

Assessing the Effects of Organizational Commitment and Job Satisfaction on Turnover: An Event History Approach

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The contents of this paper do not necessarily reflect the position of either the Department of Justice or the Federal Bureau of Prisons.

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ABSTRACT

Turnover among correctional workers creates persistent staffing problems for correctional administrators. The present research examines the effects of two types of subjective measurement of the work environment, job satisfaction and organizational commitment, which are often thought to be related to turnover. The study examines two separate aspects of organizational commitment, commitment to the overall organization and commitment to the specific institution. It is expected that both aspects of organizational commitment should have a greater effect on turnover than job satisfaction. It is further hypothesized that commitment to the organization, in this case the Bureau of Prisons, should have a greater impact on turnover than institutional commitment.

The data for the study come from a subsample (N=3,608) of the 1991 Prison Social Climate Survey administered annually since 1988 to employees of the Federal Bureau of Prisons. The Climate data are supplemented with data from the Bureau's personnel database. The richness of the combined data sources allows for controlling relevant variables related in prior research to turnover. Discrete-time event history models are used to analyze the data.

The analysis confirms that the measures of organizational commitment exert an inverse relationship with turnover. That is, higher levels of organizational commitment are associated with lower levels of turnover. The effects of the measures of organizational commitment are also greater than that of job satisfaction which actually turns out to be nonsignificant. However, both measures of organizational commitment exert about equal influence on turnover with commitment to the Bureau of Prisons only slightly stronger.

Assessing the Effects of Organizational Commitment and Job Satisfaction on Turnover: An Event History Approach

Job satisfaction and organizational commitment receive considerable attention from industrial and organizational psychologists, management scientists, and sociologists. Three thousand studies had been done on job satisfaction alone by the time Locke prepared his study nearly 20 years ago (Locke, 1976). Much of the interest in analyzing job satisfaction and organizational commitment stems from concern for the behavioral consequences that are hypothesized to result from job satisfaction and/or organizational commitment. Among other topics, job satisfaction and/or organizational commitment have been shown or argued to be related to productivity, attendance at work, turnover, retirement, participation, labor militancy, sympathy for unions, and psychological withdrawal from work.

Analysts have also given much consideration to identifying, often with an eye to manipulating, the antecedents of job satisfaction and organizational commitment (Loher, Noe, Moeller, & Fitzgerald, 1985). In fact, most of the research conducted treats either job satisfaction and/or organizational commitment as the ultimate dependent variable. The present study, though, focuses on job satisfaction and organizational commitment as exogenous variables predicting an outcome of theoretical and practical interest for organizational analysts, labor turnover.

Not all analysts, though, agree that either job satisfaction and organizational commitment are useful for predicting organizationally relevant behavior, such as turnover. Hodson, for one, argues that the concept of job satisfaction is severely flawed because “it lacks behavioral referents, its connection with productivity is based on a naive theory of human behavior, it is too summary a measure of workers’ complex cognitive structures, and it is too individualistic” (Hodson, 1991:

273). Hodson claims that commitment is a step in the right direction as it expresses behavioral intentions (the intention to remain with the organization being primary), but it too suffers the problems that beset job satisfaction. Hodson advocates moving away from research based on attitudes to more behavioral research.

Even researchers who generally favor job satisfaction and/or organizational commitment cannot agree on the relative merits of job satisfaction and organizational commitment for explaining behavioral outcomes. Analysts often treat only one or the other in their analyses. Many researchers place emphasis on organizational commitment rather than job satisfaction. Interesting cross-cultural research has questioned the nature of the relationship between job satisfaction and behavioral outcomes in the work place. Cole (1971) found that Japanese workers do not rate high on measures of job satisfaction when compared to workers in other countries such as the U.S. However, Japanese workers score “better” on the measures usually hypothesized to result from higher levels of job satisfaction. Japanese workers have lower rates of absenteeism than American workers, work longer hours on average, and seldom use all of their allotted vacation time. It has been argued that such differences are due to higher levels of commitment by Japanese workers to the economic success of their firms (Lincoln & Kalleberg, 1990).

Lincoln and Kalleberg (1990) hypothesize that differences in organizational commitment of Japanese and American workers are due to differences in organizational structures and strategies of Japanese and American firms rather than cultural differences in attitudes toward work. While their results are not unequivocal, Lincoln and Kalleberg (1990) do generally find support for their theoretical position that organizational commitment accounts for much of the difference in organizational behavior noted between American and Japanese workers and that

organizational commitment is facilitated by differences in organizational structures and practices among American and Japanese employers.

On the other hand, Roznowski and Hulin (1992) maintain that well constructed, validated scales of job satisfaction are “the most informative data an organizational psychologist or manager can have” for predicting organizationally relevant behavior in individuals. Roznowski and Hulin maintain that low levels of job satisfaction create one (or a combination) of four types of undesirable behavior. First, dissatisfied individuals may attempt to increase job outcomes by stealing, using work time to pursue personal tasks, or by moonlighting. Second, they may withdraw from the job psychologically as manifested in such behavior as not attending meetings, drinking on the job, or wandering about trying to look busy. Third, dissatisfied employees may practice behavioral withdrawal from the job as in absenteeism, turnover, or early retirement. Finally, employees may undertake specific change behaviors that attempt to alter the work situation. This may include remaining in a particular job and trying to affect changes through union or other activity, or it may involve attempts to change the locus of the job through transfer or demotion (Roznowski & Hulin, 1992: 126-130).

Most studies of the behavioral outcomes of organizational commitment (Randall, 1990: 371) and job satisfaction have focused on white collar, professional workers. The current study expands the analysis to a wider spectrum of workers and helps address this imbalance while also building upon the related research of those interested in the job satisfaction and organizational commitment of workers employed in correctional settings (Saylor & Wright, 1992; Cullen, Link, Wolf, & Frank, 1985; Jurik & Halemba, 1984; Jurik, Halemba, Musheno, & Boyle, 1987; Plecas & Maxim, 1991; Rogers, 1991; Wright & Saylor, 1991). The present research extends previous

efforts by bringing together in one multivariate analysis an effort to control relevant organizational, demographic, opportunity, behavioral, and related variables while simultaneously assessing the contributions of organizational commitment and job satisfaction on turnover. The data for the present study comes from a sample of correctional workers employed by the Federal Bureau of Prisons at 65 locations across the United States.

