

SEX DIFFERENCES IN JOB SATISFACTION

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SEX DIFFERENCES IN JOB SATISFACTION

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## SUMMARY

Two major reviews of sex differences in job satisfaction (Herzberg, Mausner, Snyderman, and Capwell, 1957; Quinn, Staines, and McCullough, 1974) concluded that the research findings in this area are inconsistent. Some studies report greater male satisfaction, some greater female satisfaction, and some no differences in satisfaction. Hulin and Smith (1964), in an attempt to explain this inconsistency, suggested that observed sex differences in job satisfaction may be due not to sex per se, but rather to "the entire constellation of variables which consistently covary with sex" (p. 91). The present research is designed to test this hypothesis.

The Job Descriptive Index (Smith, Kendall, and Hulin, 1969), accompanied by a biographical information blank, was administered to 154 male and 326 female employees at all levels of responsibility in a department of the Georgia State Government. The obtained data were analyzed under two conditions. In Condition I, sex differences in job satisfaction were tested using a multiple analysis of variance design ignoring the effects of any potential underlying variables. Males were found to be significantly more satisfied with promotions and work and thus with the overall job situation. In

Condition II, sex differences were tested using a multiple analysis of covariance design which controlled for the effects of nine covariates of sex (age, education, tenure in organization, tenure in present position, paygrade classification, and four interaction terms). In this condition, females were found to be significantly more satisfied with pay and thus the overall job situation. However, the significant differences in promotions and work observed in Condition I "washed out" in Condition II.

The Hulin and Smith (1964) hypothesis was only partially confirmed by this study. While the observed sex differences in satisfactions with promotions and work can be accounted for by controlling nine covariates of sex, sex differences in pay cannot be accounted for in this manner.

## CHAPTER I

### THE CONCEPT OF JOB SATISFACTION

The general purpose of this thesis research is to investigate the relationship between sex and job satisfaction, with particular attention focused on the nature of the effects of several underlying variables which may influence this relationship. The first three chapters provide a background and conceptual framework for the problem through discussions of job satisfaction, sex differences in psychological variables, and the specific topic of interest--sex differences in job satisfaction.

#### A Rationale for Job Satisfaction Research

Job satisfaction, defined as "affective attitudes or orientations on the part of individuals toward jobs" (Lawler, 1973, p. 62), has interested industrial psychologists since the 1930's (Lawler, 1973; Vroom, 1969). Reasons for this interest can be categorized into three areas for the purpose of discussion: pragmatic, humanitarian, and theoretical.

#### Pragmatic Reasons

Much of the early work on job satisfaction was carried out by researchers who were under the impression that job satisfaction determined, or at least was highly corre-

lated with, job performance (Vroom, 1969). While most reviewers have concluded that there is no clear-cut relationship between job satisfaction and job performance (Brayfield and Crockett, 1955; Kahn, 1960; Vroom, 1964), a recent reconceptualization of the satisfaction-performance relationship which reverses the hypothesized direction of causation (Porter and Lawler, 1968; Lawler, 1973) has stimulated renewed interest in the study of job satisfaction.

Other practical reasons for the study of job satisfaction, in addition to its effects on performance (or vice versa), include its demonstrated relationships with turnover and absenteeism, two of industry's most costly problems (Lawler, 1973). A number of studies (Fleishman, Harris, and Burtt, 1955; Fournet, Distefano, and Pryer, 1966; Giese and Ruter, 1949; Kerr, Koppelman, and Sullivan, 1951; Waters and Roach, 1971; Weitz and Nuckols, 1953) have reported a negative relationship between job satisfaction and turnover (and thus a positive relationship between job satisfaction and tenure). Also, convincing evidence has been presented to indicate a similar negative relationship between job satisfaction and absenteeism (Fleishman, Harris, and Burtt, 1955; Harding and Bottenberg, 1961; Mann and Baumgartel, 1952; Martin, 1971; Metzner and Mann, 1953; Waters and Roach, 1971; Van Zelst and Kerr, 1953). Quinn, Staines and McCullough (1974) cite evidence which suggests that job satisfaction may be directly related to such damaging employee ac-

tivities as theft, sabotage, and drug use.

### Humanitarian Reasons

Recent publications (for example, O'Toole, et al., 1972; Rosow, 1974; Sheppard and Herrick, 1972) indicate a rapid increase in the emphasis being placed on the quality of life in American industrial organizations. For more than three decades, Kornhauser (1930, 1965) has shown that job satisfaction is a major determinant of perceived quality of life. Ronan (1970) and Lawler (1973) have argued that the relationship between job satisfaction and individual life adjustment demands increased emphasis on the study of job satisfaction. Lawler (1973, pp. 62-63) has expressed this need as follows:

Job satisfaction is one measure of the quality of life in organizations and is worth understanding even if it doesn't relate to performance. This reason for studying satisfaction is likely to be an increasingly prominent one as we begin to worry more about the effects working in organizations has on people and as our humanitarian concern for the kind of psychological experiences people have during their lives increases. What happens to people during the work day has profound effects both on the individual employee's life and on the society as a whole, and thus these events cannot be ignored if the quality of life in a society is to be high.

### Theoretical Reasons

Satisfaction has played a major role in motivation theories ranging from the drive reduction theory of Hull

(1943, 1952) to the holistic-dynamic viewpoint of Maslow (1943, 1954, 1970). Yet, few theoretical treatments are available on the elusive concept of satisfaction (Lawler, 1973). A major criticism which has been leveled against the job satisfaction literature (Locke, 1968, 1969; Hinrichs, 1970; Lawler, 1973) has been summarized by Lawler (1973):

The research on job satisfaction has typically been atheoretical and has not tested for causal relationships. Since the research has not been guided by theory, a vast array of unorganized, virtually uninterpretable facts have been unearthed.... A great deal is known about what factors are related to satisfaction, but very little is known about the causal basis for the relationships. This is a serious problem when one attempts to base change efforts on the research. This problem also increases the difficulty of developing and testing theories of satisfaction (p. 63).

Thus a third major rationale for the study of job satisfaction is, or should be, to develop and test theoretical models of job satisfaction.

#### Theories of Job Satisfaction

Several theoretical approaches to job satisfaction have been recognized (Lawler, 1973; Miner and Dachler, 1973) despite the criticism mentioned above. Four extant theories of job satisfaction, as recognized and described by Lawler (1973), are presented here. Note that several of these theoretical approaches distinguish between job satisfaction, as defined earlier, and facet satisfaction, which has been

defined as "people's affective reactions to particular aspects of their jobs" (Lawler, 1973, p. 64). While most theories of job satisfaction maintain that job satisfaction is a composite of affective reactions to various facets of the job situation, they differ in terms of the hypothesized manner in which the facet satisfactions are combined (Evans, 1969; Lawler, 1973).

#### Fulfillment Theory

Theorists who have championed the fulfillment approach (Schaffer, 1953; Vroom, 1964) measure a person's satisfaction by simply asking how much of a given facet or outcome he is receiving. Thus, these theorists view satisfaction as depending on how much of a given outcome or group of outcomes a person receives (Lawler, 1973). Lawler (1973) believes this approach to be invalid since it fails to take into account individual differences in desired outcomes.

#### Discrepancy Theory

Discrepancy theorists (Katzell, 1964; Locke, 1968, 1969; Morse, 1953; Porter, 1961) maintain that satisfaction is determined by the differences between the actual outcomes a person receives and some other outcome level; when received outcome is below the other outcome level, dissatisfaction results (Lawler, 1973). For example, Porter's (1961) widely accepted approach to measuring satisfaction asks people how much of a given outcome there should be for their

job and how much of a given outcome there actually is; the discrepancy between the two is considered to be a measure of satisfaction.

### Equity Theory

Adams' (1963, 1965) equity theory holds that satisfaction is determined by the perceived ratio of what a person receives from his job relative to what he puts into his job. According to equity theory, either under-reward or over-reward can lead to feelings of dissatisfaction, although the feelings are somewhat different in the two cases. The theory emphasizes that over-reward leads to feelings of guilt, while under-reward leads to feelings of unfair treatment. Equity theory argues that people evaluate the fairness of their own input-output balance by comparing it with their perception of the input-output balance of a "comparison other" (Lawler, 1973).

### Two-Factor Theory

Lawler (1973) cites two aspects of the two-factor theory (Herzberg, Mausner, Peterson, and Capwell, 1957; Herzberg, Mausner, and Snyderman, 1959) which are unique and account for much of the attention it has received. First, rather than accepting a single satisfaction-dissatisfaction continuum, two-factor theory claims that two independent continua exist, one running from satisfied to neutral, the other from dissatisfied to neutral. Second, two-factor

theory stresses that different job facets influence feelings of satisfaction and dissatisfaction. For example, recognition is said to affect satisfaction, while working conditions affect dissatisfaction. Regarding empirical tests of the theory, Lawler (1973, p. 70) states: "The results of the studies designed to test two-factor theory have not provided clear-cut support for the theory, nor have these studies allowed for total rejection of the theory. In many cases, the studies have only fueled the controversy that surrounds the theory." (See Dunnette, Campbell, and Hakel, 1967; King, 1970; Miner and Dachler, 1973; and Smith and Cranny, 1968 for discussions of this controversy.)

#### A Model of Facet Satisfaction

Lawler (1973), by drawing heavily from both discrepancy and equity theory, has constructed a model of job facet satisfaction. This model is diagrammed in Figure 1.

Lawler's (1973) discrepancy model depicts satisfaction as the difference between a, what a person feels he should receive, and b, what he perceives that he actually receives. The model indicates that when the person's perception of what his outcome level is and his perception of what his outcome level should be are in agreement, the person will be satisfied; and when his perceived outcome level falls below what he feels it should be, he will be dissatisfied. Incorporating one of the principles of equity theory,

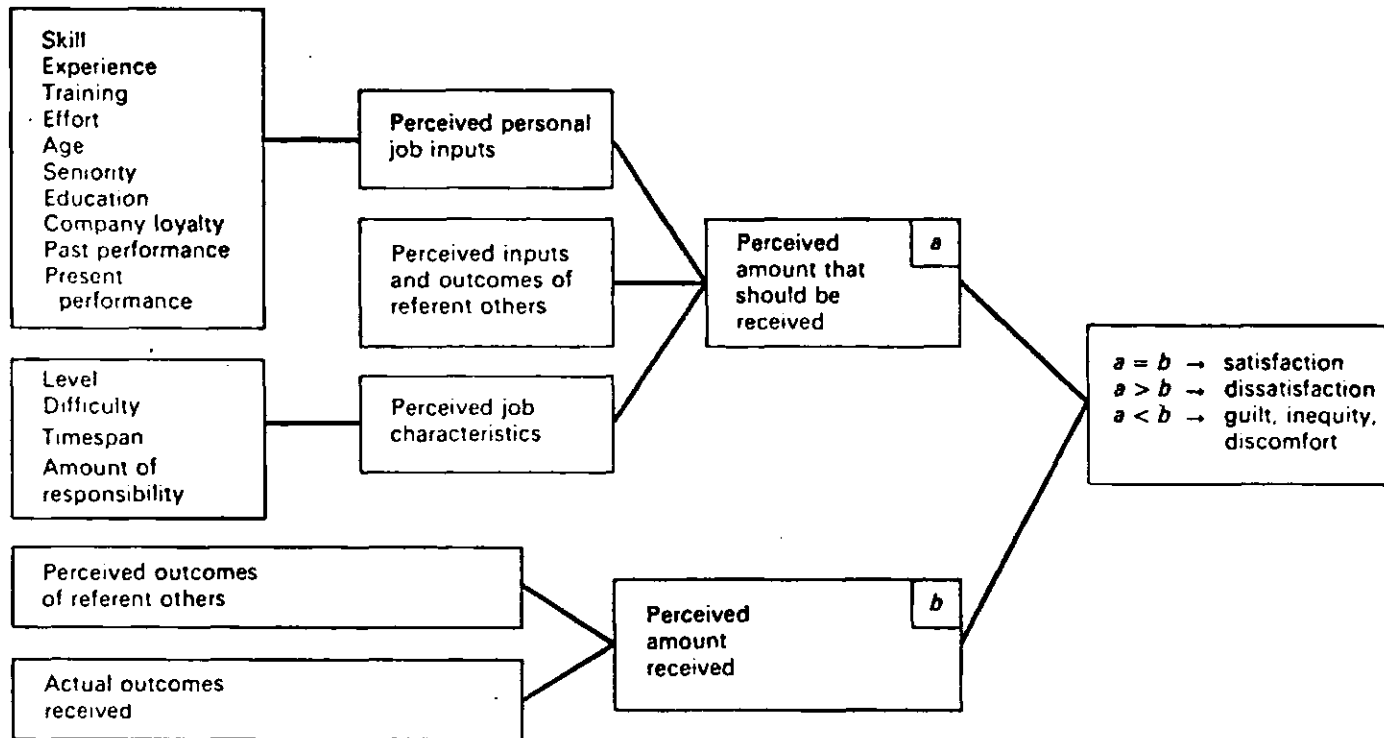


Figure 1. Diagram of Lawler's Model of Facet Satisfaction

Source: Lawler, E. E., III. Motivation in work organizations. Monterrey, Ca.: Brooks/Cole, 1973.

the model holds that when a person's perceived outcome level exceeds what he feels it should be, he will have feelings of guilt, inequity, and discomfort. A person's perception of what his (or her) reward level should be is influenced by a number of factors, including perceived personal inputs, perceived job demands, and the perceived inputs and outcomes of comparison-others. Perceived outcome level is similarly influenced by both actual outcomes received and the perceived outcomes of comparison-others.

