

**DISABILITY PREVENTION  
AMONG MICHIGAN EMPLOYERS**

**1988-1993**

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## INTRODUCTION AND OVERVIEW

This chapter briefly discusses the magnitude of the problem of disability in the workplace. It also presents an overview of the three and one-half year research project for which this Final Report is the product. It highlights the origins of the project and the major design elements that are reflected in this report. It concludes with a discussion of the remaining limitations of the research.

### **Problem Addressed**

The problem of disability in the workplace has become a central concern for business and labor, as the economic and human costs continue to grow unabated. The extensive personal losses associated with disability and resulting unemployment, the staggering economic cost of disability in income maintenance, health care, and related expenditures, and the value of lost productivity due to disability have gained greater recognition as problems that impact all parties and sectors. Further, because of changes in the availability and skill level of the labor force and the requirements of the Americans With Disabilities (ADA), companies are compelled to maintain the healthy and productive employment of their current workers and to accommodate workers who develop chronic impairments. It is no longer feasible to discard skilled workers who have acquired disabilities; they cannot be easily replaced.

The unacceptably high incidence of workplace injury and disability constitutes a major social problem. The Centers for Disease Control (1991) estimates that seven in every 100 workers sustains a nonfatal work injury in a given year. In 1989, nearly two million workers sustained injuries that resulted in disabilities. At that time, the cost of accidents occurring on work time was conservatively estimated at \$84 billion (Hensler, et al, 1991). These injuries resulted in 2.9 million lost work day cases, at an average of 19 lost work days per case, or 55 million total lost work days.

Burton (1992) projects that employers' direct cost of workers' compensation insurance alone passed the \$60 billion level in 1991. The Urban Institute (1990) estimates that employers pay an average of \$1,052 in additional indirect costs due to work-related injuries for every employee covered under workers' compensation. Chelius, Galvin, and Owens (1992) found that

total disability costs comprised slightly more than 8 percent of payroll in a small non-random sample of firms they studied.

Further, the rate of increase in the costs of workers' compensation and other disability insurance programs has been astronomical. From 1980 to 1989, the last year for which figures are available, the average medical claim in workers' compensation rose from \$1,741 to \$5,370, while the average wage-loss claim increased from \$4,522 to \$10,735 (Nation's Business, November, 1991). The incidence rates for occupational injuries and illnesses has also been on the rise since 1983 (1982 in Michigan) and, while this may be due to changes in reporting behavior thus far no one has offered a fully acceptable explanation. The number of work days lost to occupational injury has also apparently been increasing alarmingly since 1982, resulting in 100 lost work days per 100 full time workers in Michigan by 1990 (Occupational Injuries and Illnesses, MIOSHA Information Division, 1992). Of course, these figures do not account in any way for the immeasurable personal consequences of pain, suffering, stress and reduced quality of life for injured workers and their families.

It has become increasingly apparent that the safety and accident prevention programs of the past are not sufficient to achieve disability cost containment today. It is necessary to go beyond simple safety and accident prevention methods to an integrated disability management approach, encompassing accident prevention, injury management, claims management and return-to-work techniques. The National Industrial Rehabilitation Corporation (1991) estimates that companies can reasonably expect a 25 to 30 percent cost reduction in workers' compensation costs after the first year of implementing a disability management program, and that cost reductions can be nearly twice as great when long-term, relatively inactive cases are resolved.

Rousmaniere (1990) has pointed out that roughly 50 percent of the costs that result from accidents depend on how the company responds to and manages injuries after they occur. This was confirmed in our pilot study (Habeck, Leahy, Hunt, Chan, and Welch, 1991), when it was demonstrated that a sample of poorly performing Michigan employers had twice as many MIOSHA recordable incidents, but four times as many workers' compensation claims as a sample of high performance employers. This implies that what happens after the accident could have as much influence on workers' compensation costs as preventing the accident from occurring in the first place.

