Impacts on Firm Productivity by Retaining Worker Knowledge and Capacity Through Disability Management Programs

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Helping employees return to work following an injury or illness is a moral imperative, and usually a legal requirement, but is it economically beneficial to the firm? While there is intuitive awareness that disability management programs can be economically beneficial, particularly by retaining and resecuring the knowledge and capacity of employees, there is limited evidence to support that claim. The literature lacks insight into the logic and mechanisms through which disability management programs are economically beneficial. To provide such insight, this study undertakes an exploratory analysis of disability management programs concerning productivity as a firm-level performance factor. The data is sourced from a Canadian national database statistically representing more than 650,000 firms. The findings indicate there are differential impacts of disability management programs on firm productivity and this relationship is moderated by business strategy.

Keywords: disability, management, productivity

INTRODUCTION

Disability is a significant employment issue. Discrimination against persons with disabilities is connected to reductions in national productivity capacity (World Health Organization, 1981), and poor management of employee injuries and illnesses needlessly increase operating costs of organizations (Boden, Biddle & Speiler, 2001). In Canada, one worker is injured on the worksite every nine seconds, and one worker in 15 is injured each year (Human Resources and Social Development Canada, 2000). Further, a Wattson Wyatt Worldwide (1997) survey of Canadian employers indicates that in addition to insurance premium costs paid to Workers Compensation Boards, providing benefits coverage under short and long-term disability plans costs organizations an amount that is about equal to six per cent of payroll. The Government of Canada estimates that when indirect costs such as recruiting and training replacement workers, reduced productivity due to inexperienced workers, and overtime pay for other workers, the cost of employee accidents and illness to employers is approximately 9 billion dollars per year (Human Resources and Social Development Canada, 2000).

Disability management programs – a systemic and organized response to employee disability issues- address these cost issues by increasing the employment of persons with disabilities through more effective reintegration and return to work practices (Akabas, Gates & Warren, 1996). Despite of a wide offering of advocacy, promotion, and best-practice recommendations (see Social Development Canada, 2004) research shows that a minority of organizations have disability management programs in place (Marsh Risk Consulting, 2003). This may be due to an emphasis of promotion and advocacy of disability management

programs resting on medical, legal, insurance, and social responsibility arguments. Less knowledge is generated and logics presented for the corporate productivity argument. For example, a few studies describe the stages of disability rehabilitation and employee reintegration and return to work (Thomason, Burton Jr, & Hyatt, 1998) and show linkages between disability management policies and procedures and disability management outcomes (Amick III, Habeck, Hunt, Fossel, Chapin, Keller, & Katz, 2000; Habeck, Scully, VanTol, & Hunt, 1998). These works show that there are principles and practices of disability management that are transferable across organizations. For example, that implementing disability management policies and practices in general helps employees return to work faster (Habeck & Leahy, 1991). Further, that disability management practices are associated with lower rates of employee disabilities and recidivism (Lewin & Schecter, 1991) and manager training in disability management is important to achieving good outcomes (McLellan, Pransky & Shaw, 2001). However, it is unclear why these relationships exist and how they combine to achieve the goals of disability management in organizations.

This study addresses the question: What are the relationships between disability management programs and firm productivity? Although disability management programs have been shown to speed employee returns to work and save organizations money, linkages of these programs to other forms of competitive advantage have not yet been examined. For example, Westmorland & Buys (2004) repeat Masengarb's (1994) conjecture that disability management programs result in greater firm productivity, however, these assertions remain relatively unsubstantiated. Investigating this relationship aids our understanding of reasons that organizations implement disability management programs. Most of the return-to-work research to date views the employees return to work as the final outcome. However, identifying the nature and structure of correlates between disability management programs and organizational performance may inform discussions of the strategic value of these programs and their contributions to organizational profits and/or social responsibility interests.

THEORETICAL BACKGROUND

Disability management programs are a deliberate attempt to recover the productive capacity of an employee when the employee is unexpectedly removed from the workplace because of an injury or illness (Dyck, 2006). The value of disability management programs in this context is attributed to the program's role in saving organizations money by returning the employee to work and thus minimizing costs for insurance premiums and payouts as well replacement employee selection and training (Shrey, 1995; Shrey & Hursh, 1999). However, framing disability management programs only in the cost-saving context limits our understanding of these programs' strategic and value-adding nature.