Lawler's model does not include sex in the list of factors which influence perceived personal job inputs. While this omission may simply be due to oversight, it does point up a question which has been of interest to psychologists for a number of years--are there sex differences in job satisfaction? One objective of this thesis study is to determine the necessity of including sex as a variable which influences measures of job facet satisfaction. That is, if the effects of some of the variables included in Lawler's model are held constant, will there still be observed sex differences in job satisfaction? A methodology for answering this question is described in Chapters IV and V. At this point, attention must be shifted to the second major concept included in this thesis study--sex as an independent (influencing) variable in psychological research.

## CHAPTER II

## SEX DIFFERENCES IN PSYCHOLOGICAL VARIABLES

No topic in psychology is of more perennial interest than sex differences. Study after study, book after book, testify to the fact that research workers, writers, and readers consider the subject one of paramount importance (Tyler, 1965, p. 239).

Tyler highlights the high degree of interest which persists in the psychological literature with regard to sex differences. Two major reviewers of this literature (Anastasi, 1958; Tyler, 1965) have concluded that despite the many methodological problems involved in the study of sex differences, evidence for such differences in a number of psychological variables is quite persuasive. In the following paragraphs, some of the evidence for sex differences in several of these variables is briefly summarized. Socio-cultural sex roles are also discussed as possible determinants of some of these differences.

Sex Differences in Abilities and AchievementAbilities

While there is no clear-cut evidence that either sex is superior in terms of general ability (Miele, 1958; Scottish Council for Research in Education, 1939, 1949), re-

search in certain special abilities has proved to be more conclusive (Tyler, 1965).

Females are clearly superior in terms of verbal fluency (Goodenough, 1927; Havighurst and Breese, 1947; Herzberg and Lepkin, 1954; Hobson, 1947; Terman and Tyler, 1954; Wellman, Case, Mengert, and Bradbury, 1931); however, neither sex is superior in terms of vocabulary size (Clark, 1959; Dunsdon and Fraser-Roberts, 1957).

Although males and females are equivalent in the ability to manipulate numbers (Havighurst and Breese, 1947; Hobson, 1947), males are superior with regard to mathematical reasoning (Terman and Tyler, 1954). Males are also consistently superior in the judgment and manipulation of spatial relationships (Bennett and Cruikshank, 1942; Porteus, 1918; Terman and Tyler, 1954); while females usually outscore males on tests of manual dexterity (Tyler, 1965).

Males are usually superior to females in terms of amount and range of general information (Miele, 1958) and scientific ability (Edgerton and Britt, 1944, 1947; Heilman, 1933); females excel in rote memory tasks (Havighurst and Breese, 1947) and clearly excel in the perception of details (Gainer, 1962; McGuire, 1961; Meile, 1958; Norman, 1953; Schneider and Paterson, 1942; Wesman, 1949).

In summary, "...males are clearly superior on tests of mathematical reasoning, spatial relationships, and science.

Females are superior in verbal fluency, rote memory, perceptual speed, and dexterity" (Tyler, 1965, p. 247). However, in any discussion of sex differences, it is necessary to keep in mind that group averages are being compared; individual cases cannot be reliably predicted on the basis of this information (Anastasi, 1958; Tyler, 1965).

### Achievement

Although girls typically make better grades in school than do boys (Northby, 1958; Tyler, 1965), differences in performance as measured by batteries of achievement tests are less marked (Tyler, 1965). Girls typically excel in English, spelling, writing, and art; boys in arithmetical reasoning, history, geography, and science (Terman and Tyler, 1954).

## Sex Differences in Personality and Motivation

### Interests and Values

While there is certainly much overlap between the sexes in terms of interests (Tyler, 1965), marked differences have been found on standardized interest inventories (Strong, 1943; Traxler and McCall, 1941). For example, on the Kuder Preference Record, boys average higher in the mechanical, scientific, computational, and persuasive areas; girls in the musical, artistic, literary, social service, and clerical areas (Traxler and McCall, 1941). Seder (1940), however, has found that differences in inter-

ests usually do not appear when groups of men and women in the same professions are compared.

On the Allport-Vernon Study of Values, males score higher for theoretical, economic, and political values; females for aesthetic, social, and religious values (Allport and Vernon, 1931).

#### Other Personality Variables

Males appear to be more aggressive than do females (Oetzel, 1962); and males usually score higher than do females on measures of achievement motivation (McClelland, Atkinson, Clark, and Lowell, 1953; Walter and Marzolf, 1951). Women's averages on adjustment inventories usually lie closer to the "maladjusted" end of the scale than do men's (Bernreuter, 1933; Darley, 1937); and a combination of "miscellaneous" findings (such as those reported by Goodenough, 1957; Kimber, 1947; Noll, 1951, Oetzel, 1962; and Patel and Gordon, 1960) has led Tyler (1965, p. 259) to conclude "...that females are more personal than males in their orientation to life." Evidence that there are sex differences in "cognitive style" has been presented by several researchers (Pettigrew, 1958; Sandström, 1953; Sweeney, 1953; Witkin, et al., 1954).

#### Sex Roles as Determinants of Sex Differences

In the preceding paragraphs, evidence has been reviewed which indicates that there are sex differences in

psychological variables ranging from interests and abilities to motivation and cognitive style. However, the evidence does not indicate that all of these differences are due to sex per se. While some of these differences may be due to physiological and maturational factors, many of them are determined, at least in part, by pervasive sociocultural sex roles which serve to limit the expected and actual behaviors of males and females (Anastasi, 1958; Mead, 1935, 1949; Tyler, 1965). A number of authors (Anastasi, 1958; Herzberg, Mausner, Peterson, and Capwell, 1957; Hulin and Smith, 1964; Tyler, 1965) have speculated that if the effects of these sociocultural sex roles were somehow "partialled out" of the situation, many of the differences described above would disappear.

This has direct bearing on the study of sex differences in job satisfaction. Perhaps if the effects of sociocultural sex roles were partialled out of the job situation, any alleged sex differences in job satisfaction would also disappear. Further discussion along these lines will follow a review of the evidence of sex differences in job satisfaction and some of the variables which may underlie these differences.

## CHAPTER III

## SEX DIFFERENCES IN JOB SATISFACTION

Review of the Relevant Literature

Differences in morale between men and women employed in industry, business, and the professions are of growing importance in a country in which women make up an increasingly large proportion of the working population. However, the studies comparing men and women in job satisfaction do not lead to any simple conclusions about such differences (Herzberg, Mausner, Peterson, and Capwell, 1957, p. 13).

Herzberg, et al. (1957) reached the above conclusion by reviewing twenty-one studies dealing with this problem. Women were found to be more satisfied than men in six of these studies, men were more satisfied in three studies, and five studies reported no sex differences in job satisfaction (the remainder of the studies did not directly compare the sexes in terms of job satisfaction).

Most of the studies reviewed by Herzberg, et al. (1957) presented conclusions drawn from "...a rough overall comparison between men and women workers to whom a job attitude questionnaire was administered" (Herzberg, et al., 1957, p. 14). For example, based on such survey research, Bengé (1944), Habbe (1947), and Stockford and Kunze (1950) reported that women like their jobs more than do men, while

Cole (1940) presented data indicating that women are more critical of their jobs and of the managements of their companies than are men. Kolstad (1938) found no significant sex differences in job satisfaction in his study of 1400 department store employees.

From a different line of research, Blood, Harwood, and Vernon (1942), in a study of the psychological problems of adjusting to the rather severe wartime working conditions which existed in Great Britain during World War II, reported that women exhibited more serious psychological maladjustment than did their male counterparts. Also, Peck (1936) reported that women school teachers were more poorly adjusted to their jobs than were men; yet Chase (1951) described women school teachers as being higher in job satisfaction than were men.

Noting the inconsistencies found in the existing literature concerning sex differences in job satisfaction, Hulin and Smith (1964) analyzed data gathered from 295 male workers and 163 female workers in four different plants with respect to differences in mean job satisfaction. They used the Job Descriptive Index (Smith, Kendall, and Hulin, 1969; to be described in greater detail below) as their measure of job satisfaction; thus, in addition to a measure of overall job satisfaction, Hulin and Smith were able to obtain measures of satisfaction with five facets of the job

situation (work, pay, promotions, supervision, and coworkers) from each of their subjects. Their data summary table is reproduced as Table 1.

As indicated by the data summarized in Table 1, Hulin and Smith (1964) found that in three of the four plants, female workers were significantly less satisfied with their overall job situation than were male workers. With regard to the facet satisfaction scores, it was found that females were slightly more satisfied with their pay than were males, but were less satisfied than were males with the other four facets (work, promotions, supervision, and coworkers). Furthermore, in three of the four plants the females were more dissatisfied (relative to the males) with their promotional opportunities than with any other facet of their job situation.

However, Hulin and Smith (1964) do not hold that these differences are due to sex per se:

...we do not maintain that sex per se is the crucial factor which leads to either high or low satisfaction. It is, rather, the entire constellation of variables which consistently covary with sex; for example, pay, job level, promotion opportunities, societal norms, etc., that is likely causing the differences in job satisfaction. It is also likely that if these variables were held constant or if their effects were partialled out, the differences in job satisfaction would have disappeared.

This study was intended primarily to establish the actual facts of the situation and not to offer an explanation. In the industrial setting these factors are not controlled or

Table 1. Summary of the Hulin and Smith (1964) Data\*

Company	Area of Job Satisfaction					p
	Work	Pay	Promotions	Supervision	Coworkers	
I, Plant A	.88	1.28	8.64	5.08	5.10	<.05
I, Plant B	-1.88	-3.28	2.92	.14	-1.18	ns
II	2.80	-.48	4.91	1.10	6.37	<.05
III	.00	-2.00	6.72	2.37	1.86	<.05

\* The figures are mean differences. Scores in the positive direction indicate greater male satisfaction; those in the negative direction indicate greater female satisfaction.

Source: Hulin, C. L., & Smith, P. C. Sex differences in job satisfaction. Journal of Applied Psychology, 1964, 48, 88-92.

held constant and they do covary with sex. In each of the four samples the women were receiving less pay and were working on lower level jobs than the men, and in three of the samples the women were less satisfied than the men. The fact is that a large (and increasing) percentage of our work force is working under the handicap of relative dissatisfaction (Hulin and Smith, 1964, p. 91).