This research project was designed to provide statistically valid and behaviorally reliable empirical evidence to substantiate the impact of workplace policies and practices on the prevention and management of disability. The strategy adopted was to study the contributions of these policies and practices in explaining individual company accident and disability experience. Once this is adequately understood, it becomes possible to argue that companies that adopt more advanced injury prevention and disability management techniques should be able to match the performance of companies already using these methods. Analysis of the database collected in our preliminary study (Habeck, Leahy, and Hunt, 1988) provided an intriguing but limited empirical basis to substantiate the importance of particular policies and practices in accounting for company accident and claims incidence. The current study was built on these findings and provides an improved understanding of the prevention of workplace disability through the implementation of a carefully planned, sequential research design.

### **Origins of the Project**

The original proposal conceived of a three-year project to verify and extend the results of a pilot study completed in 1988.<sup>1</sup> This study demonstrated that: (1) There was great variation in workers' compensation claim rates among Michigan firms. In fact, analysis of administrative data revealed that there was at least a ten-fold variation between the incidence of claims at the best and worst establishments in each of 29 industries reviewed. (2) The variation in claims incidence could only partially be explained by differences in industry, size, and location. In fact, only 25 percent of the overall variance could be explained by these three factors. (3) A non-random sample of high claim firms had twice as many accidents, but four times as many workers' compensation claims as an equivalent non-random sample of low claim firms. This indicated that two different processes might be involved, one that determines the number of injuries and another that determines the number of disability claims resulting from those injuries. (4) There were a number of self reported organizational policies and practices that correlated with low claim rates. Among these were an open managerial style and a corporate culture that displayed an obvious human resource orientation. In addition, low claim firms reported that they more frequently

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<sup>1</sup>See Habeck, Leahy, and Hunt (1988) and Hunt (1988).

engaged in safety and prevention activities than high claim firms. They also more often reported utilizing procedures to prevent and manage disability after an accident had occurred.<sup>2</sup>

The results of the pilot study led the SET Division of the Bureau of Safety and Regulation, Michigan Department of labor to create a special category of Safety Education and Training (SET) grant for fiscal year 1989-90 that:

Provides for research or demonstration projects that expand or evaluate the findings of the Interstate Cost Comparison Study authored by Rochelle V. Habeck, University of Washington; H. Allan Hunt, Upjohn Institute for Employment Research; Michael J. Leahy, Michigan State University; and Edward M. Welch, Bureau of Workers' Disability Compensation (two-part report dated July and October 1988).<sup>3</sup>

The Upjohn Institute for Employment Research, in partnership with Michigan State University (to which Dr. Habeck had since returned) responded to this RFP with a proposal for a three year empirical study that would extend and refine the results of the pilot study in a number of important ways. First, the analysis of administrative data was to be redone to incorporate two major changes; a multiple year observation period, and a comparison between incurred claim and closed claim incidence measures. Both issues reflected criticisms of the pilot study findings, so these issues were to be addressed empirically. It was also proposed to collect administrative data on workers' compensation indemnity payments rather than simply the number of claims. In addition, a major concentration on injury data (from MIOSHA logs) rather than just workers' compensation claims and payments was proposed to further sharpen the distinction between the incidence of injuries and the development of workers' compensation claims out of those accidents.

Second, to improve the quality of information collected and counter the criticism that self-reported data were of dubious validity, site visits were planned to check self-reported data and allow for greater depth of qualitative data collection. The original project proposal was to include the pilot project firms (n = 124) in the sample for the larger study, for reasons of economy and

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<sup>2</sup>See Habeck, Leahy, Hunt, Chan, and Welch (1991) for an abbreviated report of the findings of the pilot study.

<sup>3</sup>Request for Proposal for the Safety Education and Training Grant Program for Fiscal Year 1989-90, Open Competitive Grant Program, p. 2.

continuity. It was also proposed that a supplementary sample of small firms (less than 50 employees) would be drawn to enable extension of policy conclusions to this large population of small establishments.