Management practices in most organizations reflect the economic, social, and cultural context in which the organization operates (Strand, 1983; Child, 1972; Andrews, 1971). In recent years, pressure for change, innovation, and growth has required many organizations to reexamine if and how their human resource management programs fit in their organization and contribute to its overall performance (Zatzick and Iverson, 2006). Organizations find that to succeed in this new environment, they must move past more traditional management methods of hierarchy and control and rely upon more open systems of employee involvement and engagement in fundamental work tasks (Whitener, 2001). Ironically, while organizations are more fully relying upon engaged and empowered employees to drive organizational performance, the nature and availability of the workforce is shifting and making it more difficult for firms to capitalize on their human resources (Drucker, 1999). For example, demographic changes in the labour market are related to evolving general expectations of workers about work and work-life balance (Burke, 2000), and shortages in skilled professional areas are making it difficult to find and retain quality employees (Greenhause, Parusuraman & Collins, 2001). Furthermore, these effects combine to inflate employees' wages and reduce the margins and tolerance that organizations have for workforce turnover (Statistics Canada, 2007). A net effect of these changing environmental conditions is that the value of employees as an organizational resource is increasing (Wright, Dunford & Snell, 2001).

In a strategic human resource management context, disability management programs may relate to organizational performance. There are two views on the program-to-performance relationship: programs

lead to performance, and performance leads to programs. Regarding the first view, disability management programs may influence organizations' performance by helping employees become more healthy and productive for their work (Gornick & Blair, 2005). Additionally, disability management programs may be a strategic tool for helping an organization compete in the marketplace. This is because employees are an important part of an organization's competitive advantage (Barney, 1991 and 1995; Barney & Wright, 1998; Wright, Dunford & Snell, 2001). Competitive advantage partly rests on the organization's "idiosyncratic and difficult-to-imitate resources" (Teese, Pisano & Shuen, 1997: 513), and employees with firm-specific training, considerable in-role experience, and commitment to the organization are a formidable competitive asset for the organization (Wright, Dundford & Snell, 2001). In short, high involvement work practices enable employees to make greater contributions to organizational performance by becoming more embedded and integrated into the strategic and decision-making aspects of their work.

Disability management programs may relate to organizational advantage and performance for at least three reasons. First, they may increase the effectiveness and efficiency of employees returning to work and better preserve and recover the employees' business and job knowledge and thus limit the amount of re-learning and reorientation the employee requires to the workplace. Second, in relative terms, if an organization only has to pause to help an employee return to work rather than stop, hire, and train a full replacement, thus it may have greater revenues and less management costs per employee. Third, suppose an organization provides the employee with accommodations to their role or work environment (e.g., supportive equipment, more frequent rest periods). In that case, the employee may produce at a higher rate than without the accommodations. However, it is important to note that disability management programs may also reduce organizational performance. While there is not presently data to indicate the marginal labour costs associated with disability management programs, related social-oriented programs (e.g., racial diversity programs) have been shown to add up to 10% to the organizations operating costs per year (Riccucci, 1997). Consequently, it is relevant to evaluate the relationship between disability management programs and firm productivity.

Regarding the second view, this relationship may be seen from the perspective that organizational performance may influence the existence or function of disability management programs. More productive firms may have greater resources to implement these programs than less productive firms. This perspective is reflective of the Welfare Capitalism model of business strategy (Jacoby, 1997) which suggests that organizations provide non-monetary compensation, such as health care and employee assistance programs, to help improve the quality of life for their employees (Maiden, 2005). This viewpoint is consistent with general trends in disability issues that show socialist-leaning countries provide more supports to persons with disabilities than capitalist-leaning countries (Mayhew, 2003; Stienstra, 2002). As disability management programs cost money to implement and draw upon administrative resources, it may be that only more productive firms can implement these programs.

If there is a relationship between disability management programs and organizational performance and these programs influence productivity, this relationship may also be moderated by the organization's other management practices and performance strategies (Guthrie, 2001; Huselid, 1995; Long, 2005; MacDuffie, 1995; Zatzick & Iverson, 2006). Disability management programs may have greater or lesser effect when coupled with different levels of high involvement work practices, or inward / outward focused performance strategies. For example, disability management programs may enhance organizational performance in organizations with many high-involvement work practices as the programs help reinforce to employees that they are individually valued and thus support the engagement of employees in their work. However, this message may have significantly less impact when there are few high involvement work practices and the unique capacities of each employee are valued less by the organization. An example of interaction with performance strategies is that for organizations highly focused on maximizing internal effectiveness (e.g., through standardization and mechanization), disability management programs may reduce overall performance because job accommodations for employees require flexibility that the system cannot incorporate efficiently (e.g., frequent rest breaks on an assembly line).

Presently, it is unclear what relationship disability management programs have with organizational performance, nor the potential implications of these programs in interaction with peer programs and

performance strategies. Consequently, these interactions will be explored further through the analyses of data.

METHODOLOGY

Sample and Data Collection

The data for this study was obtained from Statistics Canada through the Workplace and Employee Survey (WES) product. The WES was administered annually from 1999 to 2006, in two alternating cycles of variables, permitting both cross-sectional and longitudinal analyses. The power and utility of the WES was derived from two key features: 1) it is nationally mandated, administered, collected, and protected, and 2) it collects and supports a linkage between two sets of data (a) the Workplace Survey (completed by organizations) and (b) the Employee Survey (completed by employees). Consequently, researchers can connect changes in business strategy to adjustments in organizational practices, and both of these with employee outcomes for absence rates, wages, and satisfaction. Furthermore, these relationships can be tested and understood with a strong degree of confidence.

