

## **PREDICTORS OF THE IMPLEMENTATION OF EMPLOYEE DRUG TESTING**

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### **ABSTRACT**

This study investigated four categories of predictors of the use of the employee drug testing. The categories included company revenue, type of company, unionization, and attitudinal measures collected from human resource managers. Data were collected from 101 small-to-moderate-sized companies, of which 35 percent engaged in drug testing. Factor analysis was conducted on an attitudinal scale that asked respondents to indicate the appropriateness of drug testing in thirty-four occupations. Two factors were revealed: one concerned occupations in which drug testing may be considered discretionary, while the second concerned occupations that require drug testing for safety reasons. Stepwise regression analysis revealed significant effects for the attitudinal and type-of-company measures. Manufacturing/transportation firms and managers who were in favor of drug testing for discretionary occupations were more likely to test. Explanations of the results are discussed along with implications for the implementation of drug testing.

Drug testing in the workplace has been growing at an increasing rate. The seventh annual American Management Association (AMA) survey on workplace drug testing showed that 85 percent of large United States companies have made a drug testing program part of their employee screening procedures [1]. The study revealed legislative and regulatory pressures had resulted in a 10 percent increase in the use of drug testing as compared to 1992 figures. A similar survey conducted

in 1994 showed similar increases among smaller companies [2]. Fifty-seven percent of these companies tested job applicants, and 78.9 percent tested current employees.

Over the years a number of different reasons have been used to justify drug testing. First, the costs of drug abuse have been frequently cited. Drug users are at least ten times more likely than nondrug users to be absent [3]. Compared to nonaddictive coworkers, drug users on average file for three times as many medical benefits, are five times as likely to file for workers' compensation, and have seven times as many garnishments [4].

Another reason that supports drug testing relates to workplace safety. Employees with drug dependencies are four times as likely to be involved in an accident at work. Approximately one half of all industrial accidents are drug-related [5]. Companies have a legal responsibility under the Occupational Safety and Health Act (OSHA) to provide a safe work environment for employees. At the same time, the safety of the general public must be considered. An employer can be held liable in a common-law negligence claim if the drug-impaired employee was acting within the scope of his employment or if the employer was aware of the drug abuse problem and took no action [5]. These types of suits can result in large settlement claims.

Finally, the Drug-Free Workplace Act of 1988 requires companies with federal contracts over \$25,000 to have in place a drug program, which includes a written statement of the company's policies against illegal drug use and the actions that will be taken if drug use is discovered. The act does not mandate drug testing, although many companies use drug testing as proof of compliance. Failure to comply with the act could result in the loss of federal contracts and the privilege to bid for federal contracts for up to five years.

Arguments are also offered against drug-testing practices. Many employees feel that drug testing is an invasion of their privacy and a defamation of their character [6]. Under United States law we are innocent until proven guilty. Random, no-cause drug testing rests on the opposite assumption.

Legal liability is one reason companies choose not to test employees. Currently there is no penalty for drug testing in the private sector but there are penalties for the use of inaccurate test results. An employer can be sued for terminating an employee based on faulty test results. In addition, employees can take action against invasive testing methods such as direct observation while giving a sample. Also, employers can be sued for defamation of character if testing results are not kept confidential.

Cost, especially for small companies, may outweigh the benefits received from testing. Accordingly, larger firms are more likely to test than smaller firms. According to a 1988 Department of Labor survey, roughly 60 percent of firms with 5000 or more employees had implemented a drug program that included testing, compared to only 12 percent of companies employing between fifty and ninety-nine workers. Test costs average between \$25 and \$100 per employee

tested [3], depending on the type of test used, the number of retests done, procedures used, and administrative costs.

The morale of the company may also be affected by drug testing. The atmosphere may develop into that of mistrust and resentment. Some companies feel the reduction in morale will cost more in the long run. Those who oppose drug testing claim the results of much of the research on the effects of drug use on businesses has been distorted for political purposes and to encourage testing. They claim most of the research has shown drug use has a negligible effect on business and testing is, therefore, a waste of money, time, and a needless invasion of privacy [7].

Despite the controversy surrounding drug testing, the practice has continued to increase. Results of recent AMA surveys on workplace drug testing have identified several causative factors. First, Department of Transportation and Department of Defense regulations, along with state and local laws, require testing for 33 percent of surveyed firms [1]. The same survey revealed that court decisions have supported an employer's right to test both employees and job applicants. Also, corporations are requiring vendors and contractors to certify that they have drug-free workplaces. Twenty-two percent of survey respondents had this type of policy in place [1].

