at the dogmatic approach many marxian theorists use in their analyses of post-Fordism, which prevents more value-neutral

observations of existing conditions, and their failure to incorporate an understanding of the increasing importance of worker craft skills. Hirst and Zeitlin (1991) argue that Marxist theories of post-Fordism often rely on unsystematically gathered bits and pieces of worker experiences to support the theory of an increasing proletarianization of work consistent with traditional Marx's theory of historical capitalism, while ignoring liberating aspects of post-Fordism such as craft skill utilization. The British journal Marxism Today, for example, is particularly criticized in its over-reliance on traditional Marxist orientation in explaining the changing approach to production:

Marxism Today is happy to bowdlerize the concept of flexible specialization as an ideal type of manufacturing whilst studiously ignoring what its exponents have to say about the routes to the construction an appropriate social context for this type of production. [This] analysis of "New Times" is little more than pop sociology.... (Hirst & Zeitlin 1991:11).

I presented the above discussion of The End of Organized Capitalism primarily because Lash and Urry present a carefully designed cross cultural analysis of post-Fordism. This study is one of least dogmatic and most important of the marxian theories of post-Fordism. Because of its macro level analysis, however, the study offers little analysis of worker experience in the post-Fordist work place. While recognizing the growing importance of movement of capital, the lack of analysis at the firm or community level leaves unanalyzed the

role of community dynamics and increasing craft skills which are potential buffers to the savage movement of enterprises in the post-Fordist era. By examining work experiences of machinists in a post-Fordist industrial district, this study opens this ignored aspect of fragmentation theory to analysis.

Summary

The Fordist era emerged during a period of United States' history when the United States maintained hegemonic control of the global economy with mass produced goods. The post-Fordist era is emerging as international competition is increasing and as industry in the United States is restructuring to exploit global labor markets and capitalize on expanding markets for specialized goods.

The conflict relationship between workers and owners under Fordism produced a degradation of the work experience. Because of workers' abilities to adapt and control the organization and technology introduced under Fordism, they were able to extend their power and advance their economic livelihood.

Post-Fordism emerged in the 1970s and opens new questions concerning power in the work place. While there is general agreement that industrial production in America is shifting away from centralized mass production towards what I term the post-Fordist approach to production, there is less understanding of the implications this has for worker power in

the work place.

Craft control theory projects that the growing need for skilled workers will increase workers' power in the work place. On the other hand, fragmentation theory foresees the opposite conclusion. As work is scattered in small enterprises, workers' power will decline as a result of the declining effectiveness of methods of control advanced under the Fordist approach. By studying the experiences of machinists in a case study, this dissertation will contribute research concerning how workers' and owners' power are exercised in the emerging post-Fordist enterprises.

CHAPTER 2

METHODOLOGY

To examine the shift to the post-Fordist approach to production influences control and power in the work place, I address two general issues. First, how are the changes associated with post-Fordism affecting the opportunity and economic rewards for machining work? Second, how does post-Fordism affect the intrinsic nature of work and the ways in which owners and workers assert their individual and collective wills in negotiating the terms of production? This chapter details the methods that are used to answer these questions.

Machinists are the backbone of any industrial society. They operate the machines that bend, cut and shape metal into precise shapes. They not only make machines, but they also make the machines that make machines. Almost all products produced in an industrialized society are in some way the product of machinists' work. Machinists are especially important to the study of post-Fordist production because they labor on the advanced manufacturing technologies, and because their industry has been restructured to the smaller manufacturing enterprises common under post-Fordism.

Two sources of information provide data on how the use of organization and technology affect the work experiences of machinists: (1) County Business Patterns statistics and (2) interviews with workers, employers and community leaders in a case study community. I use the Census Bureau's County Business Patterns (CBP) for the period of 1960 and 1990 to assess national changes in the employment opportunities for machinists and its effect on machinists' earnings. As I discuss below, County Business Patterns provide one of the best sources of secondary data on national changes in work organization, pay and employment opportunities for workers such as machinists. However, these data do not include other important information such as health insurance, vacation pay and overtime pay. To explore these issues and changes in the intrinsic nature of work and workers' control in the work place, I conducted 44 interviews with workers, employers, and community leaders in a case study community. The primary purpose of these interviews was to assess how work and control over work changed during the shift to the post-Fordist approach to production.

In this chapter I first discuss my use of County Business Patterns data. I then discuss the interview methods I used to examine work experience under post-Fordism and how it has affected the control over work in several enterprises in a case study community. This includes detailed discussions of the interview guide, interview procedures, sampling

strategies, sample sizes and the criteria used to select the case study site.

Measures of Employment Opportunities

I examine data from County Business Patterns between 1960-1990 to assess how the recent changes in organization and technology associated with post-Fordism affect employment opportunities and earnings for machinists at the national level. Reliable CBP data have been compiled since 1947, documenting trends in employment and payrolls for the major industrial classifications established by the Standard Industrial Classification (SIC) Manual. Since 1974, CBP data have also documented payroll and employment by enterprise size. Because post-Fordist organizations tend to be smaller than Fordist organizations, these CBP data allow me to compare opportunities for employment between these two approaches to production. By dividing yearly payrolls by the number of employees in each enterprise size classification, I was able to determine the average employee pay by enterprise size.

This allowed me to compare the earnings of workers in the smaller enterprises (typical of post-Fordism) with the larger enterprises (typical of Fordism). These comparisons are performed in two ways. First, I examine pay and employment opportunities with a cross-sectional analysis, comparing Fordist type enterprises with post-Fordist type enterprises in

given years. I then use a time series analysis to compare trends in earnings and employment opportunities from 1974-1990, the transition period from Fordism to post-Fordism.

I define machining work in accordance with the standard industrial group 35, which the Standard Industrial Classification (SIC) Manual (1987) defines as:

...establishments engaged in manufacturing industrial and commercial machinery and equipment and computers. Included are the manufacture of engines and turbines; farm and garden machinery; construction, mining, and oil field machinery; elevators and conveying equipment; hoists, cranes, monorails, and industrial trucks and tractors; metalworking machinery; special industry machinery; general industrial machinery; computer and peripheral equipment and office machinery; and refrigeration and service industry machinery... (1987:199).

This classification encompasses a number of diverse types of machining production. Pilot study interviews with workers revealed that machinists commonly move from one industry to another within group 35, depending upon opportunities in their labor market areas. For example, machinists often worked in both the machine tool industry of metal-cutting (SIC code 3541) and metal-forming machine tool manufactures (SIC code 3542), moving from one company to another. Within each company, however, workers reported performing similar types of tasks despite producing different types of commodities. Because my aim is to analyze employment opportunities and earnings for workers with machining skills, I capture most of those opportunities for machining work by defining machining

broadly with SIC code 35.

Limitations in the Use of County Business Patterns

Technically, SIC major group 35 is a measure of all people employed in the machining industry, not only machinists. Data therefore include all people employed in the enterprises which make the previously listed commodities, including non-production employees such as foremen, secretaries, sales people and managers. CBP data therefore do not indicate the absolute number of machinists (the workers operating the machines) employed. While this is an unavoidable limitation, interviews in the case study community site provide a further data which enable additional empirically grounded assessments of how employment opportunities and earnings have changed during the restructuring to the post-Fordist approach.

The Case Study Site

Both craft control and fragmentation theories view community dynamics as being essential to understanding the dynamics of post-Fordism. On one hand, craft control theories see the potential for emerging post-Fordist communities to operate according to a community ethos that benefits both workers and employers. In contrast, fragmentation theories see a one-sided relationship between owners and communities,

with workers losing power both inside and outside of the work place. By interviewing workers, owners, and community leaders in a case study site, I have been able to examine the social context of community life which has important implications for power in the work place (Hall et al. 1987, Gaventa 1980, Hareven & Langenbach 1978, Pope 1942).

In selecting the case study site, I endeavored to find a community that mirrored changes which occurred at the national level during the 20th century, including the rise of Fordism, the wave of factory closures in the 1970s-1980s, and the subsequent restructuring of production to accommodate the post-Fordist approach. "Machinist Valley" (a pseudonym) proved an excellent site for case study because of its long dependence upon the machining industry. The six large machining enterprises which previously operated in Machinist Valley were organized under the Fordist approach to production. The closure of these companies in the early 1980s, and the subsequent emergence of a number of small post-Fordist enterprises, offered an opportunity to compare the experiences of Fordist workers with the experiences of post-Fordist workers.

I provide much of the following description of Machinist Valley without specific citations of sources. While unfortunate, this is necessary to protect the identity of workers, owners and enterprises in this study. All of the information presented below, however, is drawn from sources

such as local newspaper reports, reliable publications concerning the history of Machinist Valley, and company records.

Machinist Valley is located in a rural, geographically isolated area in the Northeastern United States, and constitutes a relatively isolated industrial district in which workers can market their skills. In 1992 Machinist Valley the population was 91,000 people, in a geographic area of 1500 square miles (U.S. Census 1990). Water falls produced by steep drops in altitude in the Valley offered great potential for water powered factories, and like other places in New England in the 19th century, a number of textile mills, lumber mills, and shoe factories were built on the banks of its rivers. These early factories shifted the economy of the Valley from an agricultural base to its dependence upon industrial employment. The geographic migration of the textile industry to the South during the early 20th century left the Valley chiefly dependent upon the machining industry, and until the 1970s no subsequent type of employment has been as important to the communities in Machinist Valley as the machining industry.

Most of the major Fordist machining companies in the Valley began operation between 1870-1890. In the late 19th century, each of the six major machine shops employed from 20-50 employees. There is little information on these early small enterprises in Machinist Valley, however sales records

and payroll records offer some insight. One company that was to become one of the Valley's largest makers of machine tools produced only 35 turret lathes in 1891 and 125 in 1895. Thus, this small batch production probably occurred according to craft methods common in the 19th century.

By 1920, however, work in the machining industry became a major avenue for employment in the Valley. Company records reveal one firm employed over 600 workers on the shop floor, another machine shop employed nearly 700 workers, and at the north end of the Valley another machining company employed 150 workers. Productivity grew during this period as well, and because of the high quality machinery produced in Machinist Valley it gained an international reputation as the home of some of the most highly skilled machinists in the world.

These initially small machine shops continued to increase in size when the textile industry moved South. By the mid 20th century the Valley depended largely upon six large machine shops which, together, employed over 4500 people. Workers in these large machine shops produced mining equipment, compressors, hoists, and industrial machining equipment such as gear shapers, turret lathes, and grinders.

Although interrupted by the Great Depression, the expanding industrial climate in the United States from 1920-1930 and the needs generated by World War II promoted a rapid growth in employment opportunities for machinists in the Valley and the nation as a whole (Holland 1989). During the

period of 1940-1970, all of the large shops adopted and refined the Fordist methods of production, including incentive pay systems, subdivision of tasks, time study methods, and the specialization in the mass production of specific product lines such as mining equipment, machine tools, and industrial compressors.

During the 1940s, workers in the large machine shops unionized under the United Steel Workers of America and the United Machine Workers of America. Although there were a number of brief strikes from 1940-1980 in the Valley, all were settled relatively quickly and peacefully. On the whole, little labor conflict was evident in the Valley from 1940-1980. In part, overt conflict was not common because high wages were offered in these factories, secured through membership in the national unions. The costs of living in Machinist Valley were lower than that found in the machining nuclei of larger cities in the Midwest and machinists in the Valley benefitted greatly from the collective negotiations of the national unions. Wages in the machine shops were also well above those offered in the shoe shops and paper mills, so at the local level machinists were among the elite of the working class and viewed their economic situation very favorably.

Employment in the machining industry reached its highest plateau in Machinist Valley in the 1950s, and employment the machining industry remained stable well into the 1970s.

Following World War II, industry needed to be retooled, and building the interstate highway system demanded road equipment, coal mines needed mining equipment, and government military needs in the Cold War climate offered many contracts to machining industry (Holland 1989). As the machine shops in the Valley produced many of the commodities necessary to these endeavors, employment opportunities in the Valley were abundant. By 1970, the machining industry employed 47% of all of the manufacturing workers in Machinist Valley (County Business Patterns 1970).

The 1970s continued to be a time of prosperity for workers in the Valley, as the local newspaper's "1979 Salute to Progress" attested. However, shortly after the publication of this "Salute to Progress," all of the major machining companies began a protracted period of lay-offs. The cumulative effects of the layoffs in all of the major plants in the area had a profound effect on employment opportunities, especially for workers in the machining trades. The local paper reported that in October 1981, before local manufacturers began announcing major layoffs, 19 out of 20 workers in one town in Machinist Valley were employed. One year later 1 in 7 were unemployed. Table 2.1. shows the effects this period of closure had upon the structure of employment opportunities in Machinist Valley.

TABLE 2.1

Employment Opportunities for Machinists in Machinist Valley:
 Changing Size of Machine Shops* 1960-1990.

ESTABLISHMENT SIZE	NUMBER OF ESTABLISHMENTS			
	1960	1970	1980	1990
Number of Employees				
1 - 19	10	13	28	39
20 - 49	3	4	6	5
50 - 99	2	2	2	6
100 - 249	0	3	3	2
250 - 499	0	1	0	2
500+	6	5	5	0
Total # Firms	21	28	44	54
Total # Employees	n/a	n/a	5059	1978

Source - County Business Patterns (1960, 1970, 1980, 1990)

* Machinery except electrical, SIC code 35.

Table 2.1 shows that virtually all of the large machine shops disappeared in Machinist Valley from 1980-1990. It is impossible to determine the actual percentages of workers employed in each enterprise size because County Business Patterns do not offer the necessary data at the local level. But by extrapolating from the number and sizes of enterprises in Machinists Valley by enterprise size, I estimate that roughly 90% of all machinists were employed in the large (500+ employees) machine shops in 1960. By 1990 all of these shops had closed. 1980-1990 was a period of declining employment

opportunities for machinists in Machinist Valley, dropping from 5059 employees to 1978 employees in the span of eight years. With the closure of the large shops in the area, union membership also decreased greatly and in 1992 there were only two unionized machine shops in the Valley.

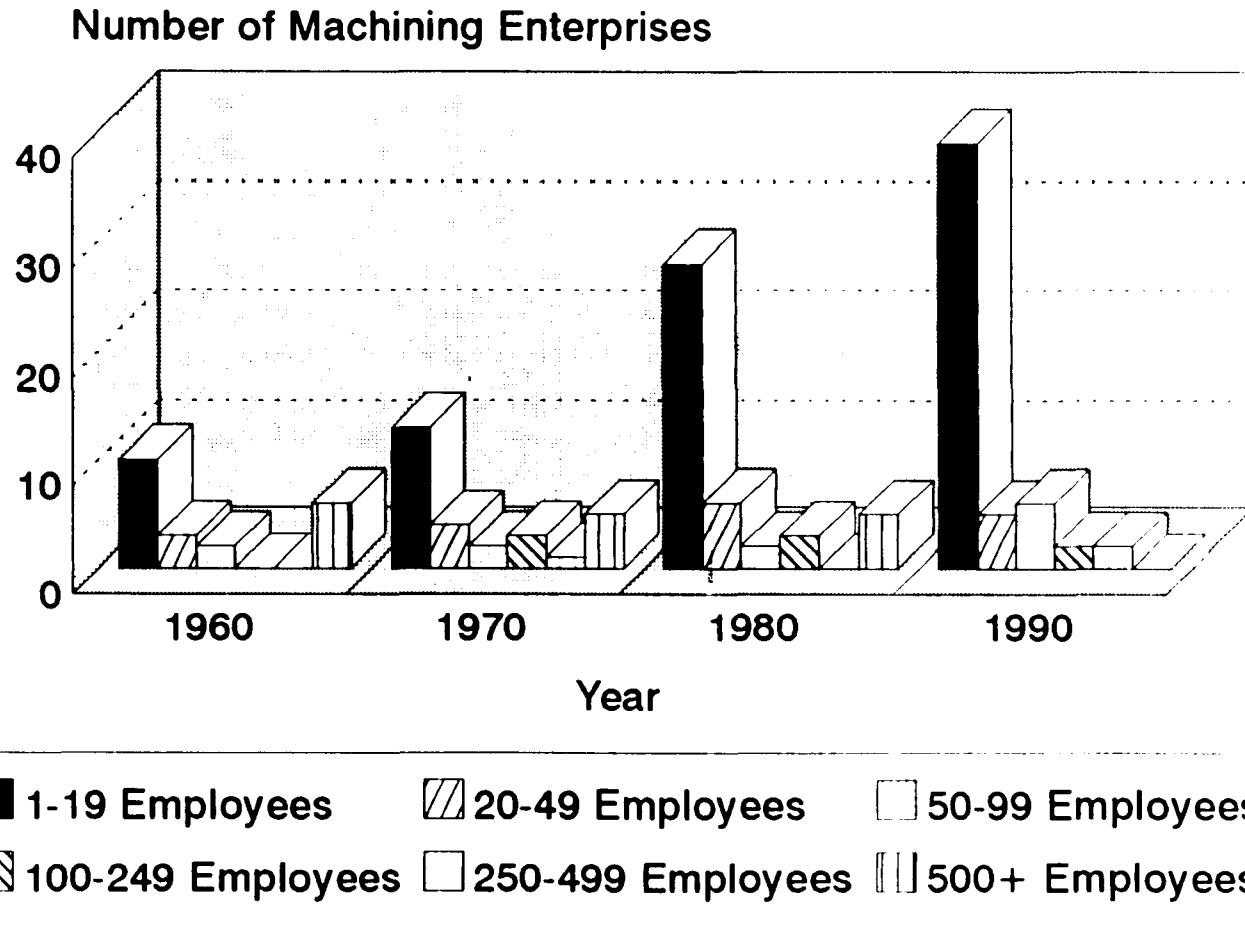
Consistent with the shift to post-Fordism, Figure 2-1 shows the stunning growth in the number of small machine shops in Machinist Valley. In 1970 there were only 13 small machine shops, but by 1990 that figure had tripled to 39 small machine shops. While the overall number of jobs had significantly declined during the 1970s-1980s, the number of machining companies operating in Machinist Valley nearly doubled from 28 to 53 enterprises.

These small enterprises provide a strong indication that Machinist Valley is not simply becoming "deindustrialized," but rather is being "reindustrialized" to accommodate the post-Fordist approach to production. In 1990, 18% of all manufacturing workers in Machinist Valley continued to be employed in the machining industry (County Business Patterns 1990). Of course the overall decline in opportunity will be an important factor in understanding the experiences of workers in Machinist Valley. However, I believe it is also important to recognize that there is a new opportunity structure Machinist Valley which increases the importance of the small enterprise in the work experiences of machinists.

Figure 2.1

Machining Enterprises in Machinist Valley 1960-1990

71



Source: County Business Patterns

In summation, although Machinist Valley does not rely as heavily on machining as it did in the past, machining work still employs significant numbers of workers. Machinist Valley previously was dominated by six machining enterprises which maintained the essential features of Fordism, including unionized labor, specialization in the mass production of machined goods, and reliance upon time study methods for production. Companies operating in Machinist Valley are small in size, typical of the emerging enterprises of post-Fordism. As such Machinist Valley is an excellent site to study whether post-Fordism is accompanied by the positive or negative potentials hypothesized by craft control and fragmentation theories.

Interview Methods

After I selected a suitable case study site, I constructed interview guides and interviewed employers, community leaders, and workers to determine how power in the work place has changed during the shift to post-Fordism. I conducted a total of 44 interviews, 26 interviews with persons employed or retired from the machining industry, 7 with employers and supervisors outside of the machining industry, and 11 with community leaders in Machinist Valley. I conducted most of the interviews in August 1992, during a month long period of residence in Machinist Valley. A small

number of interviews were conducted in the Spring of 1993. I developed two interview guides, one for employers and one for workers, and these guides are reproduced in Appendix A and Appendix B. Community leader interviews were individually designed to access information unique to each leader's official capacity. All interviews were tape recorded and lasted from one to two and one-half hours, and were later transcribed, coded and analyzed using the text management system askSam.¹

I conducted the interviews with the 11 community leaders in the early stages of the study to examine the suitability of Machinist Valley as a case study site, as well as to obtain general historical information and current employment opportunities for workers in the Valley. These interviews were structured to gather as much general information on the local community as possible, especially in regard to the effects of the closure of the large machining companies on the Valley and workers. All interviews with community leaders were conducted in one town in the Valley, pseudonymed "Liston." I restricted interviews to Liston to facilitate systematically interviewing the key officials important in community organizations and politics. By restricting these interviews to the town of Liston, I was able to use the criterion of geography as a method of sampling community

¹ One machinist and one machine shop owner refused to be taped, however, and analyses of their responses rely upon interview notes.

leaders and the types of non-machinist employers in the entire Valley. Interviews included the Liston City Manager, Liston Tax Assessor, Liston Chamber of Commerce Director, a high school teacher, two members of the town historical society, a teacher at the Liston Vocational Technical College, the dean of the Liston Vocational Technical College, a supervisor at the State Job Training Council, a director at the State Department of Employment Security.

I interviewed 7 employers outside of the machining industry to examine the types of employment opportunities available to machinists following the closure of the large machining factories in the Valley. In order to examine whether many machinists chose to seek employment outside of the machining industry after being displaced by the major factory closures, I interviewed employers at the largest non-machinist employers, such as at a local hospital, a wool linen factory, a notebook factory, and a paint brush factory.

Employer interviews addressed the following issues: company history in Liston, current number of employees, gender distribution of employees, educational criteria for employment, difficulty in obtaining employees, methods of obtaining employees, number of applications on file, starting pay, highest potential pay, benefits, and potentials for advancement in the company. At each company I also asked to be shown the general operations so I could obtain a general indication of the types of work being performed. Data

obtained in these employer interviews allowed me to examine the potential difficulties and successes workers experience in attempts to adjusting to work inside and outside of the post-Fordist machining enterprises, as well as obtain employer perspectives on their employees.

Interviews with owners and supervisors in companies outside of the machining industry surprisingly revealed that very few machinists are obtaining work in these enterprises. In the local hospital, the personnel director of the hospital informed me that machinists are undesired workers because of the perceived sexual threat blue collar males present female patients. In companies such as the wool linen factory, the notebook factory, and the paint brush factory, low pay makes machinists forsake work in these companies. Also machinists are not highly undesired workers in these companies because they are perceived by employers as likely to move on at the first opportunity. Because this study is concerned with control and power in the machining industry, analysis of employer interviews will be therefore limited to owners and supervisors in the machining industry in Machinist Valley.

I sampled 26 people working in the machining industry in the Valley using a snowball sampling technique. To obtain worker interviews, I obtained a seed list of machinist names from the supervisor at the one of the currently operating machine shops in Machinist Valley. He acted as my initial informant and provided me with a list of names of workers whom

he believed to have a variety of different work experiences. Because this supervisor had worked at the Bearing Company (one of the previously dominant Fordist companies in the Valley) as well as at a currently operating machine shop, he was able to provide contacts with both currently working machinists and retired machinists from these two different companies.