The instrumental role of Statistics Canada in the development, delivery, tabulation, and protection of the WES produces assurances for the completeness and accuracy of the data. Further, the data for the WES is collected from a large sample of private sector organizations and their employees which may otherwise not respond to independent research requests. The estimated organization population represented by the sample is greater than 650,000 firms, representing 10 provinces across 252 strata – industry (14), region (6), and size (3). The questionnaires contain over 600 variables that address diverse topics, including human resource management practices, business strategies, firm and employee demographics, and employee perceptions of the organization. Employers are sampled by physical location with a senior level official responding to the survey. Employees are representatively sampled from employer provided lists. Respondents are followed for approximately four years, further enhancing the validity and consistency of the data.

This study is based on data from the 2006 WES cycle. This cycle contained the most current data on variables relevant to the study, including measures of disability management programs, high involvement work practices, and productivity. The primary respondent for the Workplace Survey is the Human Resource Manager, or in smaller organizations the general manager or business owner. For larger organizations, multiple respondents were requested to enhance the validity of specific data (e.g. financial information) and address potential issues with multi-colinearity and common method variance (Patak, Hidiroglou & Lavalle, 1998). The Employee Survey is completed by a random sample of employees in each organization (up to eight per organization), with these respondents engaged year-over-year to produce longitudinal data.

Measures

Most variables in this study have been recoded or reclassified from their original presentation in the data set. A discussion of these changes is provided below.

Disability Management Programs

Two types of disability management programs were measured. The first program, DM Programs (Job Accommodations), indicates whether organizations provide equipment or assistive devices to help employees with disabilities perform their work. The second program, DM Programs (Career Growth), indicates whether organizations provide disability management programs that support and direct the careers of persons with work limitations through training and other promotional opportunities. Although the employment and accommodation types of programs fall within the general rubric of disability management (Budkiewicz, 1998; McMahon, 1999; Salkever, Shinogle & Purushothaman, 2000; Schwartz, Watson, Galvin & Lipoff, 1989; Shrey & Hursh, 1999), and have a significant bivariate correlation ($r = .41$; $p < .01$) they are analyzed separately as they conceptually focus on different aspects of disability management.

Both measures of disability management programs were imported from the Employee Survey and the presence of each type of disability management program was aggregated from the responses of sampled

employees. For DM Programs (Job Accommodations), the questions asked employees that require accommodations "Does your employer provide these altered facilities, equipment or aids to you?" For DM Programs (Career Growth), the Employee Survey questionnaire asked "Does your employer have any recruitment or career programs for employees with disabilities?" For both questions, employee response categories included (a) Yes, (b) No, (c) Not Applicable, and (d) Don't Know. As the sample and data collection section mentioned, three steps are required to construct the disability management program variables. First, employee responses in the Employee Survey data set indicating positive responses were recorded as 1, negative responses as 0, and all others as 'missing'. Second, employee results were aggregated for each organization, creating organizational scores between zero and the maximum number of respective responding employees (usually 4-6 employees per organization). Another recoding of the scores resulted in organizations with at least one employee indicating the presence of a disability management coded as 1 and all others as 0. This approach to categorizing the presence of the programs is appropriate is unrealistic to expect all staff to know that a program exists, but if a person knows a program to exist it is reasonable to expect that it applies to all staff. Third, this computed variable for the Employee Survey was exported to the Workplace Survey data set. Thus, the measure of each disability management program in the organization is that at least one employee in the organization affirmed its presence.

Business Strategy

Two strategy variables were constructed from fifteen questions in the survey. The questions asked participants to indicate the importance of several facets of their workplace's general business strategy, including "Increasing employee's skills," "Increasing employee involvement/participation," "Undertaking R&D," and "Reducing labour costs". Participants responded on a six-point scale from "Not Important through Crucial." The two constructed strategy variables of 'operating excellence' and 'external growth', were based on principal components factor analyses with varimax rotation. Following the advice of Tabachnick & Fidell (1996) items were allocated to factor groups using .40 as a cut-point condition for inclusion in the respective factor group. Although three factors were produced through this analysis, the third factor did not meet the generally accepted scale reliability coefficient of .70 (Chronbach, 1951) and thus was not included in the study. The Cronbach alpha scores for scale reliability were: operating excellence (.73), external growth (.81), and labour costs (.51). This approach to developing strategy variables is similar to other authors using the WES (Thornhill, White and Raynor, 2005).

Organizational Performance

Productivity, as a measure of organizational performance, is based on the general lead of Datta, Guthrie & Wright (2005) and Zatzick and Iverson (2006). Productivity is calculated as revenues per employee minus salary costs per employee. The three questions that contribute to these variables were:

- Revenue: "What was the gross operating revenue from the sale or rental of all products and services for this location?"
- Salary Expenditures: "What was the total gross payroll for all employees at this location."
- Total Employees: "How many employees receiving a T4 slip were employed at this location?"