This project proposal was funded under the competitive regime of the SET grants for 1989-90, with the understanding that funding for subsequent years could not be guaranteed, due to administrative requirements. However, a significant reduction in the proposed budget (25 percent) was made to allow the grant to fit within program parameters.<sup>4</sup>

### **SET Project Timeline**

The first year was dedicated to assembling and analyzing existing administrative data from the Michigan Employment Security Commission and the Bureau of Workers ' Disability Compensation.<sup>5</sup> Alternative measures for analyzing disability performance at the establishment level were considered. In addition, a sampling methodology and instrumentation appropriate to the employer survey design were developed for use in the second year of the project.

The major second year activity was the conduct of a unique self-administered mail survey of 220 Michigan establishments in 7 industries (SIC 20, 25, 30, 34, 35, 37, 80). The survey was administered between March 5 and July 31 of 1991, and involved a stratified random sample of 477 establishments with at least 100 employees. An overall response rate of 46 percent was obtained with mail and telephone follow-up, yielding a completed analytical sample of 220 employers. Editing and organizing the survey database occupied much of the rest of the second year. In addition, preliminary plans were developed for a set of site visits to extend and deepen the results of the mail survey, particularly in the qualitative dimensions.

The third year focused on analysis of the employer survey database and completion of 32 site visits across six industries. The site visit establishments were selected to represent the best and worst performers on our overall disability measure (lost work days per 100 employees) in six industries. The site visits, which were conducted between March 25 and July 25, 1992, generally

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<sup>4</sup>This also happened in each of the subsequent fiscal years, resulting in a significant shortfall in total resources below the level originally anticipated.

<sup>5</sup>Thanks to the Commission and Abel Feinstein of MESC and to Ed Welch and Kathy Rademacher of BWDC for making these data available.

involved two to four respondents per firm and required from three to six hours on site to complete. The observations collected in these site visits are an important supplement to the employer survey data collected in year two. They allow greater depth of observation than the self-administered questionnaire used in the mail survey, and they provide important qualitative data that cannot be gathered in any other way. The analysis and refinement of the data gathered from these two efforts continued throughout year three and halfway through the fourth year. Empirical estimation and modeling revisions continued iteratively throughout this period with dual emphasis on analytical and presentation issues.

An increasing amount of time also was devoted to dissemination activities during the fourth year. A private briefing for employers involved in the study was held in March of 1993 and another for the SET Division in April. A stakeholder briefing and the public release of the study occurred in June 1993.

This report documents the methods and findings of this three and one-half year project. It cannot recount all the details of project activity over this entire period. But it does lay down the research decisions that were made along the way, and the reasons they were made, together with the results that have been obtained. It constitutes the most complete written record that will be produced of the activities under the SET grants.

this report will be supplemented by two other written products. A summary report has been produced for dissemination to most parties interested in the study. It provides less detail on methods, but highlights the major findings of the study in a user-friendly presentation. In 1994 the W.E. Upjohn Institute for Employment Research will publish a research monograph based on the findings from this project.

### **Administrative Data Analysis**

Administrative data were collected from the Bureau of Workers' Disability Compensation (BWDC) and the Michigan Employment Security Commission (MESC), both of the Michigan Department of Labor. BWDC data identified the details about the workers' compensation claims incurred or closed during the calendar years of 1986, 1987 and 1988. MESC data identified the industry (SIC classification), employment level, and total payroll of establishments covered for unemployment insurance purposes in the second quarter of 1986, 1987 and 1988. These data

were merged to provide a database to analyze alternative measures of company performance in disability prevention, as measured through the workers' compensation system.

An extensive series of statistical analyses were conducted on these 1986-1988 administrative data that revealed the following observations.