After each worker interview, I asked machinists to provide me with the names of two or three other workers who would be able to offer information concerning the variety experiences, both good and bad, that other machinists experienced after the closure of the Bearing Company. In the case of retired workers from Bearing, these workers were asked to give references to other machinists from Bearing who may have had different work experiences than their own, both good and bad.

By interviewing both Bearing workers, as well as currently working machinists, I was able to explore the varieties of ways in which work changed during the restructuring of employment from Fordism to post-Fordism. Bearing workers provided me with detailed information on work in the Bearing Company. These data helped to form my understanding of Fordism presented in Chapter 1, as well as provide a foil from which to compare worker experiences under post-Fordism. Because I interviewed both sets of workers (retired Fordist machinists and working post-Fordist machinists) with similar procedures, these interviews provide

detailed data of how work and control changed during the shift to post-Fordism.

I constructed worker interviews to tap into the sources of reward and frustration for machinists and the ways in which workers resolve their complaints concerning their place of work, employers, and coworkers. I asked workers general questions concerning how well they liked their jobs, what they liked about their jobs, and what they disliked about their jobs. I then probed workers concerning specific areas of potential complaint and frustration in detail, especially concerning issues relating to skill utilization, boredom, unions, supervisors, and coworkers. I also asked a number of questions relating to workers' job histories and future plans in order to assess workers' control over their career paths. Finally, I asked questions concerning workers' economic situation, including pay, benefits, and experiences of unemployment to assess how workers' earnings have changed during the shift to post-Fordism. Interviews took, on average, one to two hours to complete.

The worker interview guide reproduced in Appendix A was modified during the course of interviews because I found workers to be generally unwilling or reticent to fit their descriptions of their experiences and skill levels into my pre-conceived categories such as "low," "medium," and "high." One machinist, for example, responded: "Well how would you describe teaching, you are a teacher right? Does that take

low, medium, or high skills?" I soon realized that it would be better to listen to how machinists understand their work experiences rather than force them to fit their understanding into my more rigid classification schemes. As a result, I modified the interview technique to address the issues outlined in the interview guide, while abandoning the endeavor to produce abundant statistically analyzable results. I am confident that by doing so I was able to obtain data more rich in qualitative information and of much greater validity.

The analysis of experiences in the machining industry rely on the responses from 26 persons. 18 had been employed solely as machinists, 4 had worked in both a worker and a supervisory/owner position, 2 had been employed solely as owners/supervisors, 1 was previously employed as a time-study man, and 1 was a retired union official. Because some persons had been employed both as workers and as supervisors in their career history, they were interviewed using both the employer and worker interview guides.

All of the workers in this study had been employed in at least one of four machining enterprises: Bearing Company, Remnant Company, Hightech Enterprises, Loyalty Company. The Bearing Company was a large machine shop that closed in the mid 1980s. The Remnant Company operates in the Bearing Company factory, however using the post-Fordist approach to production. Hightech Enterprises specializes in CNC production of large batches of precision machined goods. The

Loyalty Company uses primarily manual machines for the production of small batches of machined goods. These companies are described in detail in Chapter 4.

Workers' ages ranged from 18-71 years, with an average age of 45 years. 79% of these machinists were born and raised in Machinists' Valley. 75% had fathers who had previously worked for one of the large machine shops in the Valley. Most of the machinists interviewed were currently married (79%) or divorced (8%), and most had children (88%). A high school diploma was generally the highest level of education attained by the sample of machinists (83%). However, two machinists (8%) reported failing to graduate and two machinists (8%) reported some college training beyond high school.

Methodological Concerns

Case Study Methods

This case study is not a community study of the classic approach such as the Lynd's (1929) study of Middletown (Lynd & Lynd 1929) or Warner's (1963) Yankee City. Rather, following the Rutmans' (1984) example, I view Machinist Valley as "a place in time" and my interests are examining the experiences of a particular group of workers in this place in time. Machinist Valley mirrors changes occurring at the national level, and experiences of workers in the Valley are likely to be similar workers experiences in many other

communities undergoing similar changes.

The strength of case studies rest on their potentials for obtaining data rich in detail, and the opportunities they present to examine social relationships in the social contexts in which they occur (Feagin, Orum & Sjoberg 1991). This study method offers great potential for examining class relations between owners and workers in the small post-Fordist enterprises, as well as how class relations extend beyond factory walls into the community. Case studies have limitations, however, because of the potential "uniqueness" of any particular case study site and the danger of generalizing findings under the assumption that all other cases are similar. This presents two concerns for this study.

First, is it appropriate to use the machinists and their experiences as exemplary of post-Fordism? There are other important changes in the opportunity structure of the United States that this study does not address, especially the work experiences in the expanding service sector of the economy. I strongly doubt that the findings presented in subsequent chapters could be (or should be) generalized to work experiences in the service sector and no single group of workers should be viewed as representative of all groups of workers.

Machinists' experiences should be used to make generalizations only concerning manufacturing workers in the primary labor market. And even with this caveat, these

generalizations should be made tentatively, because machinists have historically retained much of the craft orientation to work even under Fordism. Experiences and patterns of response may vary by occupational group.

Second, is Machinist Valley a "unique case" that is different from other cases? This is an unavoidable shortcoming of the case study approach, which relies upon one location as being representative many other locations. I have shown above that Machinist Valley's employment changes mirror those occurring at the national level. This suggests that many other communities are experiencing similar changes as Machinist Valley, and that it is not a unique case. However, it is important to recognize that this potential exists.

Sampling

The sample size of this study is admittedly not large. In an ideal world, researchers have the resources to obtain very large sample sizes. This, of course, is always the case. I believe, however, that the sample size is adequate and provides valid data on work experience. In the final interview phase of this study, I was able to largely anticipate the types of responses interviewees would offer to my questions. At this point of "diminishing returns," in accordance with the grounded theory approach, I decided that this signified a reasonable juncture at which to return from the field and complete theory building (Glaser & Strauss

1968). Although the numbers of subjects interviewed are not large, the data in this study are especially rich in detailed information.

Snowball sample techniques also have potential for producing non-representative samples. It is often likely that snowball samples produce a uniform group of subjects by virtue of social networks that may isolate one group of subjects from other groups. Also, subjects may be inclined to only refer the researcher to those people who will reiterate their views and experiences (Smith 1981). I tried to overcome this problem in my snowball sampling technique by asking workers to give the names of workers who had both good and bad experiences following the closure of the Bearing Company. In the initial stages of the snowballing, most workers were being interviewed in the Town of Liston. However, the final sample includes workers whose residences are dispersed throughout Machinist Valley. This leads me to believe that the snowball technique probably proved quite effective at producing a sample of interviewees who span across social networks and who have diverse experiences under post-Fordist production. Analysis in the proceeding chapters further substantiates this conclusion.

Summary

I use a two-pronged approach to examine how post-Fordism affects the control over work. I use County Business Patterns

data to examine national changes in the organization and pay for machining work. I use interviews with workers, employers and community leaders in a case study community to examine how the control over work has been affected with the shift to post-Fordism. This community, "Machinist Valley" was selected because it reflects changes occurring at the national level signifying a restructuring of production to accommodate the post-Fordist approach. As skilled manufacturing work is likely to remain stable or increase in the United States, the study of machinists will provide data on the ways in which the new uses of organization and technology under post-Fordism influence power relations in the new work places of the 21st century.

CHAPTER 3

OPPORTUNITY AND ECONOMIC REWARDS UNDER POST-FORDISM

This chapter examines how employment opportunities and economic compensation in the machining industry have changed under post-Fordism. Using County Business Patterns data, I first examine national level changes in work opportunities for machinists and how the changing organization of work has affected machinists' incomes. I then analyze the degree to which "fringe benefits," such as vacation pay, health insurance and retirement programs, have changed under the shift to post-Fordism. The data at the national level indicate that employment opportunities and economic rewards for machining work are declining as more machining work takes place in the smaller organizations. I also examine how indirect forms of economic compensation workers receive through company support of community infrastructure in Machinist Valley have been affected by the shift to post-Fordism.

Post-Fordist production is characterized by the increasing use of small organization sizes and the declining importance of large organizations advanced under the Fordist

approach. Both national level data and interview data from Machinist Valley show that the shift to smaller organization sizes accompanied by reducing the economic rewards for machining work. Workers laboring in small enterprises earned lower wages and received fewer benefits than their counterparts laboring in larger enterprises. At the same time, support of community infrastructure is shifting from companies to workers. Individual workers' taxes have increased while company tax burdens stagnated and declined in Machinist Valley. In post-Fordist Machinist Valley there is a deterioration of community infrastructure as companies are reducing contributions to community and as workers are increasingly responsible (but less able) to absorb these financial costs.

National Changes in Opportunity and Pay for Machining Work

Structural Changes in Opportunity 1970-1990

County Business Patterns provide one indicator of the shift to post-Fordism with data concerning the changing organization of machining work, as measured by enterprise size. I discussed in Chapter 1 that Fordist organizations are characteristically very large and post-Fordist organizations tend to be smaller in size. Using large versus small organization size as approximation of Fordist versus post-Fordist approach, I am able to examine how the changing

opportunity structure of machining work affects the pay workers receive for their labor.

Table 3.1 shows trends in opportunities for machinists by organization size. By 1990, there were 13,878 more machining enterprises in the United States than in 1970. This figure indicates that the shift to the post-Fordist approach to machining has increased the number of possible places of employment for American machinists compared to the opportunity structure under Fordism.

TABLE 3.1 NUMBER OF MACHINE INDUSTRY ESTABLISHMENTS* IN THE UNITED STATES 1970-1990.

ESTABLISHMENT SIZE	NUMBER OF ESTABLISHMENTS		
Number of Employees	1970	1980	1990
1 - 19	26,533	31,375	36,823
20 - 49	5,883	7,743	8,108
50 - 99	2,334	3,104	3,310
100 - 249	1,649	2,242	2,214
250 - 499	737	911	734
500+	703	869	528
Total # Firms	37,839	46,244	51,717

Source - County Business Patterns, 1970, 1980, 1990

* Machinery except electrical, SIC code 35.

In 1970 there were only 32,416 enterprises employing less than 50 people, by 1990 the number of small organizations grew to 44,931 establishments, a net increase of over 12,515 enterprises. During this same period, large organizations employing 250+ employees declined from 1,440 establishments in 1970 to 1,262 establishments in 1990, a net loss of 178 large establishments.

TABLE 3.2 EMPLOYMENT OPPORTUNITIES FOR MACHINISTS IN THE UNITED STATES: CHANGES IN EMPLOYMENT IN MACHINE INDUSTRY* 1970-1990.

ESTABLISHMENT SIZE	NUMBER OF EMPLOYEES		
	1970	1980	1990
Number of Employees			
1 - 19	175,863 (8.8%)	226,713 (9.1%)	235,869 (12.3%)
20 - 49	179,518 (9.0%)	243,335 (9.7%)	247,871 (12.9%)
50 - 99	160,608 (8.1%)	218,164 (8.7%)	229,217 (11.9%)
100 - 249	254,217 (12.7%)	353,319 (14.1%)	341,697 (17.8%)
250 - 499	259,124 (13.0%)	324,645 (13.0%)	254,944 (13.3%)
500+	966,740 (48.4%)	1,137,586 (45.4%)	612,561 (31.9%)
Total # Employees	1,996,070 (100%)	2,503,762 (100%)	1,922,159 (100%)

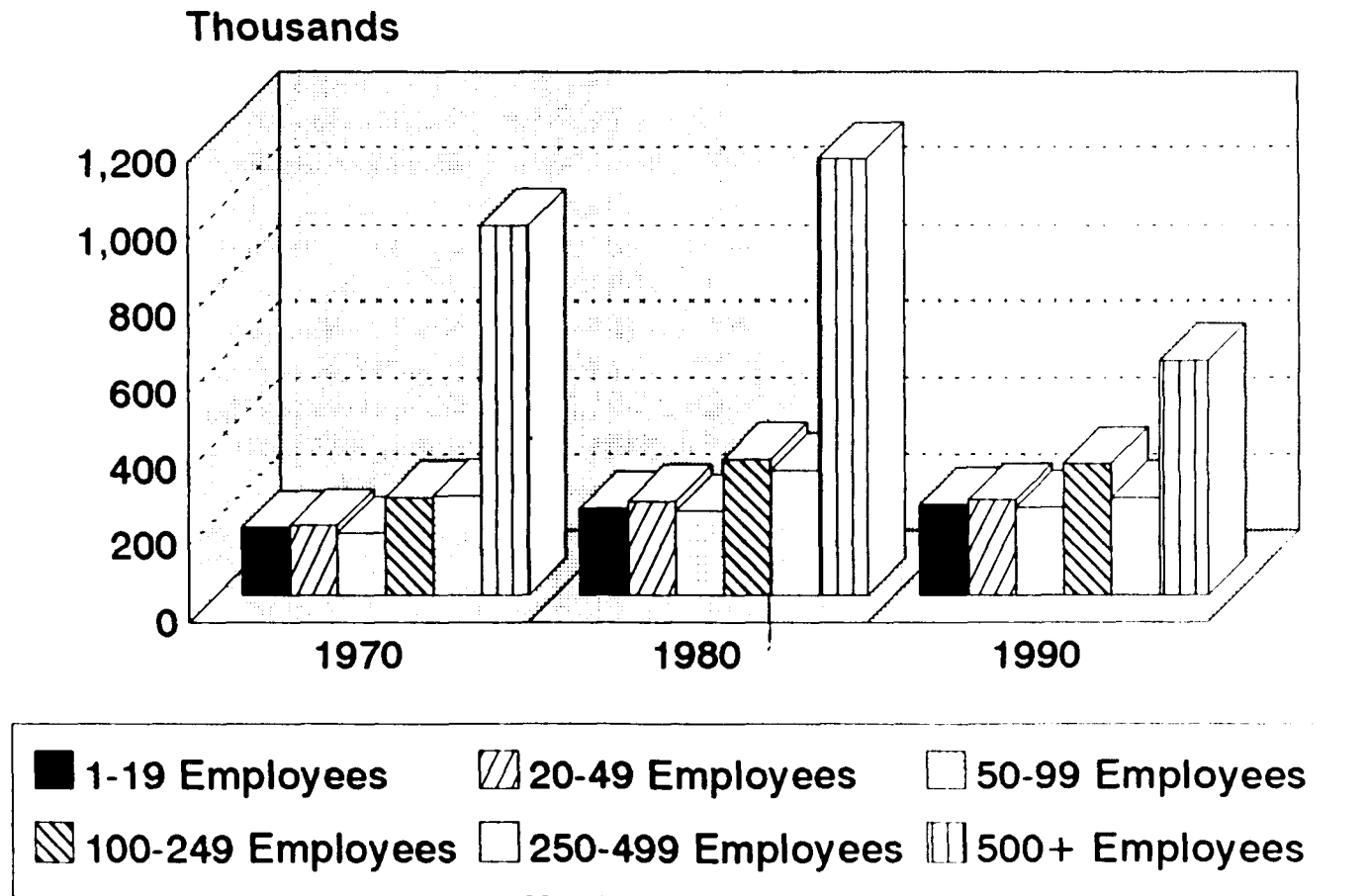
Source - County Business Patterns (1970, 1980, 1990)

* Machinery except electrical, SIC code 35.

Figure 3.1

Employment in The Machining Industry by Enterprise Size United States 1970-1990

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Source: County Business Patterns

Table 3.2 and Figure 3.1 show that the changing distributions of large and small enterprises have had a significant impact on the nature of employment opportunities for machinists. While there were only 1,440 machining enterprises employing more than 250 workers in 1970, these firms accounted for 61% of the people employed in the machining industries. Thus, in terms of employment opportunities for machinists, the largest share of opportunities were in large Fordist type enterprises until the decade of the 1980s. The loss of 518 large establishments in the 1980s resulted in the loss of 594,726 jobs and by 1990, only 32% of workers were employed in Fordist-type enterprises. The growing number of small organizations (enterprises with less than 100 employees) only produced a net increase of 196,968 jobs from 1970-1990. Thus, while there were increasing numbers of organizations employing machinists, during the decade of the 1980s, the overall number of job opportunities for machining work declined. In comparison to 1980, in 1990 there were 581,603 fewer jobs available for people with skills in the machining industry.

One of the important reasons for the declining employment in the American machining industry is that Japanese industry in the 1970s and 1980s successfully gained control of markets previously dominated by American machine tool manufacturers (Holland 1989). While American industry continued to use outdated technologies and production techniques, Japan's

Ministry of Industry and Trade, the MITI, supported Japanese machine tool manufacturers' competitive advantage by supporting corporate investments in tools and by restricting Japanese imports of American made machine tools (Holland 1989). This gave Japan machine tool manufacturers an international competitive advantage over American manufacturers. Japan's success combined with declines in American military contracts resulted in widespread layoffs and factory closures in the American machine tool industry (Holland 1989).

National Trends in Income in the Machining Industry

While foreign competition may explain the overall decline in opportunities for workers with machining skills, it can not explain why opportunities are shifting to the smaller organization forms. Analysis of income by organization size, however, reveals one important factor: smaller organizations are more competitive because they enable owners to pay workers lower wages. In subsequent chapters I will address why these small organizations are successful at lowering workers' earnings. Here I restrict the analysis to document earnings differentials between large and small organizational forms.

Industry is shifting to a post-Fordist approach to production and this restructuring began in 1973 when American industry began to lose hegemonic power in the global economy. However, the shift to post-Fordism is gradual and older

Fordist enterprises continue to operate during the transition to post-Fordism. Table 3.3 shows County Business Patterns data comparing average employee incomes in large enterprises with average employee incomes in small enterprises operating in 1990. The fifth column shows the average yearly income of employees in these enterprises adjusted to 1992 dollars.

TABLE 3.3 EMPLOYMENT, PAYROLL AND YEARLY INCOME
IN THE MACHINING INDUSTRIES, 1990

ESTABLISHMENT SIZE (NUMBER OF PEOPLE EMPLOYED)	1990 NUMBER OF EMPLOYEES	1990 PAYROLL (\$1000)	1990 AVERAGE EMPLOYEE INCOME	1990 AVERAGE EMPLOYEE INCOME (1992 DOLLARS)
1 - 19	235,869	\$ 6,066,118	\$ 25,718	\$ 27,518
20 - 49	247,871	\$ 6,952,930	\$ 28,050	\$ 30,014
50 - 99	229,217	\$ 6,532,660	\$ 28,499	\$ 30,494
100 - 249	341,697	\$ 9,830,560	\$ 28,769	\$ 30,783
250 - 499	254,944	\$ 7,519,649	\$ 29,495	\$ 31,559
500+	612,561	\$ 21,529,959	\$ 35,147	\$ 37,607
Total/Average	1,922,159	\$ 58,431,876	\$ 30,399	\$ 32,527

Source: County Business Patterns (1990).

* SIC code 35 Industrial Machinery and Equipment.

In 1990, the average employee working in the machining industries earned \$32,527. There were considerable variations in pay according to the size of the enterprise, however. Those employees working in the largest organizations had considerably higher incomes than those laboring in the smaller organizations. Workers in the largest organizations (500+ employees) earned on average \$37,607, in comparison to the smallest organizations where employees earned on average only \$27,518. In other words, workers laboring in the large Fordist type enterprises in 1990 could expect to earn on average \$10,089 more than their counterparts working in the smallest post-Fordist type enterprises.

Current patterns of pay for workers with skills in the machining industries indicate a two tier opportunity structure. At the top of this structure are the remaining large enterprises which pay high wages. At the bottom are small enterprises which pay significantly lower wages. These findings show the small organization sizes to be an important factor in producing low worker incomes.

While the 1990 data offer information on the current opportunity structure, it leaves unanalyzed the historical implications of the restructuring of opportunity from Fordism to post-Fordism. In Chapter 1 I showed how the Fordist approach was introduced by owners to increase their power in mass production to counteract the simple forms of control workers' developed under 19th century craft methods of

production. Fordism therefore gave owners an initial advantage in determining worker wages until workers adopted new forms of collective control suitable to the Fordist approach. Here I examine how average incomes in the machining industry have changed under the shift from large to small organizations over time.

TABLE 3.4 AVERAGE EMPLOYEE INCOME IN THE MACHINING INDUSTRIES 1974-1990

ESTABLISHMENT SIZE (NUMBER OF EMPLOYEES)	1974 AVERAGE EMPLOYEE INCOME*	1990 AVERAGE EMPLOYEE INCOME*	1974-1990 INCOME CHANGE
1- 19	\$ 31,081	\$ 27,518	\$ -3,563
20- 49	\$ 31,158	\$ 30,014	\$ -1,144
50- 99	\$ 31,609	\$ 30,494	\$ -1,114
100-249	\$ 30,510	\$ 30,783	\$ 273
250-499	\$ 30,858	\$ 31,559	\$ 701
500+	\$ 35,442	\$ 37,607	\$ 2,165
Total	\$ 33,148	\$ 32,527	\$ -621

Source: County Business Patterns 1974, 1990, SIC code 35 Industrial Machinery and Equipment.

* 1992 Dollars.

Table 3.4 compares changes in average employee income in the machining industries from 1974-1990 adjusted to 1992 dollars.¹ The bottom row of this table shows that there has been a modest decline in average employee income. Work in the machining industries pays on average \$621 less in 1990 than it did in 1974. Examination of changing levels of pay from 1974-1990 by organization size, however, reveals important dynamics concerning the shift from large organizations to small organizations left unnoticed by this broadest measure of income change.

Whereas worker incomes in the largest enterprises continued to increase by \$2,165 during the decades of the 1970s and 1980s, incomes in the smallest organizations declined by \$3,563. These findings illustrate the changing trajectory of workers' earnings. Under Fordism, workers' earnings consistently increased because of workers' collective abilities to disrupt production when dissatisfied with earnings or work conditions. Large organization size facilitated worker prosperity because it fostered collective methods of workers' control. It is not surprising that workers won increased wages in the large organizations during the 1970s and 1980s, as collective control continued to extend worker power in these enterprises. The increasing reliance upon smaller post-Fordist enterprises, however, disrupts this

¹I use 1974 as the base year in these analyses because it is the first year in which County Business Patterns detail wages by organization size.

trajectory by increasing owners' capabilities to reduce workers' earnings. Unlike the large Fordist enterprises, structuring work to small enterprises has allowed owners in these companies to cut average workers' incomes by as much as \$3,563 from 1974-1990. The ways in which small enterprises increase this power will be examined in Chapter 4. Here I show that national level data reveal that the transition to the post-Fordist approach to production provides workers with larger numbers of organizations where they can sell their labor. But these small organizations pay workers significantly lower wages than in large organizations, suggesting that small organizations decrease workers' power to increase their earnings under post-Fordism.