DATA AND VARIABLES

The data for this analysis comes primarily from two sources. The source for the data measuring workers attitudes about their jobs (e.g., job satisfaction and organizational commitment) is the 1991 Prison Social Climate Survey (PSCS) developed by and collected under the supervision of William G. Saylor of the Office of Research and Evaluation (ORE) at the Federal Bureau of Prisons. Saylor (1984) describes the details involved in developing the PSCS. Since 1988, ORE has conducted an annual survey using the PSCS to collect data about BOP employees at correctional facilities in four primary areas: personal safety and security, quality of life, personal well-being, and work environment.

In October of 1991, 9,340 Bureau of Prisons employees at 65 different locations were administered one of four versions of the PSCS. To minimize the time burden on respondents, the PSCS is divided into four versions with each version containing survey items on two of the four primary areas of data collection. The number of items asked about each primary area does not make it feasible to have respondents provide information in all four areas. The work environment section used here, for example, contains 92 separate items. Which version of the PSCS staff receive depends upon a combination of their birth month and day. For example, staff with an odd

birth month and odd day were given version 4. Staff with an odd birth month and even day received version 3, and so on. This method produces a fairly even split of staff into four categories, it is simple to administer, and there is no reason to suspect that it produces any biases.

Employees were assured that their responses are treated as confidential and were given work time to complete the survey. Overall, 7,764 of those asked to participate in the 1991 PSCS completed surveys for a response rate of 83%. The respondents generally reflect the demographic profile of the population of BOP employees.¹ Only versions 2 and 4 of the 1991 PSCS contain all of the work environment items that are used in the analysis here. There are 3,918 respondents who completed versions 2 and 4 in 1991.

The second source of data employed in the present study is the monthly JUNIPER database created for internal use at the BOP from data collected and utilized by various BOP offices (personnel and payroll being the primary sources relevant to the portions of the JUNIPER data analyzed here). JUNIPER contains personnel and related information about all BOP employees and is the source of much of the demographic information used in the present analysis.

The two data sets are merged by creating a matching code from demographic information common to both data sets. Of the 3,918 BOP employees who responded to versions 2 and 4 of the PSCS, 3,608 are matched to the corresponding information contained in the JUNIPER data set. The 310 individuals who responded to the PSCS but cannot be matched to the JUNIPER data do differ slightly from the matched respondents on key variables. Tests of differences in means on the variables show only small actual differences (that are sometimes statistically significant

¹A comparison of the demographic characteristics of BOP employees employed in October of 1991 and PSCS respondents is available from the author upon request.

because of the large sample size). When coupled with the small number of nonmatches, the small size of the differences in means between the matched and nonmatched respondents on key variables does not appear to pose a significant threat to the validity of using the merged data (Camp, 1992).

Dependent Variable

Turnover is the dichotomous dependent variable examined in this study. Turnover is recorded for those respondents in the 1991 PSCS who voluntarily left the BOP between October of 1991 and May of 1993 for reasons unrelated to retirement, sickness, dismissal, layoff, or any other factor that involuntarily removed an employee from the labor force. Those who remained with the BOP are treated as censored observations and receive a code of 0 as do those who left the BOP for other reasons. The terms quits and resignations are also often used in the literature to reference turnover (Price, 1977: 9). Information on employment histories of BOP employees, and thus turnover, is recorded in the JUNIPER data set.

The turnover rate analyzed here reflects the turnover rate for all workers employed at BOP correctional facilities. That does not mean that the turnover rate reflects the turnover rate for all employees of the Federal Bureau of Prisons. The BOP has a large number of employees in locations other than correctional facilities, primarily the Central Office in Washington, D.C. There is another point to keep in mind about the turnover rate analyzed here. The measure of turnover used here is similar to an instability rate as defined by other researchers (Price, 1977: 17). That is, the rate that is being measured is the percentage of members at the beginning of a time period who quit their jobs during that period. A turnover rate, or separation rate as it is also called, more

often refers to the number of members who left during a period of time taken as a proportion of the average number of employees during the time period (Price, 1977: 15).

Independent Variables

The key independent variables of interest in the present study are organizational commitment and job satisfaction. However, a number of other types of variables often identified in the literature as important for understanding turnover and/or working conditions in correctional facilities specifically are also introduced as controls. These include organizational characteristics, economic opportunity for changing jobs, demographic characteristics, intended behavior, and controls for geographic region.²

Organizational Commitment

Organizational commitment has been defined in various ways (Mowday, Porter, & Steers, 1982; Reichers, 1985). In the present study, organizational commitment refers to a congruence between the goals of the individual and the organization whereby the individual identifies with and extends effort on behalf of the general goals of the organization. Most previous research has suggested that organizational commitment is more strongly related to turnover than is job satisfaction (Koch & Steers, 1978; Parasuraman, 1982; Porter, Steers, Mowday, & Boulian, 1974; Steers, 1977). In a study of restaurant managers, though, DeCotiis and Summers (1987) found job satisfaction to predict voluntary turnover more strongly than did organizational

²Four variables were included in models not reported here to test for systematic influence of self-selection. The variables controlled for the different response rates across region, security level, institution, and sampling cell (of the stratified sampling design). None of the variables attained significance indicating problems of self-selection. The results are available, upon request, from the author.

commitment.

The Organizational Commitment Questionnaire (OCQ) developed by Porter et al. (1974) is the most common method of assessing the type of organizational commitment utilized here. The present study uses different items than those used in the OCQ. As with the OCQ, though, the intent of the measures of organizational commitment used is to assess the identification of respondents with the goals of the organization. Organizational commitment is measured at two levels in this study. Organizational commitment is measured at an abstracted level of commitment to the Bureau of Prisons and at a more concrete level of commitment to the institution in which the respondent is currently employed. Commitment to the Bureau, BOPCOM, is a scale created from five Likert items in the PSCS identified with factor analysis³ that tap respondents' feelings toward the Bureau (see Appendix A for a list of the items). The Cronbach α for BOPCOM is .88. The institutional commitment scale, INSCOM, is created from three items from the PSCS (see Appendix A). INSCOM has a Cronbach's α of .80.