High Involvement Work Practices

While measures of involvement human resource practices vary considerably, they draw upon a similar body of management practices (Datta, Guthrie & Wright, 2005; Way, 2002). For example, a typical high-involvement workplace includes training, teamwork, employee involvement, incentive compensation, and two-way communication (Guthrie, 2001; Lawler, 1992; Pfeffer, 1998). The WES asked respondents to indicate whether the following six management practices existed on a formal basis in their organization during the previous 12-month period: flexible job design, information sharing with employees, problem-solving teams, self-directed work groups, gain sharing, and formal training. The high-involvement work practices were measured on a dichotomous scale (1 = Yes; 0 = No). And, as the prevalence and impact of high involvement management practices can be more clearly measured by structuring them into an index (MacDuffie, 1995; Pil & MacDuffie, 1996), high involvement work practice bundles were created by

summing the scores for each of the six practices. The scale had good internal reliability (Chronbach alpha = .77), and is similar in composition and internal reliability to a similar scale used by Zatzick and Iverson (2006).

Welfare Supports

Several items in the workplace survey represent non-monetary compensation practices consistent with the indirect pay and welfare capitalism business approach. These include the provision of severance, pension plans, life insurance, health care insurance, and employment insurance top-ups for maternity leaves. These supports were measured on a dichotomous scale (1 = Yes; 0 = No). Factor analysis of the measures reveals a single-item factor structure with a Cronbach alpha scale reliability coefficient of .81. To determine if welfare supports were distinct items from the disability management programs variables and high involvement work practices variable, a factor analysis was conducted of the five welfare support items, both disability management program measures, plus the six high involvement work practices items included. The results indicate a three-factor structure with disability management programs, high involvement work practices, and welfare supports as clearly distinct from each other.

RESULTS

The program relationships outlined earlier call for statistical evidence. Two types of regression models were used to test for relations between variables. First, logistical regression models tested for the likelihood of productivity influencing disability management programs. This approach is best for analyzing data where the dependent variable is dichotomous (Agresti, 2002). Second, linear regression models with the ordinary least squares approach test for the influence of disability management programs on firm productivity. Taking a least squares approach enables fitting a line to the data that minimizes the sum of the squares of the residuals from the regression line (Abdi, 2003). This means that the regression line represents a best fit scenario for the data based on the overall placement of the line relative to the actual data points for each case. In each regression model, the variables are standardized and centred (i.e. M = 0, SD = 1).

Means, standard deviations, and correlations among the study variables are presented in Table 1.

TABLE 1
DESCRIPTIVE STATISTICS AND CORRELATIONS

	Variable	Mean	SD	1	2	3	4	5	6	7
1	DM Programs (Job Accommodations)	.43	.18							
2	DM Programs (Career Growth)	.39	.11	.41**						
3	Productivity Per Employee [a]	337	108	.12**	.17**					
4	Operating Excellence Strategy	3.21	.82	.06**	- .09**	.03**				
5	External Growth Strategy	3.17	.82	- .17**	.08**	.06**	.32**			
6	High Involvement Work Practices	1.56	1.48	.39**	.21**	.03**	.10**	-.23**		
7	Welfare Supports	3.87	1.04	.18**	.04**	.04**	.13**	-.11*	08**	

n = 1,386, N = 78,263. Weights provided by Statistics Canada were used to ensure that the sample population represented the general Canadian population

* p < .05 (2-tailed).

** p < .01 (2-tailed).

The relationships for organization performance and disability management programs help inform the research question of this study by suggesting the presence of a relationship between firm productivity and disability management programs. Both DM Programs (Job Accommodations) and DM Programs (Career Growth) have significant and positive relations with productivity per employee (r = .12, p < .01 and .17, p

< .01, respectively). These results suggest that the presence of disability management programs in organizations is related to the organization's level of productivity.

Disability Management Programs and Organizational Performance

The results also show that productivity predicts disability management programs (Table 2), and that both disability management programs predict productivity (Tables 3 and 4) and Revenue per Employee (Table 5) and Labour Costs per Employee (Table 6). It is interesting to note that each of the disability management programs has a different effect on firm productivity. For DM Programs (Job Accommodations) there is a positive relationship with productivity (b = .16, p < .01) (Table 3), and for DM Programs (Career Growth) there is a negative relationship (b = -.11, p < .01) (Table 4).

With the present data, assigning a causal direction to the relationship is impossible. Although additional theoretical grounds must be developed to explain this finding, exploring the data in more depth remains instructive. With the present data and analytical tools, only the effects of disability management programs on productivity could be further assessed.