1. There is considerable variability in the annual claim rate of firms. The performance of firms with workers' compensation claims was compared for the years 1986, 1987 and 1988. Only 55 to 60 percent of companies with over 50 employees remained in the same claim rate category (low, medium or high) in two consecutive years. It was therefore determined that the accuracy of claim rate as a basis for classifying company performance is significantly improved by using a multi-year measure.
2. The annual average incurred claim rate for all employers with more than 50 employees was found to be nearly identical to the average closed claim rate. Using the entire BWDC data base for 1986-1988, company claim rates were calculated and compared using incurred and closed claim data. When companies were assigned to claim rate categories on the basis of their closed claim rate and again on their incurred claim rate, their classifications correlated very highly with each other. This was true both for large (over 50 employees) companies (Spearman correlation coefficient .91) and small companies (.90). It was therefore concluded that closed and incurred claims are essentially measuring the same dimension of employer disability performance. It was decided that the study would focus on incurred data because it has greater face validity and is more easily related to safety and prevention efforts.
3. A claims trend performance variable was developed to be used as a supplementary disability performance measure. The question was whether this internal measure of performance, relative to the company's own historical standard, would yield a more reliable indicator of performance compared to a measure that used industry norms. It was subsequently found that the year-to-year variation was so great at the establishment level, that trends in the data were simply not evident within the time period observed.
4. With the addition of workers' compensation indemnity payment data, a critical outcome measure of disability prevention and management efforts could be assessed. Given a company's claims experience (occurrence of accidents and subsequent claims) how well does the company manage disability when it occurs by effectively restoring work capacity and returning employees to work in a timely manner, thereby reducing indemnity costs? Indemnity costs should be a valuable indicator of lost work time and company effectiveness in disability management. This variable will be discussed in the empirical results presented below in chapters



- 3 and 4. Suffice it to say here that the potential value of this measure is significantly flawed by the apparent difficulty in reporting it accurately.
5. Duration of disability was added to claims incidence as an alternative measure of company performance. Improved performance in disability management should reduce the average duration of disability, other things being equal. The database allowed for calculation of average duration of disability for each employer. On the basis of this analysis, this variable was added to the study plan as another indicator of company performance, and will be discussed below. Again, empirical results have been disappointing as it has proven very difficult to predict the average duration of disability.

### **Survey of Employers**

During the first year of the project, when the major focus was on the administrative data from BWDC and MESOC, it was determined that the study would have significantly greater credibility if the empirical data collection was from a randomly drawn sample. In the pilot study, the top 15 percent and the bottom 15 percent of firms from each of three industries were drawn as a non-random sample to maximize the contrasts between good and poor performers. However, this design was criticized by other scholars as preventing extrapolation to the broader population of firms. Since there was some confidence among the study team, based on the pilot study results, that there would be measurable differences among employers that would correlate with their disability performance, it was decided that a truly random sample should be drawn to maximize the scientific credibility of the findings.

Therefore, a random sampling design was developed and the MESOC universe of establishments in the second quarter of 1988 was used as a sample frame from which to draw the sample. A second extremely valuable implication of this design change was that firms with no workers' compensation claims were also included in the sample. The previous findings were persuasive that the effect of omitting those firms with zero workers' compensation claims in a particular year would result in a significant bias. This is obvious from the following argument. If a large firm has zero claims in a year, obviously it is doing a very good job of preventing claims, or is in a very safe industry. If the former is the reason, it would clearly bias the sample if such firms were omitted. On the other hand, because of the relatively low incidence of workers' compensation claims, if a small firm has anything more than zero claims in a year, it either has a

significant disability problem or had a bad year. For both these reasons, it is vital to include firms with zero claims in a representative, unbiased sample.