While there have been no studies which directly test Hulin and Smith's (1964) hypothesis concerning the actual determinants of observed sex differences in job satisfaction, additional evidence has been presented which substantiates their assessment of the facts of the situation. For example, Wild (1970) published evidence collected from 2159 female workers and 236 female ex-workers associated with several British electronics firms which indicated that much of their reported job dissatisfaction could be attributed to factors directly associated with their low-level jobs.

In a factor analytic study, Ronan and Marks (1973) compared the components of job satisfaction for five groups of employees of a major manufacturing firm: Management (n=1146), Salaried Males (n=3144), Hourly Males (n=4483), Salaried Females (n=105), and Hourly Females (n=979). While they found different dimensions of job satisfaction among the five groups, Ronan and Marks also found that the obtained factor structure matrices did not tend to stabilize over cross-validation. In discussing their conclusions, Ronan and Marks suggested that the failure to replicate the

original factor structure matrices during cross-validation was due to the fact that there were large intra-group differences in such variables as job level and several of the demographic variables. They recommended that future research in inter-group differences in job satisfaction take these potential covariates into account.

Smith, Kendall, and Hulin (1969) published normative information for the Job Descriptive Index based on data collected from samples of 1971 males and 638 females pooled across 21 plants. By examining the group means and standard deviations reported by Smith, Kendall and Hulin for male and female employees (displayed in Table 2), the present author found that females were significantly less satisfied with their pay, promotions, and coworkers than were males, while there were no significant differences in satisfaction with work or supervision (simple t-tests for groups of unequal sizes, familywise error rate of  $\alpha = .05$ ). Again, as reported by Hulin and Smith (1964), satisfaction with promotional opportunities was the area of greatest discrepancy between males and females. However, it must be noted that covarying factors were again ignored. The Hulin and Smith (1964) hypothesis that sex differences in job satisfaction are due to covarying factors, rather than sex per se, as yet remains untested.

The Women's Liberation Movement, spearheaded in the

Table 2. Differences in Male and Female Mean Scores for the Five Dimensions of Satisfaction Measured by the Job Descriptive Index\*

Scale	Males			Females			$\bar{X}_m - \bar{X}_f$	t
	N	$\bar{X}_m$	$S_m$	N	$\bar{X}_f$	$S_f$		
Work	1971	36.57	10.54	638	35.74	9.88	.83	1.76
Pay	1966	29.90	14.53	635	27.90	13.65	2.00	3.08**
Promotions	1945	22.06	15.77	634	17.77	13.38	4.29	6.13**
Supervision	1951	41.10	10.58	636	41.13	10.05	-.03	.04
Coworkers	1928	43.49	10.02	636	42.09	10.51	1.40	2.98**

\* The figures for the N,  $\bar{X}$ , and S columns were taken from Smith, P. C., Kendall, L. M., & Hulin, C. L. The measurement of satisfaction in work and retirement. Chicago: Rand McNally, 1969.

\*\* Statistically significant with a familywise error rate of  $\alpha = .05$ .

Key: N = sample size  
 $\bar{X}_m$  = male sample mean  
 $\bar{X}_f$  = female sample mean  
 $S_m$  = male sample standard deviation  
 $S_f$  = female sample standard deviation  
t = the t statistic

literature by Beauvoir (1964), Friedan (1963), Greer (1970), and Morgan (1972), has pointed out the importance of the issue of sex differences in job satisfaction. One facet of the philosophy of this movement, as chronicled by such authors and editors as Adelstein and Pival (1972), Altbach (1971), Bird and Briller (1968), Bullough and Bullough (1973), Morgan (1970), Rossi (1973), and Sehnier (1972), is that women should have the opportunity to develop and utilize their potential to the same extent as do men, and that women should be compensated for their activities and efforts on a basis equal to that of men. That this is not the present case is adequately supported by findings such as those reported by Levitin, Quinn, and Staines (1971). Their study of 351 female and 695 male American workers suggests that females are discriminated against in terms of job reward. For example:

The mean difference between men and women in observed incomes, without the imposition of controls, was  $-\$4,372$ . Only  $-\$914$  of this difference could be attributed to the achievement factors measured. The remaining  $-\$3,458$  represented, in part at least, a disparity caused by illegitimate or discriminatory factors (Levitin, Quinn, and Staines, 1971, pp. 251-252).

These findings might lead one to expect women to be consistently less satisfied with their jobs than are their male counterparts. However, Quinn, Staines, and McCullough (1974) present recent evidence to the contrary. After re-

viewing the findings of five sophisticated national surveys conducted between 1962 and 1973 (National Opinion Research Center, 1962; Survey Research Center, University of California, 1964; Survey Research Center, University of Michigan, 1969, 1971, 1973), they concluded that:

Where sex differences in job satisfaction have occurred they were slight, and only intermittently were they statistically significant. The differences changed from year to year and from survey to survey according to no obvious pattern that can be explained historically (e.g., in terms of women becoming progressively more dissatisfied with their jobs) or in terms of methodological differences among the surveys reviewed (Quinn, Staines, and McCullough, 1974, p. 11).

The conclusions drawn by Quinn, Staines, and McCullough (1974) are quite similar to those of Herzberg, Mausner, Snyderman, and Capwell (1957) cited at the beginning of this chapter. This indicates that despite the considerable attention focused on the question of sex differences in job satisfaction during the past two decades, it has not been resolved. On a more optimistic note, it does appear that sex differences in job satisfaction may be due, at least in part, to the effects of several variables which underlie the sex-job satisfaction relationship. In order to better understand this relationship, the effects of these variables should be "partialled out" of the situation. Several such variables are presented below with brief summaries

of the literature concerning their effects on job satisfaction.

### Potential Underlying Variables

#### Job Level

Herzberg, Mausner, Peterson, and Capwell (1957) report that seventeen of the eighteen studies which they reviewed concerning the job level-satisfaction relationship (including those by Centers, 1948; Katz, 1949; and Mann, 1953) found a positive relationship between job level and job satisfaction. This finding has been further substantiated in studies of industrial (Hulin and Smith, 1965; Porter, 1961, 1962), military (McDonald and Gunderson, 1974; Mitchell, 1970; Porter and Mitchell, 1967), and government (Rhinehart, et al., 1969) employees.

#### Pay Level

Pay level also appears to be directly related to job satisfaction (Centers and Cantril, 1946; Hulin and Smith, 1965; Organt, 1970; Schwartz, Ronan, and Day, 1973); although perceived pay discrepancies, rather than actual salary amounts, are believed to be the crucial determinants of satisfaction (Herzberg, et al., 1957; Hulin and Smith, 1965; Lawler, 1973).

#### Level of Education

While the specific nature of the effects of level of education on measures of job satisfaction remains undeter-

mined (Herzberg, et al., 1957), several studies (Centers and Cantril, 1946; Mann, 1953; McDonald and Gunderson, 1974; Mossin, 1949; Neilson, 1951; Quinn, Staines, and McCullough, 1974; Schwartz, Ronan, and Day, 1973) have shown that level of education has some effect on measures of job satisfaction; therefore, the effects of this variable should be controlled in a detailed examination of the sex-job satisfaction relationship.

### Age

On the basis of the evidence presented in the 23 studies (including those by Bengtson and Copell, 1947; Bernberg, 1954; Hull and Kolstad, 1942; and Super, 1941) reviewed by Herzberg, et al. (1957), it appears that age may bear a U-shaped relationship to job satisfaction, with the point of inflection occurring between 20 and 24 years of age. More recent studies (Hulin and Smith, 1965; McDonald and Gunderson, 1974; Quinn, Staines, and McCullough, 1974; Schwartz, Ronan, and Day, 1973) report a direct relationship between age and measures of overall job satisfaction.

### Tenure in the Organization

Job satisfaction is negatively related to turnover. The corollary that job satisfaction and tenure in the organization are directly related has received strong support from Hulin and Smith (1965) and Kolstad (1938), and at least partial support from Schwartz, Ronan, and Day (1973)

and the seventeen studies reviewed by Herzberg, et al. (1957).

#### Tenure in Present Position

Hulin and Smith (1965) found that tenure in present position, which may be viewed as an indicator of elapsed time since last promotion, was found to be negatively related to overall job satisfaction. Since this variable, in combination with job level, accounts for much of the variance in salary level in most organizations, it should be held constant in an examination of the sex-job satisfaction relationship.

#### Interaction Terms

Kirk (1968, p. 554) states: "Two treatments (variables) are said to interact if scores obtained under levels of one treatment behave differently under different levels of the other treatment." From this statement, one may conceptualize an interaction term as a representation of the effect of two variables taken in combination.

Lawler's (1973) model of job facet satisfaction, as described in Chapter I, includes several interaction terms. The model, based in part on one of the tenets of Adams' (1963, 1965) equity theory, predicts that perceived personal inputs and perceived job characteristics may combine interactively to influence job satisfaction. Schwartz, Ronan, and Day (1973) provide a partial confirmation of this

theory by demonstrating that several such interaction terms do significantly affect measures of job satisfaction.

From the arguments presented above, it appears that a detailed examination of the sex-job satisfaction relationship should take into consideration such personal input x job characteristic cross-product (interaction) terms as: level of education x job level; level of education x pay level; age x job level; age x pay level; tenure in the organization x job level; tenure in the organization x pay level; tenure in present position x job level; and tenure in present position x pay level.

## CHAPTER IV

### STATEMENT OF THE PROBLEM

#### General Thesis Statement

Sex differences in job satisfaction have clearly been observed in a number of the studies reviewed in Chapter III. Several investigators (most notably Hulin and Smith, 1964) have indicated that sex differences in job satisfaction, as with other psychological variables, may be due to factors which covary with sex, rather than to sex per se. Since no published studies have been found in which this hypothesis (as it relates to sex differences in job satisfaction) has been tested directly, it appears to be an appropriate topic for investigation. Thus, the general thesis to be examined in this study is:

Observed sex differences in job satisfaction are not due to the influence of sex per se; rather, they may be attributed to the effects of several variables which covary with sex.

#### Testable Hypotheses

While it is impossible to control elusive covariates of sex such as societal norms and expectations, several of the effects of these variables (such as pay level, level of education, and the other potential underlying variables

described in Chapter III) can be controlled. Therefore, in order to examine the efficacy of the general thesis statement, the following hypotheses (stated in null form) were tested under two conditions.

- H<sub>1</sub>: There are no sex differences in overall job satisfaction.
- H<sub>2</sub>: There are no sex differences in satisfaction with pay.
- H<sub>3</sub>: There are no sex differences in satisfaction with promotion policies.
- H<sub>4</sub>: There are no sex differences in satisfaction with coworkers.
- H<sub>5</sub>: There are no sex differences in satisfaction with immediate supervision.
- H<sub>6</sub>: There are no sex differences in satisfaction with the work itself.

In the first condition, null hypothesis H<sub>1</sub> was tested (using a multivariate model) ignoring the effects of any covariate variables. Null hypotheses H<sub>2</sub> through H<sub>6</sub> were tested (using univariate models) in an attempt to define the nature of any observed sex differences in overall job satisfaction. Since Condition I in effect replicated the Hulin and Smith (1964) study, sex differences in satisfaction with several job facets were expected to be observed under this condition.

In the second condition, satisfaction scores were adjusted to control for the effects of the following potential covariate variables: paygrade, education, age, tenure in the organization, tenure in present position, education

x paygrade, age x paygrade, tenure in the organization x paygrade, and tenure in present position x paygrade. Null hypotheses  $H_1$  through  $H_6$  were retested using these adjusted satisfaction scores. Assuming the general thesis statement to be correct, any sex differences observed under Condition I would be expected to disappear under Condition II. The schema presented in Figure 2 is intended to summarize and clarify the study design.