Policy at the Federal Bureau of Prisons is designed in such a manner that it should produce more impact on commitment to the overall Bureau than commitment to individual institutions, especially for middle and top supervisors. In order to integrate managers into the BOP "family" and to give them broader experience and perspective with the operations of the BOP, the BOP commonly transfers people to new locations when they are promoted. Karacki (1982: 51) documents that for the correctional workers hired in 1963, of those who moved into higher level positions with significantly higher grade and salary levels, they had moved an average

³The factor analysis used the principal factors approach with quartimax rotation. Factor results available upon request from author.

of 4.8 times as compared to an average of 0.5 moves for those that did not advance. At least part of the reason for this policy of transferring individuals, though unstated, is that it thwarts tendencies at “empire building” among field staff and helps keep field staff receptive to official Bureau policies and procedures. The effect should be to promote commitment to the Bureau at the expense of commitment to individual institutions.

Given the efforts of the BOP and the realization that commitment to the Bureau is a more abstract measure of the acceptance of Bureau goals than institutional commitment, the following relationships are expected.

Hypothesis 1: An inverse relationship is expected between both measures of commitment and turnover. That is, higher scores on commitment should lead to a lower probability of turnover.

Hypothesis 2: Commitment to the Bureau, BOPCOM, should be a stronger predictor of turnover than institutional commitment, INSCOM.

Hypothesis 3: Given previous research findings (Parasuraman, 1982), it is expected that both measures of commitment will be stronger predictors of turnover than job satisfaction.

Job Satisfaction

Analysts often define job satisfaction with reference to the needs and values of individuals and the extent to which these needs and values are satisfied in the work place. Such definitions assume that the needs of individuals are fairly stable (there is often explicit or implicit reliance upon Maslow’s hierarchy of needs) and that the characteristics of jobs are also fairly stable. However, there have been those who have questioned the needs-satisfaction model and the assumptions it is built upon (Hopkins, 1983: 20-21). For example, there has been little empirical verification of a hierarchy of needs among individuals.

The present study does not rely directly upon a needs-satisfaction conceptualization of job

satisfaction. Instead, job satisfaction is more simply conceived of as the response of an individual to the conditions of work as these perceptions are shaped by objective differences in work conditions and different interpretations of the conditions.

Analysts typically argue that job satisfaction is multidimensional. The job setting is viewed as being composed of different constituent parts with which an individual may be either satisfied or dissatisfied. For example, the Job Descriptive Index developed by Smith, Kendall, and Hulin (1969) breaks out the overall measure of job satisfaction into satisfaction with supervision, satisfaction with co-workers, satisfaction with work, satisfaction with pay, and satisfaction with promotion. Another commonly used measure, the Job Diagnostic Survey of Hackman and Oldham (1975), maintains that job satisfaction is associated with five core dimensions—skill variety, task identity, task significance, autonomy, and feedback from the job itself—as well as two supplementary dimensions—feedback from agents and dealing with others.

Many analysts rely upon the judgement of individuals to give an overall assessment of job satisfaction where other researchers compute composite measures of job satisfaction from the different dimensions of the job identified as being important. Each approach has its strengths and limitations. Measuring the different dimensions of job satisfaction directly allows for pinpointing specific problem areas. For example, respondents may indicate that they are very satisfied with the salary they receive but may be dissatisfied with other aspects such as quality of supervision. While it is always possible to aggregate the individual components of job satisfaction into an overall measure of job satisfaction, it is not possible to work in the reverse direction if only overall job satisfaction is measured.

Allowing respondents to assess their overall job satisfaction also has its advantages. First,

overall measures of job satisfaction often correlate highly with composite measure of job satisfaction. Also, creating a composite index of job satisfaction typically necessitates that the researcher decide on how much weight to give to each individual component when indexing job satisfaction. Asking a respondent for their overall impression of job satisfaction allows for the respondent to mentally assess what the respondent feels are relevant dimensions in formulating a response to the issue of job satisfaction. However, Hopkins notes that critics of facet-free measures of job satisfaction due claim that they overestimate the degree of job satisfaction (Hopkins, 1983: 23).

The present study relies upon an index measure of job satisfaction that is computed from items that directly ask respondents how they feel about the overall nature of their job. The index contains five Likert items from the PSCS that ask individuals about their overall assessment of their job such as “My BOP job suits me very well” and “My BOP job is usually very interesting to me” (see Appendix A for a list of all items.) The five items were originally developed for use with members of the Air Force (Miller & Medalia, 1955), and the content of the items was modified to be appropriate for use with employees of the BOP. The Cronbach’s α for the job satisfaction index is .83.

Given previous research, the following relationship is derived. However, it is important to recall the contrary findings of DeCotiis and Summers (1987).

Hypothesis 4: It is expected that higher levels of job satisfaction will have an inverse impact upon turnover, but this effect will not be as strong as the effect noted for organizational commitment.

Other Work Environment Scales

The Bureau of Prisons collects information about other aspects of the work environment

in the Prison Social Climate Survey. While there are no strong theoretical reasons outlined in this paper for including these measures in the present analysis, there is a strong pragmatic reason to include them. Namely, the Bureau of Prisons uses these measures internally as part of ongoing assessment of the performance of its institutions. The Bureau obviously places importance on these measures, though not necessarily for assessing risk of turnover among staff. It is interesting to see if any of these measures has a relationship with a very individual decision, the decision to leave the job.

The scales included measure aspects of institutional/organizational operations (INSTOP), satisfaction with supervision (SUPSAT), effectiveness in dealing with inmates (INMEFF), and job stress (JOBSTRES). The items for the scales (presented in detail in Appendix A) were identified with factor analysis. The Cronbach " for each of the scales is as follows: for INSTOP, .86; for SUPSAT, .91; for INMEFF, .76; and for JOBSTRES, .86.

The institutional operations measure gets at the flexibility and effectiveness of the organizational structure of the Bureau of Prisons. Satisfaction with supervision attempts to assess how well the respondent feels his or her immediate supervisor is performing. Inmate effectiveness addresses how competent the respondent feels in dealing with inmates. Job stress provides a simple measure of stress on the job.

Behavioral Variables

Past behavior is often a very good guide to current behavior. A good indicator of past behavior that may influence turnover is the number to times a person has already changed jobs. However, that information is not available in the present study. Instead, a measure of intended behavior is examined.

Turnover Intention

Intention to leave is measured by the item JOBLOOK in the PSCS where respondents are asked to rate on a seven point scale from strongly disagree (coded 0) to strongly agree (coded 6) the following item: “I am currently looking for or considering another job outside the BOP.” Presumably, persons indicating they are actively looking for another job are more likely to leave employment than those not looking for another job.