Benefits

Annual income, of course, is not the only important measure of economic rewards received from work, and the shift in firm size affects workers' benefits as well. Work often provides fringe benefits that are not measured by annual payrolls in County Business Patterns data.

In a recent study of small versus large business, Brown, Hamilton and Medoff (1990) found that large firms employing 500 or more employees offer considerably better fringe benefits than small firms employing fewer than 500 employees. Table 3.5, reproduced from the study by Brown et al., shows that large firms offer considerably more benefits to workers.

For example, whereas 75% of large firms offer vacations, sick leave, health insurance, and pension programs, only 7% of small firms offer a similar combination of benefits to their employees.

TABLE 3.5 PERCENTAGE OF LARGE AND SMALL BUSINESSES OFFERING VARIOUS FRINGE BENEFITS 1986

<u>FRINGE BENEFIT</u>	<u>FIRMS WITH MORE THAN 500 EMPLOYEES</u>	<u>FIRMS WITH FEWER THAN 500 EMPLOYEES</u>
Vacation	95%	58%
Health	100%	55%
Sick Leave	91%	36%
Life Insurance	94%	29%
Pension or 401K	79%	16%
Bonus Plan	29%	11%
Short Term Disability	55%	10%
Long Term Disability	69%	9%
Savings Plan	29%	2%
Cafeteria Style Health	12%	1%
Vacation, Sick, Health, Life, and Pension or 401K	75%	7%

Source: Brown, Charles, James Hamilton and James Medoff. 1990. Employers Large and Small. Cambridge: Harvard University Press.

Machinist Valley experienced the same structural changes in opportunities that were shown in the machining industry at the national level. From 1970-1990 the number of small enterprises (50 or fewer employees) increased from 13 to 39

enterprises. Likewise, the 5 largest enterprises in the Valley in 1970, each employing over 500 people, all closed by 1990. The change from Fordist to post-Fordist enterprises in the Valley were accompanied by significant declines in fringe benefits received by workers.

The reduction in fringe benefits occurred in two ways. First, during the period of factory closures, unions made concessions on benefits in order to forestall or prevent impending closures. Second, new post-Fordist companies opened with considerably lower initial benefit packages than previously offered in the Fordist companies. Thus changes in benefits in the Valley changed gradually during the decade of the 1980s.

In Machinist Valley, all of the Fordist enterprises offered similar benefits packages in the 1970s. Likewise, all of post-Fordist enterprises offer similar benefits packages in the 1990s. While there are very minor differences in benefits between companies of each type, comparing the Fordist Bearing Company with the post-Fordist Remnant Company illustrates the overall declines in benefits for machinists in the Valley.

The benefits package at the Bearing Company (one of the largest firms previously operating in the Valley) illustrates the high quality benefits Fordist workers received in Machinist Valley until the decade of closures in the 1980s. The unionized workers in the Bearing company received full health insurance benefits with a 100% Blue Cross/Blue Shield

health insurance program. Bearing workers also had a generous pension program, which allowed many of them to retire as young as age 55, after working 25 years at the company. And when Bearing workers retired, they continued to receive the full health insurance benefits.

Bearing workers also had handsome vacation packages. After an initial 90 day screening period, Bearing workers were entitled to 10 vacation days per year. As workers gained seniority and accrued increasing vacation time, after 10 years of service they would eventually be eligible for five weeks of vacation time/pay per year (accruing 1.5 vacation days per year). Because workers received such good benefits and pay, the Bearing Company was universally seen by workers as a good place to work. Workers took advantage of good pay and long vacations by building vacation homes for activities such as hunting and fishing.

In the case of the Bearing Company, threats of an impending closure forced the union to give a number of concessions concerning both wages and benefits. Finally the company closed altogether and reopened under the new name of "The Remnant Company." In 1992 the Remnant Company employed 60 non-unionized employees. While these employees are making similar products as were previously made in the Bearing Company, their benefit packages have been significantly reduced.

Whereas Bearing Company workers had full health insurance

coverage, the Remnant Company only offers an 80:20 health insurance plan, in which workers contribute 20 percent to health coverage with a high deductible. Their health insurance is also terminated upon retirement from the company. And unlike the Bearing Company, the Remnant Company offers no retirement program.

Vacation time was also considerably reduced from the Bearing to the Remnant Company. Remnant employees earn seven days of vacation only after completing one full year of employment, after which they accrue one further day of vacation time following each year of employment. And unlike Bearing workers, they are only eligible for a maximum of 3 weeks vacation after 10 years of labor. Therefore, after 10 years of work, the Remnant workers have 2 less weeks of hunting, fishing or family time per year in comparison to their counterparts in the Bearing Company. And because older Remnant Company workers feel the pressure of earning money to save for retirement, some choose to work through their vacations in order to "get ahead." Of course these workers are not "getting ahead" in comparison to their Bearing Company counterparts. They are struggling to maintain life standards set by their parents' generation who achieved high incomes working under the Fordist approach.

Corporate and Worker Support of Community Infrastructure

I have thus far shown that pay and benefits have been significantly reduced during the period of restructuring production from large to small firms, at both the national and case study site. These findings offer strong evidence that workers' power in negotiating the terms upon which production takes place has been reduced. Before addressing why workers' power has been reduced during the transition to post-Fordism, I address one final aspect of economic livelihood that is affected by the restructuring of production: support of community infrastructure. Support of community infrastructure affects worker life chances in indirect ways. For example, if workers receive modest paychecks, but are able to send their children to good schools, walk brightly lit streets in safety, and attend well funded civic events as a result of a company support of community infrastructure, they are compensated for work in ways not directly indicated by their pay.

During the twentieth century, workers received considerable indirect compensation as a result of corporate contributions to community. For example, the classic study Middletown showed the "X Family" providing support for churches, schools, and community events (Lynd & Lynd 1937). Therefore the presence of the X Family's glass company in Middletown benefitted workers in a number of ways outside of their personal compensation (see also Warner 1963). Thus workers in Fordist communities sometimes benefitted by having

access to good schools, good roads, and good churches, all partially supported by the companies in their communities.

The practice of company support of community infrastructure has been exposed to extensive critical appraisal. For example, both Pope (1942) and Nash (1987) show that owners use these investments in community to maintain hegemonic control in the communities in which their companies operate. However, the fact remains that many communities, particularly in the Northeastern United States, prospered in comparison with communities in the 19th century and agrarian communities in the Southern United States. For example, while corporations used contributions to YMCA, baseball teams, and the United Way to increase their hegemonic power in communities, these contributions did have a positive impact upon many features of American community life. However, interviews in Machinist Valley indicate that the relationship between corporations and communities is shifting, and individual workers are now increasingly responsible for maintaining community infrastructure previously supported by corporations (see also Rubinstein 1990).

Taxation of community members and local manufacturing enterprises are the major sources of support for community infrastructure in Machinist Valley. In order to assess how the shift to post-Fordism affected the individual and corporate support of community, I interviewed the Tax Assessor in the Town of Liston, the largest community in Machinist

Valley. According to the Liston Tax Assessor and City Manager, there have been no increases in the property taxes for manufacturing industries in the town of Liston from 1980-1992, largely because the town government is trying to encourage manufacturing enterprises to stay and locate in the Valley. However, for machinists and other community residents, the burden for community infrastructure has increased considerably through property taxes. Table 3.6 shows that from 1980 to 1990, property taxes on a median priced home in Liston increased by \$1170.00. The end result is that the economic burden for the support of community infrastructure is increasingly placed upon property owners in the Valley.

TABLE 3.6 PROPERTY TAXES ON A MEDIAN PRICED HOME IN THE TOWN OF LISTON 1970-1990, ADJUSTED AND UNADJUSTED DOLLARS

YEAR	PROPERTY TAXES (CURRENT DOLLARS)	PROPERTY TAXES (1992 DOLLARS)
1970	\$ 723	\$ 2617
1975	\$ 986	\$ 2573
1980	\$ 1133	\$ 1926
1985	\$ 1776	\$ 2309
1990	\$ 2893	\$ 3096

Source: Town of Liston Tax Assessor

Interviews with owners and supervisors of the local machine shops show that post-Fordist companies in Machinist Valley are making fewer substantial contributions to community infrastructure. One supervisor, who worked at both the Bearing Company and at the post-Fordist Remnant Company reported the Bearing Company used to give considerable support to the community through corporate donations. Even during its period of restructuring, the Bearing Company gave the school a \$7,000 air compressor and science equipment no longer needed at the company. At the Remnant Company now, however, he reports:

I would say we give our \$100-\$200 donations to things, but as community minded I would put us mediocre to minimal [Shift Supervisor J7, Remnant Company].

Another owner of a local machine shop, when asked about what his company does for the community, responded simply:

We give people jobs and pay our taxes [Owner 01].

While company investment in community infrastructure is declining, community economic support of companies is increasing. Towns such as Liston are trying desperately to keep and attract employers in their communities. Town governments, such as in the Town of Liston, offer companies a variety of incentives to stay or locate in their community. For example, in the early 1970s the Bearing Company determined

it was necessary to update their facilities and build a new plant and abandon the outdated plant located in the center of Liston. The move to a new plant constructed on the outskirts of town was made only after the Liston Town Government agreed not to tax the Bearing Company for nine years following the construction of this new plant. Otherwise, the Bearing Company indicated that it would consider moving to a Southern state where labor costs would be lower.

A more recent example is the case of a tool manufacturer which came to Liston in 1990 from another location in the Northeast. According to the personnel director at the tool company, the primary decision to move was the attraction of non-unionized Liston workers, who could be paid considerably lower wages than those offered at the unionized location operating at the time. When this plant started operations, Liston workers were working for \$5.00 less per hour and without health insurance, vacations, or the pension programs previously offered in the old plant. The company's final decision to locate in Liston, however, was made only after the Town of Liston agreed to build an access road and install a sewer system at the taxpayers' expense.

As a result of declining company contributions to community infrastructure, and increasing burdens on the town to attract and keep employers, the infrastructure of the Town of Liston decayed during the 1980s. For workers, the most striking change in the Town of Liston is the deteriorating

downtown section, which was previously the shopping hub of Machinist Valley. Once a "happening" and "bustling place," the downtown section is now more likely to be referred to as "bombed out" and "dead." Because of declining wages, retail sales are significantly down and currently one-third of the retail space stands unoccupied. For teachers, the biggest problem is a deteriorating public school that has lost its state accreditation because, among other things, it has an inadequate library, improper heating, lacks a science laboratory, and the building is literally crumbling.

Today, Liston has a reputation both inside and outside of the community as a "rough place" with a disproportionate share of social problems. Employers and community leaders complain about "bums" and "greebles" that hang out in the parks and next to closed stores, making the streets less safe at night. In 1985 alone, there were over 2000 serious crimes reported to police in Machinist Valley (City and County Data Book 1988). No one in Liston would question that the community atmosphere and its infrastructure has declined following the closure of the Bearing Company. Because the small post-Fordist enterprises are contributing less to the community, increasing economic burdens are being placed upon workers. As a result, workers expressed bitterness at contributing more to the community and getting less in return. While these data do not directly measure whether a "community ethos" exists in Machinist Valley, they do provide some indication that Piore

and Sabel (1984) and Sable and Zeitlin (1985) over-emphasize the potential benefits experienced by workers under the "alternatives to mass production."

Conclusion

Opportunities for machining work are now increasingly concentrated in smaller organizations associated with the shift to post-Fordism. However overall opportunity has declined because these enterprises do not offer as many jobs as were available in the United States in the early 1970s.

Average worker pay in the machining industry declined moderately during the 1980s. But as industry continues to restructure pay will continue to decline because the small post-Fordist enterprises offer considerably lower pay than the larger Fordist enterprises. Likewise, benefits are lower in small post-Fordist enterprises, and workers are now less likely to have full health insurance coverage, pension programs, or long paid vacations.

Indirect forms of compensation have also decreased, as individuals are now increasingly responsible for maintaining community infrastructure that used to be largely supported through company taxes and charitable contributions. The study of Machinist Valley indicates that this industrial district is deteriorating and is a considerably worse place to live than when the Bearing Company was in operation. The shift from Fordism to post-Fordism is associated with this deterioration.

CHAPTER 4

OWNER CONTROL IN POST-FORDIST PRODUCTION

In the previous chapters, I showed that the American machining industry has been shifting to the post-Fordist approach to production and that workers' pay and benefits are decreasing. If workers' compensation declined in all size classifications in the machining enterprises, declining pay could be argued to be purely a product of economic factors in the increasingly competitive global economy. However, by showing that changes in economic compensation are strongly related to organization size, I have provided compelling evidence that the post-Fordist approach has increased owners' power in the work place. The small enterprises associated with post-Fordist production have enabled owners to lower workers' wages and benefits, whereas the large enterprises associated with Fordism have enabled workers to increase their wages and retain good benefits during the period of 1970-1990. This chapter examines post-Fordism and owners' methods of control. I examine how the new methods of owners' control have increased their power to lower workers' wages and benefits, while simultaneously advancing their power to increase the pace of work.

Prior to the 1970s, most machinists in Machinist Valley worked in 6 large machining enterprises. Each of these large companies employed more than 500 employees and used the Fordist approach to control workers, including the bureaucratic organization of work, the use of incentive pay systems, and pacing of work according to time study methods. During the decades of the 1970s and 1980s, 4 of these enterprises closed and the remaining 2 downsized to medium sized operations. At the same time, Machinist Valley saw the rise of small post-Fordist enterprises which employ less than 50 employees. In 1970 there were only 17 of these enterprises. But by 1990 Machinist Valley had 44 small machining enterprises.

In order to examine the changing methods of control, I examine the interviews of machinists, supervisors and owners in four enterprises in Machinist Valley. These companies include one Fordist enterprise, Bearing Company, a large manufacturing company that closed in the mid 1980s. I interviewed 3 supervisors and 12 employees from this company. The other 3 companies are post-Fordist enterprises: the Remnant Company, Hightech Enterprises, and the Loyalty Company. In the Remnant Company, a small company that uses CNC equipment to make small batches of air compressors in what used to be Bearing factory, I interviewed 1 supervisor and 10 employees. In Hightech Enterprises, a small sized plant that depends heavily on CNC technology to produce large batches of

close tolerance machine goods for government contracts, I interviewed 5 employees. Unfortunately, owners in Hightech Enterprises refused to be interviewed, but a worker had previously been employed as a supervisor in this company and provided extensive information on managerial practices. In the Loyalty Company, a small job shop that uses mostly manual machines to produce small batches of custom machine goods, I interviewed the owner and 5 workers.¹

In each post-Fordist company there is strong evidence that owners are using organization and technology in ways significantly different from the Fordist approach. In part, the new uses of organization and technology are designed specifically to profit by capitalizing on changing markets for products. Organization and technology are also being used in new ways to extend the owners' control over workers and the pace of production. By comparing the experiences of work in these post-Fordist enterprises with the experiences of work in the Fordist Bearing Company, I show how the post-Fordist approach influences power relations in the work place.

¹ Some machinists previously had worked in more than one company. For example, some machinists had worked in the Bearing Company and then worked in the Remnant Company. Others were simultaneously working at both Hightech Enterprises and the Loyalty Company. These workers were interviewed for their experiences in both companies. Therefore individual workers are sometimes counted twice in the above tally.

The Remnant Company

The Remnant Company operates in the factory and on equipment previously used by the Fordist Bearing Company to make industrial air compressors, mining equipment and road construction equipment. The Remnant Company has specialized in producing a more limited range of products, restricting production primarily to the manufacture of industrial air compressors. While the Remnant Company products are similar to those manufactured by the Bearing Company, there are many changes in the ways in which they are manufactured under post-Fordism. Below I first show how the Remnant Company's post-Fordist approach differs from the Bearing Company's Fordist approach to production. I then detail the new methods of control used by owners in the Remnant Company and how they differ from Fordist control as explained in Chapter 1.

Changes in the organization and use of technology in the post-Fordist Remnant Company have resulted from a new strategy to profit by exploiting economies of scope rather than scale. Chandler explains economies of scale as:

...those that result when the increased size of a single operating unit producing a single product reduces the unit cost of production or distribution" (Chandler 1990:17).

Economies of scale are aimed at mass production and profiting by manufacturing products in volume, thereby capturing large

shares of the market for a particular commodity. The economies of scale were first made possible by changes in the infrastructure of the United States in the late 19th century, with the introduction of the railroad and telegraph (Chandler 1990).

Like other Fordist companies, The Bearing Company was oriented to exploiting economies of scale. By using organization and technology to mass produce industrial air compressors, mining equipment, and road equipment in large volume, the Bearing Company was able to capture large proportions of the market for these product lines. As the United States maintained hegemonic power in the global economy, the Bearing Company was able to maintain a profitable enterprise in Machinist Valley until the 1970s.

In the 1970s, with growing international competition, particularly from Germany and Japan, as well as newly industrialized countries (NICS) such as India, the Bearing Company's Fordist approach in Machinist Valley became a handicap to making high profits. Workers' wages in Machinist Valley far surpassed those offered in the NICs, in essence reducing Bearing Company's profits. The Fordist approach of the Bearing Company prevented the company from innovating and finding a niche in the more specialized markets opening in the 1970s. As Chandler explains:

In machinery, the trade-off between the economies of scale and those of scope was more clear-cut than in

most industries. The extraordinary cost advantages of scale provided by the American system of manufacturing [Fordism] in the mass production of light machinery sharply reduced the opportunity for exploiting those of scope. Every part and accessory and every motion of every machine worker were designed specifically for the manufacture of a single product line. On the other hand, the construction of made-to-order machines for widely differing industries -- machines that could be produced from the same materials and many of the same types of metal working and shaping machinery -- offered the potential for exploiting the economies of scope. In this type of production the German manufacturers excelled, but few American companies followed the German example (Chandler 1990:194).

Unable and/or unwilling to modify the Bearing Company's Fordist approach to production in the face of foreign competition and new market demands, the local paper reported the closure of the Bearing Company in 1986:

Plagued by debts, poor management, shoddy accounting and stiff foreign competition, the Bearing Company filed for protection from creditors under Chapter 11 of the Federal Bankruptcy Act in November.

Later that same year, new owners restructured the company and reopened it as the post-Fordist Remnant Company. Unlike the Bearing Company, the owners of the Remnant Company have been attempting to maintain a profitable enterprise by exploiting economies of scope rather than scale. According to Chandler, economies of scope are one of the ways in which owners in developed countries maintain profitable enterprises in the contemporary global economy:

The economies of joint production, or scope, also brought significant cost reduction. Here the cost advantage came from making a number of products in the same production unit from much the same raw and semifinished materials and by the same intermediate processes. The increase in the number of products made simultaneously in the same factory reduced the unit costs of each individual product (Chandler 1990:24).

One of the features which separates the Fordist era from post-Fordist era is the increasing demands for specialized goods (Lash & Urry 1987, Piore & Sabel 1984). Rather than mass producing air compressors, mining equipment, and road equipment, the new owners of the Remnant Company sold off most of the mining and road equipment product lines and have specialized in the production of industrial air compressors. Orienting production to small batches, producing only 60-80 air compressors a month, the Remnant Company has been able to find a more specialized niche left untapped by the mass production oriented Bearing Company. By producing air compressors to match the specifications desired by individual purchasers, the Remnant Company is now able to modify the production to suit customer needs.

The changing orientation from scale to scope has changed the Remnant Company in a number of related ways. Because the Bearing Company was mass producing its product lines in start to finish production, the company was very large. At its peak in the 1950s the Bearing Company employed over 1600 employees. Because of its large size, the Bearing company was also a highly bureaucratic organization. Of the 1600 employees, 400

were employed in bureaucratic capacities such as time study men, payroll officers, secretaries, salespersons, and supervisors. In the Bearing Company 33% of the employees were employed in non-production oriented positions.

In 1992 the Remnant Company only employed 65 people, 60 of whom were employed as production workers on the shop floor. The smaller size has allowed the owners of the Remnant Company to dispense with the bureaucratic organization that was previously necessary to keep the Bearing Company in operation. Whereas 33% of the Bearing Company employees were employed in non-production oriented positions, only 8% of Remnant Company employees were working in a bureaucratic capacity in 1992. More worker time is spent in productive capacities rather than in bureaucratic capacities in the Remnant Company, thereby increasing the potentials for profitability.

With its post-bureaucratic organization, the Remnant Company relies upon fewer formal rules to guide production. In the Bearing Company, legal rational authority was used to organize work through a formal rule book that standardized company procedures, including specific work tasks for its employees, time study methods, and incentive pay systems. When the unionized Bearing Company closed and reopened as the non-unionized Remnant Company, formal rules were dispensed with. Currently the Remnant Company does not use a formal rule book, nor does it use time study methods or incentive systems to pace production. The decreasing reliance upon

formal rules has freed the owners and workers to work without the bureaucratic constraints that impede innovation and change, again facilitating flexibility in production and the ability of Remnant Company to capitalize on economies of scope.

The small Remnant Company is a flexibly specialized post-Fordist enterprise making a similar product to that manufactured in the large Fordist Bearing Company. It differs from the Bearing Company in size and post-bureaucratic organization, including its lack of incentive pay systems, lack of formal rules and abandonment of time study methods. Fordist methods of owners' control have been abandoned in the Remnant Company in favor of new post-Fordist methods of control.

Remnant Company owners use three distinct, but related, methods to control the pace and pay of work. First, by abandoning the Tayloristic agenda of removing control from the shop floor, owners have been able to tap into the positive potentials of machinists' craft ethic. Individual workers who adopt a craft ethic attain social status among their peers by producing high quality goods at a fast pace. By giving workers autonomy on job tasks, and by reintroducing variation in tasks, this craft ethic has reemerged. Unlike machine operators of Fordism, post-Fordist craftsmen work for intrinsic satisfaction, as well as for the extrinsic rewards attained from work.

Second, this craft ethic is then organizationally harnessed to pace workers collectively through a new "pull" orientation to production. Work organized under the pull orientation demands that orders be completed quickly to fill individual contracts. This differs from the Fordist approach of mass production which "pushes" production from behind (Webster 1991). This new pull orientation imposes a pace of production that no longer requires time study methods and incentive pay systems.

Third, the post-Fordist approach to production allows owners to control individual workers and collectivities of workers by imposing job insecurity. With the absence of formal rules, owners have been able to dismiss individual workers who do not comply to company expectations concerning pace and quality of production under the pull orientation. Likewise, collective worker protests are diffused by owners' threats to close the company. And by not disclosing information on company profits to workers, workers have no foundation for questioning the fairness of the pace and pay of production.