## THE PRESENT STUDY

The purpose of the present study was to identify factors related to a company's decision to implement a drug-testing program. The drug-testing literature covers such things as the extent of testing, the attitudes of employees and the general public toward drug testing, and the characteristics of drug-testing practices. However, a review of the literature did not reveal a discussion of the factors related to the decision to test for drugs.

Companies that employed more than 100 people, but fewer than 1,000 in a rural midwestern state were surveyed. Companies of this size range were chosen because it was felt that there would be greater variability in drug-testing practice among companies of this size. Very high percentages of larger companies are already testing [1], while low percentages of smaller companies are currently testing for drugs [3].

The effects of four categories of variables on the drug-testing decision were assessed. The categories included the following: type of business, annual revenue, union status, and the attitude toward drug testing of the human resource director or an equivalent employee. These categories were chosen because of their possible impact on the drug-testing decision. The type of business can have a potential impact on this decision because of legal requirements and public safety concerns. Larger company revenues may lead to a greater perceived need for drug testing to protect company assets. In addition, greater revenues may be associated with an increased ability to cover the costs of a drug-testing program. The nature of the

drug-testing practices and the rules concerning which employees will be subjected to testing can either enhance or limit union support of drug testing. Finally, the attitudes toward drug testing of key decision makers may have an impact on whether companies decide to test for drugs.

## METHOD

### Subjects and Procedures

Cover letters and surveys were mailed to all companies that employed between 100 and 1000 people in a rural midwestern state. The list of 159 companies to survey was drawn up with the aid of Dun & Bradstreet's Electronic Yellow Pages. To ensure a satisfactory response rate several measures were taken. Phone calls were placed to the companies to obtain the name of the human resources director or the chief officer so that the survey could be sent directly to that individual. A second survey and follow-up letter were sent approximately two weeks after the first mailing. Included with the survey was a prepaid, self-addressed return envelope and a response form if the company wished to receive a copy of the survey results. A response rate of 63.5 percent (101 surveys) was obtained.

Thirty-five of the companies (35%) that returned the survey had existing employee drug-testing programs. Responding companies were divided into three business types: manufacturing and transportation, sales, and service. The number of responding companies in each of these types was 20, 13, and 58, respectively. Respondents were asked to check one of six revenue categories. The categories ranged from \$0 to \$2,500,000 to more than fifty million dollars. Forty-six companies had revenues less than \$10,000,000, while the revenues of forty-nine companies were greater than \$10,000,000. Finally, twenty-three of the companies were unionized, while eighty-seven companies reported nonunion status. Values for the demographic variables may not sum to 101 because of missing data.

### Questionnaire

The questionnaire was comprised of several parts. The first part asked the survey respondent whether his/her company had a drug testing program in place. For analysis in part of a larger study this part of the questionnaire also included questions concerning employee coverage, testing circumstances, administrative procedures, and consequences of test failure. The second section of the questionnaire assessed the respondents' attitude toward drug testing. Respondents were asked their opinion on the use of drug testing in a variety of occupations. The list of thirty-four occupations was developed by Murphy and his colleagues [8, 9]. Respondents were asked to rate the acceptability of drug testing for each job on a 7-point Likert scale. Anchor points ranged from strongly disagree (1) to strongly

agree (7). In the final section of the questionnaire, demographic information on the companies was gathered. Data were gathered on the industry type, the last year's gross revenue, and the union status of the company.

## RESULTS

As noted earlier, the views of the human resources director or equivalent toward the use of drug testing were assessed by asking for their beliefs about the applicability of drug testing for individuals in thirty-four occupations. Given the large number of occupations included in this assessment, factor analysis was employed to reduce the number of variables to include in subsequent assessments.

### Factor Analysis

Principal components factor analysis was used on the subjects' responses to the group of thirty-four occupations. Applying the scree plot and considering only factors with an eigenvalue greater than one resulted in a two-factor solution. Varimax rotation was applied to this solution and yielded the factor loadings shown in Table 1. Four of the thirty-four occupations did not load cleanly on either factor and thus were eliminated from the solution. The first factor included twenty-one of the remaining occupations. This factor accounted for approximately 63 percent of the variance. The second factor included nine of the occupations and accounted for 18 percent of the variance.

Looking at the types of occupations included in each factor, Factor I, discretionary jobs, appears to be a collection of jobs where there may be disagreements as to the appropriateness of drug testing. However, among the jobs included in Factor II, safety-related jobs, the similarity seems to be in the potential for harm to others if the job holder were using drugs.