Economic Opportunity

One of the most commonly utilized measures of economic opportunity is the unemployment rate. During periods of high unemployment, opportunities for finding alternative employment are hypothesized to be low. Conversely, during periods of low unemployment, the opportunities for alternative employment are increased (Muchinsky & Morrow, 1980; Price, 1977: 29-31).

Carsten and Spector (1987) performed a meta-analysis of published studies on the relationship between turnover and job satisfaction and found that the relationship is influenced by the unemployment rate. For studies that collected data during periods of high unemployment, the relationship between job satisfaction and turnover is weaker than that reported in studies where the data was collected in periods of low unemployment. They found the same pattern when intention to turnover was treated as the endogenous variable instead of voluntary turnover. Hulin et al. (1985), in a review of the literature that directly assessed the impact of unemployment rates on turnover, found that studies that used the actual unemployment rate (whether for industry, occupation, or geographical region) report strong relationships with intended and actual turnover.

The present study uses the official unemployment rate reported for the county in which the

Bureau of Prisons facilities are located as an indicator of economic opportunity. The county unemployment data used in this study are those compiled by the Local Area Unit at the Bureau of Labor Statistics. The unemployment rate is expected to exert a negative influence on voluntary turnover. The unemployment rate is transformed by taking the logarithm of the rate. This is a fairly common transformation for rate variables with a limited range of values.

Demographic Controls

Several variables are entered into the present analysis as “control” variables for unmeasured concepts and processes. Past research (Parasuraman, 1982: 117) has demonstrated that these “personal” variables account for a substantial proportion of the variance in behavioral intention to turnover. Given this, the present study incorporate gender, age, education, salary, union status, and job tenure as control variables.

Gender

It is practically a given for social scientists to include the variable gender in any research conducted on groups containing both males and females. However, the processes that generate differences between males and females are seldom fully specified or tested. The present study is no exception and makes no predictions about the effect of gender on actual or intended turnover. This topic is deserving of analytic treatment in its own right. Not only are the theoretical perspectives for the effects of gender on turnover rates not fully developed, the empirical findings are lacking as well. Price (1977: 39-40) notes that the findings on the effects of gender on turnover rates are far from conclusive with studies finding females, males, or neither with higher rates of turnover.

The research findings reported by Wright and Saylor (1991) on the perceptions of the

prison work environment suggest that there is little difference between men and women. These findings are especially relevant since the Prison Social Climate Survey data were analyzed.

Age and Organizational Tenure

The strong and negative effects of age and organizational tenure on turnover are well established in the literature (Morrow & McElroy, 1987; Parasuraman, 1982; Price, 1977). The actual social processes, often conceptualized as career stages, that generate these relationships are more controversial and are not the object of the present analysis. Given past research, though, it is expected that age and organizational tenure will exert a strong, negative influence on turnover. The square of organizational tenure is also included in the statistical models. It is expected that the effect of organizational tenure becomes smaller at larger values of organizational tenure. In fact, it is likely that the effects of tenure become positive at some point as most federal correctional workers are eligible for complete retirement benefits after working 20 years.⁴

Education

Education is often argued to be an antecedent of both job satisfaction and organizational commitment. Education may thus have an indirect effect on turnover through this process, though Rogers (1991) did not find that education had a significant effect upon the job satisfaction of correctional workers in his study. Education may have a direct impact on actual and intended turnover in that higher levels of education, all else being equal, may provide greater opportunity for changing jobs. Parasuraman (1982: 112) notes, though, that the effects of education on

⁴Analyses, not reported in the present study, were also performed that restricted respondents to those with 240 months or less of organizational tenure. While some coefficients change slightly, the results are the same as those reported here allaying any concern that those with greater than 240 months are biasing the analysis.

turnover are not consistent in the literature. Price (1977: 35-36) claims that studies generally find that education has a positive effect on turnover rates, but there are studies that report contrary findings. As such, no hypothesis is actually advanced in this study that education should have a positive relationship with turnover.

Race

The effects of race are controlled in the present study. It is not expected that race contributes to turnover once the effects of the other variables in this study are controlled. Race is measured as the respondents self-reported race in the PSCS. As used in this study, race indicates the advantage/disadvantage of being white.⁵

Ethnicity

The effects of Hispanic ethnicity are controlled for in this study. As for race, it is not expected that ethnicity adds to models of turnover in the presence of the other variables used in the present study.

Salary

Higher levels of pay (or salary) are almost always found by those who study turnover to exert a negative influence on turnover (Price, 1977: 68-70). However, salary is not expected to exert an independent influence in the present study. Salary, as taken from the Juniper database, is included in the following analysis to test this expectation.

⁵The largest racial group among the respondents to the 1991 Prison Social Climate Survey are white, 77.6%. Blacks comprise 14% of the sample, and other racial groups account for 8.4%. A different coding of race was assessed in analyses not reported here. In them, race was coded with two dummy variables indicating black and other with whites serving as the comparison group. This coding does not produce different results for race than does the simple dichotomization of white and other where other includes blacks.

Supervisory Status

Managerial status has been found to exert influence on turnover in previous studies. Generally, managers have lower rates of turnover than do nonmanagers (Price, 1977: 37). In the present study, an item asked in the PSCS allows for identification of people claiming supervisory responsibility. Given previous research, it is expected that supervisory status should have a negative influence on turnover.

Organizational Control Variables

Despite the commonality that all respondents work for and under the policies of the Federal Bureau of Prisons, the organizational environment that employees of the BOP find themselves in varies along key dimensions that may have impact upon the propensity to turnover. Some of the variables that correctional practitioners often find to be important for various reasons are security level (both institutional and inmate), misconduct rates, racial and ethnic composition of the inmate population, gender of inmate population, size, and crowding levels. In this study, only institutional security level and gender of the inmates at the facility are examined.