TABLE 2
LOGISTICAL REGRESSION FOR DISABILITY MANAGEMENT PROGRAMS

	DM Programs (Job Accommodations)			
Variables	**B**	**Wald**	**-2 Log Likelihood**	**Exp (B)**
Model 1: Performance Strategy	Cox – Snell Likelihood: .05			
Operating Excellence Strategy	.92	.02	944.55	2.51
External Growth Strategy	- .55	.02	1040.84	.58
Model 2: Management Practices	Cox – Snell Likelihood: .03			
High Involvement Work Practices	.87	.01	600.51	2.39
Model 3: Non-Wage Benefits	Cox – Snell Likelihood: .04			
Welfare Supports	.53	.02	329.57	1.44
Model 4: Productivity	Cox – Snell Likelihood: .02			
Productivity Per Employee [a]	.44	.03	474.81	1.84

	DM Programs (Career Growth)			
Variables	**B**	**Wald**	**-2 Log Likelihood**	**Exp (B)**
Model 1: Performance Strategy	Cox – Snell Likelihood: .02			
Operating Excellence Strategy	.01	.02	313.20	1.00
External Growth Strategy	- .01	.02	517.15	.99
Model 2: Management Practices	Cox – Snell Likelihood: .03			
High Involvement Work Practices	.25	.01	837.64	1.29
Model 3: Non-Wage Benefits	Cox – Snell Likelihood: .04			
Welfare Supports	.03	.05	187.38	1.02
Model 5: Productivity	Cox – Snell Likelihood: .02			
Productivity Per Employee [a]	.09	.05	266.23	1.08

[a] Thousands (000's)
n = 1,386, N = 78,263. Weights provided by Statistics Canada were used to ensure that the sample population represented the general Canadian population
* p < .05 (2-tailed).
** p < .01 (2-tailed).

TABLE 3
REGRESSING DM PROGRAMS (JOB ACCOMMODATIONS) ON PRODUCTIVITY PER EMPLOYEE

Variables	1	2	3	4	5	6
Organizational Characteristics						
Workplace Size	.13**	.13**	.13**	.14*	.14**	.14**
Union Density	.05*	.05*	.05*	.05*	.03*	.03*
Industry	-.27**	-.26**	-.22**	-.22**	-.21**	-.21**
Workplace Age	.02**	.02**	.02**	.01**	.01**	.01**
Independent Variables						
Operating Excellence Strategy (OES)	-	.33**	.29**	.29**	.29**	.33**
External Growth Strategy (EGS)	-	.21**	.22**	.19**	.19**	.23**
Management Practices						
High Involvement Work Practices	-	.15**	.15**	.16**	.16**	.16**
DM Programs						
DM Programs (Job Accommodations)	-		.16**	.18**	.18**	.17**
Two Way Interactions						
HIWP * OES				-.03**		-.03**
HIWP* EGS				.32**		.32**
DM Programs (JA) * OES	-		-	-	-.17**	-.17**
DM Programs (JA) * EGS	-		-	-	.23**	.23**
DM Programs (JA) * HIWP	-		-	-	.26**	.26**
R2	.11	.20	.21	.22	.22	.22
Change R2	.10	.09	.01	.01	.00	.00

n = 1,386, N = 78,263. Weights provided by Statistics Canada were used to ensure that the sample population represented the general Canadian population
* p < .05 (2-tailed).
** p < .01 (2-tailed).

TABLE 4
REGRESSING DM PROGRAMS (DM PROGRAMS)
ON PRODUCTIVITY PER EMPLOYEE

Variables	1	2	3	4	5	6
Organizational Characteristics						
Workplace Size	.13**	.13**	.13**	.14*	.14**	.14**
Union Density	.05*	.05*	.05*	.05*	.03*	.03*
Industry	-.27**	-.26**	-.22**	-.22**	-.21**	-.21**
Workplace Age	.02**	.02**	.02**	.01**	.01**	.01**
Independent Variables						
Operating Excellence Strategy	-	.33**	.33**	.29**	.29**	.33**
External Growth Strategy	-	.21**	.21**	.19**	.19**	.23**
Management Practices						
High Involvement Work Practices	-	.15**	.15**	.16**	.16**	.15**
DM Programs						
DM Programs (Career Growth)	-		-.11**	-.13**	-.11**	-.11**
Two Way Interactions						
HIWP * OES				-.03**		-.03**
HIWP* EGS				.32**		.32**
DM Programs (CG) * OES					-.32**	-.32**
DM Programs (CG) * EGS	-		-	-	.19**	.19**
DM Programs (CG) * HIWP	-		-	-	-.11**	-.11**
R2	.11	.20	.20	.22	.22	.22
Change R2	.11	.09	.00	.02	.00	.00

n = 1,386, N = 78,263. Weights provided by Statistics Canada were used to ensure that the sample population represented the general Canadian population
* p < .05 (2-tailed).
** p < .01 (2-tailed).