It was determined that with budget constraints and limitations of the study design, firms with less than 100 employees could not effectively be studied. Since firms with under 100 employees would be significantly less likely to engage in the behaviors examined by the study and since small firms' experience is so variable from year to year, they could not be studied adequately with the proposed study design. Therefore, the random sample and subsequent site-visits were limited to firms employing 100 or more persons.<sup>6</sup>

The MESC population of firms was stratified by SIC code and employment size. Size of firm was categorized into three groups; from 100 to 249 employees, from 250 to 499 employees, and over 500 employees. It was determined that the most efficient sampling design would provide for sampling from each industry proportional to the expected hazard rate.<sup>7</sup> This reflected the judgment that variability would be roughly proportional to the mean, and such a sampling plan would allocate more sample points to the industries with the greatest variance. Within an industry, sampling was done equally among firm size classes, subject to the actual number of firms available. Thus, study results reported here represent a random sample of employers of the appropriate size in the sampled industries, with the sample size roughly representative of the degree of hazard.

The industries selected for study included the original four from the pilot study (SIC 20, Food Production; SIC 34, Fabricated Metals; SIC 37, Transportation Equipment; and SIC 80, Health Services) plus three additional industries selected from the top MIOSHA hazard rate industries (SIC 25, Furniture and Fixtures; SIC 30, Rubber and Miscellaneous Plastics; and SIC 35, Machinery, except Electrical). With these additions, the study covers six of the eight most hazardous industries according to MIOSHA, plus the most hazardous of the service industries (SIC 80, which ranks 21st overall).<sup>8</sup>

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<sup>6</sup>According to MESC ES-202 records for the second quarter of 1988. It was subsequently determined that a few firms either had substantially changed their employment level or were incorrectly represented in MESC reports, according to self-reported employment levels in our survey. Such establishments were retained in the study.

<sup>7</sup>We are indebted to Dr. Stephen Raudenbush, Michigan State University, College of Education for this insightful addition to the study design.

<sup>8</sup>See MIOSHA (1990).

Because of previous experience with inadequacies in workers' compensation data, the project team decided that data collection from surveyed firms should concentrate on MIOSHA log data. While there have been some complaints about the accuracy of these reports as well, they promised more uniformity and consistency than had been found with employer reported workers' compensation data in the pilot study.

Limiting the analysis to injuries involving seven or more lost workdays, i.e., workers' compensation wage loss claims, seemed too restrictive. The collection of MIOSHA log data on the number of "recordable" incidents, the number of lost workday cases, and the total number of lost workdays permitted concentration on the progression of disability from the initial injury onward to the (potential) workers' compensation claim.

Having a range of outcome, or dependent, variables available also facilitated the modeling phase of the project. It enabled a focus on the disability prevention dimension of employer behavior through employing MIOSHA recordables as the outcome variable or the disability management dimension through use of lost workdays per case or total lost workdays.

The study was designed to promote more effective disability prevention and management by providing an empirical basis for explaining to employers the contribution that specific employer policies and practices can make in reducing the risks and costs of disability. Therefore, the major empirical challenge for the employers survey, and indeed for the entire study, is to measure the relevant employer policies and practices in a way that is directly interpretable and easy to communicate. This has proven to be a very difficult task and it absorbed a great deal of staff effort and concern. Chapter 2 of this report describes the process that was used for instrument development and chapter 3 presents the final employer policy and practice variables, as quantified for this study. Other technical details of the employer survey methodology will be discussed in chapter 2 as well.

### **Employer Site Visits**

The original project proposal envisioned extensive site visits. However, due to funding limitations and the decision to develop a random sample of employers through a mail survey, the number of site visits was reduced and the mission of the site visits was changed. Site visits became a supplement to the quantitative analysis from the employer survey data. A total of 32

site visits were conducted between March 25 and July 25, 1992 generally involving two to four respondents per firm. Site visits required approximately three to six hours on site to complete. The observations collected were an important addition to the mail survey data which had been collected in the previous year. The site visits allowed greater depth of observation than the self-administered questionnaire used in the mail survey, and they provided important qualitative data that could not otherwise have been collected.