Tapping the Craft Ethic

One of the ideologies which guided the Fordist approach was a taken-for-granted assumption of workers' tendency to restrict production, which Taylor termed "natural soldiering" (Taylor 1967). Because of this assumed "natural" worker

trait, Taylor advocated the separation of thought (managers' responsibilities) from execution (workers' responsibilities) and decreasing managers reliance upon workers' craft knowledge (Braverman 1974). This ideology guided the organization of work in the Bearing Company, which relied primarily on the work of "machine operators" rather than "machinists" (craftsmen) in the mass production of goods. The post-Fordist Remnant Company relies extensively upon the craft knowledge and skills of the workers.

The shift supervisor reports that his workers are "hand picked" "all around machinists," capable of running all or most of the machines on the shop floor.

Everyone here does their own setups. And they can setup multiple machines, everything in the shop. They are right there. Machinists, per se, a guy tells you he is a machinist, you have to dig deeper. He will tell you he is a machinist. What do you run? "Well, I run a turret lathe." Then you are a turret lathe operator, you are not a machinist, because a machinist does a lot of everything [Shift Supervisor J7, Remnant Company].

Machine operators, people capable of only operating a single type of machine, are no longer highly desired employees at the Remnant Company. To profit by flexible production, the owners seek workers who can shift from station to station and have the skills to change the machine tools to meet new specifications. Workers are expected to exercise craft skills with speed and precision.

Everybody in here is a hyperactive person because they are all doing more than one persons job, literally. Guys that used to run one machine in the Bearing Company run four machines now. They are creating as good a part. But to stay active in the international economy, we just can not go back to running one machine to one guy. You have to run multiple machines and you have got to be able to hustle. Age has nothing to do with it. A guy with the knowledge can walk from machine to machine and get as much done as a guy with a little less knowledge who is running from machine to machine [Shift Supervisor J7, Remnant Company].

By relying on craftsmen, the Remnant Company owners are able to tap into a craft ethic that was left untapped by the Bearing Company under its Fordist approach. Bearing Company workers, laboring on deskilled tasks under the incentive pay system, reported sometimes having to hold back production in order to avoid having their quotas increased. Because these workers were compensated primarily by volume, not quality, workers learned tricks to pass bad parts by quality inspectors. Thus, paradoxically, while Taylor's time study method was implemented to maximize productivity, it had the unintended consequence of restricting production in a number of instances, and most notably it undermined the craft ethic that fosters pride in one's work.

In the Remnant Company there are no quality inspectors. Rather, inspection falls upon the last worker on the assembly line who starts the air compressor and trouble shoots any potential problems. Each worker, according to the shift supervisor, is treated as a "man," a term of respect reserved

for craftsmen who show competence and dependability (Montgomery 1979). Workers in the Remnant Company, rather than operating under constant surveillance of foremen and managers (common in the Bearing Company) are under little direct supervision.

I have a hand picked crew. I can go in in the morning and say "This is what I need." I only check in on them twice a day. My thing is with them I don't need to yell and scream. We are all big boys here. You [the worker] know what I want and I'll come back later and see how you are doing [Shift Supervisor J7, Remnant Company].

Therefore, one of the ways in which the Remnant Company owners control work is by giving a great deal of autonomy back to individual workers. With workers monitoring their own work, the owners also have been able to dispense with the bureaucratic overhead of non-productive workers such as time study men and quality inspection departments, thereby increasing potentials for profitability. Working in part to maintain their status as a craftsmen among their peers, workers are guided by their craft ethic:

I try to do a good job. I buy something and I hope someone has put their best into it. We've had comments that now that it is just the few of us doing it the machines are coming out better than they were a while back. We take some pride in our work.....I would hate for someone to say that my work is shit [Machinist J5, Remnant Company].

Fordist workers laboring on deskilled tasks are less likely to

be concerned with producing "shit," unless producing "scrap" undermines their abilities to "make-out" on the incentive system. A strong craft ethic is one of the primary differences that distinguishes Remnant workers from Bearing workers. While all of the retired Bearing workers reported taking personal pride in their own work, they also complained bitterly about the large number of "deadbeats" that worked in the factory. In part, they attributed the bankruptcy of the Bearing Company to the union's protection of "the deadwood." Remnant workers, on the other hand, uniformly report their co-workers as "really knowing their stuff" and being a key source of satisfaction in their work experiences.

When workers adopt a craft ethic, informal groups enforce quality production, an aspect of work that used to be enforced by foremen and formal rules. Rather than first relying upon foremen or shift supervisors, craft workers instruct each other in production techniques and engage in quality control themselves.

If someone is doing something wrong and you have to fix it you shouldn't let him go on doing it wrong. You just go and tell him. You let it slide a couple of times then you tell them. I would want someone to tell me [Machinist J1, Remnant Company].

This attitude differs markedly from that fostered under Fordism because leaving their stations would undermine

workers' abilities to make out.² In contrast, the post-Fordist Remnant Company encourages worker cooperation.

Oh yeah, if someone has a problem with something we can take a break and help them out. Give them a hand. Someone down at the other end of the shop might know that you know how to do something and he is stuck. You just take a walk down and show him. They [the owners] are pretty good about stuff like that [Machinist J1, Remnant Company].

On one level, fostering a revitalization of craft skills and the craft ethic may appear to decrease owners' control over work tasks. This is true. But by structuring work to cultivate a strong craft ethic with craft labor, owners have also been able to structure the social context of the work place such that workers engage in the surveillance of each other. Interestingly, therefore, owners' power is apparently increased in the Remnant Company by giving task control back to workers. This is accomplished by coupling craft work with a "pull orientation" to production and the instilling a sense of job insecurity among the workers.

Pacing Work With The Pull Orientation

Fordist mass production in the Bearing Company was guided by a push orientation, which Webster explains as:

² Roger Tulin's A Machinist's Semi-Automated Life (1984) provides an excellent account of how the Fordist approach discourages the sharing of knowledge between workers, undermining organizational efficiency.

"the impetus for the movement of materials along the production line come from upstream, rather than them being 'pulled' through the plant by empty spaces downstream in the line" (Webster 1991:212).

In other words, pace of production was determined by the vast reserves of mass produced component parts, assembled at (ideally) the fastest pace possible. The Fordist approach uses time study methods to determine the optimum momentum of raw material to finished product, and incentive pay systems to compel workers to pace their work accordingly, pushing the production process from behind.

The post-Fordist Remnant Company seeks to exploit economies of scope with more flexibly specialized production methods and it has abandoned the Bearing Company's push orientation in favor of a "pull" orientation to production. According to Webster (1991:212), under the pull orientation the impetus for the movement of materials along the production line come from empty spaces downstream in the line. Unlike the push orientation, the pull orientation begins with the market for customized machined goods. Orders for products are obtained by Remnant Company salespersons, delivery dates are set, and then the production is thereby "pulled" from the need to fill these orders.

In the post-Fordist Remnant Company there are no time study men, nor are there incentive pay systems. All workers are paid a straight hourly pay, ranging from \$7/hour to \$11.50/hour (well below the pay in the Bearing Company, which

was as high as \$22.00/hour). But according to the shift supervisor, as well as workers, per worker production has increased by 4 to 6 times over that in the Bearing Company.

By coupling the pull orientation with "Just In Time Production" (JIT), the owners are able to control the pace of production without time study methods. Under JIT, rather than producing vast reserves of parts for mass production, parts are produced for each batch of orders (Schonberger 1982). This allows the company to modify products to suit individual customer's needs, as well as eliminate the cost of keeping large stocks of goods on the shelves in reserve. The JIT practice, however, also produces an organizational context that forces workers to produce at a faster pace than under Fordist time study methods.

Because each part is made to fill orders, any single worker who is unable to keep production flowing with quality parts is quickly identified to both managers and his co-workers.

We are down to a skeleton crew. The assembly floor, at one time there were 60 guys down there doing almost the same amount of machines that we do right now with about 12 guys. But we have come a long way in learning about assembly lines. Before we were a really big operation, you would take six guys and put them onto a frame, it wasn't really an assembly line. Now workers work right there and get their parts....the small machines are physically moved by human bodies. One guy does what five guys used to do. It takes a little longer, instead of trying to get 10 machines down the line in a day, we settle down for four or five. The quality is much better because you don't have a lot of hands in the pot. You've only got

5 guys creating something that they know if this part is wrong it is going to immediately come back to them because they installed it and we know who does every part. And our quality has come up a lot and we used to have 10 inspectors but now we have only one inspector and he doesn't look at anything until it is completed [Shift Supervisor J7, Remnant Company].

With the "skeleton crew," the small post-Fordist Remnant Company eliminates the worker anonymity that was used to workers' advantage in the Bearing Company. If any one worker fails to perform his job adequately in the tightly coupled chain of reliance in the Remnant Company, he will hold up production of all workers further down the line, and his personal shortcomings will be quickly identified. For alienated workers who take little pride in their work, this would be of little personal consequence. However, for workers with a strong craft ethic, the inability to keep up is a reflection on their personal competencies and skills as craftsmen. Therefore workers "hustle" to keep up production and meet the pull of the orders.

Just In Time production also structures the workplace to produce frequent emergencies that require worker immediate attention. Whereas Bearing workers could build up "kitties" of parts, which allowed them to take frequent rests (sometimes as long as half of the work day), Remnant workers can not make kitties of specialized parts. Upon finishing any particular part, they are then called to the next task that needs to be completed in order for production to meet the months orders.

Neither the pull orientation, JIT, or the craft ethic alone, produces the rapid pace of production seen in the Remnant Company. Theoretically, the craft ethic gives autonomy back to workers, which increases their capabilities to slow the pace of production to their own comfort level. Likewise, workers could theoretically simply refuse to work at a fast pace, claiming inabilities to produce to the capacities demanded by the orders with the existing skeleton crew. However, when these two elements of control are coupled with job insecurity, owners are able to obtain a fast pace of work from machinists and submission to the owners' imposed pace of production.

Job Insecurity

The pervasive feeling among workers in the Remnant Company is one of insecurity. The owners are able to use job insecurity in two ways to generate a fast pace of production among workers. First, individual job insecurity is used to motivate workers to work at a fast pace in order to prevent being laid off or replaced. Second, collective job insecurity is fostered by cultivating an understanding of impending company closure if production is not highly efficient. This is made especially salient with Machinist Valley's history of plant closures and runaway companies.

All of the workers in the Remnant Company acknowledge that they are working at a faster pace and are producing more

than when they worked in the Bearing Company. They are also given additional responsibilities, such as stocking their machines with castings, a job that used to be performed by the company internal truck driver. Workers are also expected to help co-workers when they are in need of assistance.

I build about 5 complete compressors a day. I usually have enough left to get started the next morning, have all my parts ready and stuff. There used to be two guys doing the job, now I try and do it the best I can, one person, to keep the line going. We've been doing pretty good. We've been on some good months were we've done close to a hundred in a month with a little overtime [Machinist J1, Remnant Company].

This worker and others, however, feel vulnerable if they slow production or resist doing more tasks. The shift supervisor explains that in order to work at Remnant, each worker has to be "Mr. Hustle." In the constricting market for machinists in Machinist Valley threats of lay offs or firings carry great weight.

These guys, like I say, it's you put out or you get out. That is basically what they are telling you. They say to you, "you want to work here you do your day's work. Or you get out and we'll get someone else." They don't fire you, they lay you off [Machinist J4, Remnant Company].

In the Remnant Company, workers' job security rest on their willingness to conform to the pace determined by the pull of production, rather than the number of years they worked for

the company. Workers who prove less productive than other workers, or who resist speed-ups, are usually laid off rather than fired directly. Once laid off, these workers are not recalled and are replaced by either more compliant workers or by workers who will expect lower wages for the work being performed.

If you wanted to work there [on the assembly line] you had to work harder. It was push-push-push-push for everything they were worth...Well, there is no way. If a guy worked at a slower pace they would say "Hey you can do better than that! We have ten machines you guys can go twelve. You guys didn't work a full ten hours or twelve hours." Stuff like that. Know what I mean. They would go out and hire young guys, pay them \$6.50/hr and lay me off. That is the way they operated down there. They wanted people down there to bull. Just plain bull. Pick up tires, throw them on the compressor. Those kids, they are kids. Imagine all day taking tires like that, picking them up and putting them on axles way up there. But I had to do it because it was a job. [Machinist J4, Remnant Company]

They say you are only expected to make the old quota [on the CNC machines]. But in reality you are expected to make the old incentive production, without the incentive pay. People are hustling because they are afraid that they will not be called back after a layoff if they are not making that high rate of production. [Machinist J12, Remnant Company].

The responses of these two workers show that the shift to post-Fordism is affecting low-skilled and high-skilled workers in similar ways. Although the latter machinist has higher skills than the former assembly line worker, it is the same feeling of job insecurity that compels them both to produce at the fast pace mandated by the pull of production. The

importance of this job insecurity is heightened by constricting opportunities for machinists in Machinist Valley, where there are roughly one-third of the machinist positions that there were in the early 1980s. But unlike the skilled machinist, the lesser-skilled assembly line worker feels considerably more pressure to produce because of the availability of younger lesser skilled workers that could (and did) replace him.

Job insecurity for workers' individual positions motivates individual workers to produce at a fast pace. By producing a collective sense of job insecurity, owners are able to instill further compliance to fast paced production. The decade of company closures in Machinist Valley showed workers that their jobs depend not upon union negotiated contracts, but rather on the viability of their individual companies to profit in Machinist Valley. This, in fact, is a new understanding in the Valley, as most workers thought that the Bearing Company was like "the Rock of Gibraltar" and that it would always be there.

Machine shops are very frustrating right now because there is no sense of security anymore. When I first went to work for Bearing, hey, everybody considers Bearing = Liston. If you go to work for Bearing you are going to work here, you are going to retire from there and blah, blah, blah. Well that didn't happen in my case. What everybody thought would never happen, happened. Bearing sold the company [Machinist J15, Remnant Company].

I always felt Bearing wouldn't leave. They were like the Rock of Gibraltar. Out here now I don't feel that

way. Security does an awful number on you when you work for twenty years for something and you say to yourself I can take my pension and do this, do that, go here, go there. Then all of a sudden I know that its gone. I don't know what they are going to do. They can move out in three weeks, they can move out in 10 years. I don't know. They don't seem to let you know [Machinist J5, Remnant Company].

In order to keep their companies in Machinist Valley, workers are exhorted by the owners to keep production high, so the company will not be forced to move to a new location. In company meetings workers are directly told that the company could move out of Machinist Valley with ease, and that staying depends upon maintaining a high profit. This leads workers to feel a sense of constant job insecurity.

[I think they will stay for the next five years] because they have a lease. They wouldn't break the lease unless someone offered them a place for nothing. They mentioned this at the meeting because there were rumors of them moving to Florida at one time and they gave us a special meeting to break the ice. And they said they would if they could get those special conditions, where they could get rent free, they would move..... [sarcastically] That makes you feel good. "[They say] we are not leaving, but if something came up tomorrow we would go." You can't trust them. They are just a bunch of investors out to make a buck I guess [Machinist J1, Remnant Company].

While workers are exhorted to produce at a fast pace in order to help the company prosper, they are given no information on the profitability of the enterprise. Almost all of the workers expressed disdain for the owners because they felt that the company must be making a profit, yet no one had

received a raise since 1986. However, they have no foundation upon which to make a complaint because they lack hard data on company profits.

They say they don't make anything, but here we are with one-third of the crew we had but we are putting out just as much work. Its hard to believe, maybe its true, you know I don't know, I'm not an accountant or anything or keep track. But we see the machines go through here, and there has to be something somewhere. They want to keep us at a certain spot and that is it..... We had a meeting a month ago. [They say,] "We made this much this month and this much last month but we can't give anything until next year. But by the end of the month we'll still be at this level. But you guys are doing good." [sarcastically] Thanks a lot. Why can't they just give a little now? You work hard you should get some reward. They could give us back even a little insurance that they made us give up. It isn't much, \$15 bucks a week. Say "You guys are doing good, here we'll take this back." [Machinist J1, Remnant Company]

In conclusion, post-Fordist production in the Remnant Company returns control to individual workers in the performance of their tasks. Workers exercise craft skills and report a great deal of autonomy in their work. However, owners have been able to set a social context that harnesses the potential benefits of employing workers with a strong craft ethic. The pace of production is now determined by a pull orientation, which compels workers to perform their tasks at a pace that will fill the monthly orders. And by instituting Just-In-Time production methods, the owners are able to compel workers to engage in more continuous production. However, the key factor that ultimately underpins

owners power in determining the conditions of work is the ever-present threat of individual job loss and company closure.

Hightech Enterprises

Hightech Enterprises has a great deal in common with the Remnant Company. The company is a small non-unionized post-Fordist enterprise in Machinist Valley that only employs 30 people. There is no formal rule book, no incentive pay system, and all production is done on CNC machine tools. Hightech Enterprises is flexibly specialized to make high precision machine parts for customer orders, primarily relying upon government contract work, and does not produce a finished product for the market. Their products include custom dies, components for industrial air conditioning units, and high precision parts for various industrial and military uses.

The case of Hightech Enterprises shows that post-Fordism does not necessarily signify an abandonment of mass production, but rather shows that there is a new post-Fordist approach to mass production, flexible mass production. Rather than engaging in start to finish mass production, as was the common practice under Fordism, Hightech Enterprises uses its CNC machine tools to produce large batches of custom machined goods. This allows the company to flexibly specialize in a restricted range of activities, adjusting the CNC machine

tools to meet new customer specifications. These same CNC machine tools also allow the company to produce small batches of customized products.

Hightech Enterprises' approach to mass production in conjunction with flexible specialization is a particularly important aspect of post-Fordist production that is often missed by craft control theories. As Hightech Enterprises demonstrates, because a firm is flexibly specialized, it does not necessarily mean that it has also abandoned methods of mass production. By limiting the range of its product lines, Hightech Enterprises has been able to work as an independent contractor, producing products specific to customer needs, as well as specialize in large batch production. The distinguishing feature of Hightech Enterprises' mass production, which separates it from Fordist mass production, is that Hightech Enterprises does not engage in start to finish production. Hightech Enterprises is one of the growing number of companies to which second parties "outsource" production. This second party then assembles the component parts into the final products. The result is a fragmentation of the mass production process across small post-Fordist enterprises, rather than centralized mass production emblematic of Fordism. As I show below, this offers the owners of Hightech Enterprises (and the second party contractor) a distinct advantage in cutting worker wages because it undermines the workers' capabilities for forming

viable unions.

Because Hightech Enterprises engages in both large batch and small batch production, the owners have divided work between two strata of workers. Low skilled operators are used primarily for large batch production, and higher skilled machinists are used for small batch production. Unlike the Remnant Company, the higher skilled machinists are not full craftsmen. Rather they occupy a position of semi-skilled craftsmen, skilled only in the operation of a particular type of machine tool. Therefore the types of workers working in Hightech Enterprises more closely match the types of low-skilled and partially-skilled workers desired by the Fordist Bearing Company.

By combining post-Fordist organizational size with deskilled and partially skilled work, owners in Hightech Enterprises have been able to exert considerable power in determining the terms of production, particularly increased because of the absence of a union. The lack of a union at Hightech Enterprises has increased the owner's power to use individual and collective job insecurity as a means of controlling workers. With a lack of formal rules protecting employee rights, owners are also able to manipulate workers with false promises and coercive tactics. Thus, in many ways, Hightech Enterprises represents the degraded work environment advanced by owners under Fordism in the context of the fragmented post-Fordist approach to "flexibly specialized mass

production."

Low-Skilled Work in the Post-Fordist Enterprise

The assumption underpinning craft control theories is that the post-Fordist approach of flexible specialization extinguishes the need for deskilled work tasks. In order for companies to innovate and change products to suit the needs of customers, these companies need skilled workers. The case of Hightech Enterprises, however, shows that flexible specialization with advanced flexible technologies can still incorporate low-skilled workers in the production process. Rather than relying upon craft skills for large batch production, Hightech Enterprises has opted for the Fordist approach of programming machine tools off of the shop floor and limiting workers' acquisition of knowledge. By limiting the amount of craft knowledge operators obtain and use, owners are able to prevent these workers from gaining bargaining power over the terms upon which production will take place, as their positions are suited to easy replacement. In Hightech Enterprises, owners' control is made more effective than the Fordist approach because it constrains workers' power to engage in collective methods of control.

In Hightech Enterprises, machine operators have only rudimentary programming knowledge and do little more than place parts on the CNC machine tools and remove them once the machines have completed their cycle. In production of air

conditioning units, for example, parts run in four minute cycles and operators work two machines at a time, thus changing parts on CNC machines every two minutes. The repetitive nature of tasks leads operators to characterize their jobs as "very boring." By restricting these workers to constant production, determined by the speed of the machine, these workers experience few opportunities for skill development.

An operator's position in the Hightech Enterprises is significantly worse than an operator's position in the Fordist Bearing Company. The starting wage for machine operators is only \$4.50/hour, and after 5 years of work for Hightech Enterprises, the senior operator was earning only \$7.00/hour. A comparable CNC operator in the Bearing Company would be earning as much as \$18.00/hour in the early 1980s under the incentive pay system. Unlike Bearing operators, who increased their job security with each year of labor, the Hightech operators and machinists have no greater job security than on the day in which they entered the company.

One way in which owners keep operators laboring for low wages is with promises of skill development and company commitment to personal careers. These promises are especially effective on the operators, who are 18-24 years old and are the youngest and least jaded workers in the shop. According to older workers, these young operators are manipulated with promises that the owners never intend to fulfill.

They have one guy that has been there four years. They promised him when he went there that they would put him through any school that he wanted to go, even if it wasn't machine shop. Anything that would better the community, that is what they led him to believe. He has been there four years. They are not going to do that. They just had another kid who has been there for six months. They told him that if he wanted to go to medical school, they would be glad to do that because it would better the community. This is what they do. They tell people what they will do and they treat you good while you believe, then eventually the worker finds out what it is all about. But by then they [the company] have had a good year or two years good production out of the guy because they had a guy with a good attitude believing they were going to do good for you. Then it all falls apart, as the guy finally realizes they are going to do nothing [Machinist H3, Hightech Enterprises].

Because these are informal agreements between the owners and the individual worker, operators have little recourse when promises go unfulfilled.

Hightech made some promises to me that they were going to send me on to college and technical school for continued experience on the technical end of computers. I'm still waiting [Operator H1, Hightech Enterprises].

Considerably more work is expected of Hightech operators in comparison to their Fordist counterparts. Bearing Company operators worked on only one machine and restricted their work tasks to that single job. Hightech operators, on the other hand, labor on two machines simultaneously and are also expected to do other unskilled tasks in the company as well, such as loading/unloading trucks and performing janitorial services. In this context, it is evident that by abandoning

bureaucratic organization, which rigidly determined job tasks, owners' power is increased to pace work and keep machine operators laboring in a highly productive capacity.