Institutional Security Level

An organizational variable that many correctional insiders believe affects work environment is the security level of the institution. Put simply, the assumption is usually made that it is much easier, safer, and more pleasant to work in a minimum security institution than a maximum security institution. Even disregarding the characteristics of the inmate population, the physical structure of maximum security institutions is more imposing and intimidating than that found in lower security institutions. Karacki and Howell (1986), in an internal report prepared for the BOP, found that turnover at Marion, the institution that took over from Alcatraz the function

of housing the most dangerous and troublesome of BOP inmates, found that turnover increased following serious crisis events such as escapes, assaults, and murders of staff. Since maximum security institutions are likely to have more of these serious crisis events, it would seem that working at a maximum security institution should have an effect on turnover.⁶

The Federal Bureau of Prisons ranks the institutional security level of an institution “based on seven security features—the presence of external controls, gun towers, security barriers, or detection devices; type of housing; internal security features; and the inmate-to-correctional officer ratio, with each feature weighted in order of importance to institution security” (Federal Bureau of Prisons, 1991: 4). Facilities are rated as minimum, low, medium, and high. There is also an administrative designation. Administrative facilities are specialized institutions that deal with specific functions (such as medical or psychiatric functions) and house inmates of different security levels. *Facilities 1991*, published by the Bureau of Prisons, provides the source for institutional security rankings.

Gender of Inmates

There is agreement among correctional practitioners that while the procedures for incarcerating males and females inmates share many commonalities, each sex creates unique correctional demands. Men, for example, are more prone to misconduct in prison, especially the serious forms relating to assault and escape. Women, on the other hand, tend to make more

⁶An interesting and surprising result reported in Karacki and Howell (1986) is that penitentiaries have a lower turnover rate than does the entire BOP. However, it is not clear that Karacki and Howell partial out the effects of turnover in locations where there are no correctional workers. The Central Office of the BOP located in Washington, D.C. has a very high turnover rate. The turnover rate is probably related both to the cost of living in the Washington, D.C. area and the large number of non-law enforcement personnel employed there.

demands on staff in terms of requesting (and receiving) medical attention and involving correctional staff in interpersonal relationships.

Given these differences in demands on staff in male and female facilities, it seems prudent to control for whether the institution houses male, female, or a combination of inmates. It is not clear, however, what the nature of the gender effect should be (if any) for turnover rates. The gender characteristics of BOP facilities is taken from *Facilities 1991* (Federal Bureau of Prisons, 1991).

Geographic Control Variables

Previous research on correctional workers has suggested that geographical factors may be important (Philliber, 1987). Previous studies of correctional workers, with few exceptions (Plecas & Maxim, 1991; Saylor & Wright, 1992; Wright & Saylor, 1991), though, are based on geographically restricted samples. As such, it is not clear that the results of these studies can be generalized to correctional workers outside of the geographical region in which they were collected. The work done by Saylor and Wright, drawing upon the same data used here, is based on a sample of correctional workers from a much broader geographical representation than other work done on U.S. correctional workers, but it does not pay specific attention to testing for regional differences. The same is also true of the work done by Plecas and Maxim on correctional workers in Canada.

Region

The present study controls for region using the classification employed by the Bureau of Prisons. The Bureau of Prisons is subdivided into six regions for administrative purposes with each region headed by a regional director that reports to the Central Office in Washington, D.C.

The six regions are the Western Region, the North Central Region, the South Central Region, the Northeast Region, the Mid-Atlantic Region, and the Southeast Region. The regionalization of the Bureau of Prisons follows fairly closely with other regionalizations of the U.S. (Federal Bureau of Prisons, 1991). No expectations are drawn for the different geographical regions.

California

In personal communications with managers at the Bureau of Prisons, the claim was put forward to the author that there is a special problem of turnover among BOP correctional workers in the state of California. The problem, as perceived by those at the BOP, is that California pays its state correctional workers a more attractive wage than does the BOP. Many correctional workers come to work for the BOP, receive training and experience as correctional workers, and leave the BOP when a more lucrative job becomes available in the California state system. To test for this effect, a dummy variable is created for the state of California. If the logic of the BOP managers is correct and greater opportunities for correctional workers indeed exist in California, the coefficient for the California dummy variable should be positive.

ANALYSIS AND RESULTS

Table 1 presents descriptive statistics for the variables used in this analysis. Only 4.7% of the sample quit their job during the period of this study. This is a relatively low turnover rate. A quarter of the sample are female. The Bureau of Prisons has taken steps in recent years to reverse previous practice and open all jobs to women. Almost 78% of the respondents are white, or conversely, over 22% are minority members. The workers at the Bureau of Prisons are relatively well educated. Over 30% of the staff at the field locations have at least a Bachelors degree. By

taking the antilogs of the values presented in Table 1, we see that average age of workers at the Bureau of Prisons is 34, and workers earn \$28,000 a year on average.

The results in Table 1 show that respondents give reasonably favorable ratings to the work environment measures. On a scale with 6 representing the maximum value, commitment to the BOP, commitment to the institution, and job satisfaction rate fairly high. Likewise, average rating of satisfaction with supervision, institutional operations, and effectiveness in dealing with inmates rate fairly well. The average response for looking for a job is low, indicating that the average respondent does not put much effort into looking for other work. On the other hand, the relatively high value for job stress may indicate a problematic area in the work environment.

Event history methods were used to analyze the data. The dependent variable is the hazard rate for job turnover. A hazard rate is “the probability that an event will occur at a particular time to a particular individual, given that the individual is at risk at that time” (Allison, 1984: 16). A discrete time method is employed in which the logit of the hazard rate for turnover is modeled as a linear function of the explanatory variables including tenure, the time dimension.⁷ The SAS logistic regression procedure, LOGISTIC, is used to generate the estimated parameters. An appropriate person-year data set was created for input into the logistic procedure by following the techniques outlined in Allison (1984: 18-19) and Yamaguchi (1991: 21-26). All of the

⁷The data were also analyzed with Cox’s proportional hazards model, which models continuous time, as implemented in the SAS PHREG procedure. Since there were ties in the timing of events, the exact ties-handling option was specified. The results do not differ substantially from the results presented here for the discrete time model, especially with respect to the key variables of interest—BOP commitment, institutional commitment, and job satisfaction.

observations in this study are left truncated by the study design,⁸ so none of the individuals begin contributing person-year observations⁹ to the final data set until the time in their careers at which the survey was administered to them. As Guo (1993) notes, this confluence of procedures allows for the estimation of a conditional partial likelihood model.

Table 2 presents results for two models. Model 1 considers the commitment and job satisfaction variables without any controls other than job tenure and the squared value of job tenure. Job tenure is the major time variable of the present study. Model 2 assesses the effects of the commitment variables and job satisfaction when the other variables identified in this study as appropriate controls are entered simultaneously into the model.