### Initial Analysis

Having reduced the number of potential predictor variables through the factor analysis, a set of seven predictor variables from the four categories remained to determine the difference between firms that drug test and those that do not drug test. A correlation matrix with all variables is shown in Table 2 (DISCREJOB, SAFEJOB, LOGREV, MANUFACT, SALES, SERVICE, UNION, and TEST). Initially, the raw amount of revenue was included in this analysis. After noting that the standard deviation exceeded the mean for revenue, the logarithm of the revenue was substituted for the analysis. Also included in Table 2 is a measure of the internal consistency (Cronbach's alpha) for both of the attitudinal variables. Both variables showed excellent internal consistency (>.9).

A correlational analysis revealed several significant relationships. Most of the predictor variables included in this analysis were significantly related to the testing variable. Unionized, manufacturing, and high-revenue companies were

Table 1. Factor Loadings for Agreement Ratings Drug Testing  
in Various Occupations

Occupation	Factor I	Factor II
Waitress	.9339	
Photographer	.9096	
Clerk/Typist	.9081	
Retail Salesperson	.9037	
Laborer	.9011	
Janitor	.8964	
Market Research Analyst	.8916	
Reporter	.8889	
Accountant	.8803	
Computer Programmer	.8726	
Cook	.8366	
Professor	.8245	
Mechanic	.8190	
Personnel Manager	.8093	
Farm Worker	.8049	
Welder	.7998	
Electrical Engineer	.7965	
Priest	.7760	
Machinist	.7699	
Electrician	.7586	
Construction Worker	.7427	
Airline Pilot		.9412
Truck Driver		.9335
Air Traffic Controller		.9305
Police Officer		.9173
Heart Surgeon		.9021
Fire Fighter		.8694
Train Conductor		.8392
Nuclear Engineer		.8384
Nurse		.8193
Eigenvalues	21.33	6.24
Percent of Variance Explained	62.7%	18.4%

Table 2. Intercorrelations between Study Variables

Variable	M	S.D.	1	2	3	4	5	6	7	8
1. DISCREJOB	4.63	1.60	0.98							
2. SAFEJOB	6.38	1.14	0.43***	0.97						
3. LOGREV	16.21	1.44	0.28*	0.43***	N/A					
4. MANUFACT	0.21	0.41	0.33**	0.23*	0.51***	N/A				
5. SALES	0.11	0.32	0.17	-0.11	0.17	-0.18	N/A			
6. SERVICE	0.68	0.47	-0.40***	-0.12	-0.56***	-0.75***	-0.51***	N/A		
7. UNION	0.24	0.43	0.22*	0.12	0.35**	0.36**	-0.01	-0.31**	N/A	
8. TEST	0.33	0.47	0.41***	0.26*	0.41***	0.47***	0.08	-0.47***	0.23*	N/A

Note: Cronbach's alpha values are given on the diagonal. N/A is given for one-item measures, no alpha value. For MANUFACT, SALES, SERVICE, UNION, TEST; 1 = yes, 0 = no.

\* $p < .05$

\*\* $p < .01$

\*\*\* $p < .001$

more likely to employ drug testing. The use of drug testing was also positively related to the assessed applicability of drug testing for the discretionary jobs factor. In addition, testing was not as likely to be used by service organizations. Finally, several significant relationships were found between the predictor variables.

### Regression Analysis

In order to avoid overstating relationships found in the correlation table, a stepwise regression analysis was conducted. All seven predictor variables were used to predict the drug-testing variable. The first variable to enter the equation was MANUFACT ( $F = 23.74, p < .001, R^2 = .24$ ). This was followed by the discretionary jobs factor ( $F = 6.53, p < .05, R^2 = .06$ ). No other variables entered the model at the  $p < .05$  level. Both MANUFACT and DISCREJOB displayed a positive relationship with the use of drug testing (see Table 3).

## DISCUSSION

The results of the factor analysis of the respondents' ratings of drug-testing appropriateness for a variety of occupations were interesting. The two-factor solution that was obtained revealed both the agreement and the controversy that surrounds the decision to test employees for drugs. The first factor, discretionary jobs, was comprised of occupations for which there is no strong consensus that employee drug testing is necessary. It is in these jobs that the controversy over drug testing still exists. For these jobs, corporate decision makers must decide whether the potential benefits of drug testing outweigh the known costs of testing. The second factor, safety-related jobs, is comprised of jobs that have impacts on public safety. The respondents' assessments of the appropriateness of drug testing in these occupations reflect society's growing acceptance of employee drug testing in situations where the actions of a job incumbent can have serious consequences on the safety and well-being of the general public. A mean rating of 6.38 (out of a possible 7) shows that there was strong agreement that drug testing is

Table 3. Stepwise Regression Analysis with Variables Predicting Drug Testing

Step	Variable	Beta	$R^2$	$R^2$ -Change	df	F(step)
1	MANUFACT	.40	.24	.24	1,77	23.74**
2	DISCREJOB	.26	.30	.06	1,76	6.53*

\* $p < .05$

\*\* $p < .01$

\*\*\* $p < .001$

necessary in these occupations. In contrast, the mean on discretionary jobs was 4.63.