In the Bearing Company, many operators were satisfied working with restricted tasks because the company provided job security and very high pay, thus making up for the intrinsically unrewarding work. In Hightech Enterprises, operators desire either to become more skilled machinists or to leave the company to find better paying work. But in Hightech Enterprises mobility is structurally blocked, as the owners prevent workers from acquiring new skills and knowledge. Hightech Company owners actively discourage the sharing of knowledge between workers on the shop floor.

[If I am away from my station] the foreman will run over to me and say "why are you here?" I say "look I am not a computer, I am not a robot, I can't stay at my machine for eight hours and just do that." He says "Well, are you having problems?" I say "no I am just chatting." I'm only standing 15 feet from my machine and it is running. It all goes back to the general manager who says his job is over there in the corner. Usually I always feel like I am in one of the corners of the building. [Operator H2, Hightech Enterprises]

When this operator talks with other machinists, he is not always simply "chatting." He is relying on more experienced machinists to teach him machining skills. However, by engaging in repetitive activities in an isolated corner of the shop, after four years of work he has only learned rudimentary program editing skills on a single type of machine tool. As

a result, this operator has little more bargaining power than he did after a few weeks of work at the company. Having surveyed the options for other employment in the Valley, this operator has decided that his current job is "as good as any I can get around here."

In many ways, the Hightech Enterprises has incorporated Fordist practices in the post-Fordist approach to production. This includes the continued Taylorist practice of separating thought from execution. Rather than cultivating craft skills and craft knowledge, both machinists and operators are made to feel expendable.

They have capable people that just are not given the opportunity to work up to their abilities. They are made to feel like they don't know nothing..... one of the employees had a problem because of the foreman. I think his exact words were "I think the best way to..." and the foreman cut him off and said "You are not supposed to think, that was his job." That is their attitude and that affects their employees attitudes. We are not supposed to think [Machinist H4, Hightech Enterprises].

Creativity is not rewarded nor desired in the workers, and workers report a uniformly negative evaluation of their work experiences. While dissatisfied with work and compensation, machinists in Hightech feel they must continue to labor and "not make waves" because of fear of losing their jobs.

Job Insecurity

The primary source of power for owners in both the Remnant Company and Hightech Enterprises is the enforcement of job insecurity. However, because most of the jobs in Hightech Enterprises require lower skill levels than in the Remnant Company, job insecurity is enforced to a much greater degree. In fact, the types of work performed in Hightech place the owners in a very advantageous position in Machinist Valley because the Valley has a large population of medium-skilled machinists available to replace dismissed workers. Workers understand that this is to the advantage of the employers, and as a result workers feel powerless in protesting working conditions and are "afraid of the thought" of losing their jobs:

[After the large shops closed] the market was flooded with machinists. So places like Hightech feel that (and I am sure they have probably a hundred applicants a week) there are people that are out of work and are desperate for anything. They don't have unemployment anymore and the employers have such a large labor force (available) that they don't even care about their own labor force. It is just that they feel that if they want to get rid of someone who has been with them for 5 or 6 years, those who know their way around the shop, know their work, know everyone that is there, they can let them go and hire someone off the street [Machinist H3, Hightech Enterprises].

Thus labor turnover in Hightech Enterprises is very high. Workers describe the company as "like it has a revolving door."

When I went to work for them the first time, I was the 37th employee (for seniority). Within two weeks I was the seventh employee for seniority [Machinist H4, Hightech Enterprises].

Whereas Remnant employees are laid off and not rehired, Hightech workers are more likely to be fired or be coercively persuaded to quit when they do not perform to the owners' expectations. Each of the workers interviewed reported a fear of being placed on the company "hitlist." According to workers and a former foreman in Hightech Enterprises, the hitlist is the owners' roster of employees who are to be either fired, forced to quit, or shown that they are now a disfavored employee.

[When I was a foreman] I was given what I consider to be a hitlist. I knew the people that were working for me and I knew the people who were doing good work for me and the people I didn't have to worry about. Once a month or so I was given a list of names of people they wanted to see canned. Sometimes it was the guy that wasn't giving me problems, but he had been there long enough so his paycheck was making top dollar. I had one guy that he was given a job to do and he said he wasn't going to do it so I told him to hit the road.....[If a worker is on the hitlist] you just can him. Find a reason and can him. It could be anything from being late too much or being late once. Make him quit. Make him quit before you ask him to leave. You give the guy who has 20 years machine experience and you make him sweep the floor and you put a part time kid working after high school running his machine. If you start doing that to people...[Machinist H4, Hightech Enterprises].

Workers are subject to being placed on the hitlist when they give management or owners "trouble." Trouble includes

inciting labor activism, complaining about one's work, or trying to demand higher pay. For example, one CNC machinist, believes he is currently on the hitlist because of disagreement he had with management over rights to day shift work. Since going back on the day shift, he finds himself performing boring production work on a low quality manual machine at a section of the shop that has no window. Meanwhile, a younger worker was placed on a challenging CNC job that this machinist has done in the past.

As a result of the hitlist, the owners are able to keep wages low by keeping a steady turnover of employees. Collective employee tactics of control are undermined by dismissing individual activists, as well as by threatening to close down the plant. In one instance, workers did try to form a union, but according to one of the machinists, these efforts failed because of the pervasive feeling of individual and collective job insecurity.

Well they all know. Anybody who has been there long enough knows how they are being treated. Do you want to work here, work here for 15 years and be treated like shit, stay with this job or try to do something about it? People were all gung-ho until we actually had the union outside the shop one morning passing out pamphlets because the group that got fired got in touch with the local union president. They advised us how to do it. At that time they asked if we had enough people to make it worth their while. Of course they were gung-ho until then and then they got nervous because something was happening. Some people backed out. So it was a try but it didn't get anywhere because people were afraid...We couldn't get people to unionize because everyone was afraid for their jobs [Machinist H3, Hightech Enterprises].

Because of their experience with overtly coercive employers and receipt of low wages, employees of Hightech Enterprises are very dissatisfied with their work experiences. Rather than finding post-Fordist work a source of intrinsic satisfaction, machinists describe their work as an extremely alienating experience.

I'll tell you I hate to go to work every day. I hate it. I get up and I don't feel good, I don't want to go. It is purely a paycheck [Machinist H3, Hightech Enterprises].

The case of Hightech Enterprises shows that flexibly specialized post-Fordist production can integrate low-skilled and medium-skilled work while capitalizing on a new form of mass production. Unlike the Fordist Bearing workers, however, post-Fordist workers receive significantly lower levels of pay and security. Some low skilled operators work in the hope that the company will fulfill promises of increasing their skill development. Because they are systematically blocked from advancing their skills and from using craft knowledge, low-skilled workers are especially vulnerable to replacement. In an local labor market saturated with medium-skilled workers, machinists in Hightech Enterprises are very vulnerable to being placed on a hitlist, and replaced by other workers in the Machinist Valley.

The experiences of machinists in Hightech Enterprises

illustrates the ways in which owners are able to take advantage of workers in a local economy saturated with workers capable of engaging in low-skilled and medium-skilled work. Small organization size especially heightens the owners' power, as they are able to threaten to move the operation to new locations in the face of labor activism. While I emphasize the power relations within the factory, it is also important to recognize that owners' power is heightened due to economic incentives which favor the transplantation of companies from community to community, as well as from nation to nation (Barlett & Steele 1992). Small organization size facilitates this rapid transplantation of enterprises to a greater degree than the large organization size advanced under the Fordist approach.

The Loyalty Company

Rather than producing a finished product (Remnant Company), or engaging in large batch production (Hightech Enterprises), the Loyalty Company is strictly limited to small batch component production. All production in the Loyalty Company is aimed at customer orders and most contracts are for fewer than 10 pieces. Because of the constant changes in production, the Loyalty Company most closely represents the "flexibly specialized" enterprises which capitalize on the increasing demands for small batches of specialized products

suites to individual customer needs.

The Loyalty Company was founded in 1986 by a Liston machinist with a \$4,500 loan from a friend following the closure of the Bearing Company. Initial success in obtaining small contracts allowed the owner to quit his job at another local machine shop and work full time in his new company. Continued success in subcontracting for small batch production of replacement and prototype machine goods for a local electrical company allowed him to purchase a small two story building outside of Liston and to employ a few machinists. The company has continued to grow and gain higher profits and more lucrative contracts. Currently the Loyalty Company employs 12 machinists full time and 3 machinists part time. Although one machine is retro-fitted with CNC capabilities, most production is performed on manual machines in this shop.

The Loyalty Company currently produces small batches of custom machine parts for other companies in the Northeastern United States. All work is customized to the needs of contracting companies. Usually production is oriented to the manufacturing of replacement parts for automated machinery and prototype parts for new products. While the company still does custom work for local companies, it primarily relies on contracts from a large electrical company located outside of Machinist Valley. The Loyalty Company has no formal rule book, does not use incentive pay systems, and is non-

unionized.

All of the workers in the Loyalty Company are semi-skilled machinists, highly skilled on one or two types of machine tools, but unskilled on other types of machine tools. Workers are able to work from blueprints and process parts to close tolerances on their individual machines before passing the part on to other workers skilled at operating other types of machine tools. The pay of these workers is comparable with the machinists working in the Remnant Company and Hightech Enterprises, \$10.00-\$12.00/hour. However, unlike the workers in the other two companies, Loyalty workers have a very high level of job satisfaction. They report very positive feelings about the owner, their co-workers and their work tasks. In part, this is because they are able to exercise craft skills and have a strong craft ethic.

You want to do your best and you feel bad if you don't. If you have a bad day, it bothers you. You go home...it bothers me. Everybody has bad days. It bothers me. I'll come in the next day and give 150% and want to do it. I'll be thinking about it on my way into work. Hey, I am going to go in and make up for that bad day [Machinist H3, Loyalty Company].

By cultivating loyalty to the company and by disposing of formal bureaucratic methods of control, the owner's power to pace production is significantly increased over that obtained through Fordist methods. I first show how this owner's power is increased by methods of obscuring the class division between himself and workers. I then examine how the owner is

able to motivate workers with an informal incentive program and the advantages of this system over the formal incentive programs advanced under Fordism.

Obscuring Class Divisions With Company Loyalty

Each employee in the Loyalty Company expressed admiration for the owner's efforts to start a new business in a harsh economic climate. The owner stresses to workers that in order for the company to survive, and for their jobs to survive, all of the workers have to work together as a team. While this idea is not incompatible with Fordism, it was not cultivated in companies like the Bearing Company because of the manifestly antagonistic worker-manager relationships generated by Taylorism. By building employee commitment to the company, the owner is able to obscure class divisions between worker and owner, reminiscent of 19th century craft approach to production. Workers need little supervision, and to some degree, extend control upon each other in maintaining high quality production.

Commitment to the Loyalty Company is cultivated through organized events and redefining benefits as gifts rather than rights. The owner of the Loyalty Company holds occasional company picnics and caters these events with lobsters, beer, and steaks. Each Loyalty Company worker sees this as evidence of the owner being a "good guy." The owner also offers employees one floating holiday, called "Loyalty Day" which

they can take at any time during the year. Rather than adding on one more vacation day for all employees, Loyalty Day is defined as a special day only available to Loyalty employees, thereby increasing employee commitment to the company. The number of paid days off that the Loyalty Company offers are comparable with those offered in the other post-Fordist companies in this study, 7 paid holidays and 10 vacation days after one year of service.

With the expectation of worker commitment to the company, the owner is also obligated to display commitment to individual workers. Therefore, unlike Hightech Enterprises, there is no hitlist and workers are treated with respect and given special privileges in the plant. For example, I observed two workers using drilling machines to make a fence for their house. They had neither asked the owner for permission, nor did they try to hide this activity when the owner entered the shop. By giving workers special privileges not seen in other companies, such as flexible time schedules, the owner builds worker commitment to the enterprise rather than to their social class.

For the owner, worker commitment to the company is important because it saves him the trouble of training new workers and assessing new workers' capabilities. It also increases the positive potentials of employing workers who maintain a strong craft ethic. As discussed previously, workers with a strong craft ethic work hard because they like

to work and take pride in their accomplishments. Because workers in the Loyalty Company believe in the company and in their work, they want to give their all to the job.

I am more busy at this job than any other job I have ever had. I go from 6:30 in the morning to 3:30 in the afternoon. Sometimes I forget to eat lunch. You look at the clock at 2:00 and say Jeeze I had better eat my sandwich! This is because you get into it and it is like anything else you do. You get into it and...[Machinist L1, Loyalty Company].

While the craft ethic is largely responsible for the fast high quality production in the Loyalty Company, it is not the only means by which the owner influences the pace of production. Below I examine the strengths of the informal incentive system used in the Loyalty Company. This system builds further commitment to the owner and the company, while further obscuring the class relations.

Informal Incentive System

Owners, under the Fordist approach to production, paced work on manual machines by introducing time study methods and formal incentive pay systems. In the Remnant Company and Hightech Enterprises, the pace of work is partially imposed by CNC machinery, thereby ending the need for incentive pay systems. Work in the Loyalty Company, however, is performed solely on manual machines. In order to pace production, the owner has developed an informal incentive system, which significantly increases his power to maintain a fast pace

production in comparison to the formal incentive systems of Fordism.

The incentive for hard work in the Loyalty Company is job security and the year end bonus, which ranges from \$100 to \$750 per worker. These bonuses are based partially on company profits during the preceding year and are distributed among employees by their individual work behavior. According to the owner, "seniority has nothing to do with year-end bonuses." This differs sharply from compensation under Fordism, which tended to reward the most senior workers the highest. Unlike the Bearing Company's system that partially compensated workers for their seniority in the company, all workers in the Loyalty Company must work hard throughout their career to achieve good incentive pay.

This informal bonus incentive system offers distinct advantages over the formal incentive systems advanced under Fordism. Unlike Fordist incentive systems, an informal system can be changed and modified with ease. The owner of the Loyalty Company, a machinist with 30 years experience, knows his employees personally and believes he knows each worker's capabilities. He determines their capabilities during an initial trial period of employment, during which workers are expected to show him their maximum capabilities.

I would hire workers at a fair wage. Usually when they say "I have to have this much money." That is usually what I do. Being the nice guy that I am. Then I say, okay, I'm paying you what you are asking

me for, you are telling me what you can do, you look at the blueprint and the time, now buddy, now you have to show me what you can do.... Yes, if a guy comes in and he obviously can't do the job, I turn him over. If the guy seems like he has the right attitude, but has a hard time doing the work and getting it done on time, I give him at least six months....If he still doesn't work out, I turn him over [Owner L2, Loyalty Company].

Those workers who are not able to produce up to this owner's expectations are fired after a brief trial period. Once employees prove their worth, the owner then makes time estimates partially based upon his understanding of their individual capabilities. Therefore by not using a formal incentive system, the owner is able to maintain a sliding plateau of acceptable and unacceptable performances based upon individual worker's capabilities.

According to the owner, workers either "earn time" or "lose time" on each individual job by completing the job in less or more time than that estimated on the contract order. These times are recorded in a book placed behind the owners desk, and all employees have access to this book. At the year end, total individual employee time spent producing is subtracted from totaled estimated times for production. The owner then uses this as his guide to distribute employee year-end bonuses differentially. Thus workers perceive their bonus as reflective of their hard work during the preceding year, as well as reflective of the owner's generosity.

The owner informs workers that their bonus pay is also

dependent upon company profits. In a highly profitable year bonuses will be large, in an unprofitable year bonuses will be small. By structuring the bonus system in this way, the owner is able to cultivate collective worker pressure upon co-workers to maintain a fast pace of production. All employees understand that their individual bonuses are determined, in part, by the company's profitability during the preceding year. Individual workers who do not perform to capacity are subject to pressure by their co-workers on the shop floor to produce at a reasonable pace. This is directly contrary to the informal group pressure cultivated under Fordism, where employees pressured each other to restrict production so as to avoid having quotas increased.

While workers have access to the book that records their individual productivity, they do not have access to company records of profit and loss. Therefore, there is no formal system of distributing bonuses to employees based upon an absolute measure of the profitability of the company. Rather, the owner figures out "what he can afford to give" after he pays his taxes. In 1992, most of the workers believed that the owner was struggling to make ends meet, and felt "lucky" to receive any bonus at all. In fact, 1992 was the Loyalty Company's most profitable year, securing over \$500,000 in contracts. Workers had the impression that the company was not making large profits and reported "knowing that the owner has gone home some weeks without a paycheck." However, the

owner's income during this year was \$83,000; \$50,000 more than his highest paid machinist.

The informal bonus system also increases the owners power to control a wider range of worker behavior than the Fordist incentive systems. Whereas some workers in the Bearing Company could earn full incentive pay after only half a day of work, all Loyalty workers are expected to be constantly working in order to be allotted a high bonus.

My idea of a model employee is perhaps different than somebody else's. Ideally I would like to have everybody come in to work in the morning. Don't stand around for 20 minutes shooting the shit drinking coffee on company time with 2-3 other guys. You come in, punch the clock, get your coffee, say good morning, have a few words, and in a few minutes you are at your machine and go to work. Occasionally, occasionally during the day it is okay to toss things off and talk to another guy for a few minutes. But 10-15 minutes, three guys shooting the shit, no.....When it comes time for bonuses, I look at things like that [Owner L2, Loyalty Company].

Finally, one of the chief advantages of framing the incentive pay as an informal rather than a formal practice is that workers interpret the incentive pay as an indication of the owners' beneficence, not as one of their worker rights.

[The owner] takes good care of his people. He cares about his work force. I started working for him in November, and he gave me a \$100 Christmas bonus. That makes a lot of difference too. I never expected to get a Christmas bonus, but I really didn't expect anything here. [The owner] really took me off guard with it [Machinist H3, Loyalty Company].

By framing incentive pay as a "bonus" rather than a formal right, workers view the owner as "a good guy" and as "someone who takes care of his people." Therefore the informal incentive system used in the Loyalty Company offers a number of advantages over Fordist incentive systems, largely because it heightens worker commitment to the company and produces willing compliance to a fast pace of production.

Summary

In this chapter I showed that owners' methods of control under post-Fordist production are much more effective at producing a fast pace of work for lower wages than under the Fordist approach. While there are variations in owners' methods of control between different post-Fordist enterprises, there are also striking commonalities.

Underpinning owners' control are the abilities to impose job insecurity made possible by the post-Fordist approach. Insecurity affects individual workers responses, for fear of being put on hitlists or being laid off. Job insecurity also affects the collectivities of workers, who fear company closure. Job insecurity varies across firms. In Hightech Enterprises, individual worker's job insecurity is very high and is used by the owners to keep a constant overturn of medium-skilled machinists. In the Remnant Company, job insecurity is present to a lesser degree than in Hightech Enterprises, but extends considerable power to the owners who

threaten to move the company to more profitable locations if workers do not produce at a very fast rate. And in the Loyalty Company, individual worker's job insecurity is low. Even in this company, however, workers feel that the company is marginally profitable and can be forced to close in a highly competitive industry.

By structuring the workplace such that it requires workers to exercise craft skills, owners are able to harness the positive potentials of the craft ethic. Because craftsmen's status is related to the quality of their production, workers "naturally" labor consistently, rather than "naturally" soldier. Also, workers adopting a craft ethic control each other through informal group pressures. Again, this varies across firms. The craft ethic is highest in the Loyalty Company and the Remnant Company. In Hightech Enterprises, a strong craft ethic is neither cultivated nor rewarded in flexible mass production.

By disposing of formal rules and formalized incentive pay systems, owners' power is increased as well. Formal rules, when tied to legal rational authority, impose rigidity in the production process. This rigidity, as I showed in Chapter 1, can be used by workers to their own advantages. A work place that lacks formal rules makes obsolete one of workers' most powerful means of control developed under Fordism. In Hightech Enterprises, formal agreements are replaced with informal agreements between workers and owners, which enables

owners' to manipulate younger, more naive workers. In the case of the Loyalty Company, the informal incentive system allows the owner to redefine incentive pay as a gift rather than a worker's right, thereby cultivating worker loyalty to their company rather than to their class. And in the Remnant Company, the lack of formal rules enables owners to demand constant production from their workers, who are expected to move constantly from task to task.

The differences between firms is important, because it shows that post-Fordist production has a variety of forms and produces a variety of experiences. While Piore and Sabel (1984) only emphasize the "flexibly specialized" enterprise as the dominant approach under post-Fordism, the degree to which firms are flexibly specialized varies, and the approach to flexible specialization can vary as well. Hightech Enterprises shows a dark side of post-Fordism, an extenuation of the deskilling-depowering process of Fordism that is especially resistant to workers' control. On the other hand, the Loyalty Company and the Remnant Company in many ways demonstrate the liberating potentials of post-Fordism, with the return of craft work and the craft ethic. Therefore, I suggest here that post-Fordism should not be viewed as producing a singular inevitable form of enterprise. Rather, post-Fordism is in an emerging state and can take on a variety of forms, either liberating or degrading. I will address this issue further in Chapter 6.

Post-Fordism is currently developing and the above analysis shows that it is extending owners' power in ways not possible under the Fordist approach. In the "top-down" analysis of power, therefore, the experiences of machinists in Machinists Vally conform more to the expectations of Lash and Urry's (1987) fragmentation theory than Piore and Sabel's (1984) craft control theory. In the next chapter, I examine "bottom-up" power, the efforts workers use to exert their individual and collective will in the work place. This analysis will further examine why workers' power is declining and why unions are of declining significance in the post-Fordist enterprises.

CHAPTER 5

WORKER CONTROL IN POST-FORDIST PRODUCTION

Montgomery's (1979) history of Fordism shows that workers are not passive, rather they are agents who strive to gain or retain power in the work place. As I showed in Chapter 1, in the early 20th century, owners introduced organization and technology to increase their power to determine the pace and pay of production. Workers responded by shifting from individualistic responses, to craft union responses, and finally to class responses in industrial unions. In this chapter I examine the tactics workers use to exert control in the new post-Fordist work places, and analyze how these actions are influenced by their experiences under Fordism and post-Fordism.

To address the changing forms of workers' control, and their effectiveness at influencing the terms of production, I first examine workers' assessments of the desirability of union membership. As union membership is declining at the national level, the responses of machinists in Machinist Valley provide compelling evidence that old forms of union membership are neither desired by workers, nor would efforts

to unionize these workers be likely to succeed. I then examine two other potential avenues for workers' control, extended through individualistic responses and political responses, and how workers respond to post-Fordist production through these two different avenues of action.

The following analysis examines the collective responses of workers in Machinist Valley. When there are variations in responses of workers among firms, I emphasize these differences and relate them to the practices of the employers in the Remnant Company, Hightech Enterprises, and the Loyalty Company. While Loyalty Company workers have the least pro-union orientation and strongest individualistic orientation, workers in all companies had remarkably similar assessments and practices of control in the post-Fordist work places.