Note that the covariates controlled in Condition II correspond to the potential underlying variables described in Chapter III with the exception of paygrade level and its associated interaction terms. In the organization examined in this study, each job has been evaluated and assigned a specified paygrade level by the Merit System of the State of Georgia. While tenure does have an effect on actual salary amounts within each paygrade (since it determines the salary step within the paygrade), and while the paygrades overlap to some extent, paygrade appears to be an excellent numerical indicator of both job level and pay level. The single variable "paygrade level" is therefore used in place of the two variables "pay level" and "job level."

Condition	Independent Variable	Controlled Covariates	Dependent Variables
One (Analysis of Variance)	Sex	None	(1) Overall Job Satisfaction* (2) Satisfaction With Pay (3) " " Promotions (4) " " Coworkers (5) " " Supervisor (6) " " Work
Two (Analysis of Covariance)	Sex	(1) Paygrade (P) (2) Education (E) (3) Age (A) (4) Tenure in Organization ( $T_0$ ) (5) Tenure in Present Position ( $T_p$ ) (6) P x E (7) P x A (8) P x $T_0$ (9) P x $T_p$	(1) Overall Job Satisfaction* (2) Satisfaction With Pay (3) " " Promotions (4) " " Coworkers (5) " " Supervisor (6) " " Work

Figure 2. Schema of the Design

\* A weighted linear combination of the five facet satisfaction scores. This variable was tested using a multivariate design.

## CHAPTER V

### METHOD OF INVESTIGATION

#### Description of the Survey Questionnaire

The questionnaire used to collect the information necessary to test the hypotheses described in Chapter IV is presented as Appendix B. This questionnaire consists of three parts: (1) a biographical information blank; (2) the Job Descriptive Index (Smith, Kendall, and Hulin, 1969), a multidimensional measure of job satisfaction; and (3) an attitude survey constructed by the author in cooperation with personnel from the organization surveyed. Since the information collected in Part Three is not relevant to this thesis, the attitude survey will not be further discussed.

#### Biographical Information Blank

The biographical information blank contains items pertaining to sex, the independent variable, as well as to four of the covariate variables: level of education, tenure in the organization, paygrade classification, and tenure in present position.

#### Job Descriptive Index

Satisfactions with five facets of the job situation-- pay, promotions, coworkers, supervisor, and work--are measured through the use of the Job Descriptive Index (JDI), an

instrument which resulted from a series of studies of job satisfaction carried out at Cornell University (Hulin, 1961; Hulin, Smith, Kendall, and Locke, 1963; Kendall, 1961; Kendall, Smith, Hulin, and Locke, 1963; Locke, 1961; Locke, Smith, and Hulin, 1963; Macaulay, 1961; Macaulay, Smith, Locke, Kendall, and Hulin, 1963; Smith, 1961, 1963; Smith and Kendall, 1963). The JDI has been described as

...an adjective check list on which each worker is asked to describe several aspects of his job by means of a "yes", "?", or "no" response to each of the adjectives. The aspects of the job which the workers describe are their work, their pay, their opportunities for promotion, their supervision, and the people with whom they work (Hulin and Smith, 1964, p. 89).

Hulin and Smith (1964) indicate that the areas or aspects of the job measured by the JDI were chosen so as to be consistent with a number of factor analytic studies of the dimensions of job satisfaction (Ash, 1954; Austin, 1958; Baehr, 1954, 1956; Baehr and Renck, 1958; Gordon, 1955; Harrison, 1960, 1961; Twery, Schmid, and Wrigley, 1958; Wherry, 1954, 1958).

The JDI has been recommended as a standardized instrument for use in studies of job satisfaction by Price (1972) and Lawler (1973), as well as by Vroom (1964), who states that the JDI "...is without doubt the most carefully constructed measure of satisfaction in existence today"

(p. 100). Quinn and Kahn (1967, p. 456) made the following statement with regard to the JDI:

The attention to psychometric canons paid by the Cornell researchers in their development of a job satisfaction measure is to date unrivalled in the history of instrument development in organizational psychology. Their resultant Job Descriptive Index measures job satisfaction in five subscales: work, pay, promotions, supervision, and people. The Index has survived the tests of convergent and discriminant validities, internal consistency, and response sets.

Summaries of numerous studies attesting to the validity of the JDI as a measure of satisfaction, as well as scoring procedures and tables of normative data for the five facet satisfaction subscales, are presented by Smith, Kendall, and Hulin (1969).

One minor change in the content of the instrument has been made to facilitate its use in this study. The descriptor "satisfactory profit sharing" under the heading "pay" has been replaced with "satisfactory retirement plan," since the organization under consideration is a non-profit department of state government.

### Subjects

Four hundred and eighty Atlanta-based employees of a department of the Georgia State Government served as subjects in this study. The subjects represent all ten of the department's operating units and range in terms of job level

from the lowest level clerical positions to top management. The sample includes 154 males (32%) and 326 females (68%). Descriptive statistics of the subject sample are presented in Tables 3 and 4.

Although 560 persons were actually surveyed, 80 questionnaires (14%) were incorrectly and/or incompletely filled out. These unusable questionnaires were discarded, yielding a total usable sample of 480 questionnaires.

#### Procedure

Several days prior to the actual administration of the survey questionnaire, the commissioner of the department sent a letter to each of his Atlanta-based employees (see Appendix A). This letter described the nature and purpose of the survey, and assured each individual that his (her) anonymity would be preserved.

The questionnaires were administered by eight representatives of the department's personnel office (with the assistance of the experimenter) in the following manner. A representative approached a small work group (two to ten employees), introduced the questionnaire, reassured the employees of their anonymity, and distributed the questionnaires. Twenty to thirty minutes later, he returned and collected the completed questionnaires. No employees were forced to complete the questionnaire, yet only a handful declined to participate in the survey.

Table 3. Descriptive Statistics of the Subject Sample

Variable	Males (N=154)		Females (N=326)		Total (N=480)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	39.25	13.83	34.71	13.87	36.17	14.00
Years of Education	14.48	2.19	12.27	1.29	12.98	1.93
Tenure in Organization*	7.32	6.93	6.00	7.01	6.43	7.00
Tenure in Position*	2.34	2.87	2.20	3.01	2.25	2.96
Paygrade Level	8.32	3.06	4.24	1.98	5.55	3.05

\* In years.

Table 4. Sample Paygrade Frequency  
and Percentage Distributions

Paygrade Category	Males		Females		Total Sample	
	Frequency	%	Frequency	%	Frequency	%
1	3	2	31	10	34	7
2	1	1	11	3	12	2
3	15	10	85	26	100	21
4	3	2	77	24	80	17
5	1	1	43	13	44	9
6	10	6	37	11	47	10
7	26	17	26	8	52	11
8	20	13	4	1	24	5
9	18	12	7	2	25	5
10	21	14	3	1	24	5
11	9	6	1	0	10	2
12	10	6	1	0	11	2
13	17	11	0	0	17	4
Total	154	101*	326	99*	480	100

\* These totals vary slightly from 100% due to rounding errors.

Working in this manner, the survey team administered approximately 500 questionnaires in a single morning. The remaining questionnaires were collected during the two days following the initial administration. The questionnaires were then turned over the experimenter, who scored them and prepared them for analysis. Scores for the five facets of satisfaction measured by the JDI were obtained using the method described by Smith, Kendall, and Hulin (1969, pp. 82-85). Biographical information scores were taken directly from the questionnaire (see Appendix B).

## CHAPTER VI

## ANALYTICAL RESULTS

Preliminary Analyses and Manipulations

Group means and standard deviations were calculated for each of the five covariate variables (age, education, tenure in the organization, paygrade classification, and tenure in present position) and five dependent variables (satisfactions with pay, promotions, coworkers, supervision, and work) measured directly by the survey questionnaire. These statistics are displayed in Table 5. The satisfaction scores contained in Table 5 are, with slight modification in the cases of satisfactions with pay and promotions, directly comparable to the "normative" satisfaction scores reported by Smith, Kendall, and Hulin (1969) displayed in Table 2. Implications of such a comparison are considered in the following chapter.

Construction of the Cross-Product Scores

Scores for each of the ten variables mentioned above were transformed to deviate form by subtracting the total sample mean from each subject's score. These deviate-form scores were used in all subsequent phases of the analysis.

Following the procedure recommended by Draper and Smith (1966), each subject's score for each of the cross-

Table 5. Group Means and Standard Deviations for the Variables Measured  
Directly by the Survey Questionnaire (Raw Scores)<sup>1</sup>

Variable Name	Males (n=154)		Females (n=326)		Total Sample (n=480)	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Age <sup>2</sup>	39.25	13.83	34.71	13.87	36.17	14.00
Education <sup>2</sup>	14.48	2.19	12.27	1.29	12.98	1.93
Tenure in Organization <sup>2</sup>	7.32	6.93	6.00	7.01	6.43	7.00
Paygrade Classification	8.32	3.06	4.24	1.98	5.55	3.05
Tenure in Present Position <sup>2</sup>	2.34	2.87	2.20	3.01	2.25	2.96
Satisfaction with Pay <sup>3</sup>	9.47	7.12	9.90	6.42	9.76	6.65
Satisfaction with Promotions <sup>3</sup>	11.37	8.40	8.90	7.90	9.69	8.14
Satisfaction with Coworkers	39.49	12.19	37.93	12.37	38.43	12.32
Satisfaction with Supervision	42.06	11.29	39.41	11.88	40.26	11.75
Satisfaction with Work	33.75	13.58	30.67	11.41	31.66	12.22

<sup>1</sup> The biographical data scores were taken directly from the questionnaire. The facet satisfaction scores were obtained using the method described by Smith, Kendall, and Hulin (1969, pp. 82-85).

<sup>2</sup> In years.

<sup>3</sup> These figures must be doubled to make them comparable to those reported in Table 2.

product covariate variables (i.e., education x paygrade, age x paygrade, tenure in the organization x paygrade, and tenure in present position x paygrade) was constructed by taking the product of the two relevant deviate-form variable scores. For example, Subject A's score for education x paygrade would be constructed by multiplying his education score (expressed in deviate form) by his paygrade score (also expressed in deviate form).

#### Intercorrelations of the Dependent Variables

Smith, Kendall, and Hulin (1969) indicate that although the JDI was constructed to measure five independent dimensions of job satisfaction, the resulting scales were found to be somewhat intercorrelated. For this reason, Hulin and Smith (1964) chose to carry out a multivariate test of intergroup differences, rather than five univariate tests, when assessing sex differences in job satisfaction as measured by the JDI. In order to determine the necessity of employing a multivariate test in this study, the correlations among the five dependent variables were calculated. The table of intercorrelations displayed in Table 6 indicates that there is indeed reason to believe that the five measures of satisfaction are non-independent. An examination of the critical values for correlation coefficients tabled by Guilford (1956) indicates that all of the intercorrelations are significant at  $\alpha = .01$ . Thus, a multi-

Table 6. Intercorrelations of JDI Satisfaction Scales\*

Satisfaction Scale	Pay	Promotions	Coworkers	Supervision	Work
Pay	1.000				
Promotions	.449	1.000			
Coworkers	.214	.287	1.000		
Supervision	.183	.358	.501	1.000	
Work	.287	.380	.402	.448	1.000

\* All correlations significant at  $\alpha = .01$  (n=480).

variate design must be employed to test the hypotheses presented in Chapter IV.

### Tests of Hypotheses

#### Method of Testing

Since the five dependent variables were found to be intercorrelated, the hypotheses presented in Chapter IV were testing using a nonorthogonal one-way multiple analysis of variance (covariance) design (Anderson, 1958; Cooley and Lohnes, 1962; Fryer, 1966; Morrison, 1967; Overall and Klett, 1972; Tatsuoka, 1971; Van de Geer, 1971). Cramer's (1967, 1973) MANOVA program was used to perform the analysis on the Univac 1108 computer. This program, which has been demonstrated to be quite effective for use with nonorthogonal multiple analysis of variance designs (Appelbaum and Cramer, 1973; Cramer, 1973), employs Wilks' lambda criterion to perform the overall test of significance, with Rao's method used to approximate the F test (Cramer, 1973). In addition to a test of overall significance, the MANOVA program also provides a wealth of other information regarding relationships among the variables, including univariate tests of each dependent variable. The results of these univariate tests can be employed to interpret the results of the overall test of significance.