TABLE 5
REGRESSING DM PROGRAMS ON REVENUE PER EMPLOYEE

Variables	1	2	3	4
Control Variables				
Workplace Size	.19**	.13**	.12*	.14**
Union Density	.05*	.05*	.05*	.05*
Industry	-.29**	-.25**	-.25**	-.25**
Workplace Age	.03**	.01**	.01**	-.06**
Independent Variables				
Operating Excellence Strategy	-	.15**	.15**	.12**
External Growth Strategy	-	.35**	.36**	.38**
Management				
High Involvement Work Practices	-	-	.13**	.18**
DM Programs				
DM Programs (Job Accommodations)	-	-	-	.18**
DM Programs (Career Growth)	-	-	-	-.25**
R2	.10	.21	.22	.22
Change R2	.10	.11	.01	.00

[a] Natural Logarithm
n = 1,386, N = 78,263. Weights provided by Statistics Canada were used to ensure that the sample population represented the general Canadian population
* p < .05 (2-tailed).
** p < .01 (2-tailed).

TABLE 6
REGRESSING DM PROGRAMS ON LABOUR COSTS PER EMPLOYEE

Variables	1	2	3	4
Control Variables				
Workplace Size	.13**	.11**	.11*	.11**
Union Density	.15*	.16*	.15*	.15*
Industry	-.24**	-.21**	-.21**	-.20**
Workplace Age	.18**	.17**	.13**	.13**
Independent Variables				
Operating Excellence Strategy	-	-.26**	-.28**	-.27**
External Growth Strategy	-	.31**	.37**	.38**
Management				
High Involvement Work Practices	-	-	.15**	.13**
DM Programs				
DM Programs (Job Accommodations)	-	-	-	.13**
DM Programs (Career Growth)	-	-	-	.24**
R2	.05	.11	.15	.16
Change R2	.05	.06	.04	.01

[a] Natural Logarithm
n = 1,386, N = 78,263. Weights provided by Statistics Canada were used to ensure that the sample population represented the general Canadian population
* p < .05 (2-tailed).
** p < .01 (2-tailed).

It is notable that each disability management program has a different effect on firm productivity. For DM Programs (Job Accommodations) there is a positive relationship with productivity (b = .16, p < .01) (Table 3), and for DM Programs (Career Growth) there is a negative relationship (b = -.11, p < .01) (Table 4). However, both variables contribute very marginal increases to the explained variance in productivity and have coefficients that are smaller in magnitude than the performance strategy variables and similar in magnitude to high involvement work practices. Consequently, these results show that disability management programs do predict productivity but also that the programs have small overall implications to productivity relative to other organizational variables. This is a reasonable result given the indirect role of disability management programs as a support to organizational operations.

In addition to these results, steps in the regression models were added to test for the interaction between disability management programs and performance strategies and management practices. It is presently unclear if the relationship between management strategy and performance fluctuates with the presence of disability management programs. These tests examine the relations between strategies and practices in the presence and absence of disability management programs. Other research using the Workplace Employee Survey show that both performance strategies and high involvement work practices are related to organizational performance (Thornhill, White & Raynor, 2005; Zatzick & Iverson, 2006), and it may be that disability management programs enhance or disrupt these relationships. These interactions are graphed in Figure 1 (A-F) and are discussed below.

FIGURE 1
INTERACTION EFFECTS

FIGURE 1A
INTERACTION EFFECTS OF DM PROGRAMS (JOB ACCOMMODATIONS) AND OPERATING EXCELLENCE STRATEGY ON PRODUCTIVITY PER EMPLOYEE

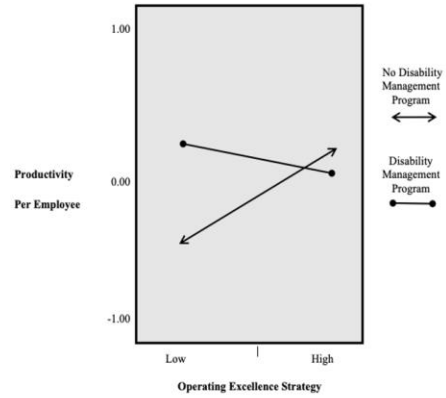


FIGURE 1B
INTERACTION EFFECTS OF DM PROGRAMS (CAREER GROWTH) AND OPERATING EXCELLENCE STRATEGY ON PRODUCTIVITY PER EMPLOYEE

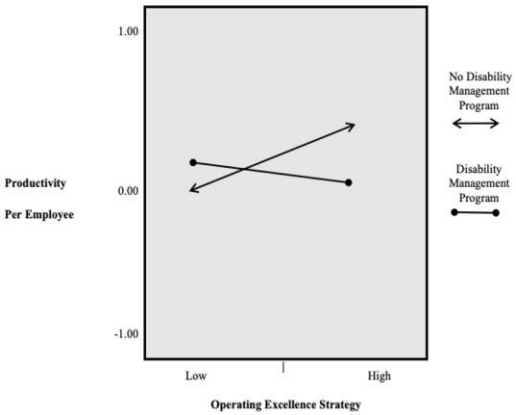


FIGURE 1C
INTERACTION EFFECTS OF DM PROGRAMS (JOB ACCOMMODATIONS) AND EXTERNAL GROWTH STRATEGY ON PRODUCTIVITY PER EMPLOYEE