The results presented for Model 1 generally conform to Hypotheses 1 through 4. As predicted in Hypothesis 1, both BOP commitment and institutional commitment are inversely, and significantly, related to the hazard rate for turnover. Hypothesis 2 suggested that BOP

⁸In a longitudinal design, collection of records for the members of the study group begins when the members enter into a period of risk for the event. In a study of turnover, the period of risk begins when the study members are hired. In this study, a stratified proportional probability sample of those individuals employed by the Bureau of Prisons *only* in September of 1991 was generated. That means that records of an unknown number of contemporaries of the current study group are missing from analysis because they terminated employment with the BOP prior to September of 1991. Since we do not know when or how many terminated employment during this earlier period, it is best to analyze information only for the period following September of 1991. This does not create any bias (see Allison 1984: 56-57).

So, for example, a member of the current study with 10 years of tenure only contributes “person year” (monthly) observations to the data set for the period between October of 1991 and May of 1993. That person does not contribute monthly observations, primarily on the effects of tenure and age, for the period prior to September of 1991.

⁹The term “person-year” is typically used in event history parlance. In this study, individuals contribute observations to the data set on a monthly basis until either they experience the event of interest (turnover) or are censored.

commitment would have a larger effect on turnover than institutional commitment. The results for Model 1 do not bear out this hypothesis. The unstandardized coefficient for BOPCOM, -0.181, is slightly larger than the coefficient for INSCOM, -0.151. However, the standardized coefficients (not reported in Table 2) for the two variables are virtually identical at -0.121043 for BOPCOM and -0.121776 for INSCOM. While the coefficient for job satisfaction is negative, as expected in Hypothesis 4, the effect is not statistically significant. As expected in Hypothesis 3, then, both organizational and institutional commitment are more strongly related to turnover than is job satisfaction.

The same general relationships identified in Model 1 are present in the results for Model 2 where other control variables enter the model. All of the key variables, BOP commitment, institutional commitment, and job satisfaction are inversely related to the hazard rate for turnover. Once again, the effects of BOP commitment and organizational commitment are statistically significant and larger than the effect of job satisfaction. The effect of job satisfaction is not only weak, as in Model 1, it does not attain statistical significance. In Model 2, the effect of BOP commitment does appear to be slightly larger than institutional commitment. This is true even when the standardized coefficients are examined. The standardized coefficient (not reported in Table 2) for BOPCOM is -0.134, and for INSCOM it is -0.106.

The difference between the effects of BOP commitment and institutional commitment is not large enough to matter much substantively. An increase of one unit on the institutional commitment scale lowers the hazard of turnover by a little over 12%. Likewise, each unit increase on the commitment to the Bureau scale decreases the turnover hazard by around 18%. So, even

though the BOP commitment variable exhibits a stronger influence than institutional commitment, the difference in magnitude is not large.

None of the other work environment scales used by the Bureau of Prisons (INSTOP, SUPSAT, INMEFF, and JOBSTRES) show a significant relationship with turnover.

The variable measuring whether a person is looking for a job outside of the BOP (JOBLOOK), the measure of intended behavior in this study, has no statistically significant impact on the hazard for turnover. Likewise, the measure of economic opportunity (LOGUNEMP), the logarithm of county unemployment rate, does not have a significant impact on turnover.

The other control variables in Model 2 display some interesting results. Several of the demographic control variables have significant impacts on turnover. Being female (GENDER) has a significant impact on turnover. The hazard rate of turnover among females is 57% higher than the hazard rate for males. Age and tenure also have significant effects. Older individuals are at lower risks of turnover than younger individuals all other things equal. According to the results of Model 2, a 1% increase in age means a 2.1% decrease in the hazard for turnover. The effect of tenure is also negative, meaning that longer organizational tenure decreases the hazard of turnover, although the results of Model 2 demonstrate that the effect of tenure is not linear. The positive coefficient for the tenure squared variable means that the negative effect of an additional month of tenure on turnover gets smaller at larger values of tenure. At month 369, the effect of tenure becomes positive. However, practically all BOP employees retire before they reach 369 months (almost 31 years) of organizational tenure. Salary has an unexpected impact on turnover. A 1% increase in salary is associated with a 1.36% increase in the hazard rate for turnover. This is contrary to previous findings.

The other demographic variables included in Model 2 do not have a significant impact on turnover. Education (EDUC), race (RACE), hispanic ethnicity (ETHNIC), and supervisory status (SUPERVIZ) all fail to affect the hazard rate in a statistically significant manner.

The coefficients for the organizational variables included in Model 2 to control for different types of prison working environments do show some effect. Respondents at low security institutions have a hazard rate almost 40% higher than the mean for all institutions. Workers at medium and high security institutions, on the other hand, appear to be at lower risk of turnover, although this finding is not statistically significant. These findings are somewhat contrary to the common sense notion that higher security level institutions have less desirable work environments and should therefore have higher turnover among staff.

The coefficients for the regional variables suggest that the hazard of turnover is significantly different in the Southeast and Western Regions. Workers in the Southeast Region have a hazard rate only 59% that of workers in all regions. Workers in the Western Region, on the other hand, have a hazard rate almost 57% higher. The other regions do not differ from the group mean in a significant fashion.¹⁰

¹⁰An area of controversy in interpreting logistic regression results involves constructing a measure analogous to R^2 in ordinary least squares regression to assess goodness of fit. One measure often reported constructs R_L^2 (the L indicates a result derived by logistic procedures) using the following relationship that is known to exist in OLS regression:

$$R^2 = 100(L_0 - L_p)/L_0 = 100(1 - L_p/L_0)$$

L_0 refers to the log-likelihood for the model containing only an intercept term, and L_p references the log-likelihood for a model containing p covariates (Hosmer & Lemeshow, 1989: 148). Hosmer and Lemeshow (1989: 149) warn that this measure of R^2 is simply an expression of the likelihood ratio test instead of being a true measure of goodness of fit. Even though they recommend against its use, it does have intuitive appeal to many analysts and is presented here. As seen for Model 2 in Table 2, the R_L^2 is fairly low at 6.84%.

DISCUSSION

The results of this study generally support the hypotheses forwarded concerning the effects of organizational commitment and job satisfaction on job turnover. Organizational commitment, as measured by both commitment to the overall organization and the more specific institution, is inversely related to turnover among correctional workers at the Federal Bureau of Prisons. The job satisfaction scale, as expected, does not exhibit the same type of relationship with turnover. In fact, job satisfaction does not even demonstrate a significant relationship with turnover. The results fail to demonstrate a substantively stronger effect for commitment to the Bureau as had been expected.