Two multivariate analyses were performed using MANOVA; these correspond to the two cases described in Chap-

ter IV. In the first analysis (multiple analysis of variance) sex differences in overall job satisfaction were tested using unadjusted satisfaction scores. In the second analysis (multiple analysis of covariance) sex differences in overall job satisfaction were tested using satisfaction scores which were adjusted to account for the effects of the nine covariate variables (age, education, tenure in the organization, paygrade classification, tenure in present position, age x paygrade, education x paygrade, tenure in the organization x paygrade, and tenure in present position x paygrade). Overall significance was tested at  $\alpha = .05$ .

The univariate tests employed to explore the nature of the differences in overall job satisfaction were treated as a family of hypotheses. Thus,  $\alpha = .01$  was chosen as the level of significance for the five univariate tests in each of the two families. Results of the two multivariate and ten univariate analyses are summarized below. The entire MANOVA printout is contained in Appendix C.

#### Case I--Analysis of Variance (Covariate Variables Ignored)

Male and female mean scores on the five satisfaction scales (expressed in deviate form) are displayed in Table 7, as are the sex differences in these mean scores. An examination of Table 7 reveals that males appear to be more satisfied with four facets of the job situation--promotions,

Table 7. Unadjusted Male and Female Mean Scores  
on the Five Satisfaction Scales (Deviate Scores)\*

Satisfaction Scale	Male Mean ( $\bar{X}_m$ )	Female Mean ( $\bar{X}_f$ )	Difference ( $\bar{X}_m - \bar{X}_f$ )
Pay	-.291	.137	-.428
Promotions	1.681	-.794	2.475
Coworkers	1.062	-.502	1.564
Supervision	1.800	-.850	2.650
Work	2.091	-.987	3.078

\* Deviate scores equal individuals' raw scores minus total sample mean raw scores.

coworkers, supervision, and work--while females appear to be more satisfied with pay.

Table 8 summarizes the results of the significance tests of the six hypotheses. Using the previously established criterion of  $\alpha = .05$ , null hypothesis  $H_1$  was rejected. Thus, given the situation as it stands (e.g., ignoring the effects of the nine covariate variables), males are significantly more satisfied with their overall job situation than are females in the organization studied. The univariate tests, employing the previously established criterion of  $\alpha = .01$ , indicate that null hypotheses  $H_3$  and  $H_6$  should be rejected, while null hypotheses  $H_2$ ,  $H_4$ , and  $H_5$  should not be rejected. Thus, it appears that the sex difference in overall satisfaction can be attributed mainly to the fact that, given the situation as it stands, the males are significantly more satisfied with their promotion opportunities and the nature of their work than are the females. The sex difference in satisfaction with supervision was not deemed significant given the stringent  $\alpha = .01$  criterion; however, this facet may have also contributed to the males' greater satisfaction with the overall job situation.

#### Case II--Analyses of Covariance (Covariate Variables Controlled)

Table 9 reflects the changes in male and female mean satisfaction scores, and the differences between the means,

Table 8. Multivariate and Univariate Tests of Hypotheses in Condition I  
(Unadjusted for Covariates)

Hypothesis	Satisfaction Variable	Test	Degrees of Freedom	F	P Less Than
H <sub>1</sub>	Overall	Multivariate F*	5; 474	3.810	.002**
H <sub>2</sub>	Pay	Univariate F	1; 478	.433	.511
H <sub>3</sub>	Promotions	Univariate F	1; 478	9.846	.002**
H <sub>4</sub>	Coworkers	Univariate F	1; 478	1.688	.194
H <sub>5</sub>	Supervision	Univariate F	1; 478	5.371	.021
H <sub>6</sub>	Work	Univariate F	1; 478	6.719	.010**

\* Test of significance using Wilks' lambda criterion.

\*\* Null hypothesis rejected.

Table 9. Adjusted Male and Female Mean Scores  
on the Five Satisfaction Scales (Deviate Scores)\*

Satisfaction Scale	Male Mean ( $\bar{X}_m$ )	Female Mean ( $\bar{X}_f$ )	Difference ( $\bar{X}_m - \bar{X}_f$ )
Pay	-2.147	1.014	-3.161
Promotions	.704	-.333	1.037
Coworkers	1.077	-.509	1.586
Supervision	1.345	-.635	1.980
Work	-1.312	.620	-1.932

\* Deviate scores equal individuals' raw scores minus total sample mean raw scores.

which result when the scores are adjusted for the effects of the nine covariate variables. One major change is that females now appear more satisfied with their work than do males. Also, the sex difference in satisfaction with pay has been greatly increased in magnitude; now the females appear much more satisfied with their pay than do the males.

The significance tests of the six hypotheses in Condition II are summarized in Table 10. Null hypothesis  $H_1$  must be rejected given the criterion of  $\alpha = .05$ . Null hypothesis  $H_2$  must also be rejected at  $\alpha = .01$ , while null hypotheses  $H_3$  through  $H_6$  are not rejected. Thus, when the effects of the nine covariate variables are taken into account, the females are found to be more satisfied with their overall job situation than are the males. This difference in overall satisfaction appears to be directly attributable to the higher female satisfaction with pay.

#### Evaluation of the General Thesis Statement

The general thesis statement presented in Chapter IV predicted that any sex differences in job satisfaction observed in Condition I would disappear in Condition II. This is so because the nine covariate variables, rather than sex per se, were believed to be the actual determinants of these observed differences. The results summarized above do not completely validate this prediction. While the sex differences in satisfaction with promotions and work observed

Table 10. Multivariate and Univariate Tests of Hypotheses in Condition II  
(Adjusted for Nine Covariates)

Hypothesis	Satisfaction Variable	Test	Degrees of Freedom	F	P Less Than
H <sub>1</sub>	Overall	Multivariate F*	5; 465	5.460	.001**
H <sub>2</sub>	Pay	Univariate F	1; 469	13.600	.001**
H <sub>3</sub>	Promotions	Univariate F	1; 469	.945	.332
H <sub>4</sub>	Coworkers	Univariate F	1; 469	.913	.340
H <sub>5</sub>	Supervision	Univariate F	1; 469	1.560	.212
H <sub>6</sub>	Work	Univariate F	1; 469	1.627	.203

\* Test of significance using Wilks' lambda criterion.

\*\* Null hypothesis rejected.

in Condition I did indeed disappear in Condition II, sex differences in overall job satisfaction were observed in both conditions.

Perhaps the most interesting observation revealed by a comparison of the two analyses is that the direction of the difference in overall job satisfaction is reversed in the two conditions. In Condition I, males are more satisfied, while in Condition II, females are more satisfied. An examination of the univariate analyses in the two conditions allows further interpretation of this reversal. The males' significantly greater satisfaction with their promotions and work "washed out" when the effects of the nine covariate variables were controlled. Concurrently, the previously non-significant sex difference in satisfaction with pay was magnified when the covariates were controlled, with the result that the females were found to be significantly more satisfied with their pay. Thus, by controlling for the nine covariates, sex differences observed in Condition I disappeared in Condition II, while a previously unobserved difference appeared. Implications of this finding are treated in detail in the following chapter.

#### Magnitude of the Sex Differences in Overall Job Satisfaction

While the sex differences in overall job satisfaction were significant at the .01 level of confidence in both con-

ditions, the multiple correlations for the two models indicate that sex does not account for a major portion of the variance in satisfaction scores in either condition. The multiple correlation coefficients were .197 and .235 for Conditions I and II respectively. This indicates that sex accounted for 3.9% and 5.5% of the variance respectively in the two conditions. This finding seems to indicate that sex is not a major predictor of overall job satisfaction in the organization under study.

#### Sex Differences in the Covariate Variables

The figures displayed in Table 5 indicate that the male subjects tend to be older, better educated, more experienced (in both organization and position within organization), and employed at higher levels than are the female subjects. These sex differences were also examined using multivariate and univariate analyses of variance, with the covariates of Condition II serving as the dependent variables in a third set of analyses (see Appendix C). In this case,  $\alpha = .05$  was established as the criterion of statistical significance for the multivariate test, while  $\alpha = .005$  was the criterion for each of the nine univariate tests. The results of these tests are summarized in Table 11.

The tests indicate a statistically significant overall sex difference, with males being significantly older and better educated and employed at significantly higher job

Table 11. Multivariate and Univariate Tests of Sex Differences in the  
Variables Employed as Covariates in Condition II

Variable Name	Test	Degrees of Freedom	F	P Less Than
Overall	Multivariate F*	9; 470	49.624	.001**
Age	Univariate F	1; 478	11.235	.001**
Education	Univariate F	1; 478	192.264	.001**
Tenure in Organization	Univariate F	1; 478	3.710	.055
Tenure in Present Position	Univariate F	1; 478	.218	.641
Paygrade Classification	Univariate F	1; 478	306.783	.001**
Age x Paygrade	Univariate F	1; 478	15.152	.001**
Education x Paygrade	Univariate F	1; 478	80.891	.001**
Tenure in Org. x Paygrade	Univariate F	1; 478	8.306	.004**
Tenure in Pres. Pos. x Paygrade	Univariate F	1; 478	.164	.686

\* Test of significance using Wilks' lambda criterion.

\*\* Statistically significant difference using previously established criteria.

levels. Statistically significant sex differences were also found in three of the cross-product variables: age x job level, education x job level, and tenure in the organization x job level. Implications of these subsample differences will be considered in the following chapter.

## CHAPTER VII

## DISCUSSION OF THE FINDINGS

Comparison of Condition I with Past Research

Condition I of the present research may be considered a replication of the Hulin and Smith (1964) study. The procedures (including the questionnaire and statistical techniques employed) were nearly identical in the two cases. Only the samples differed; the earlier data were obtained from industrial workers in the New England and Midwest regions while the present study focused on Southern governmental employees. It is therefore interesting to note that the Hulin and Smith (1964) results (summarized in Table 1) are almost identical with the Condition I results (summarized in Tables 7 and 8). In both instances, female workers were found to be significantly less satisfied with their overall job situation than were male workers. In both cases, with regard to the specific facet satisfaction scores, females were slightly more satisfied with their pay than were males, but were less satisfied than were males with the other four facets (work, promotions, supervision, and coworkers). Furthermore, in both studies, promotional opportunities were concluded to be the facet with which females were least satisfied relative to the males.

The consistency of these findings, obtained from studies of two very different subject samples, lends credence to the conclusions reported by Hulin and Smith (1964). It is apparent that females are less satisfied relative to males with several major facets of the job situation (and thus with the overall job situation) when the covariates of sex are not taken into account.

With minor modifications, the group means and standard deviations presented in Table 5 can be compared with the JDI "normative" scores reported by Smith, Kendall, and Hulin (1969) displayed in Table 2. In essence, the Smith, et al. results, based on data collected from a sample of industrial employees in the Great Lakes region, support the conclusions of the Hulin and Smith (1964) study and Condition I of the present study. Evidence is again presented which indicates that females are generally more dissatisfied with their job situation than are males, with the greatest difference found in satisfaction with promotions. Unlike Hulin and Smith (1964) and Condition I of this study, the Smith, Kendall, and Hulin (1969) data suggest no tendency for females to be more satisfied with pay relative to males.

The comparison of Tables 2 and 5 provides a second major observation. In almost every case, the mean satisfaction scores for the government employees (Table 5) fall below the mean scores for the industrial employees (Table 2).