Industrial Union Membership

Post-Fordism and Organizational Discouragement of Unionization

In many ways, post-Fordist workers are in position similar to that of skilled craftsmen in the late 19th century because the organization of their work places is changing in ways that render old methods of control obsolete. Under craft methods of production, skilled workers understood their life chances to be tied to craft organizations which could maintain their exclusive rights to perform specific types of activities (Haydu 1988, Heckscher 1988). When these rights

were challenged by owners, craftsmen engaged in simple forms of control by walking off the job (Edwards 1979). By restricting membership to craft unions, and maintaining the exclusive right to perform labor defined as skilled, workers in the 19th century could maintain bargaining power over the terms of production:

...Craftsmen subscribed to a clear moral code - an implicit social contract, in Barrington Moore's terms - by which they evaluated new conditions at work and found them wanting. At the core of this code was a craft ethic, a shared commitment to the standards and dignity of the trade. Among machinists this ethic is overlaid with more populist rhetoric, in which the values of political liberty, equality, and participation are directed against the confinements, subordination, and despotism of the factory (Haydu 1988:59).

Owners introduced Taylorized work tasks in order to reduce their reliance upon skilled workers and to undermine the effectiveness of the craft union response in the mass production oriented factories of the early 20th century. As a result, a primary focus of industrial union organizers was to change worker loyalties from craft to class, and to build alliances between skilled and unskilled workers (Haydu 1988). So long as craft workers failed to identify their life chances with those of less skilled workers, workers were quite powerless to influence the terms of production under Fordism.

Workers under post-Fordism face a similar dilemma that craft workers faced with the introduction of the Fordist

approach. Under Fordism, the industrial union was the primary means by which workers advanced their individual and collective interests. Organized labor is currently in a state of crisis as union membership is declining and industrial unions are less effective in influencing the terms of production (Clark 1989, Heckscher 1988). Table 5.1 shows the decline in U.S. union membership, from a peak of 22,165,000 members in 1974, to only 16,975,000 members in 1986.

TABLE 5.1 U.S. UNION MEMBERSHIP FOR SELECTED YEARS
1953-1986

YEAR	TOTAL (thousands)	PERCENT (empl.)
1953	16,310	32.5%
1960	15,516	28.6%
1970	20,990	29.6%
1974	22,165	28.3%
1978	21,757	25.1%
1982	19,571	21.9%
1986	16,975	17.5%

Source: Clark (1989:5)

The machining industry has experienced similar declines in union membership. In 1970, the International Association of Machinists (IAM) maintained 865,000 members. By 1991, membership had declined to 534,000 members (Statistical Abstracts of the United States 1970, 1993).

TABLE 5.2 PERCENTAGE OF EMPLOYEES AT DIFFERENT SIZED COMPANIES AND LOCATIONS WHO ARE UNIONIZED, 1983

ENTERPRISE SIZE	PERCENT UNIONIZED
1-24 Employees	4%
25-99 Employees	14%
100-499 Employees	19%
500 + Employees	30%

Source: Brown, Hamilton, Medoff (1990:60)

Post-Fordist production is, in part, designed to undermine the ability of workers to organize collectively (Clark 1989). As Table 5.2 shows, small enterprise sizes are much less likely to be unionized than large enterprises. As I discussed in Chapter 4, small enterprise size enables owners to undermine unionization as it increases their capacity to instill a sense of collective job insecurity. The owners in Machinist Valley actively discourage unionization by threatening to close their enterprises if workers unionize, an action much easier to perform than dismantling and transplanting a large organization.

A guy mentioned it once. I don't think it was out of seriousness. It was just in a joking environment. The owner of the place got upset by it. He said, "As soon as you guys make any movement towards union, I'll sell the business. I lock the place up. People won't be telling me that if you are doing a poor job I have to give you a warning and not fire you. If you are doing a poor job, you are out of here. No one will tell me I have to give you three written warnings and have you rip me off for six months before I can get rid of you." Other than that...none of the guys here have ever discussed or even considered being in a

union [Machinist L6, Hightech Enterprises].

The people tried to start a union [in one company I worked for] and the owner of that company said that if they tried to start a union he would give them a months severance pay and close the doors....I know when I worked in one shop, we had a girl that wrote the personnel director a letter about a fox that was on the property. One of the supervisors threatened to shoot the darn thing and she got all wound up and wrote a letter to the personnel director that said, "we the people of [Company X]..." Well this guy had a fit and said, "what are you people trying to start a union up there? That doesn't happen in this company." We caught a lot of grief for that. This company is dead set against unions. You can see it in the way they operate. Maybe it is good in a way because they can keep the labor costs down. You can hire people at a cheaper rate, train them, and keep them there [Machinist L1, Loyalty Company (in reference to another company)].

Well, they all know. Anybody who has been there long enough knows how they are being treated. Do you want to work here, work here for 15 years and be treated like shit, stay with this job or try to do something about it? People were all gung-ho until we actually had the union outside the shop one morning passing out pamphlets because the group that got fired got in touch with the union president of the local 218. They advised us how to do it. At that time that asked if we had enough people to make it worth their while. Of course they were gung-ho until then and then they got nervous because something was happening. Some people backed out. So it was a try but it didn't get anywhere because people were afraid [Machinist H3, Hightech Enterprises].

Because of their experiences under the closure of the Bearing Company, workers believe that a union may be able to raise their pay, but it is incapable of retaining their place of employment in the Valley. Therefore workers believe it is better not to unionize, as a low paying job is better than having no job at all.

For me personally, I wouldn't want one...[This company] is so small they might just pack up and take what little there is away. You know we've lost enough in Liston where they don't need to lose that. Even if I wasn't working there, I wouldn't want to see a union go in there because it would ruin what they have [Machinist J1, Remnant Company].

The small organization size also increases owners' ability to observe individual workers and to screen out workers who are likely to engage in union activities, either by not hiring them in the first place, or by laying them off and not rehiring them. After the closure of the Bearing Company and during the opening of the Remnant Company, very few of the strong union members were rehired.

They went through the lists and got rid of all the people they wanted to get rid of and kept just the ones they wanted to keep. They called everyone into the office in groups and named off the ones they were gonna keep and the ones they didn't were out the door. They cut drastically. They cut people that were in there, and when they did hire they hired someone off the street when they were still laid off. We were still union workers. The union wasn't dead yet. That is when the union started fighting them. They cut these guys that were in there with seniority and brought guys in that didn't have seniority. In other words they cut the president, the vice president [of the union]. I was chairman of the grievance committee, they kept me. They kept a couple of other guys on the grievance committee. They didn't get rid of all the union officials, but they did get rid of the president and vice president. They kept the secretary and the treasurer and one other guy. They got rid of the rest of the other union officials... They were trying to destroy the union [Machinist J10, Remnant Company].

In Hightech Enterprises, workers engaging in union activity

are at especially high risks of being placed on the hitlist or laid off.

One of the guys was laid off. You can't prove it, but there is a rumor going around that that is because he was in with union guys. Everyone would come in and there would be a poster up. They didn't like that too much... He was laid off and he did that afterwards. He was a real good worker. There was no reason to lay him off. They had to cut somewhere and he did things his own way. 90% of the time he was right but they didn't want to say that... No one who has been laid off has been hired back. [Operator H1, Hightech Enterprises].

Owners report not wanting strong union members in their shops, and deliberately avoid hiring people trained "in the union mentality." Owners prefer younger workers who can be trained to "my way of doing things" over the older workers who maintain the antagonistic attitudes toward owners developed under the Fordist approach.

[Bearing workers] have been trained into a union mentality. Here they expect the world owes them a living and are not willing to work for what they are doing... We tried some of these people here but they haven't worked out. At a place like this, everyone has to pull their own weight and be versatile. With the ones we tried, we found them to be resistant to the way things are run here... But when I look for a worker, I usually look for a younger worker who wants to learn. Also, they are not trained in the union mentality and I can train them from scratch [Owner O1 of a machine shop in Machinist Valley].

Post-Fordist production enables owners to undermine unionization by creating organizational constraints which

discourage the formation of collective forms of control advanced under Fordism. Small organization size increases owners' abilities to close and move enterprises when faced with union activity. Within this context, workers do not view unionization as an effective means to extend their control in the work place.

In the global production of goods, it would be hard to frame workers' assessments of union ineffectiveness as "false consciousness." Because unions are organized within the nation state, as opposed to across nations, they largely are unable to prevent the closure and transplantation of companies to areas in the global economy where workers are less organized and more easily exploited.

Worker Dissatisfaction With Unions

Organizational constraint and declining union effectiveness are also accompanied with worker dissatisfaction with union practices. Despite the loss of wages and benefits under non-unionized post-Fordist production, machinists have very ambivalent feelings toward unions and union membership. While workers valued the security and high wages that union membership provided, they were also concerned about the negative effects unions have upon a company's profitability and the intrinsic experience of work.

According to Heckscher's (1988) analysis of the history of union formation in the United States, labor relations under

Fordism were formed in the framework of the Wagner Act of 1935. This act, and subsequent legislation, advocated and supported industrial unionization as the best way to counteract owners' excessive abuses of power. The Wagner Act's preamble expresses this goal:

The denial by employers of the right of employees to organize and the refusal by employers to accept the procedure of collective bargaining lead to strikes and other forms of industrial strife and unrest... Experience has proven that the protection of the right of employees to organize and bargain collectively safeguards commerce from injury...by encouraging practices fundamental to the friendly adjustment of industrial disputes...and by restoring equality of bargaining power between employers and employees (quoted in Heckscher 1988:42).

Unions were designed specifically to react to abuses of power by enabling workers to engage in collective disruption of production through the organized strike. But unlike the spontaneous strikes of craft production, bureaucratically organized industrial union strikes could not harness the "associational" forces that produce strong group solidarity (Heckscher 1988). Strikes, therefore, undermine workers' commitments to unions, as they feel "forced" to walk out rather than "compelled" to walk out. Machinists report not liking unions because of strike itself.

The bad part [about unions], I think, is strikes. I don't like strikes. I still have my sign. They got me in a labor dispute at the Remnant Company. It is difficult because you have to believe that the people negotiating for you are telling you the truth. You

have to believe they are in there trying to hammer out a wage scale for you. It might be over some language problem. You might go on strike for some language problem. But I hate strikes. I think there is no winner in strikes. I don't think the company wins and I don't think the union wins. I don't feel like we got a fair shake out of the international union down here. I was very bitter towards the union for a while [Machinist J5, Remnant Company].

In effect, the industrial union's strongest method of advancing worker interests ultimately undermines worker commitment to the union rather than the company. The strike and unions are sometimes blamed for losses of jobs, not the owners who close companies.

Hopefully I never will be [in a union]. That is why my dad doesn't have his old job anymore... He worked for a big tire company. You can only ask for so much, you can't ask for everything under the sun. A lot of the guys were happy with what they had, but the union leader thought the company could give more. So they talked the guys into going on strike and asking for more. Well they all got more and they got a whole lot less six months later. They shut the plant down [Machinist L6, Loyalty Company].

In addition to the strike, the other primary way in which unions advanced worker control was through enforcing rigid job definitions, thereby using Fordist bureaucracy to protect workers from speedups and excessive task demands. While this proved effective at extending workers' control and preventing arbitrary treatment from employers under Fordism, workers expressed concerns of how the rigid job classifications restricted efficient production.

When I was foreman [the union] was strong. They were opposed to anything that was management, even if it was for your own good. That I didn't like. I had a situation for example. A two man machine. They had two tables on a Rockford. It is a big miller, 50 feet long, and they have two tables on it. The object of two man was to have one guy setting up on one table and the other guy running the machine. It was all I could do to get them guys to do that. Normally they would both set up the machines and then both set on their ass and run it. It was quite a struggle to get them to do it. Eventually it got down to the point that they made it a one man machine again, for the simple reason that it started costing them so much money that they had to do something about it. But they were paying a man to do absolutely nothing. A whole night's pay. That was ridiculous. But you see a lot of that in union shops. That is one of the reasons I do not like it... If I have got money to have invested, and I am not making money, I have to pull the money out and put it in something where I can. Consequently that is one of the problems of why the economy has gone down because of that, in my opinion [Machinist J13, Bearing Company].

I think the union lost focus on what its purpose was, to take care of the people that needed to be taken care of. If they are singling somebody out for no reason, they could take care of that guy. But if you see a guy sitting there and doing a half hours work in an eight hour shift, they will have to take care of themselves. That isn't what was happening with the union and that is why things ran out. That is what I think. It had to happen. I guess they had to have their eyes opened. But now in companies the unions have been weakened considerably. Well Hightech Enterprises has really taken advantage of that arrangement [Machinist H3, Hightech Enterprises].

The above quotes again show that the actions of unions are blamed for problems in the Valley, not the owner-imposed Fordist approach to production. The history of labor is one of workers reacting to owners' methods of control. Workers do not frame their understandings of unions in the historical

context of the *longue duree* (Braudel 1958), they frame it in the contexts of their personal experiences in shorter historical spans, and frame their understandings accordingly. While industrial unions were designed to counteract the excessive power of owners in the early 20th century, workers now attribute many of the problems in production not to owners practices, but rather with the practices of unions themselves. These findings are consistent with national opinion polls concerning unions, which show that 60% of the public believe that "unions have become too powerful and should be restricted in their use of power by law" (Lipset & Schneider 1981).

Workers appreciated high wages, of course, but also felt that if the union had not been as effective in negotiating high wages, their jobs in the Bearing Company might have remained in the Valley.

They drove prices up. I'm not saying the company wouldn't have made as much money, but look today with what the automobile workers are making today, twenty bucks an hour. I imagine our next door neighbors are making five to six dollars an hour. Its got to stop somewhere... But I think [unions] overstepped their bounds [Machinist J8, Bearing Company].

But that is not the only reason that the shops went out of business. Some of it is poor management. Also the union always asks for more and the shop or company says, "Okay we will give you that." So they tack a little more on the price. What the hell, a few dollars more and the customer will still buy it. So next year they will negotiate the contract and the union says I want this and they say, "Give 'em that, what the hell." Then it got to the point where Joe Blow said I can build one of those cheaper than they can. So they started building it and you have competition and then you get right out of the market.

The union demands a high wage, which is fine. Everybody wants more money, that is not the fault of the union. The company is the one that gave it to 'em. [Machinist J11, Bearing Company].

The unions can be bad too. They can be. I think they have their place. Sometimes they get out of hand, but it is the same way with companies. The company always says the union closed the shop. The union always says if the company went along with the plan they wouldn't have had to close. It gets men \$15/hr. A man needs an adequate wage to sustain a living. Who is to be the judge? [Machinist J5, Remnant Company].

Unions were also appreciated for providing job security. But again, workers held contradictory assessments on union power in enforcing job security. While the union enabled good workers to keep stable employment, bad workers were also equally protected. Of all of the concerns workers had regarding unions, the primary complaint was how unions protected the "deadbeats".

[Unions] are just as good as they are bad. What I'm saying on that is they are good because they get something for the people if it is deserving. There are plenty of companies that make big profits and give their employees some of it. But having a union, as I'm sure other guys have told you, there is a time when a union is no good for the place because you do have deadbeats that are in the union that like to milk the system because they can get by on them because the union protects them. That is where I think the union is bad. If the guy is not doing his job, whether he is in the union or not, the company ought to have the right to fire him. And they don't in most places unless you really have a [serious cause]... What is serious enough to the union? Just about nothing [Machinist L3, Loyalty Company].

Unions like anything have their pros and cons. After working at Hightech, I have to say I like unions. But the unions did protect a lot of lazy people. That jacked the price of machines up, parts up. It affected too many of the wrong people [Machinist H3,

Hightech Enterprises].

I would have to say with the union what I praise the union mostly for is having the seniority/security. Not the fact that I [could] goof-off and have the union protect me. And they did and its certainly true. If I had a gripe against the union, it was that they always seemed to be protecting the ones they shouldn't be. The ones that are always missing their time or not doing their job properly or one thing or another. But that was their job and therefore they were doing what they had to do. But it is great to know that you have this job and your secure in your job. Nobody is secure anymore, in any level, management or out in the shop [Machinist J13, Bearing Company].

For the most part [unions] are good. The bad thing about the unions is they protect the deadbeats [Machinist J12, Remnant Company].

Taylorized work offered owners the strategic advantage in keeping wages low by enabling them to turnover employees and to thereby keep a ready supply of low-paid low-skilled workers. Industrial union response was to develop and enforce the seniority system of job security, operating on the basis of giving senior workers greater job security than younger workers. The logic of this system effectively subverts the owners' advantage of deskilling work tasks to lower wages. However, the seniority system does not recognize or reward individual efforts of the younger workers, who feel cheated when less capable senior workers are "unfairly" protected.

For myself the union was fine because I had to be in it. Personally, I thought the union did more for the deadbeats than for the hard worker. And I still believe that way. While I'm starting to have my doubts, I always thought that if you did your job and

people would probably take care of you. But I'm beginning to wonder about that. But I still wouldn't join the union unless it was mandatory. I feel we paid them a lot of money. Sure they kept your job. But then when layoffs start and then your on the layoff list and a guy with more seniority than you stays, but you know that he isn't worth the same as you. And here he is and has a good job and you are out on the street. That didn't seem right to me, but that is who they protected [Machinist J1, Remnant Company].

In favor of seniority systems, workers prefer to have their jobs secured through evaluations of their personal accomplishments in regard to production and individual capabilities. This is consistent with strong held American values of individualism and personal responsibility for success and failure (Khleif 1992, Bellah et al. 1985, de Tocqueville 1966/1835). As post-Fordism operates with increasing reliance upon skilled workers and personal initiative, seniority systems are not desired by workers as it is no longer corresponds with the post-Fordist approach to work.

The extent to which unions are desired (or not desired) varies across firms. In Hightech Enterprises, because of the hitlist, three out of four workers desired a strong union presence to protect workers from arbitrary dismissal. The protection of deadbeat workers is viewed as an inevitable consequence of providing protection of the majority.

Unions like anything have their pros and cons. After working at Hightech, I have to say I like unions. But the unions did protect a lot of lazy people. That

jacked the price of machines up, parts up. It affected too many of the wrong people. But Hightech Enterprises needs a union terribly. We went two weeks without a paycheck once... We need a buffer in there to stand up as a group [Machinist H1, Hightech Enterprises].

In the Remnant Company, workers maintain similar feelings about unions. While they feel that reward and security should be based on merit, and wish it were, they also desire the increased job security previously offered in the unionized Bearing Company. In the Loyalty Company, however, none of the workers desired a union or a seniority system to secure their jobs. In this company, workers felt their personal merits were recognized as a basis of their job security and that union presence was not necessary to protect their jobs. In fact, they expressed concern that a union would undermine the positive relationship they have with the owner and the company's profitability.

I can remember talking to a fellow once, and it really kind of aggravated me because he took full advantage of the union and its function, won a grievance, and then threw it in their face and told them he didn't want the job. It tied up that machine and two people for over three months. Now I believe that fellow is retired. But when I heard that story I just couldn't believe that. I couldn't believe anyone could do that. I don't have the conscience for it. I have to make an honest living. Here [in the Loyalty Company], you can make an honest living [Machinist L1, Loyalty Company].

Well, I never worked in a union shop. Most of what I have heard didn't appeal to me. The pay scale was better, the benefits were better, but you were never an individual and that thought bothers me. That is

one of the reasons I never went to a union shop. Two people are on identical machines, they earn the same wages regardless of ability [Machinist H4, Loyalty Company].

These responses of machinists in Machinist Valley are important because they show that post-Fordist workers do not desire the "old style" industrial union forwarded under the Wagner Act framework. While machinists think that industrial unions are beneficial to workers in securing stable jobs and high wages, the above responses show that they also see unions to be so effective at advancing worker interests that unions can undermine company interests. Workers believe that if unions were more sensitive to the interests of companies, rather than to the class interests of workers, possibly the Bearing Company would not have had to close down as quickly as it did. Given this belief, it is understandable that most workers have mixed feelings about unions.

Because industrial unions enforced an inflexible work place, they also were partially responsible for degrading the intrinsic experience of work. What workers desire is an agent that can act in their class interests, as well as allow for compensation based upon personal merit and recognize that worker interests are associated with company interests. In Chapter 6, I will offer some possibilities of how collective response can be reactivated in new forms suitable to post-Fordist production. Here I emphasize that post-Fordism is currently functioning to undermine collective worker response

and that workers do not see industrial unions as being an effective force in counteracting the actions of owners. The Wagner Act framework, as Heckscher (1988) points out, is no longer a viable means of advancing worker interests.

Individualistic Responses

While workers are largely abandoning collective responses in the post-Fordist work places, they are also increasing their use of individualistic forms of response to extend their control over the terms of their employment. However, because their responses are fragmented, rather than collective, the effectiveness of these individualistic responses is minimal.

In many ways, the post-Fordist approach advances the individualistic ideologies underpinning individualistic worker response. As workers are given more autonomy in performing tasks, they feel more personally responsible for their successes and failures.

What do you mean by control? Nobody tells me what to do because the thing is there and they expect me to do it. Not unless I need some help [Operator H2, Hightech Enterprises].

Here you take care of the problems yourself... If you have a good job, it is no problem. If you have one that you are struggling with, and its one of those days, no matter what you do [it seems to come out wrong] [Machinist L3, Loyalty Company].

Oh yes, I have pretty much control. Because that is one of the things that makes it interesting, because I am the only guy there. I can deal with things any way I want. I can approach it any way I want [Machinist J11, Remnant Company].

The personal autonomy of individual workers is placed in a context where workers are pitted against one another for scarce jobs in the Valley. In order to compete against other workers for the limited numbers of jobs, post-Fordist workers try to develop their craft skills to give them a competitive edge over other workers. This involves trying new jobs when given the opportunity, as well as taking courses outside of the work place in order to advance their craft skills. As this worker explains, his security rests not on the number of years working for the company, but rather on the skills he brings to the company.

I know that there are a couple of people that would go before me. He [the owner] would have to get in pretty bad shape before I would have to go. There are three guys that run the lathes, me, Joe, and Sam. Of the three of us, Sam is the least knowledgeable. He would be the first to go [Machinist L6, Loyalty Company].

Another worker expressed a similar sentiment, placing emphasis on the skills he needs in order to obtain a job in a tight job market.

They [the owners of the Remnant Company] take who has the most knowledge of running the machine itself... They usually take whoever is best. Prices are down and they have to get it out quicker [Machinist L3, Loyalty Company].