The findings reported here regarding the relative importance of organizational commitment measures vis-à-vis job satisfaction certainly support the sociological position put forward by Lincoln and Kalleberg (1990). That is, institutions, including correctional institutions, may get the most bang for their buck by strengthening organizational strategies that promote commitment. Exactly what those strategies are has not been the focus of this study, but they should be further investigated in future research, especially as they pertain to correctional settings. For example, one of the most commonly noted strategies for developing organizational commitment in Japanese firms is basing part of workers' compensation on the performance of the work unit. In contrast, BOP employees receive almost all of their compensation from traditional salary. BOP employees are, however, eligible for bonus pay for exceptional service. It would be interesting to know how this individually based bonus system affects organizational commitment, especially in comparison to more collectively based schemes.

The finding that BOP commitment and institutional commitment have approximately the same effect on turnover also requires clarification. While the results from factor analysis (not reported here) suggest that these are indeed two separate components of organizational commitment, they certainly behave similarly when turnover is the object of examination. It would be interesting to examine if they behave similarly if other outcome measures, such as performance or use of sick leave, are examined.

Given the findings of this study on organizational commitment, there would seem to be no reason to encourage the development of one form of organizational commitment among employees over the other. Historically, though, the BOP has tended to discourage too much attachment to individual facilities in an effort to broaden the scope of their managers and to thwart any tendencies toward empire building.

The results found for the organizational variables, which are intended to measure contextual effects of the work environment, are somewhat surprising. The simplistic notion that high security institutions are associated with less satisfying working conditions which in turn lead to turnover is simply not supported. It is necessary to refine the theory surrounding working conditions at institutions of different security levels to understand what the effects might be on outcomes like turnover. As noted previously, some aspects of the work load at maximum security institutions (especially processing inmates in and out) are lower. Perhaps this helps offset the more control oriented working environment of a penitentiary. Some very important theoretical and empirical research needs to be performed to tease out the characteristics of working at different types of institutions with different types of inmates. Likewise, why there should be any regional effects needs to be investigated.

The effects of organizational tenure and age need to be better conceptualized. The surprising finding for income, where higher income produces greater risk of turnover, needs to be examined in greater detail. Since higher paid individuals are typically those with the most experience and skills, the finding for income may reflect unmeasured aspects of these variables.

None of the topics for further research, though, is more deserving of further investigation than the differences between males and females concerning the hazard of turnover. The factors influencing turnover may differ substantially for females and males. It is also likely that models for turnover need to consider more carefully and consistently variables linked to processes outside of the work environment. For example, family obligations are probably significantly related to turnover decisions, especially for females who continue to bear the brunt of responsibility for household and child care tasks in contemporary U.S. society.

CONCLUSION

Hodson argues that attitudinal measures are severely flawed, and that research should move away from this emphasis. The present study, as do others, suggests that this is too strong a claim. Organizational commitment was found to be a significant predictor of organizationally relevant behavior, in this case, turnover. This certainly lends support to the position of those such as Lincoln and Kalleberg (1990) who argue for the importance of organizational commitment. Conversely, there was no evidence from this study of workers in one public sector agency that job satisfaction has any effect on voluntary turnover.

Hodson is correct in that even when combined with the other relevant control variables, the explanatory power of the models containing organizational commitment is fairly low. Of

course, it should be kept in mind that organizational commitment was typically measured months before the respondents actually quit work at the BOP. The temporal stability of the attitudinal measures was never assessed directly in this study. Also, the explanatory power of models of individual level behavior are generally lower than models of aggregate behavior. Even so, the results of this and related studies suggest that even though we have additional insight about the theoretical relevance of organizational commitment, we still do not seem to understand much about the processes that generate turnover.

Future research on organizational commitment in correctional settings should examine the factors that contribute to positive assessments of organizational commitment. In particular, emphasis should be given to identifying those factors that can be manipulated by the organization to help produce equity in risk of turnover among all employees.

Appendix A

Questionnaire Items in the PSCS Used to Create Work Environment Scales

BOPCOM[†]: Commitment to the Bureau is composed of the following 5 items from the work environment section of the Prison Social Climate Survey (PSCS).

1. I have a good opinion of the BOP most of the time.
2. Most of the time the BOP is run very well.
3. I am usually satisfied with the BOP.
4. The BOP is better than any of the other correctional agencies (e.g., State).
5. If I remain in corrections, I would prefer to remain the BOP.

INSCOM[†]: Commitment to the Institution is composed of the following 3 items from the work environment section of the PSCS.

1. This facility is the best in whole BOP.
2. I would rather be stationed at this facility than any other I know about.
3. I would like to continue to work at this facility.

JOBSAT[†]: Job Satisfaction is composed of the following 5 individual items from the work environment section of the PSCS.

1. I would be more satisfied with some other job at this facility than I am with my present job.
2. My BOP job is usually interesting to me.
3. My BOP job suits me very well.
4. My BOP job is usually worthwhile.
5. If I have a chance, I will change to some other job at the same rate of pay at this facility.

Note: The negatively oriented items (#1 and #5) are reversed in order to combine them with the other positively oriented items.

INSTOP[†]: Institutional/Organizational Operations is composed of the following 10 items from the work environment section of the PSCS.

1. The information I get through formal communications channels helps me to perform my job effectively.
2. In the BOP, it is often unclear who has the formal authority to make a decision.
3. It's really not possible to change things in the institution.
4. I am told promptly when there is a change in policy, rules, or regulations that affects me.
5. I have the authority I need to accomplish my work objectives.
6. Employees do not have much opportunity to influence what goes on in the BOP.
7. Under the present system, promotions are seldom related to employee performance.
8. Management at this institution is flexible enough to make changes when necessary.
9. In the BOP, authority is clearly delegated.
10. In general, this institution is run very well.

Note: The negatively oriented items (#2, 3, 6, and 7) are reversed in order to combine them with the positively oriented items.

SUPSAT[†]: Satisfaction with Supervision is composed of the following 10 individual items in the work environment section of the PSCS.