This comes as no surprise, since both Paine, Carroll, and Leete (1966) and Rhinehart, et al. (1969) report findings which indicate that government employees are generally less satisfied with their jobs than are their industrial counterparts. It is also recognized that factors other than type of employer (e.g., geographical location, year of study, applicability of the instrument) may influence the differences in the scores displayed in Tables 2 and 5.

The results obtained in Condition I are consistent with those in the extant body of literature. Previous conclusions regarding differences in job satisfaction based on both sex and type of employer (industrial versus government) were supported.

#### Comparison of Condition I with Condition II

The general thesis statement presented in Chapter IV, formulated from the speculations and predictions of a number of previous researchers (most notably Hulin and Smith, 1964) states:

Observed sex differences in job satisfaction are not due to the influence of sex per se; rather, they may be attributed to the effects of several variables which covary with sex.

Comparison of Condition I and II results enables one to evaluate the validity of this thesis statement. The results presented in Chapter VI indicate that the validity of

the statement is still subject to question, since statistically significant sex differences in overall job satisfaction were found in both conditions. However, an examination of the nature of the sex differences in job satisfaction observed in the two conditions leads to the formulation of several interesting issues for discussion. Apparently, when the effects of the nine covariate variables (age, education, tenure in the organization, paygrade classification, tenure in present position, age x paygrade, education x paygrade, tenure in the organization x paygrade, and tenure in present position x paygrade) are controlled, two concurrent changes in the analytical results are realized. First, the statistically significant tendencies for males to be more satisfied with promotions and work observed in Condition I are "washed out" in Condition II. Second, the non-significant tendency for women to be more satisfied with pay observed in Condition I becomes statistically significant in Condition II. Both of these interesting changes deserve explanation.

#### Satisfactions with Promotions and Work

Statistically significant sex differences in satisfactions with promotions and work observed in Condition I were not observed in Condition II. This change is entirely consistent with the prediction based on the general thesis statement and can be explained in terms of that statement. Observed sex differences in promotions and work in this

study are apparently not due to the effects of sex per se, but may be attributed to the effects of the nine covariates of sex controlled in the study. The implication is that if the two sexes were equated on the nine covariate variables in the natural setting (the "real world"), then there would be no sex differences in satisfaction with promotions and work.

Tables 5 and 11 indicate that, in the subject sample examined in this study, the males are significantly older and better educated and are employed at significantly higher levels than are the females. Based on the results of this study, one would expect to find women less satisfied than men with several facets of the job situation in those organizations where the sexes are not evenly distributed on the nine covariates. In those organizations in which the sexes are relatively equally distributed on the covariates, such facet satisfaction differences would not be expected. This should, of course, be viewed as an hypothesis to be tested through further research in the natural setting.

#### Satisfaction with Pay

The Condition I analysis revealed a non-significant tendency for the female subjects to be more satisfied than the males with respect to pay. When the effects of the nine covariate variables were partialled out in Condition II, this tendency became statistically significant. This finding is

in direct opposition to the prediction based on the general thesis statement and certainly cannot be explained in terms of that statement. While this interesting finding may be specific to the organization examined, at least two other studies (Hulin and Smith, 1964; Ronan and Organt, 1973) also suggest a tendency for females employed in lower-level jobs to be more satisfied with their pay than are higher placed, better paid males. Although additional research is required to determine the generality of this finding, it is appropriate to speculate regarding the nature of the variable (or set of variables) affecting the sex-pay satisfaction relationship. The literature suggests at least two possible explanations for this relationship. While either, neither, or both of these explanations may actually apply in the present situation, both will be discussed in hopes of stimulating further research.

The first explanation is suggested by Bass and Barrett (1972):

...for many women a job is of secondary importance compared with their family. They are usually not the breadwinner, and their status is less often tied to their roles at work than to their roles at home. Probably to the majority of women, the work they do is not as ego involving as for men (p. 89).

Given this argument, it is reasonable to expect that women, viewing themselves as suppliers of nothing more than

"supplemental" family income, would be satisfied with less pay than would the ego-involved, "breadwinner-oriented" men. This is especially so if women view as their primary purpose of coming to work the formulation of social relationships as opposed to making money. Unfortunately, Bass and Barrett do not present the empirical evidence which led them to make this face-valid statement. Tangential evidence for the Bass and Barrett conclusion is offered by Myers (1964), who found that female employees are more concerned with social relationships on the job while men are more concerned with the task when assessing their overall level of job satisfaction. Also, Brayfield, Wells, and Strate (1957) found job satisfaction to be related to general life satisfaction for males but not for females. Some evidence against the Bass and Barrett (1972) explanation is provided by Crowley, Levitin, and Quinn (1972), who found in a nationwide survey that 41% of the women in their sample provided all or most of their family income.

One indication that this first explanation may be valid in the present situation is that one female clerical employee (score of 8.00 on the pay satisfaction scale; 1.76 points below the total sample mean) wrote on her questionnaire:

My income is used only as a supplyment (sic) to my husband's wages, otherwise I couldn't make it.

However, another female clerk who indicated that her income

"needs supplement" scored 5.00 on the pay satisfaction questionnaire, thus she was clearly dissatisfied with her pay. Also, how this first explanation could apply to pay satisfaction without affecting satisfactions with other facets of the job is not clear.

The second explanation is formulated in terms of expectancy theory. The concept of expectation, as proposed by Tolman (1932) and Lewin (1935), remains a major aspect of several current theories of behavior (Hilgard and Bower, 1975; Hill, 1971; Shaw and Costanzo, 1970). While Lawler (1973) and Locke (1969) deemphasize the importance of expectations as determinants of job satisfaction, Vroom (1964) has based a major theory of satisfaction and motivation on the expectancy approach. The expectancy approach to pay satisfaction would suggest that an individual who expected to be paid very little would be satisfied with low pay, while a second individual expecting much more pay might be dissatisfied, even though in receipt of more pay than the first individual.

If the female employees in this organizational setting do indeed expect less pay than do their male counterparts, then the expectancy approach to pay satisfaction can be employed as a possible explanation for the interesting sex-pay satisfaction relationship uncovered in this study. Unfortunately, little direct evidence is available to substantiate this explanation. Yet Goldberg (1968) and Pheter-

son, Kiesler, and Goldberg (1971) have presented evidence that, under certain circumstances, women judge females to be less competent than they do males of equal ability. Perhaps, then, females expect to be paid less than are males of equal ability and status. Levitin, Quinn, and Staines (1971) indicate that such an expectation would be justified, since women do appear to be discriminated against in terms of pay. Evidence presented by Crowley, Levitin, and Quinn (1972) indicates that this expectation approach may also be used to explain sex differences in attitudes toward promotion.

Much research is required before this second explanation can be accepted. Yet, had expected pay been included in the set of covariate variables controlled in this study, perhaps the significant sex difference in pay satisfaction would not have appeared in the Condition II analysis. One other hypothesis for future research must be injected at this point. If the tendency for females to be more satisfied than males with respect to pay is, indeed, a function of sex differences in pay expectations, then one could predict that as the Women's Liberation Movement gains momentum, women's expectations toward pay will increase and the sex-pay satisfaction relationship found in this study will be diminished.

#### Comment on the Propriety of the Analytical Techniques

Both analysis of variance and analysis of covariance

require that certain data-related assumptions be met. Analysis of variance requires assumptions of normal distribution of errors for each treatment effect, homogeneity of population-error variances, and additivity of effects (Kirk, 1968). Analysis of covariance requires two additional assumptions: homogeneity of population within-group regression coefficients and normally and independently distributed residuals with means equal to zero and common variance (Kirk, 1968). None of these assumptions were tested; means for testing them in the multivariate case are not available and the development of such procedures was clearly beyond the scope of this study. However, Kirk (1968) indicates that both types of analysis are robust with respect to the violation of most of these assumptions. Furthermore, stringent criteria for statistical significance were established in this study to guard against biased results. The conclusions of this study should be accepted, nonetheless, with a degree of skepticism until additional support is obtained through replications of this study.

#### Conclusions and Implications for Theory

The major conclusions of this study with respect to the sex-job satisfaction relationship of the employees surveyed are that:

(1) Observed sex differences in satisfactions with promotions and work can be accounted for by controlling nine covariates of sex (age, education, tenure in the organization, tenure in present position, paygrade classification, age x paygrade, tenure in the organization x paygrade, education x paygrade, and tenure in present position x paygrade); while

(2) Sex differences in pay satisfaction cannot be accounted for in this manner. Other potential underlying variables must be explored before sex per se is rejected as an explanation for the sex-pay satisfaction relationship.

These conclusions have several implications for theories of job satisfaction. They imply that, at least for most job facets, a major theory of facet satisfaction such as the one presented by Lawler (1973) need not include sex in the list of determinants if the underlying variables influencing the sex-facet satisfaction relationship are included. The findings of this thesis research do not support the rejection of sex as a determinant of pay satisfaction. However, if variables such as expected level of pay or the degree to which one is perceived as the primary family "breadwinner" are included in the list of determinants of pay satisfaction, a case for the omission of sex from the list could possibly be made. Perhaps future research will resolve this issue.

This study may also help to clarify some of the confusion found in the job satisfaction literature. As the review in Chapter III indicates, some studies of sex differ-

ences in job satisfaction have concluded that males are more satisfied, some have concluded that females are more satisfied, and some have found no sex differences in satisfaction. The findings of this study indicate that there are a number of variables which modify the sex-job satisfaction relationship. Future researchers of job satisfaction should note sex differences in these underlying variables and interpret their results in light of any such differences. Furthermore, this admonition should probably be applied to any studies of group differences in job satisfaction.

APPENDIX A

THE COMMISSIONER'S LETTER



TRINITY WASHINGTON BUILDING

Department of Revenue  
State of Georgia  
Atlanta 30334

John A. Blackmon  
Commissioner


Dear Employee:

We are vitally concerned with making your job situation in the Department of Revenue a pleasant one. In order to determine how you feel about certain aspects of your job, we have, with the cooperation of a group of organizational research specialists at Georgia Tech, devised a short questionnaire to determine your attitudes toward five aspects of your job. The Personnel Officer or a representative will administer the questionnaire and will turn all of them over to the Georgia Tech research team, who will score them and provide the results to us in terms of group averages. No individuals will be identified, nor will any individual scores be provided to us by the Georgia Tech researchers.

In the first part of the questionnaire, you are requested to provide some general information about yourself. We need this information so that we may make comparisons among groups (for example, male employees versus female employees). In the second part of the questionnaire, you are to provide information concerning your attitudes toward your supervisor, your coworkers, your work itself, your pay, and the Department's promotion policy. In the third part, you are to provide specific information concerning the department, supervision, and working conditions. Again, I wish to emphasize that no attempt will be made to identify any individual employees -- the Georgia Tech researchers will provide us only group information.

Please take a few minutes to fill out the questionnaire and return it to the individual representing the Personnel Office. Be sure to indicate your true attitudes so that we can find out those aspects of your job which need improvement and those with which you are satisfied. Since your anonymity is assured, you can answer this questionnaire honestly without any fear of reprisal from anyone. Thank you very much for cooperating with us in attempting to make the Department of Revenue a more enjoyable place to work.

Very truly yours

  
John A. Blackmon  
Commissioner

APPENDIX B

THE SURVEY QUESTIONNAIRE

## EMPLOYEE ATTITUDE SURVEY

## PART ONE

**Directions:** In this section you are to provide some general information about yourself. This information will be used to make inter-group comparisons only; there will be no attempt to identify any individuals. Do not put your name on this questionnaire.

1. Unit. Circle the one number below which corresponds to the unit in which you work.

1. Administrative Unit
2. Alcohol and Tobacco Tax Unit
3. Central Audit Unit
4. Field Services Unit
5. Income Tax Unit
6. Internal Administration Unit
7. Motor Fuel Unit
8. Motor Vehicle Unit
9. Property Tax Unit
10. Sales and Use Tax Unit

2. Sex. Circle one: M F

3. Age. Write your present age in the blank. \_\_\_\_\_

4. Education. Circle the highest grade you have completed:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Elementary School      High School      College      Graduate School

5. Years of Service. How many years (total) have you worked for the Department of Revenue? (Fill in the blank.) \_\_\_\_\_

6. Job Classification. Put an X in the one blank below which corresponds to your Merit System paygrade classification. See the listing of job titles in each category if you are in doubt about your paygrade level.