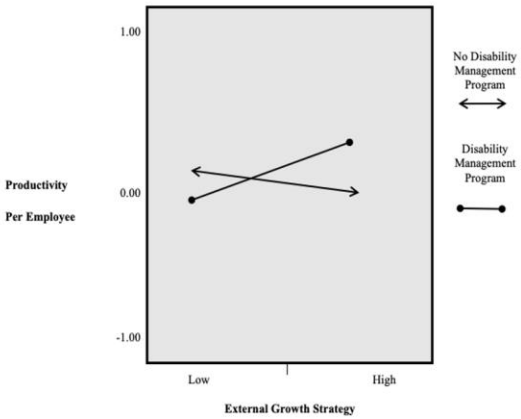


FIGURE 1D
INTERACTION EFFECTS OF DM PROGRAMS (CAREER GROWTH) AND EXTERNAL GROWTH STRATEGY ON PRODUCTIVITY PER EMPLOYEE

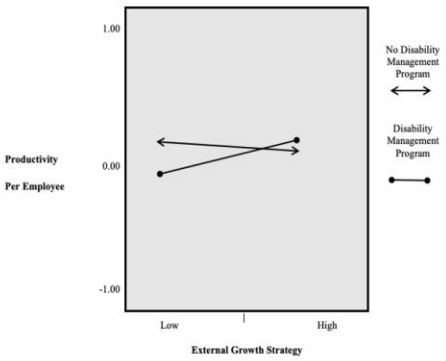


FIGURE 1E
INTERACTION EFFECTS OF DM PROGRAMS (JOB ACCOMMODATIONS) AND HIGH INVOLVEMENT WORK PRACTICES ON PRODUCTIVITY PER EMPLOYEE

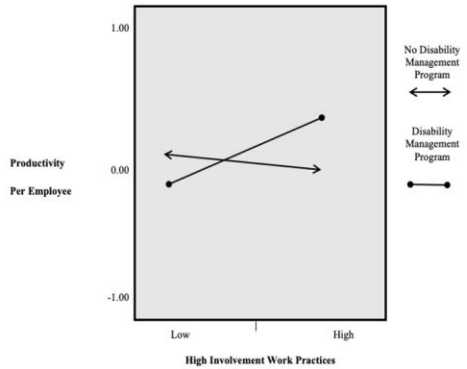
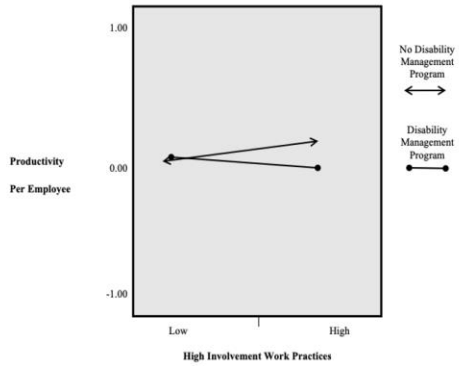


FIGURE 1F
INTERACTION EFFECTS OF DM PROGRAMS (CAREER GROWTH) AND HIGH INVOLVEMENT WORK PRACTICES ON PRODUCTIVITY PER EMPLOYEE



The results in both regression models show that productivity is increased when there is greater emphasis for an operating excellence performance strategy (b = .29, p < .01), external growth strategy (b = .19, p < .01) and / or when there are more high involvement work practices in place (b = .16, p < .01). The results also show that disability management programs significantly moderate those relationships. Productivity is reduced as organizations with disability management programs increase their emphasis on operating excellence, and that the productivity of organizations without disability management programs exceeds that of organizations with programs when emphasis on operating excellence is high (Figure 1A & 1B). However, it is instructive to note that when there is a low emphasis on operating excellence that the productivity of organizations with disability management programs is greater than organizations without programs. It may be that a higher emphasis on operating excellence results in tighter couplings between job functions and less flexibility in roles. Consequently, it may be that efforts to make job accommodations actually disrupt production efficiencies, and career growth programs provide developmental opportunities that are helpful to the employee's career but draw valuable resources from the organization's operations.

A different interaction effect is observed for organizations emphasizing an external growth strategy (Figure 1C & 1D). In these organizations, disability management programs increase productivity. Although productivity is initially lower for organizations with programs when there is little emphasis on external growth, as emphasis increases the productivity of organizations with programs exceeds those without programs. The interaction is present for both types of programs but stronger for job accommodation programs. It may be that organizations looking to expand and grow gain significantly from helping employees return to work because these staff have knowledge and abilities that are more difficult to train and develop, or their past experience with the business and business plan means that they are able to perform better than new employees.