In Chapter 4, I showed that a great deal of owners' power is exercised through enforcing job insecurity. As a result,

workers in the Remnant Company and Hightech Enterprises feel work relationships do not entail a lasting commitment between owners and workers. Because owners feel little commitment to workers, workers feel little attachment to owners.

People don't have any [loyalty]. The workers around here don't have any loyalty anymore. The employers don't have any loyalty. I think everyone needs an attitude adjustment [Machinist J6, Remnant Company].

Because machinists in the Remnant Company and Hightech Enterprises feel companies have no commitment to workers, they in turn feel little commitment to their companies. As a result, workers actively seek new jobs which may offer higher wages or better working conditions. Therefore the common responses of workers to unfavorable conditions in their current work places were to quit or plan to quit the job at the first available opportunity in order to get a better job.

I went in and did my days work. Even though they cut my pay I still went in and I had no place else to go. No place was hiring. Most shops around here were folding. I went in and did my days work. I didn't like it, but I did it. I was still being paid to do the job, so I did the job. I wasn't the only one who took the cut, everyone took the cut. When the chance came I said goodbye [Machinist J9, Remnant Company].

We have had a few guys come in and they have quit, get laid off, one guy got fired for various reasons. Some of the guys don't like their wages, some don't like the work [Operator H1, Hightech Enterprises].

I didn't want to tell these guys until I was sure I had another job. [Before that] I couldn't afford to quit [Machinist J5, Remnant Company].

They [co-workers] are quitting. One guy quit after two days. They are quitting over pay and the way they are being treated. For me to go back there [to Hightech], I needed a job where I could get a lot of overtime and make as much money as I could as quick as possible. That is why I went back there [Machinist H3, Hightech Enterprises].

I was over in the corner. This is a punishment. They didn't want me to go back on days and I believe that what they think may happen is that I'll get sick of the shit on days and go back on nights. It won't happen. I'll quit first [Machinist H4, Hightech Enterprises].

What goes around comes around. No faith. But what is going to happen is that it is going to hurt the ones who don't want to leave. They are the ones who are going to suffer. Myself, I'll go and work someplace else. I could work at a job for a little less money, it would be a little tougher, but I could do it to survive [Machinist H3, Hightech Enterprises].

Craft control theory emphasizes the power that individual worker responses have, as owners are in need of skilled workers and can not replace them as easily as the lower skilled Fordist workers. Craft control theory, however, ignores the economic and social constraints that tie workers to communities, but do not tie companies to communities. Under post-Fordism, small companies can move with relative ease. For workers to move to new locations, however, entails major social and economic costs. They have to worry about selling their homes, moving their children to new schools, absorbing moving costs, etc. Beyond these concerns, breaking ties with family and friends entails the loss of considerable

amounts of social capital.¹ 79% of the machinists in this study were born and raised in Machinists' Valley. 75% had fathers who had previously worked for one of the large machine shops in the Valley. While most reported formally applying for jobs in the machine shops, many acknowledge the importance of family and friends in obtaining their jobs. To move from Machinist Valley, therefore, is to lose these social connections which help workers obtain jobs in a constricting market of opportunity.

When workers quit or lose jobs, they search for new employment in their immediate social environment. They compare one firm with another, and try to get a job in the company that offers the highest wages and best benefits. The firms in Machinist Valley, however, are not in high competition with one another for workers.

The attitude among the owners is machine operators are a dime a dozen. Anyone can be replaced and the owners feel that anyone can run a machine. The companies have zero loyalty to workers. They are a bunch of bastards [Machinist J12, Remnant Company].

With a saturated labor market, owners are not competing against one another for workers and are not inclined to

¹ Pierre Bourdieu defines social capital as, "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition - or in other words, to membership in a group -- which provides each of its members with the backing of the collectivity-owned capital, a "credential" which entitles them to credit, in the various senses of the word." (Bourdieu 1986:248)

bargain over wages.

I don't do that [bargain with workers]. For example, I had a worker who was offered a dollar more an hour to work at another machine shop. I don't play that game. I let him go because if they want to work somewhere else then that is fine, I'm not going to bargain on wages [Owner O1 of another machine shop in Machinist Valley].

In fact, both workers and owners suggested that the prevailing wage and benefits are not based upon profitability of enterprises or through negotiations with workers. Rather, wages and benefits are informally negotiated among the owners in the Valley, setting standards that all follow.

They want to keep us at a certain spot and that is it. A lot of the places around here, they see one company do this and it's like a chain reaction. From what I've noticed around here, one company cuts back and cuts the insurance back, and now this one's doing it. Its like a chain reaction. I don't know about other cities, but in this area it is really sad. You once thought you had it all, but it's not that way anymore. It makes you wonder what the future is going to be [Machinist J1, Remnant Company].

I pay as good as any other machine shop [Owner L2, Loyalty Company].

By observing the wages and benefits that other owners are offering in the Valley, owners are able to maintain leverage in bargaining power over worker demands for increased pay. Workers are simply told to go elsewhere if they think they can do better.

I can give you another little example that happened to me that led me to quit there. I went two and one-half years without a raise. And times were not like they are now. The way things are now, I wouldn't even hesitate or even wonder about it. Now things are bad. Back then they weren't, not like they are now. Then I got a \$.15 raise, which is like a slap in the face. I went in to talk to the owner, the main guy. He really didn't say anything, and I was pretty upset. I wasn't really thinking about what he said when he said it. He said I was in the right place to keep doing the thing I was doing. I got to thinking about it and a couple of weeks later I told the foreman I would like it explained a little bit further what we were talking about. He said, "Okay I'll go in and talk with him and give you a sign to go in." Well he went in there and was in there for about 45 minutes. He came back out and said, "Okay, he will see you now." I opened his office door and he was behind his desk and he was glaring. He wasn't happy. He leaned over his desk and he said, "If you can do better elsewhere, you had better leave." That is just what happened. I said at this point there is no point in talking to you so I gave him my notice. I quit. [Machinist H3, Hightech Enterprises].

Later that same year this worker came back to Hightech Enterprises, asking for his old job back. Unable to find better paying work and facing mounting mortgage payments, he returned to his old job at the same pay.

While craft control theories recognize that workers can spontaneously withdraw from individual enterprises, they fail to acknowledge the class actions of owners which restrict the opportunities of workers to find better paying work. While these actions of the owners are not formally organized, they work together with an implicit understanding of what a machinist is worth in the Valley. Workers withdrawing from one enterprise find themselves working in other enterprises for similar levels of pay and benefits. This keeps many

workers laboring in jobs at which they are dissatisfied. For other workers, searching for better work from company to company, prevents them from forming strong co-worker alliances which could advance collective worker responses.

The marginal exceptions to this analysis are the experiences of workers in the Loyalty Company, where individualistic responses hold some degree of power. The Loyalty Company operates largely by cultivating a commitment between workers and the owner, which Edwards (1979) terms "entrepreneurial control." Entrepreneurial control enables the owner to control workers through a form of charismatic authority (Gerth and Mills 1946). This also increases the capabilities of workers to extend their control in the work place because attaining good work behaviors relies upon the owner maintaining a positive working relationship with workers. This enables workers in the Loyalty Company to take liberties not extended to workers in the other two companies. For example, during an interview I observed two workers using a company drill to drill boards for a personal project. The owner was not asked for permission to use the tools for this purpose, and seemed unfazed when he found the shop filled with wood smoke.

However, the Loyalty Company operates in the same labor market as the other post-Fordist companies and the owner is able to justify the wages he offers because "they are as good as any other machine shop." While individuals in the Loyalty

Company have increased capabilities to exercise individualistic methods of control, this control comes after they have shown the owner their full capabilities.

You talk with a guy for five minutes, a lot of times you say, "I don't want this guy." If someone were to walk through my door and say they do this or do that, I call up where they had worked before, and they say he is a good man, I hire him. I would hire him at a fair wage. Usually when they say, "I have to have this much money." That is usually what I do. Being the nice guy that I am. Then I say, "Okay, I'm paying you what you are asking me for, you are telling me what you can do, you look at the blueprint and the time, now buddy, now you have to show me what you can do" [Owner L2, Loyalty Company].

Loyalty Company workers feel insecure in the first few months of employment, and therefore work as hard as they can to prove their worth.

As time goes on I am feeling more and more secure. There was a time when I was very nervous because I knew I was having a problem getting things going and making parts [Machinist L1, Loyalty Company].

Once workers have proved their capabilities, their control in slowing the pace of work is less tenable. Therefore, while Loyalty Company workers have greater capabilities of exercising individualistic forms of control, this control must be exercised in areas outside of issues of pace and pay, as these are effectively determined by the owner of the company. For example, they have been able to structure their hours to allow for four-day work weeks, as well as beginning the work

day at 7am, rather than 8am, to free afternoons for recreation. Work in this company is therefore evaluated very favorably by machinists. However, individualistic methods of control have had no effect on influencing the pay in the Loyalty Company, which is on par with the other machine shops in the Valley.

Workers' Political Responses

Workers' experiences in the work place are one of the primary factors which shape their political responses. Under Fordism one primary reason why workers were not inclined toward radical political change during the 20th century was their experience of economic advancement (Lipset 1985, Gramsci 1971, Sombart 1976). Beyond economic experience, Fordist production was especially adept at maintaining a politically tranquil work force because it allowed for the effective dissemination of hegemonic ideologies which linked the interests of big business with nationalism (Gramsci 1971). Because many workers accepted ideologies which asserted anti-Ford(ism) as tantamount to being anti-American, political responses against the Fordist approach were minimal.

While Gramsci was primarily interested in examining worker political inactivity at the national level to explain "American exceptionalism," Nash (1989) drew upon Gramscian theory to analyze how employer practices quell political activity at the community level. In a case study of the

Pittsfield General Electric plant, Nash (1989) detailed the numerous practices of upper management to cultivate worker acceptance of ideologies of individualism and consumerism. The ideologies served to entrench corporate hegemony and suppress political inquiry into General Electric's employment and environmental practices.

Nash (1987) also argued that corporate hegemony is weakening as a result of the deindustrialization wave of the 1970s-1980s. With the growing problem of "run-away" plants (Bluestone & Harrison 1982), a potential result is an increase in political dissent or political response, as the ideologies underpinning corporate hegemony become more transparent. In Machinist Valley, however, workers were not strongly inclined to engage in political action, despite declining incomes and their experiences during the closure of the Bearing Company. Only 17% post-Fordist workers described themselves as politically active, none held political office, and those who described themselves as politically active described their political actions simply as "I vote." Nor were workers disposed toward radical change. 62% of the workers interviewed described themselves as conservative and 38% as liberal in their political orientation. No one described their political orientation as "radical."

These findings are not surprising because they conform to other recent studies which demonstrate a lowering commitment of workers to engage in political action (Halle 1984, Edsall

1984). One indicator of declining political commitment is voter participation, which declined among blue-collar machine and transport equipment operators from 59% in 1968 to 45% in 1980 (Edsall 1984).

Workers' orientation to voting in Machinist Valley was not strongly aimed toward supporting political parties. 35% of workers interviewed classified themselves as Democrat, 12% as Republican, and 53% as independent. Because political problems are viewed as the fault of individual politicians who do not care about the working class, workers respond by voting for politicians they hope they can trust.

I vote for the man, not the party [Machinist J11, Remnant Company].

Party voting in the United States may not be an extremely effective means of workers advancing their class interests, as the Democratic Party and the Republican Party increasingly appear to be forwarding very similar platforms (Vanneman and Cannon 1987). However, party differences do exist and the Democratic Party favors the interests of the working class to a greater degree than the Republican Party. For example, the Democratic party platform of implementing a national health care program strongly favors the interests of the working class, who are much less likely to have health insurance than the upper class. Because of declining voter participation among the working class, however, the strength of the

Democratic Party has been considerably weakened (Edsall 1984).

Why are workers not inclined to engage in political response to their economically degraded conditions? Halle (1984) offers an important insight:

Most workers believe that the American political theory confers both democracy and freedom, but in practice delivers only freedom...There is a belief that venal politicians, not the system are to blame for what is wrong. There is the belief that some of the main alternative systems, especially socialism and communism, represent the loss of freedom as well as the absence of democracy (Halle 1984:201).

Workers in Machinist Valley maintain strong nationalistic commitments, and 100% of the workers in this study reporting that they were patriotic. Because of this strong patriotic orientation, many of the problems confronting workers in Machinist Valley are attributed primarily to increasing foreign competition.

I think things are getting worse. Years ago, even when I was young, people worked in the woolen mills, in the shoe factories, some of them were making good money. But then before you knew it woolen mills were going out to foreign countries. People didn't say much because it wasn't bothering them. Then the shoe industry. Then it started snowballing [Machinist J4, Remnant Company].

Between Canada, Mexico and the free trade agreement that Bush is signing. All these companies are moving to Mexico and I think this is what is bad. I think they should charge enough money to get the product back in so that the American product is as cheap as the Mexican [Machinist J3, Remnant Company].

Because of the Japanese, the Swedish, and the German

manufacturers in particular, we were forced to look at our prices and determined that we have to make them cheaper and to make them as good or better [Time Study Man J9, Remnant Company].

But foreign competition is really the problem, there is no question about that. My youngest son is in the Air Force. He was in Korea recently and the competition from that one little country is unreal. Twenty years ago you didn't have that. You don't have textile and paper industries now. It has all moved overseas. These little countries that have nothing are growing and we're going down. And you want to buy things made in this country and you can't. It's not there and you buy what is there. It's tough, it's a world market now. We had a good standard of living compared to us. But now it is true, they're actually rising above us. Not the way we were 10 years ago, they are not that high yet, but they are coming up where we are going down [Machinist J13, Remnant Company].

Competition in the machining industry is intense. But the understanding of foreign competition as the reason for increasing pace and declining pay in production also serves a hegemonic function that increases owners' power. In the global economy of the late 20th century, with the growing dominance of multi-national corporations, the "American Company" is becoming a rarity (Reich 1992). The ideology of foreign competition serves as a constructed myth to advance the interests of owners, because the "foreign competition" are often workers employed by American capitalists (Barnet and Muller 1974). So long as workers believe the foreign competition ideology, they will view their economic position in this country (and in the global economy) as resulting from the practices of other workers, rather than owners, and orient

their responses accordingly.

Now I'll tell you myself that there are people in this country who needed to get off their rear ends and start working and do better quality stuff. It isn't today anymore, "it is good enough." It is not good enough anymore... [Machinist L3, Loyalty Company].

Workers desire some action on the part of government to stem the degree to which owners are transplanting companies to foreign countries. At the same time, workers believe that government primarily operates in the interests of owners rather than workers, and this deters them from engaging in strong political response.

In this area and in the whole country is in the same boat. There is nothing else to do. We have too many 4-5 and 6 dollar an hour jobs in this country. You can thank Mr. Reagan for that one. He really chopped it up... He took down the unions and made it all for the companies [Machinist L3, Loyalty Company].

It's tough. It's tough when you can almost lose your house or you can almost lose your car or you can almost lose everything. When companies don't care, when the government doesn't care about the people. Then around election day they say they are going to give you the world, but they won't, let's be honest [Machinist J5, Remnant Company].

Workers in Machinist Valley believe that government is primarily concerned with the interests of big business, rather than with the interests of workers (see also Halle 1984). They question the effectiveness of political action as a means of changing employment conditions, as government is not

concerned with workers to the degree that it is concerned with owners. In favor of political response, workers orient their actions individualistically rather than politically, such as "buying American" as a way to protect their jobs.

You look back at what Reagan did. He really didn't do nothing. He let it all become a cutthroat place. Go rip off whoever you can rip off. Make your money. Steal. Then he crushed everything and moved everything down to Mexico. I don't want none of that junk. But you try to buy something American. That is what I do. For example, Makita, they make good tools, but they are Japanese and I don't want to support them. You have to work over here and we should take care of our people in this country first before you go take care of anyone else. You have people over here who are starving, don't have a place to work but want to work...They tell you to vote but it don't mean anything [Machinist L3, Loyalty Company]

I've always tried to buy American. All my automobiles are American made [Machinist J3, Remnant Company].

In summation workers' political responses are not strong. They tend to be fragmented, thus not providing strong support for political parties which may potentially advance class interests. Rather than a commitment to political process and political change, workers are resigned to a belief that government operates primarily in the interests of business and believe that politic change should address the problem of foreign competition rather than class.

Summary

Post-Fordism is marked by an increasingly individualistic

orientation to control in the work place. In part, this is the result of an organizational structure which effectively prevents workers from unionizing. Because workers hold industrial unions partially responsible for the closure of the Bearing Company, and because unions under the Wagner Act framework fail to recognize individual workers' contributions to companies, workers are less inclined to form or join unions.

While individualistic responses are the dominant tactic of workers to advance their interests, it is not as effective a means of advancing worker power as craft control theories assert. Even in the company that most closely conforms to the ideal of the flexibly specialized craft enterprise, the Loyalty Company, individualistic methods of control have been only able to affect issues such as time schedules, and not the pace and pay of work. Workers' political response in Machinist Valley is minimal, largely because of skepticism of the commitment of government to the interests of workers.

CHAPTER 6

CONCLUSION AND DISCUSSION

In this chapter I discuss how owners' and workers' power have been affected by the restructuring of production to the post-Fordist approach. Rather than simply restate the findings of the previous chapters, my goal here is to integrate the history of Fordism with post-Fordism concerning power in the work place. I conclude with a discussion of further research that can increase the sociological understanding of how post-Fordism and global production affect work and power.

Conclusion: Work and Power in Post-Fordist Production

There are junctures in history where the experiences of a generation of people are set apart from the experiences of the preceding generation. In this dissertation, I have examined two of these junctures concerning work experience. The development of the Fordist era in the early 20th century resulted in a degradation of the intrinsic experience of work. However, because workers developed new forms of control under Fordism, the extrinsic rewards from work increased. At the

end of the 20th century a post-Fordist era is emerging. This study indicates that post-Fordist era is reversing the historical trajectory of Fordism, as extrinsic rewards are declining while intrinsic rewards are generally increasing.

I have not argued that Fordism was introduced solely to depower workers. It was introduced to capitalize on new economies of scale made possible by the infrastructure of the United States which made mass production more profitable than small batch production (Chandler 1990). Nor have I argued that post-Fordism is emerging merely as a tactic of owners to depower workers, although this is an important reason why post-Fordism is taking the shape it is. Rather, both approaches to production were introduced to capitalize on new markets, each appropriate to the United State's position in the global economy. Nonetheless, under both approaches to production, a primary goal of owners has been to restructure the work place to increase profits by decreasing the power of workers to control the pace of work and demand high wages and good benefits.

Owners are in an initial position of power in the work place because they are able to structure work in ways that heighten their power to control the pace and pay of production. Taylorism replaced the craft approach to production in the 19th century largely because owners believed that scientific management could subvert the power workers maintained through membership in craft unions. There is no

reason why craft methods of production could not have been incorporated into mass production, it is simply that craft oriented work gave workers too much initial power to negotiate high wages and to control the pace of production (see Sabel & Zeitlin 1985).

Braverman's (1974) socio-historical analysis of work revealed Fordism to be a history of "the degradation of work in the twentieth century." Following Montgomery (1979), I have argued that while Fordism was largely responsible for lowering the value of skills in the work place, it did not depower workers. In fact, Fordism enabled workers to expand their power in the work place because it provided an organizational and technological context that encouraged unionization and collective forms of worker control. Wages and benefits increased while work tasks became more monotonous and "degraded."

Once workers abandoned the types of control exercised under craft production, they were able to respond to the new Fordist work place and use it to their advantage. Therefore, workers should not be viewed as passive victims of capitalism, as Braverman (1974) implied. New approaches to production, however, require workers to test of new methods of control in efforts to exert their individual and collective wills in the work place. In the early phases of Fordism, workers tried to exert control by relying upon the old craft methods of control learned during the 19th century (Haydu 1988). These were

methods later abandoned in favor of industrial union membership, which proved very powerful at extending the class interests of workers.

Analysis of the experiences of machinists in Machinist Valley indicate that contemporary post-Fordist workers are in a position similar to that of their early Fordist counterparts. They are finding their old methods of control, learned under Fordism, to be of little use in negotiating the pace and pay of work under post-Fordism. The industrial union offers as little power in the late 20th century as the craft union offered in the early 20th century because small companies can move operations when workers start to organize collectively. Therefore worker commitment to industrial unions is declining and workers are trying to increase their power in the work place primarily through individualistic responses.

Skilled workers are bargaining with employers and are quitting when dissatisfied with work conditions, the types of behaviors that craft control theory alleges enhance workers' power under post-Fordism. The experiences of machinists in Machinist Valley, however show these actions are not very powerful extending workers' control over the pace and pay of work. Because wages, benefits and job security are declining, while at the same time the pace of work is increasing in Machinist Valley, this study suggests that fragmentation theory more accurately predicts the future of power in the

work place than craft control theory.

It is also important to note, however, that the experiences of workers in the Loyalty Company and the Remnant Company reveal some of the liberating aspects of the post-Fordist approach to production. As workers exercise more craft skills, the intrinsic rewards they receive from work increase. At the Loyalty Company, these intrinsic rewards were so high that they counterbalanced declining extrinsic rewards, resulting in favorable evaluations of post-Fordist work. At the Remnant Company, workers felt that the work pace was very demanding, they faced a constant threat of job loss, and experienced declining wages. But workers in this company also evaluated their work tasks very favorably in comparison to work in the Bearing Company, where work tended to be more boring and repetitious. Only in Hightech Enterprises did workers maintain an unqualified negative appraisal of their work experiences, pointing to both declining extrinsic rewards and a degrading work environment. This is because Hightech Enterprises has incorporated the alienating practices of Fordism while exploiting new markets for mass produced component parts.

The primary factor contributing to the disempowerment of workers in Machinist Valley is job insecurity. As workers fear the loss of their individual jobs, as well as collective losses of jobs resulting from the closure or transplantation of their companies, they are less likely to engage in the

simple forms of control which empowered craft workers in the 19th century.

Less apparent changes, from the workers' perspective, reduce worker power in Machinist Valley as well. The relationships between big business and workers are increasingly obscured as companies rely upon the outsourcing of production to small enterprises. This outsourcing fragments and locates conflict in small enterprises, thereby increasing the social distance between workers and owners of these larger enterprises. Workers' concerns remain located within the organizations in which they labor, not with the relationships between these companies and larger organizations.

The work place shapes the ways in which conflict occurs and focusses conflict in specific directions, as Piven and Cloward (1977) explain:

People experience deprivation and oppression within a concrete setting, not as the end product of large and abstract processes and it is the concrete experience that molds their discontent into specific grievances against specific targets. Workers experience the factory, the speeding rhythm of the assembly line, the foreman, the spies and the guards, the owner and the paycheck. They do not experience monopoly capitalism...institutional patterns shape mass movements by shaping the collectivity out of which protest can arise. (Piven & Cloward 1977:20-21).