\_\_\_\_\_ Category 1 (Paygrade 8)  
Clerk I

\_\_\_\_\_ Category 2 (Paygrade 9)  
Clerk-Typist I, Storekeeper I

\_\_\_\_\_ Category 3 (Paygrade 10)  
Clerk II, Photographic Records Technician I

\_\_\_\_\_ Category 4 (Paygrade 11)  
Clerk III, Clerk-Typist II, Revenue Field Inspector, Secretary II, Stenographer II, Storekeeper II

\_\_\_\_\_ Category 5 (Paygrade 12)  
Accounting Clerk I, Clerk-Typist III, Data Entry Clerk, Key-punch Operator II, Revenue Enforcement Officer I, Secretary III, Stenographer III, Storekeeper III

6. Cont'd.

\_\_\_\_\_ Category 6 (Paygrade 13)  
Accounting Clerk II, Asst. Supv. of Rev. Field Insp., Clerk IV, Property Control Officer I, Revenue Enforcement Officer II, Secretary IV, Statistical Analyst, Tax Field Services Rep. Trainee

\_\_\_\_\_ Category 7 (Paygrade 14)  
Accounting Assistant, Administrative Secretary I, Auditor I, Officer Supervisor I, Revenue Special Agent, Storekeeper IV, Tax Field Services Rep. I

\_\_\_\_\_ Category 8 (Paygrade 15)  
Auditor II, Criminal Investigator, Delinquent Tax Collector I, Revenue District Supv., Supv. of Revenue Field Insp., Tax Field Services Rep. II

\_\_\_\_\_ Category 9 (Paygrade 16)  
Administrative Assistant, Auditor III, Cartographic Draftsman III, Chief Criminal Investigator, Delinquent Tax Collector II, Office Supervisor II, Property Appraisal Trainee, Revenue Regional Supv., Special Investigator, Supv. of Supplies and Property, Tax Field Services Rep. III, Tax Specialist Trainee, Training Officer II

\_\_\_\_\_ Category 10 (Paygrade 17)  
Auditor IV, Mgt. Analyst I, Public Relations Specialist II, Revenue Section Chief I, Tax Specialist I

\_\_\_\_\_ Category 11 (Paygrade 18)  
Administrative Officer, Assistant Chief of Enforcement, Assoc. Personnel Officer I, Auditor V, Research Associate II, Revenue Section Chief II, State Licensing Supv., Training Officer III

\_\_\_\_\_ Category 12 (Paygrade 19)  
Director of Gen. Staff Services, Fiscal Analyst III, Mgt. Analyst II, Property Appraisal Coordinator, Regional Mgr. I, Revenue Chief of Operations, Revenue Section Chief III, Tax Specialist II

\_\_\_\_\_ Category 13 (Paygrades 20 and above)  
Administrative Deputy, Asst. Director for Admin. I, Asst. Director for Admin. II, Asst. Director for Audits, Audit and Legal Conference II, Chief of Enforcement, Coordinator of Field Operations, Coordinator of Motor Vehicle Field Services, Director of Accounting Services, Director-Property Re-valuation, Director-Revenue Support Services, Property Tax Administrator, Regional Mgr. II, Supv. of Audits

7. Time in Present Position. How many years (to the nearest year) have you held your present Merit System paygrade classification? (Fill in the blank.) \_\_\_\_\_

## PART TWO

Directions: In this section, you are to describe your job and some features of it. There are five features of your job to be described—pay, promotions, coworkers, supervision, and work. Each feature is followed by a list of words and phrases. If a word or phrase describes the feature it is under for your particular job, circle "yes". If it does not describe the feature, circle "no". If you cannot decide, circle the question mark "?". Be sure to circle either "yes", "no", or "?" for each word or phrase in each list.

1. Pay

Income adequate for normal expenses	yes ? no
Satisfactory retirement plan	yes ? no
Barely live on income	yes ? no
Bad	yes ? no
Income provides luxuries	yes ? no
Insecure	yes ? no
Less than I deserve	yes ? no
Highly paid	yes ? no
Underpaid	yes ? no

2. Promotions

Good opportunity for advancement	yes ? no
Opportunity somewhat limited	yes ? no
Promotion on ability	yes ? no
Dead-end job	yes ? no
Good chance for promotion	yes ? no
Unfair promotion policy	yes ? no
Infrequent promotions	yes ? no
Regular promotions	yes ? no
Fairly good chance for promotion	yes ? no

3. Coworkers

Stimulating	yes ? no
Boring	yes ? no
Slow	yes ? no
Ambitious	yes ? no
Stupid	yes ? no
Responsible	yes ? no
Fast	yes ? no
Intelligent	yes ? no
Easy to make enemies	yes ? no
Talk too much	yes ? no

## 3. Cont'd.

Smart	yes ? no
Lazy	yes ? no
Unpleasant	yes ? no
No privacy	yes ? no
Active	yes ? no
Narrow interest	yes ? no
Loyal	yes ? no
Hard to meet	yes ? no

4. Immediate Supervisor

Asks my advice	yes ? no
Hard to please	yes ? no
Impolite	yes ? no
Preless	yes ? no
Tactful	yes ? no
Influential	yes ? no
Up-to-date	yes ? no
Doesn't supervise enough	yes ? no
Quick-tempered	yes ? no
Tells me where I stand	yes ? no
Annoying	yes ? no
Stubborn	yes ? no
Knows job well	yes ? no
Bad	yes ? no
Intelligent	yes ? no
Leaves me on my own	yes ? no
Around when needed	yes ? no
Lazy	yes ? no

**5. Work**

Fascinating	yes ? no
Routine	yes ? no
Satisfying	yes ? no
Boring	yes ? no
Good	yes ? no
Creative	yes ? no
Respected	yes ? no
Hot	yes ? no
Pleasant	yes ? no
Useful	yes ? no
Tiresome	yes ? no
Healthful	yes ? no
Challenging	yes ? no
On your feet	yes ? no
Frustrating	yes ? no
Simple	yes ? no
Endless	yes ? no
Gives sense of accomplishment	yes ? no

## PART THREE

Directions: In this section you are to rate the degree to which you agree with several statements about your job. Using the following code, circle the letter corresponding to how you feel about each statement.

SA = Strongly Agree

A = Agree

D = Disagree

SD = Strongly Disagree

- |   |           |   |           |
|---|-----------|---|-----------|
| 1. I enjoy doing my work.   | SA A D SD | 23. I wish that I had more work to do.                      | SA A D SD |
| 2. Some of our work procedures are inefficient.   | SA A D SD | 24. Overall working conditions in my office are quite good. | SA A D SD |
| 3. Opportunities for my advancement in the Department of Revenue are limited.                         | SA A D SD | 25. My office is (check one): _____ (1) Too cold            |           |
| 4. I would rather work in the Department of Revenue than in any other department of state government. | SA A D SD | _____ (2) Just right  |           |
| 5. My supervisor grants sick leave fairly.  | SA A D SD | _____ (3) Too hot.  |           |
| 6. My coworkers are easy to get along with.   | SA A D SD |   |           |
| 7. My supervisor stands behind his (her) employees.   | SA A D SD |   |           |
| 8. You have to "know someone" to get ahead in this department.  | SA A D SD |   |           |
| 9. My supervisor makes suggestions which make things run smoothly.                                    | SA A D SD |   |           |
| 10. I would rather work in industry than for the state government.                                    | SA A D SD |   |           |
| 11. My supervisor is sometimes "wishy-washy" when it comes to making decisions.                       | SA A D SD |   |           |
| 12. There are bottlenecks in the way things are done in my office.                                    | SA A D SD |   |           |
| 13. The Department of Revenue offers good fringe benefits.  | SA A D SD |   |           |
| 14. My supervisor is patient when dealing with his (her) employees.                                   | SA A D SD |   |           |
| 15. My work is too demanding.   | SA A D SD |   |           |
| 16. My supervisor is fair when dealing with his (her) employees.                                      | SA A D SD |   |           |
| 17. It is easy for me to talk with my supervisor.   | SA A D SD |   |           |
| 18. There is a lot of malicious gossip in my office.  | SA A D SD |   |           |
| 19. My supervisor grants annual leave fairly.   | SA A D SD |   |           |
| 20. I prefer working in my unit to working in any other unit in the Department of Revenue.            | SA A D SD |   |           |
| 21. My equipment is adequate for me to do a good job.   | SA A D SD |   |           |
| 22. My office is too noisy.   | SA A D SD |   |           |

APPENDIX C

THE MANOVA PRINTOUT

UNIVERSITY OF NORTH CAROLINA

PSYCHOMETRIC LABORATORY

ANALYSIS OF VARIANCE

MANOVA OF REVENUE DATA

SEX IS THE INDEPENDENT VARIABLE

SATISFACTION WITH PAY, PROMOTIONS, COWORKERS, SUPERVISOR, AND WORK  
ARE THE DEPENDENT VARIABLES

THERE ARE NO CONTROLLED COVARIATE VARIABLES

PROBLEM 1 IN VARIABLES 1 FACTORS

AGE	EDUCATION	ORGTEHRE	POSTENURE	JORLEVEL	AGEXJL	EDUXJL	ORGTEHXJL	POSTENXJL	PAYSAT
PROMOSAT	COWORKSAT	SUPERVSAT	WORKSAT						

5 CRITERIA 0 COVARIATES WITH THE FOLLOWING VARIABLES  
PAYSAT PROMOSAT COWORKSAT SUPERVSAT WORKSAT

FACTOR 5 2 LEVELS SEX  
DEVIATION CONTRASTS

FORMAT OF DATA CARDS

(0X,11,5F9.4,2F11.4,/,5X,2F11.4,5F9.4)

2 CELLS

MEANS AND STANDARD DEVIATIONS

FACTOR S	AGE	VARIABLE							
		EDUCATION	ORGTENURE	POSTENURE	JOBLEVEL	AGEXJL	EDUXJL		
1	154 ORS								
	M	3.085	1.503	.093	.092	2.768	26.192	6.691	
2	326 ORS								
	SD	13.830	2.191	6.932	2.806	3.001	57.390	9.464	
1	154 ORS								
	M	-1.457	-.710	-.422	-.043	-1.308	10.254	1.364	
2	326 ORS								
	SD	13.869	1.289	7.000	3.007	1.980	32.067	3.433	
FACTOR S		VARIABLE							
		ORGTENXJL	POSTENXJL	PAYSAT	PROMOSAT	COWORKSAT	SUPERVSAT	WORKSAT	
1	154 ORS								
	M	13.200	1.303	-.291	1.681	1.062	1.000	2.091	
2	326 ORS								
	SD	34.550	12.540	7.119	8.405	12.107	11.294	13.577	
1	154 ORS								
	M	6.959	.943	.137	-.794	-.502	-.850	-.987	
2	326 ORS								
	SD	13.345	6.873	6.419	7.899	12.369	11.683	11.408	

COMPLETE FACTORIAL WITH NO MISSING CELLS

WITHIN CELLS CORRELATIONS OF CRITERIA WITH STANDARD DEVIATIONS ON DIAGONAL ADJUSTED FOR 0 COVARIATES

VARIABLE	PAYSAT	PROMOSAT	COWORKSAT	SUPERVSAT	WORKSAT
PAYSAT	6.051				
PROMOSAT	.449	8.065			
COWORKSAT	.214	.287	12.311		
SUPERVSAT	.183	.358	.501	11.698	
WORKSAT	.287	.380	.402	.448	12.145