Lastly, organizations with more high involvement work practices and a job accommodation program have greater productivity than similar organizations without a job accommodation program (Figure 1E). High involvement work practices include specific and general training and development, team-based roles, regular two-way feedback, flexible scheduling and programs to encourage employee engagement. This finding suggests that in organizations with many of these practices, efforts to bring employees back to work by accommodating their special needs are rewarded with greater productivity. This may be a product of increased employee engagement or commitment to the organization, or a better return on the organization's development investment (rather than developing new staff). It may also be that because job rotations and flexible scheduling are more common in these organizations, the uniqueness or negative impact of an employee's job accommodation needs may be significantly decreased as the workplace already regularly adjusts the working environment for staff.

A different result, however, is observed for organizations with more high involvement work practices and a career growth programs (Figure 1F). In this case, as the number of practices increases, having a career growth program slightly decreases productivity, and not having a program increases productivity. Career growth programs imply that the incumbent is not fully ready or able to perform their role but is in the position for development purposes. However, high involvement work practice organizations require considerable interaction, connection, and interdependence of staff. In such organizations, employees must be fully prepared and ready to perform their dynamic and integrative roles. Thus, programs that put employees with disabilities in roles where they are still developing skills and competencies for their work may detract from the overall performance capability of the team and thus contribute to reduced productivity.

DISCUSSION

This study explored the relationship between disability management programs and organizational performance. The role of disability management programs in saving organizations absence-related costs is well documented (Dyck, 2006; Harder and Scott, 2005). However, it was less clear if disability management programs make contributions to firm-level outcomes that enable the organization to be more competitive in the marketplace. Correlation does not imply causation; the causal direction could go either way. However, a causal order is assumed from disability management programs to productivity based on the

prior work of Guthrie (2001), Huselid (1995) and Zatzick & Iverson (2006). From this further exploration of the data each disability management program had a different effect on firm productivity. Job accommodation programs had a positive relationship with productivity, and career growth programs had a negative relationship with productivity.

Job accommodation programs are found to positively predict revenue per employee but career growth programs are found to negatively predict revenue per employee. This is similar to the overall productivity finding. However, the results for labour costs per employee show that both job accommodations and career growth programs predict increases in these costs. These results indicate that the disability management programs impact productivity differently. Job accommodation programs are related to increased revenues but the associated additional labour costs are not large enough to counteract those increases resulting in a net gain in productivity. In contrast, career growth programs decrease revenues and there are associated additional labour costs, resulting in a net productivity loss. These results reveal that although disability management programs may be seen to have similar overall goal intentions, the financial impacts of each program are quite different.

The interaction of disability management programs with the other predictor variables produced some interesting findings. First, the negative interaction of the operating excellence strategy with both disability management programs was not expected. Earlier results showed that job accommodation programs were more likely in organizations with a greater emphasis on maximizing the effectiveness of business operations. The underlying assumption is that disability management programs are a mechanism for achieving this effectiveness because these programs retained staff with firm-specific knowledge and experience. However, while the strategy and program are individually associated with increased productivity, in combination they decrease productivity. An explanation of this result is that organizations emphasizing internal operations may create more tightly coupled processes and job functions to create efficiencies. Consequently, job accommodation requirements in this type of work environment may create flexibility demands that ultimately result in process inefficiencies and thus reduced productivity. If this is correct, the positive relationship between the business strategy and job accommodation programs found earlier may be more a function of the strategy's optimizing efforts (and openness to change) of the strategy rather than the knowledge and experience retention abilities.

Second, the positive interaction of external growth strategies with both disability management programs shows that an organization’s emphasis does not need to be on cost savings in order to gain positive results from these programs. This result is also informing when considered with the finding that an external growth strategy negatively relates to job accommodation programs. What this means is that organizations looking to grow their business through expansion and development may be missing a significant opportunity to increase their organizational performance through disability management programs.

Lastly, the positive interaction of job accommodation programs with high-involvement work practices is expected. It makes sense that efforts to reintegrate and return employees to the workplace has greater impacts on productivity when more practices emphasize teamwork and capitalize on unique contributions of team members. The negative interaction effect of career growth programs with high-involvement work practices is surprising. However, it may be that while job accommodations enable the employee to more effectively contribute to the team, career growth programs may reduce the team's effectiveness as more group time is spent unproductively (in a revenue generation context) helping the employee develop their capacities and learn their role.

The study shows that each type of disability management program has different impacts on productivity per employee. Job accommodation programs positively relate to productivity, and career growth programs negatively relate to productivity. The central point is that both these programs increase labor costs, however only job accommodation programs increase revenues sufficiently to cover these increased costs. Together, these results significantly increase knowledge and understanding of disability management programs in organizations.

Limitations

The study examined the relations between disability management programs and productivity with a cross-sectional perspective. The examination of competing alternatives for explaining program – productivity relations confirmed that this design was insufficient to determine a causal direction. Longitudinal research will help to address this concern. However, such research must take place with data collected outside of the WES product as the disability management variables within the WES are inconsistent across cycles and omitted altogether in the most recent cycles.

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