Post-Fordist production shapes the collectivities of workers into controllable groups and fragments their alliances within firms and within nationalities. In reality, production

is occurring across organizations and across nationalities. Post-Fordism is much more resistant to worker response than Fordist production ever was because it separates workers and their responses into small self contained units. As the experiences of machinists in Machinist Valley show, the post-Fordist approach to production can liberate workers from the degrading tasks of Fordism. But by fragmenting workers' responses and diluting their class power, post-Fordism may very well facilitate a new degradation of work in the 21st century.

Directions for Future Research

By studying the practices of workers and owners in single case study site, I have been able to highlight some of the ways in which power has been affected during the shift to post-Fordism. However, it is inadvisable for any single case study to be viewed as the end of research. Rather, the findings should be used to inform researchers in how to conduct further research, adding to the understanding of the relationships between work, class and power.

Sociologists in the 1970s and 1980s were interested in examining the immediate effects of the closures of large companies (i.e., Bensman & Lynch 1987, Bluestone & Harrison 1982, Buss & Redburn 1982, Lynd 1982). I have suggested a reorienting the study of "deindustrialization" to the study of

the restructuring of production. Therefore, a useful set of studies would present re-analyses of the communities previously studied to examine the types of jobs being introduced in the decades following the closures of large factories. This will also provide further data to assess the degree to which Machinist Valley is a common or unique case.

Because I focussed this study on the experiences of employed machinists, the experiences of displaced machinists are left unexamined. Another useful set of studies would examine the experiences of displaced workers and compare their experiences as they try to adjust to the new markets of opportunity in the restructured economy. Of particular interest would be the experiences of workers previously employed in the manufacturing sector who are endeavoring to adjust to an increasingly service oriented economy, which requires distinctly new types of skills.

I have argued that machinists are important to study because they constitute a group of skilled workers that will be of importance in the United States in the 21st century. For this same reason, it is important to study other groups of workers being affected by recent changes in the opportunity structure of the United States. Machinists have predominately worked in the primary labor market, which offers better wages, better benefits, higher job security and greater opportunities for skill development and advancement than the secondary labor market (Edwards et al. 1973). Many of the lower educated

workers, who would have previously been employed in the low-skilled manufacturing jobs, are now working in pink-collar jobs in the secondary labor market in the expanding service sector of the economy. These secondary labor market jobs have been structured to operate with a low-skilled tasks, similar to those jobs in the secondary labor market manufacturing industries under Fordism. Future research could examine whether the post-Fordist approach is being extended into these service sector jobs, and if it is, how it affects jobs and class power in these work places.

Finally, sociological inquiry is not guided by a drive to prove a perspective. Rather, good sociology is driven by a desire to understand social relationships, how these relationships affect individuals and how individuals in turn attempt to shape and give meaning to their experiences. I have endeavored to highlight how the post-Fordist approach to production affects manufacturing workers in the global economy of the late 20th century and how workers are shaping their responses. Any weaknesses in this study should be viewed as an invitation to further inquire into the issues I attempted to address. New studies will certainly enrich the understanding of the complex relationships between work and power as they unfold in the global economy of the 21st century.

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APPENDIX A

WORKER INTERVIEW GUIDE

BACKGROUND INFORMATION

First I need to get just a little background information on you.

- a1. What is your age _____
- a2. In what state were you born _____
- a3. How many years have you lived
in the Machinist Valley Area _____
- a4. Where do you currently live _____
- a5. What type of place do you live in?
1. Own Apartment
2. Own House
3. Parents House
4. Other _____
- a6. Do you rent or own this place
1. Rent
2. Own
- a7. What is your current marital status?
1. Single
2. Married
3. Separated
4. Divorced
5. Other
- a8. What age were you when you married? _____
- a9. What was your wife's age when you
got married? _____
- a10. How many adults, over age 18, live in your house? _____
- a11. How many children under age 18 live in your house? _____
- a13. What is your occupation? _____
- a14. What company do you work for? _____

PARENT'S HISTORY

Before we talk about your job, it would help me to learn a little bit about your family background.

- b1. What part of the world did your ancestors come from?
Mother's Ancestors _____
Father's Ancestors _____
- b2. About when did they come to the United States?
Mother's Ancestors _____
Father's Ancestors _____
- b3. Did your parents live in the Machinist Valley area?
1. No
2. Yes
- b4. If not, where did they live _____
- b5. What was your father's main occupation? _____
- b6. Where was he mostly employed
when you were growing up? _____
- b7. About how many years did he work
work there? _____
- b16. What was your mother's main occupation? _____
- b17. Where was she mostly employed
when you were growing up? _____
- b18. About how many years did she work
work there? _____
- b19. Was her work usually part-time or full-time?
1. Part-time
2. Full-time
- b20. About how many hours a week did she work? _____
- b31. How far did your father go in school?
1. Less than H.S Grad - yr dropped out _____
2. H.S. Grad
3. GED
4. Some College
5. Associates Degree or 2 yr Vocational
6. College Grad (4 yr)
7. Above

- b32. What was the highest grade your mother completed in school?
1. Less than H.S Grad - yr dropped out _____
 2. H.S. Grad
 3. GED
 4. Some College
 5. Associates Degree or 2 yr Vocational
 6. College Grad (4 yr)
 7. Above
- b33. How far in school do you think they expected you to go?
1. Less than H.S Grad - yr dropped out _____
 2. H.S. Grad
 3. GED
 4. Some College
 5. Associates Degree or 2 yr Vocational
 6. College Grad (4 yr)
 7. Above
- b34. How far did you go in school?
1. Less than H.S Grad - yr dropped out _____
 2. H.S. Grad
 3. GED
 4. Some College
 5. Associates Degree or 2 yr Vocational
 6. College Grad (4 yr)
 7. Above
- b35. What do you think your father's attitude was towards formal schooling like high school? What about college?
- b36. Can you think of a particular instance which makes you believe this?

WORK HISTORY

Now I would like to ask you about your work history.

- c1. Did you work when you were in high school?
1. No
 2. Yes
- c2. What did you do?
- c3. How old were you when you got your first full time job?

- c4. What was your job title? _____
- c5. Where was your job? _____

- c6. How did you get that job? _____
- c7. Could you tell me about the other jobs that you have had since you have left school? Start with the first job you had and work your way up to the present.
- c8. Which of these jobs did you like best? Why?
- c9. Which of these jobs did you like the least? Why?

IF SUBJECT HAD WORKED AT Bearing Company-

- z1. Tell me about the jobs you did at Bearing Company.
- z2. What did you like best about working there?
- z3. What did you like least about working there?
- z4. What was your personal income before taxes in your best year of working at Bearing Company?

- z6. How long did it take you to find work again after you left Bearing Company?
- z7. Do you remember why Bearing Company closed its shop?
- z8. Can you tell me about what happened to some of your coworkers? What are they doing now?
- z9. Would you say that your current job pays much better, better, same, worse, or much worse than when you worked at Bearing Company?
1. Much Better
2. Better
3. Same
4. Worse
5. Much Worse
- z10. Would you say that working conditions on your current job much better, better, worse, or much worse than when you worked at Bearing Company?
1. Much Better
2. Better
3. Same
4. Worse
5. Much Worse

- z11. How would you say skill levels compare between the two jobs? Would you say that your current job requires much more skill, a little more skill, the same skill, less skill, or much less skill?
1. Much More
 2. A little more
 3. Same
 4. Less
 5. Much Less

CURRENT JOB

Now I want to learn as much as I can about your current job.

- d1. Where do you currently work? _____
- d2. What is your job title? _____
- d3. How did you get this job? _____
- d4. How long have you had this job? _____
- d5. Have you done other work for this company or were you hired directly into this position?
1. Did not do other jobs
 2. Did other jobs
- d7. How many hours do you usually work in a week? _____

JOB ASSESSMENTS

- d8. Could you now describe a typical work-day for me? Start with when you come into work and describe in as much as you can the different things that you do during your day. (PRESS FOR DETAILS)
- d9. Would you say that on the whole you strongly like, like, dislike or strongly dislike your job?
1. Strongly like
 2. Like
 3. Dislike
 4. Strongly dislike
- d10. What parts of the job do you like the most?
- d11. What parts of the job do you dislike the most?

- d12. If something goes wrong on the job, maybe you can think of a recent situation, how do you deal with it?
(if no response, try to coax one by suggesting probable situations)
- d13. Do things like this problem situation happen often?
- d14. Would you say that on the whole your job is very interesting, interesting, just okay, boring, or very boring?
1. Very Interesting
2. Interesting
3. Just Okay
4. Boring
5. Very Boring
- d15. Tell me about the most interesting part of the job.
- d16. Tell me about the most boring part of the job.
- d17. Would you describe your job as very easy, easy, moderate, hard or very hard to do well?
1. Very Easy
2. Easy
3. Moderate
4. Hard
5. Very Hard
- d18. What is the most difficult task in your job and what makes it hard?
- d19. Would you say that your job requires a lot of skill, medium amounts of skill, small amounts of skill, or practically no skill at all?
1. A lot of skill
2. Medium skill
3. Low skill
4. No skill
- d20. Tell me about the part of the job it would take a person the longest to learn to do well.
- d21. To do your job well, would it take a lot of concentration, medium concentration, or a little concentration, or almost no concentration.
1. A lot
2. Medium
3. Little
4. No concentration

- d22. Do you feel you have a great deal of control, moderate control, a little control, or no control over the way you get your job done?
1. A lot
 2. Moderate
 3. Little
 4. No control
- d23. Can you tell me about why you would say this. Maybe you have an example (probe).
- d24. Which better fits your job description, it is usually the same, a little different, moderately different, or very different each day.
1. Same
 2. A little different
 3. Moderately different
 4. Very different
- d25. Would you say that on the whole you are very satisfied with your job, reasonably satisfied with your job, dissatisfied with your job, very dissatisfied, or don't really have any feelings about your job at all.
1. Very Satisfied
 2. Satisfied
 3. Dissatisfied
 4. Very dissatisfied
 4. No feelings
- d26. What aspects of the job are you most dissatisfied with?
- d27. Would you describe you work as very fast paced, high paced, medium paced, slow paced or very slow paced.
1. Very fast paced
 2. High paced
 3. Medium paced
 4. Slow paced
 5. Very slow paced
- d28. On the whole would you say you are very proud, proud, or not proud of the work you do?
1. Very Proud
 2. Proud
 3. Not Proud.
- d29. Could you tell me what makes you feel either very proud or not proud of the work you do?

TRAINING

- e1. Did it take a lot of training, medium training, little training or almost no training to learn to do the work you do?
1. A lot of training
 2. Medium training
 3. Little training
 4. Almost no training
- e2. How much training did you receive when you got this job?
- _____ hours
_____ days
_____ weeks
_____ months
- e3. Did you have prior training or related job experience before you got this job?
1. No
 2. Yes
- e4. Please tell me about that training and how useful you feel it was to your later work experiences.
- e7. How long would you say it took you to really master the work you do?
- _____ hours
_____ days
_____ weeks
_____ months
_____ years
- e8. What level of education do you think someone needs to do a job like yours?
1. Less than H.S Grad - yr dropped out _____
 2. H.S. Grad
 3. GED
 4. Some College
 5. Associates Degree or 2 yr Vocational
 6. College Grad (4 yr)
 7. Above
- e9. Would you say they need a little, medium, high, or very high math skills?
1. Little
 2. Medium
 3. High
 4. Very high

e10. Would you say they need a little, medium, high, or very high reading skills?

1. Little
2. Medium
3. High
4. Very high

e11. Would you say they need a little, medium, high, or very high computer skills?

1. Little
2. Medium
3. High
4. Very high

e12. Do you know how to use a computer?

1. No
2. Yes

e13. Do you think a person would need computer experience before they worked at your job?

e14. What other types of skills or training would a person need before they started working in your job?

e15. What level of education do you think a person needs to do a job like yours?

1. Less than H.S Grad - yr dropped out _____
2. H.S. Grad
3. GED
4. Some College
5. Associates Degree or 2 yr Vocational
6. College Grad (4 yr)
7. Above

RELATIONS WITH COWORKERS

f1. Does your job put you in a lot of contact, some contact, a little contact or practically no contact with other people as you work?

1. A lot of contact
2. Some contact
3. Little contact
4. Almost no contact

f2. When you are working, can you sometimes take a break and discuss things with a co-worker?

1. No
2. Yes

- f4. What happens when you do this? Can you give me an example or tell me a little bit more about things that happen on the job that are not necessarily "work"?
- f4. How many people that you work with would you call "friends"?

- f5. Do your friendships on the job carry on outside of the workplace? For example do coworkers and you get together often outside of work? What do you do?
- f6. If you have a problem with a coworker, how do you usually deal with it? Maybe you can give me an example.

SUPERVISORS

- g1. How many direct supervisors do you have? _____
- g2. Could you tell me what you think of them?
- g3. How would you say most of your co-workers feel towards the supervisors?
- g4. If you or one of your coworkers has a problem with one of the supervisors, how do you deal with it? Maybe you can give me an example.
- g5. Is there a formal grievance procedure?
1. No
2. Yes
3. Don't Know
- g6. How often would you say people use this greivance system?
1. A lot
2. Occasionally
3. Rarely
4. Almost never
5. Don't Know
- g7. Is it very effective, effective, not usually effective, or not at all effective?
1. Very Effective
2. Effective
3. Not Usually Effective
4. Not at all Effective
- g8. Maybe you can give me an example.
- g9. Have you ever seen or met the owner of the company? What do you think of them?

g10. How would you say most of your co-workers feel towards the owner?

UNIONS

h1. Are you in a union?

h2. Have you ever been in a union?

h3. Has anyone ever tried to start a union at the place which you work?

1. No
2. Yes
3. Don't Know

h4. What happened?

h5. What do you think of unions? Are they usually good for workers or bad for workers?

1. Good for Workers
2. Bad for Workers

h6. Are they usually good for companies or bad for companies?

1. Good For Companies
2. Bad for Companies

h7. Can you tell me a little more about why you feel this way?

h8. Would you say that for most Americans their opportunities are getting better or worse?

1. Better
2. Worse

h9. Is this the same for all groups of Americans? (If no, who is doing better and who is doing worse?)

h9. (If Worse) What do you think is the primary thing needed to turn things around?

FUTURE PLANS

i1. How long do you anticipate staying in this job? _____

i2. How long do you anticipate working for this company? _____

i3. Would you like to be promoted up in this company?

1. No
2. Yes

i4. What position would you like? _____ why?

- i5. How likely do you think it is that you will eventually get this position someday?
1. Very likely
 2. Likely
 3. Unlikely
 4. Very Unlikely
 5. Don't Know
- i6. Ideally, in five or ten years, what do you hope to be doing?

UNEMPLOYMENT

- j1. Have you ever been temporarily laid-off from your current job or previous jobs?
1. No
 2. Yes
- j4. How long did these periods last? _____

- j5. During these times did you collect unemployment?
1. No
 2. Yes
- J6. For how long did you collect unemployment? _____
- j10. How did you make ends meet during this time?
- j11. Can you tell me a little about what you felt like during this time?
- j12. How much financial support would you say friends gave you during this period?
1. A lot of support
 2. Some support
 3. A little support
 4. No support
- j13. How much financial support would you say your family gave you during this period?
1. A lot of support
 2. Some support
 3. A little support
 4. No support
- j14. Could you give me an example of how family and friends helped you or failed to help you during this period?

- j15. Did you find any "pick-up" work during this time? What kind of work?
1. No
 2. Yes

PAY

- k1. Are you paid hourly or salary?
1. Hourly
 2. Salary
- k2. What was your starting pay? _____
- k3. What is your current pay? _____
- k4. What was your families income before taxes in your best year working at any job? _____
- k5. What was your families income before taxes last year

- t1. Does your family currently have health insurance?
1. No
 2. Yes
- k4. What kind of benefits do you get from your job?
1. Vacation
 2. Retirement
 3. Health insurance
 4. Stock
 5. Bonuses
 6. Other
- _____
- _____
- _____
- k5. On the whole, do you think you are paid fairly for the work you do?
1. Paid fairly
 2. Deserve More
 3. Deserve A Lot More
- k6. Do you think your employer could pay you more if they wanted too?
1. No
 2. Yes
- k7. If you lost this job for some reason, what types of work would you immediately look for?

k8. What types of jobs or companies in the community would you not want to work at? why?

WIFE'S WORK HISTORY (IF MARRIED)

11. Does your wife work?

1. No
2. Yes

12. What is her occupation? _____

13. Where does she work? _____

14. Does her employer consider her position as part-time or full-time?

1. Part time
2. Full time

15. About how many hours a week does she work? _____

16. Is she paid hourly or salary?

1. Hourly
2. Salary

17. What is her current rate of pay?

19. Ideally, would you like her to continue to work, or would it be better for you if she stayed at home and just took care of things around the house?

111. Does either her work or your work sometimes cause problems at home? Can you tell me a little bit about it?

THANK YOU. WE ARE NOW ALMOST THROUGH WITH THE INTERVIEW. I JUST HAVE A FEW MORE QUESTIONS TO ASK YOU ABOUT YOUR LIFE OUTSIDE WORK

EDUCATION

n1. Do you remember strongly liking, liking, disliking or strongly disliking school? why? PROBE

1. Strongly liked
2. Liked
3. Disliked
4. Strongly Disliked

n4. Looking back, are you happy with the choices that you've made concerning when to stop schooling?

n5. Are you happy with the choices that you made concerning your career?

N6. Would you have done anything different?

LIVING STANDARDS

- p1. Would you say that your pay is enough to make ends meet?
1. No
 2. Yes
- p2. (If no) What strategies does your family have for stretching a dollar?
- p3. Do you or your wife do extra things to earn a little extra money outside of what you both do at work? What?
1. No
 2. Yes
- p4. What is the main thing that makes your life different from your father's?
- p5. How do you think your families financial situation compares with your parents during a similar time in their lives? Do you think you are worse off, the same, or better off?
1. Worse-off
 2. The same
 3. Better-off
- p6. Can you tell me why you say this?
- p7. How do you think your job compares to your fathers? Do you think your job is much better, better, the same, worse or much worse?
1. Much Better
 2. Better
 3. The Same
 4. Worse
 5. Much Worse
- p8. On the whole, would you say members of your generation are better off, worse off or the same as their parent's generation? (probe)
1. Worse-off
 2. The same
 3. Better-off
- p12. How much income would you say a family of four needs to make in a year in order to be "making it" here?

CHANGES IN Machinist Valley

- q1. Would you say that Machinist Valley is a better place, the same place, or a worse place than it was 10 or 20 years ago?
1. Better
 2. Same
 3. Worse
- q2. In what ways has it gotten better and in what ways has it gotten worse?

POLITICS

- s1. Would you describe yourself as politically active?
- s2. To you generally think of yourself as:
1. Strong Democrat
 2. Not very strong Democrat
 3. Strong Republican
 4. Not very strong Republican
 5. An independent
- s3. In politics would you describe yourself as
1. A strong conservative
 2. Conservative
 3. Middle of the road
 4. Liberal
 5. Radical

Thank you very much for your time. Is there anything else that you can think of that might be important to include in this study that we haven't covered yet?

APPENDIX B

EMPLOYER INTERVIEW GUIDE

Explain project. Purpose of this interview is to learn as much about the company as possible and what life is like for workers on their jobs.

- a1. How long have you worked here _____
- a2. What is your position _____
- a3. It helps me to know a little bit about the background of a person in an interview. Could you tell me a little about your job history and how you eventually came to be working for this company?
- a4. Could you now tell me more about the company and the products it makes?
 - a5. Where company is based _____
 - a6. When company came to Liston _____
 - a7. What products does the company make?

- a6. Number of employees _____
- a7. Could you tell me about the categories of workers you have here? Both in management and in production work?
- a7. Number of managers _____
- a8. Number of workers _____
- a9. Number of men _____
- a10. Number of women _____
- a11. How many full time workers do you employ?

- a12. How many part time workers do you employ?

- a13. Types of benefits workers get _____
- a14. Has the number of employees increased or decreased? By how
much? _____
Why?
- a15. How difficult is it to get good workers? _____
- a16. Do you have a lot of applications on file? _____
- a17. How do you usually get employees? _____
- a18. For someone starting, what educational level do you look
for? _____
- a19. What kind of training are workers given? _____
- a20. What is the starting pay for a floor worker? _____
- a21. What is the highest pay for a floor worker? _____
- a22. Where did the managers and supervisors come from? Did they
work their way up or were they hired directly managers?
- a23. Can you tell me about some of the things the company does
for the community?
- a24. Could you tell me what is the best part of your job?
- a25. Could you tell me what is the part of your job you like the
least?
- a26. Could you take me around the plant and show me how things
are organized?

APPENDIX C
CPI ADJUSTMENT

The following methodology is used for calculating 1992 adjusted wages.

Example:

If a worker made \$25,000 in 1970, and we are to convert that to 1992 dollars the following methods are used.

1. Figure the inflation rate using the CPI adjuster.

$$(140.3 - 38.8) / 38.8 * 100 = X \\ = 262\%$$

Note-

[140.3 is the 1990 CPI]
[38.8 is the 1970 CPI]

2. Figure the inflation rate adjustment.

$$\$25,000 * 2.62 = X \\ = \$ 65,399$$

3. Add the base year income to the inflation rate adjustment.

$$\$25,000 + \$65,399 = \$90,399$$

1992 INFLATION RATE ADJUSTMENT

YEAR	CPI-U	1992 CPI-U	CPI-U	1992 INFLATION RATE ADJUSTMENT
1967	33.4	140.3	33.40	3.20
1968	34.8	140.3	34.80	3.03
1969	36.7	140.3	36.70	2.82
1970	38.8	140.3	38.80	2.62
1971	40.5	140.3	40.50	2.46
1972	41.8	140.3	41.80	2.36
1973	44.4	140.3	44.40	2.16
1974	49.3	140.3	49.30	1.85
1975	53.8	140.3	53.80	1.61
1976	56.9	140.3	56.90	1.47
1977	60.6	140.3	60.60	1.32
1978	65.2	140.3	65.20	1.15
1979	72.6	140.3	72.60	0.93
1980	82.4	140.3	82.40	0.70
1981	90.9	140.3	90.90	0.54
1982	96.5	140.3	96.50	0.45
1983	99.6	140.3	99.60	0.41
1984	103.9	140.3	103.90	0.35
1985	107.6	140.3	107.60	0.30
1986	109.6	140.3	109.60	0.28
1987	113.6	140.3	113.60	0.24
1988	118.3	140.3	118.30	0.19
1989	124.0	140.3	124.00	0.13
1990	130.7	140.3	130.70	0.07
1991	136.2	140.3	136.20	0.03
1992	140.3	140.3	140.30	0.00