ESTIMATES ADJUSTED FOR 0 COVARIATES

CONTRAST	CRITERIA				
	PAYSAT	PROMOSAT	COWORKSAT	SUPERVSAT	WORKSAT
S					
1	-.214	1.237	.782	1.325	1.539

TEST OF S

TESTS OF SIGNIFICANCE USING WILKS LAMBDA CRITERION AND CANONICAL CORRELATIONS

TEST OF ROOTS	F	DFHYP	DFERR	P LESS THAN	R
1 THROUGH 1	3.810	5.000	474.000	.002	.197

VARIABLE	UNIVARIATE F TESTS			STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS	
	F(1, 478)	MEAN SQ	P LESS THAN	1	
PAYSAT	.433	19.175	.511	.649	
PROMSAT	9.846	640.391	.002	-.795	
CO-ORNSAT	1.088	255.860	.104	.002	
SUPERVSAT	5.371	734.952	.021	-.212	
WORKSAT	6.719	990.937	.010	-.405	

DISCRIMINANT SCORES

CONTRAST	1
1	-.214

CORRELATIONS BETWEEN VARIABLES AND COMPOSITE SCORES

VARIABLE	1
PAYSAT	.150
PROMSAT	-.716
CO-ORNSAT	-.296
SUPERVSAT	-.529
WORKSAT	-.591

UNIVERSITY OF NORTH CAROLINA

PSYCHOMETRIC LABORATORY

ANALYSIS OF VARIANCE

MANCOVA OF REVENUE DATA

SEX AS THE INDEPENDENT VARIABLE

SATISFACTIONS WITH PAY, PROMOTIONS, COWORKERS, SUPERVISOR, AND WORK  
ARE THE DEPENDENT VARIABLES

AGE, LEVEL OF EDUCATION, TENURE IN THE ORGANIZATION, TENURE IN PRESENT  
POSITION, JOB LEVEL, AGE<sub>XJL</sub>, EDUC<sub>XJL</sub>, T<sub>0</sub><sub>XJL</sub>, AND T<sub>P</sub><sub>XJL</sub> ARE THE  
CONTROLLED COVARIATE VARIABLES

CALCULATION OF ADJUSTED CELL MEANS

PROBLEM	1 REANALYSIS	1 WITH THE FOLLOWING	5 CRITERIA AND	9 COVARIATES					
PAYSAT	PROMOSAT	COWORKSAT	SUPERVSAT	WORKSAT	AGE	EDUCATION	ORGTENURE	POSTENURE	JOBLEVEL
AGEAJL	EDUXJL	ORGTENXJL	POSTENXJL						

SPECIAL ORDER OF EFFECTS

NO CONSTANT TERM IN THIS MODEL UNLESS SPECIFIED BELOW  
WS.

ESTIMATES ADJUSTED FOR 9 COVARIATES

CONTRAST	WS	CRITERIA				WOKKSAT
		PAYSAT	PROMOSAT	COWORKSAT	SUPLRVSAT	
1		-2.147	.704	1.077	1.345	-1.312
2		1.014	-.333	-.509	-.635	.620

UNIVERSITY OF NORTH CAROLINA

PSYCHOMETRIC LABORATORY

ANALYSIS OF VARIANCE

MANCOVA OF REVENUE DATA

SEX AS THE INDEPENDENT VARIABLE

SATISFACTIONS WITH PAY, PROMOTIONS, COWORKERS, SUPERVISOR, AND WORK

ARE THE DEPENDENT VARIABLES

AGE, LEVEL OF EDUCATION, TENURE IN THE ORGANIZATION, TENURE IN PRESENT

POSITION, JOB LEVEL, AGEXJL, EDUCXJL, T(O)XJL, AND T(P)XJL ARE THE

CONTROLLED COVARIATE VARIABLES

PROBLEM	1 REANALYSIS	2 WITH THE FOLLOWING	5 CRITERIA AND	9 COVARIATES					
PAYSAT	PROMOSAT	COWORKSAT	SUPERVSAT	WORKSAT	AGE	EDUCATION	ORGTENURE	POSTENURE	JOBLEVEL
AGEAJL	EDUCXJL	ORGTENXJL	POSTENXJL						

FACTOR S 2 LEVELS SEX  
DEVIATION CONTRASTS

SPECIAL ORDER OF EFFECTS

S.

WITHIN CELLS CORRELATIONS OF CRITERIA WITH STANDARD DEVIATIONS ON DIAGONAL ADJUSTED FOR 9 COVARIATES

VARIABLE	PAYSAT	PROMOSAT	COWORKSAT	SUPERVSAT	WORKSAT
PAYSAT	6.276				
PROMOSAT	.431	7.808			
COWORKSAT	.197	.271	12.149		
SUPERVSAT	.173	.361	.488	11.607	
WORKSAT	.270	.416	.406	.445	11.095

ESTIMATES ADJUSTED FOR 9 COVARIATES

CONTRAST S	CRITERIA				
	PAYSAT	PROMOSAT	COWORKSAT	SUPERVSAT	WORKSAT
1	-1.580	.518	.793	.990	-.966

TEST OF WITHIN CELLS REGRESSION

TESTS OF SIGNIFICANCE USING WILKS LAMBDA CRITERION AND CANONICAL CORRELATIONS

TEST OF ROOTS	F	DFHYP	DFERR	P LESS THAN	R
1 THROUGH 5	5.257	45.000	2003.161	.001	.468
2 THROUGH 5	3.498	32.000	2033.682	.001	.353
3 THROUGH 5	2.261	21.000	1905.508	.001	.239
4 THROUGH 5	1.639	12.000	1871.000	.075	.181
5 THROUGH 5	.007	5.000	1738.900	.544	.093

UNIVARIATE F TESTS

VARIABLE	F (9, 469)	MEAN SQ	P LESS THAN
PAYSAT	7.532	296.684	.001
PROMOSAT	4.542	276.961	.001
COMOWKSAT	2.421	357.424	.011
SUPERVSAT	1.030	246.533	.061
WORKSAT	11.520	1418.152	.001

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	1	2	3	4
PAYSAT	.187	.864	.660	.009
PROMOSAT	-.541	.312	-.916	-.462
COMOWKSAT	-.211	.135	-.296	.754
SUPERVSAT	-.052	-.124	.104	.553
WORKSAT	1.131	-.179	-.234	-.274

CORRELATIONS BETWEEN VARIABLES AND COMPOSITE SCORES

VARIABLE	1	2	3	4
PAYSAT	.208	.956	.192	.040
PROMOSAT	-.065	.602	-.741	-.142
COMOWKSAT	.113	.256	-.427	.801
SUPERVSAT	.186	.125	-.298	.644
WORKSAT	.848	.183	-.460	.104

RAW REGRESSION COEFFICIENTS

COVARIATES	VARIATES				
	PAYSAT	PROMOSAT	COMOWKSAT	SUPERVSAT	WORKSAT
AGE	-.075	.021	.059	.008	.205
EDUCATION	-.403	-.310	-.810	-.313	-.087
ORGTENURE	-.047	-.252	.118	.180	-.126
POSTENURE	.112	-.204	-.608	-.637	-.123
JOBLEVEL	.792	.449	.010	.057	1.293
AGEJUL	.003	-.005	.020	-.003	-.010
EDJUL	.067	.021	.177	.114	.121
ORGTENJUL	.064	.083	.019	.016	.034
POSTENJUL	-.052	-.011	.011	-.011	-.043

TEST OF S

TESTS OF SIGNIFICANCE USING WILKS LAMBDA CRITERION AND CANONICAL CORRELATIONS

TEST OF ROOTS	F	DFHYP	DFERR	P LESS THAN	R
1 THROUGH 1	5.460	5.000	405.000	.001	.235

UNIVARIATE F TESTS

VARIABLE	F(1, 469)	MEAN SQ	P LESS THAN
PAYSAT	13.000	535.741	.001
PPROMSAT	.945	57.603	.332
CONKSAT	.913	134.832	.340
SUPERVSAT	1.560	210.221	.212
WORKSAT	1.027	200.257	.203

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

VARIABLE	1
PAYSAT	.941
PPROMSAT	-.622
CONKSAT	-.264
SUPERVSAT	-.257
WORKSAT	.470

DISCRIMINANT SCORES

CONSTANT	1
1	-.356

CORRELATIONS BETWEEN VARIABLES AND COMPOSITE SCORES

VARIABLE	1
PAYSAT	.703
PPROMSAT	-.185
CONKSAT	-.182
SUPERVSAT	-.238
WORKSAT	.243

UNIVERSITY OF NORTH CAROLINA

PSYCHOMETRIC LABORATORY

ANALYSIS OF VARIANCE

MANOVA OF REVENUE DATA

SEX AS THE INDEPENDENT VARIABLE

AGE, LEVEL OF EDUCATION, TENURE IN THE ORGANIZATION, TENURE IN PRESENT

POSITION, JOB LEVEL, AGEXJL, EDUCXJL, T(O)XJL, AND T(P)XJL ARE THE

DEPENDENT VARIABLES

THERE ARE NO CONTROLLED COVARIATE VARIABLES

PROBLEM	1 REANALYSIS	3 WITH THE FOLLOWING	9 CRITERIA AND	0 COVARIATES				
AGE	EDUCATION	ORGTENURE	POSTENURE	JORLEVEL	AGEXJL	EDUCXJL	ORGTENXJL	POSTENXJL

WITHIN CELLS CORRELATIONS OF CRITERIA WITH STANDARD DEVIATIONS ON DIAGONAL ADJUSTED FOR 0 COVARIATES

VARIABLE	AGE	EDUCATION	ORGTENURE	POSTENURE	JOBLEVEL	AGEXJL	EDUXJL	ORGTENXJL	POSTENXJL
AGE	13.057								
EDUCATION	-.123	1.633							
ORGTENURE	.014	-.143	6.982						
POSTENURE	.450	-.110	.562	2.962					
JOBLEVEL	.345	.286	.473	.134	2.380				
AGEXJL	-.020	-.022	.100	-.020	.195	41.073			
EDUXJL	.011	.169	-.048	-.000	.117	-.090	6.057		
ORGTENXJL	.089	-.097	.209	-.049	.212	.014	-.041	22.432	
POSTENXJL	-.027	-.002	-.050	.031	-.002	.449	-.131	.361	9.080

ESTIMATES ADJUSTED FOR 0 COVARIATES

CONTRAST S	CRITERIA						
	AGE	EDUCATION	ORGTENURE	POSTENURE	JOBLEVEL	AGEXJL	EDUXJL
1	2.271	1.107	.658	.068	2.038	7.969	2.663

CONTRAST S	CRITERIA	
	ORGTENXJL	POSTENXJL
1	3.161	.180

TEST OF S

TESTS OF SIGNIFICANCE USING WILKS LAMBDA CRITERION AND CANONICAL CORRELATIONS

TEST OF ROOTS	F	DFHYP	DFERR	P LESS THAN	K
1 THROUGH 1	49.624	9.000	470.000	.001	.698

VARIABLE	UNIVARIATE F TESTS			STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS	
	F(1, 478)	MEAN SQ	P LESS THAN	1	
AGE	11.235	2157.312	.001	.095	
EDUCATION	192.264	512.524	.001	.365	
ORGTLMURC	3.710	180.894	.055	-.401	
POSTLMURC	.218	1.912	.641	.149	
JOBLEVEL	306.783	1737.534	.001	.791	
AGEXWL	15.152	26566.452	.001	.050	
EDUXWL	80.091	2967.532	.001	.253	
ORGTLNXL	8.306	4179.486	.004	.113	
POSTLNXL	.164	13.517	.686	-.031	

DISCRIMINANT SCORES

CONTRAST	1
1	1.042

CORRELATIONS BETWEEN VARIABLES AND COMPOSITE SCORES

VARIABLE	1
AGE	.157
EDUCATION	.651
ORGTLMURC	.090
POSTLMURC	.022
JOBLEVEL	.822
AGEXWL	.183
EDUXWL	.422
ORGTLNXL	.135
POSTLNXL	.019

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