A systematic sample of companies were chosen from the random sample respondents for the on-site visits. The site visit establishments were selected to represent the best and worst performers on our overall disability measure (lost work days per 100 employees) within each size category in six industries. (SIC 20 was eliminated from the site visit phase of the study due to resource constraints.) High and low performance companies were deliberately selected from the three size classifications within each of the industries represented. This allowed for a total of 18 strata, or 36 site visits, of which 32 were actually completed.

Site visits also allowed for obtaining updated performance measures for 1990 and 1991 which provided an extension of the study data base for a small number of firms. Site visits were used to validate mail survey findings and to assess the quality of data provided in the mail survey. But most importantly the site visits allowed the research team to assess the policy and practice environment of the establishment first hand. Qualitative data and specific examples from firms were collected to verify causal linkages between policies and practices and performance improvement. Site visits also provided an understanding at the organizational level of factors that distinguish high performance employers from low performance employers and to gain an operational understanding of how effective policies and practices are actually carried out in the workplace. These issues are discussed in detail in chapter 5.

### **Theoretical Model and Research Hypotheses**

Previous research has demonstrated that successful loss control must encompass both the prevention of accidents and impairments from incurring in the first place, and an effective internal system for responding to injuries that do occur. This study refers to that comprehensive approach as disability prevention and management. Innovative public and private sector firms and labor

organizations have been experimenting with various aspects of these workplace strategies to prevent the occurrence and to minimize the negative consequences of occupational injuries.

This research project was formulated to further elucidate the company policies and practices that relate to the effective prevention and management of disability in the workplace and to investigate their contributions in explaining individual company's injury and claims experience. Analysis of the data base collected in our pilot study provided an intriguing but limited empirical basis to substantiate the importance of these factors for predicting and explaining company claims incidence, and eventually for policy interventions to improve their performance. This project was designed to provide specific quantitative estimates of the contributions of various policy and practice factors, controlling for other characteristics of the firm.

Figure 1.1 shows the conceptual model that has guided this project from its inception. The company environment is taken as given, but it is clearly manifested in the degree of orientation to people (people oriented culture) and the involvement of top management in safety and prevention efforts (active safety leadership). There are three general sets of interventions that are studied here. First is safety intervention, that is, the attempt to prevent accidents from happening in the first instance. This is the oldest and most established of the policy and practice areas studied for this project, and our empirical results will show that it is still the most important.

Second comes disability intervention, or the many disability management techniques that are gaining currency among business establishments today. These represent strategies to minimize the disability consequences of a given injury or disease arising from the workplace. Last comes health promotion, which represents an attempt to intervene directly with the individual to encourage more healthy lifestyles, in the expectation that this will reduce the likelihood of an accident or disease developing, or reduce the lost work time resulting from a given injury or disease process. Any of these interventions could reduce the overall incidence of work related disability; the question this study seeks to answer is "by how much?"

The study seeks to measure the marginal impact of each of these three types of interventions on a set of disability performance indicators derived from MIOSHA log and workers' compensation data reported by the employers in the survey described earlier. As shown in the figure, the performance measures include the incidence of accidents (as measured by the MIOSHA recordable rate), the incidence of disability (as measured by the incidence of lost

workday cases and workers' compensation claims), the duration of disability (as measured by the average lost workdays per lost workday case), and overall disability performance (as measured by the total lost workday rate and total workers' compensation costs).

The empirical analysis presented in chapter 4 correlates the self-reported levels of achievement of the disability prevention and management interventions with the self-reported performance indicators from the survey. In essence, the methodology tests whether differences among establishments in disability prevention and management practices are reflected in performance differences.

Therefore, the hypotheses that will be tested here concern the relationships between the policy and practice measures and the disability outcome measures, as those are quantified in this study. In conceptual terms, we are testing whether:

- (a) Safety Interventions impact Injury Incidence, Disability Incidence, and Overall Disability Performance;
- (b) Disability Management Interventions impact Disability Incidence, Disability Duration, and Overall Disability Performance;
- (c) Health Promotion Activities impact Injury Incidence, Disability Incidence, Disability Duration, and Overall Disability Performance.