The correlational analysis indicated that all but one of the predictor variables were significantly related to whether or not a company tested its employees for drugs. Company drug-testing practices were related to whether a business was primarily involved with sales. Testing practices were significantly, negatively related to a company's status as a service company. In other words, service companies are not likely to test their employees for drug use. All the other predictors (attitudes, gross revenue, manufacturing and/or transportation business, and unionization) had significant positive relationships with drug testing. The relationships justified the inclusion of all the variables in the stepwise regression analysis.

Two significant predictors of employee drug testing were identified through the stepwise regression analysis. If a respondent business was engaged in manufacturing and/or transportation, it was more likely to test employees for drugs. This finding was not surprising given the safety issues associated with this type of business. In fact, many organizations in the transportation industry are legally required to test their employees. In addition, the extent to which manufacturing/transportation companies are also larger companies with greater gross revenues may have an impact on whether they decide to test for drugs. Previous surveys have indicated that large firms are more likely to test. In the present study, whether a respondent business was engaged in manufacturing/transportation was highly correlated to gross annual revenue ( $r = .51, p < .001$ ).

The other significant predictor of employee drug testing was the attitude of the human resources director or equivalent toward drug testing of employees, in the discretionary jobs. More positive subjects' attitudes toward drug testing for job incumbents in these jobs were associated with a greater likelihood that the subject's firm had implemented drug testing. It is not surprising that the other attitudinal variable (safety jobs) did not enter the regression model, given the uniformity of responses to those occupations.

The results of the regression analysis showed that both organizational characteristics (type of business) and personal characteristics (attitudes toward drug testing) of key decision makers are potential determinants of the decision to test employees for drug use. These results suggest that additional research is needed to further investigate the predictors of the implementation of employee drug testing. In the present study neither annual revenue nor union status were significant predictors of the drug-testing decision. However, this could be a statistical artifact. Both revenue and union status were significantly related to a company's status as a manufacturing/transportation business. Neither variable explained enough unique variance to enter the stepwise regression model.

Further, the cross-sectional design of the present study did not allow one to determine the direction of causality for the relationship between the attitudinal variables and the drug-testing decision. That is, it was not possible to determine

whether the respondent's attitude toward drug testing influenced his/her company's decision to test, or whether the company's drug-testing practices had influenced the respondent's attitude. Additional longitudinal studies are needed to further assess this relationship. If it is discovered that existing attitudes of key decision makers do influence the drug-testing decision, it would be interesting to determine the antecedents of these attitudes.

The results of the present study are limited in that all of the studied companies came from a restricted geographical area. However, this limitation is offset by the fact that the surveyed firms represented a population and a large percentage of the firms returned the surveys.

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## ENDNOTES

1. Fewer People Fail as Workplace Drug Testing Increases, *HR Focus*, 70:6, p. 24, June 1993.
2. American Management Association, *1994 AMA Survey on Workplace Drug Testing and Drug Abuse Policy*, New York, April 1994.
3. D. C. Bacon, Business' Role in War on Drugs, *Nation's Business*, 77:11, p. 5, 1989.
4. J. T. Wrich, The Impact of Substance Abuse at the Workplace, in *Substance Abuse in the Workplace: Readings in Labor-Management Issues*, R. L. Hogler (ed.), 1987.
5. J. R. Redeker and J. A. Segal, Profits Low? Your Employees May be High! *Personnel*, 66:6, pp. 72-78, 1989.
6. *Taylor v. Kentucky*, 436 U.S. 478, 484 n. 12, 98 S. Ct. 1930, 1934, 56 L. Ed. 468, 1978.
7. Test Negative, *Scientific American*, 262:3, pp. 18, 22, 1990.
8. K. R. Murphy, G. C. Thorton, III, and D. H. Reynolds, College Students' Attitudes towards Employee Drug Testing Programs, *Personnel Psychology*, 43, pp. 615-631, 1990.

9. K. R. Murphy, G. C. Thorton, III, and K. Prue, Influence of Job Characteristics on the Acceptability of Employee Drug Testing, *Journal of Applied Psychology*, 76, pp. 447-453, 1991.

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