1. My supervisor engages me in the planning process, such as developing work methods and procedures for my job.
2. My supervisor gives me adequate information on how well I am performing.
3. My supervisor asks my opinion when a work-related problem arises.
4. I have a great deal of say over what has to be done on my job.
5. On my job, I know what my supervisor expects of me.
6. The standards used to evaluate my performance have been fair and objective.
7. The information I receive about my performance usually comes too late for it to be of any use to me.
8. My last annual performance rating presented a fair and accurate picture of my actual job performance.
9. My own hard work will lead to recognition as a good performer.
10. I often receive feedback from my supervisor for good performance.

Note: The negatively oriented item #7 is reversed in order to combine it with the positively oriented items.

INMEFF[†]: Effectiveness in dealing with inmates is composed of the following 4 items in the work environment section of the PSCS.

1. An ability to deal very effectively with the problems of inmates.
2. A feeling that you are positively influencing other people's lives through your work.
3. A feeling of accomplishment after working closely with inmates.
4. A feeling that you can easily create a relaxed atmosphere with inmates.

JOBSTRES[‡]: Job Stress is composed of the following 6 individual items in the work environment section of the PSCS.

1. A feeling that you have become harsh toward people since you took this job.
2. A feeling of worry that this job is hardening you emotionally.
3. A feeling of being emotionally drained at the end of the workday.
4. A feeling that you treat some inmates as if they were impersonal objects.
5. A feeling that working with people all day is really a strain for you.
6. A feeling of being fatigued when you get up in the morning and have to face another day on the job.

[†]The items for this scale are measured on a 7 point Likert scale: strongly disagree (coded 0), disagree, somewhat disagree, undecided, somewhat agree, agree, and strongly agree (coded 6).

[‡]The items for this scale are measured on a 7 point Likert scale: never (coded 0), very rarely, rarely, now and then, often, very often, and all the time (coded 6).

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Table 1
Descriptive Statistics for the Variables Used in the Event History Analysis

<i>Variable</i>	<i>Mean/Percent</i>	<i>Standard Deviation</i>
INSCOM: Institutional Commitment (low 0, high 6)	4.59	1.46
BOPCOM: BOP Commitment (low 0, high 6)	5.24	1.21
JOBSAT: Job Satisfaction (low 0, high 6)	4.99	1.31
TENURE: (months)	86.88	67.45
INSTOP: Institutional Operations (low 0, high 6)	4.48	1.15
SUPSAT: Satisfaction with Supervision (low 0, high 6)	4.69	1.36
INMEFF: Effectiveness in Dealing with Inmates (low 0, high 6)	4.72	1.11
JOBSTRES: Job Stress (low 0, high 6)	4.79	1.21
JOBLOOK: Looking for Another Job (low 0, high 6)	2.64	1.85
LOGUNEMP: County Unemployment Rate (Natural Log)	1.85	0.33
LOGINC: Income in Cents (Natural Log)	14.85	0.29
LOGAGE: Age (Natural Log)	3.52	.20

Dependent, Dummy and Effects Coded Variables

TURNOVER: Quit Job*	4.7%
GENDER: Female*	25.0%
EDUC: At Least Bachelors Degree*	30.5%
RACE: White*	77.5%
ETHNIC: Hispanic*	9.5%
SUPERVIZ: Supervisors*	18.6%
MINSEC: Minimum Security [†]	12.3%
LOWSEC: Low Security [†]	12.7%
ADMSEC: Administrative Security [†]	22.0%
MEDHISEC: Medium and High Security [†]	53.0%
INSTSEX: Only Males in Institution*	83.8%
MIDATLR: Mid-Atlantic Region [†]	16.6%
NRCENTR: North Central Region [†]	19.4%
SOCENTR: South Central Region [†]	20.4%
NREASTR: Northeast Region [†]	16.2%
SOEASTR: Southeast Region [†]	12.4%
WESTR: Western Region [†]	15.2%
CAL: California*	9.2%

*Variable is coded as a dummy variable in models examined in this analysis. Excluded group, e.g., group not listed here, is coded 0. Group listed is coded 1.

[†]Variables is coded as an effects vector in the models examined here.

Table 2
Estimates for Logit Models Predicting the Probability of Turnover

<i>Explanatory Variables</i>	<i>Model 1</i>			<i>Model 2</i>		
	<i>b</i>	<i>Odds Ratio</i>	<i>s.e.</i>	<i>b</i>	<i>Odds Ratio</i>	<i>s.e.</i>
INSCOM	-0.1510	0.860	0.0595**	-0.1317	0.877	0.0646**
BOPCOM	-0.1810	0.834	0.0721**	-0.2021	0.817	0.0966**
JOBSAT	-0.0160	0.984	0.0656	-0.0363	0.964	0.0741
TENURE	-0.0292		0.0051**	-0.0259		0.0055**
TENURE ²	0.00007		0.000024**	0.00007		0.000024**
INSTOP				0.1231	1.131	0.1118
SUPSAT				-0.1218	0.885	0.0808
INMEFF				0.0524	1.054	0.0750
JOBSTRES				0.0427	1.044	0.0754
JOBLOOK				0.0160	1.016	0.0498
LOGUNEMP				-0.0612		0.2836
GENDER (D) [†]				0.4514	1.571	0.1765**
LOGAGE				-2.1140		0.5869**
EDUC (D)				-0.0641	0.938	0.1852
RACE (D)				-0.2050	0.815	0.1997
ETHNIC (D)				0.0270	1.027	0.2630
LOGINC				1.3615		0.3938**
SUPERVIZ (D)				-0.1758	0.839	0.3009
MINSEC (E) ^{††}				-0.2485	0.780	0.2129
LOWSEC (E)				0.3357	1.399	0.1720*
ADMSEC (E)				0.0936	1.098	0.1673
MEDHISEC (E)				-0.1808	0.835	0.1308
INSTSEX (D)				-0.0392	0.962	0.2501
MIDATLR (E)				0.0564	1.058	0.2041
NRCENTR (E)				0.0841	1.088	0.1912
SOCENTR (E)				0.1989	1.220	0.1737
NREASTR (E)				-0.2563	0.774	0.2028
SOEASTR (E)				-0.5325	0.587	0.2779*
WESTR (E)				0.4494	1.567	0.2185**
CAL (D)				-0.4654	0.628	0.3823
CONSTANT	-3.5113		0.3013**	-10.3013		3.6676**
-2 X log-likelihood	2235.305			2102.594		
R _L ²		5.18%			6.84%	

* p < .10

** p < .05

† (D) Dummy Variable

†† (E) Effects Vector