In addition, the influence of company environment (as measured by active safety leadership and people oriented culture) is assessed using the same cross-sectional design.

Overall, this study provides an improved exploration of workplace disability and its prevention through a carefully constructed, scientifically sound, sequential research design. The results are expected to significantly impact the critical problem of disability arising from the workplace by identifying company practices and characteristics associated with effective prevention of disability occurrence and control of the most negative consequences when disability occurs.

### **Limitations to Research Design**

This study is a significant step forward in our understanding of the impact of specific disability prevention and management policies and practices. It provides the most credible

empirical findings produced to date on the nature and the degree of association between such policies and practices and disability outcome measures. However, it does have some remaining limitations. The most basic issue is whether the findings of a study of different establishments (a cross-sectional design) can be extrapolated to behaviors of the same establishment over time (a time series design).

By presenting results as if it is certain that differences in the policy and practice dimensions are causing differences in the outcomes, the study is extrapolating beyond what is actually proved here. Strictly speaking, with the design of this study, all that can be proven (to normal statistical standards) is that there is an association, or correlation, between the two, i.e., that high reported values on a given policy and practice dimension are associated with low reported values on a given outcome measure among the establishments in our sample. Further, the study presumes to estimate the exact degree of relationship by estimating how much the outcome measures change with a given change in policy and practice variables. These estimates are derived from the reported differences among the establishments in our sample.

The maintained hypothesis of this study is that the differences among establishments in their policies and practices have produced the reported differences in disability outcomes. But that cannot be absolutely proven without a formal intervention study, preferably one with a random assignment to treatment or control group. the problem with the cross-sectional design is that one cannot be sure about the temporal relationship between the interventions and the outcomes. For example, if firms respond to disability problems with policy initiatives, one might observe a negative relationship between disability incidence and policy initiatives in a cross-sectional study. This would reflect the fact that it takes time for the policy initiatives to yield results, and in the meantime the firm may report a significant disability incidence problem. The authors are comfortable with asserting that the reported differences among establishments represent policy choices that have been made, consciously or unconsciously, about how diligently the firm is going to pursue disability prevention and management activities. However, it is certainly true that the relationships between policies and practices and outcomes are not nearly so precise as is implied by our results. For that reason, it is important that the reader think of these results as representing a general range of impact and not read these results as accurate down to the third decimal place, as they are sometimes reported.

Another issue is the validity of self-reported data from the survey establishments. While the discussion in chapter 5 will address this issue formally for the subset of sampled establishments that the study team actually visited in the site-visit portion of the study, it remains a troublesome question. It appears that establishments tended to “regress to the mean.” In other words, the good performers tended to underrate themselves on our data collection instrument and the poor performers tended to overrate themselves.

This does not mean that they were trying to mislead the research team, but it does probably reflect their general sophistication in the disability prevention and management areas. A firm that has thoroughly investigated this area and is aware of what the state-of-the-art firms are doing, may feel that their own performance falls far short of this standard, even though we would judge them well above average. On the other hand, the establishment that has not concentrated on this policy area is unlikely to be aware of how far behind today’s best practice their own performance may be. So this problem is a natural result of the survey methodology, and the fact that all respondents have their own implicit reference group for their firm’s performance.

From the point of view of the empirical findings here, it is heartening that the respondents demonstrated this reporting behavior. It means that the differences in performance (where there is presumed to be less reporting bias because these items are more concrete and relatively objective measurement standard exist) are associated with smaller reported differences in policies and practices than actually exist. Therefore, our statements about the degree of change in performance associated with a given difference in policies and practices will be understatements. The “true” relationship is likely to be larger, given the reporting bias for the less objective policy and practice dimensions.



**Figure 1.1 Conceptual Model**

