

**TASK SPECIALIZATION AND ORGANIZATIONAL ATTACHMENT:
AN EMPIRICAL STUDY OF INDUSTRIAL BLUE-COLLAR WORKERS
IN VANCOUVER, BRITISH COLUMBIA**

by

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ABSTRACT

The research reported in this thesis is an attempt to test empirically the proposition that specialization in jobs negatively affects the organizational attachment of industrial blue-collar workers. Task specialization refers to the condition where the components of work process are divided into various minute tasks and only a limited number of tasks are assigned to an individual job. In the present study task specialization was operationalized in terms of production-line mechanization in workers' departments. Organizational attachment refers to a specific kind of relationship between a worker and his organization in which the worker (1) accepts and supports the goals and policies of the employing organization, (2) shows a willingness to exert effort for the success of his employing organization, and (3) shows a strong desire to remain a member of his employing organization. The above three dimensions of organizational attachment were measured by asking various questions of workers.

The field work for this research was done among industrial workers in Vancouver, British Columbia. A total of fifteen companies were contacted over a period of four months. Of the nine companies which agreed to participate in the research, six were purposely selected in such a way as to have an equal number of workers at each level of production-line mechanization. Data were collected by the method of a structured questionnaire, as well as by direct observation. A total of 550 production workers in six companies were given the 'Organizational Attachment Questionnaire', and 68 percent (377) of these workers returned

a completed questionnaire. An average of six to eight hours was spent in each company in observing the technological processes entailed in workers' jobs.

To measure the extent of association between production-line mechanization and organizational attachment, Somers' D, which is a strong monotonic asymmetric measure of association for ordinal variables, was computed. The zero order analysis suggested a negative association between production-line mechanization and overall organizational attachment. The first order analysis suggested that there was a negative association between production-line mechanization and overall organizational attachment only for workers who were in the middle age group (30-44), who were male, who had been in the company for less than five years, and who held less than three jobs in their employing organizations. It was also found that task repetition and task simplification were, respectively, negatively related with workers' willingness to exert effort for the success of the employing organization and workers' desire to remain in the employing organization for an indefinite period of time.

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CHAPTER I INTRODUCTION

TASK SPECIALIZATION

The research reported in this thesis is an attempt to test empirically the proposition that task specialization in jobs affects the attachment industrial blue-collar workers have to their employing organization. Task specialization refers to the condition in which the 'components of 'work process'' are divided into various minute 'tasks' and only a limited number of tasks are assigned to an individual 'job'. The terms work process, component of a work process, task, job, and operation are defined as follows¹:

Work process	The complete systematic sequence of work activities required to produce an item, or a complete product.
Work component	A discrete, self-contained portion of a process or procedure, usually involving several separate tasks, and undertaken to complete one functional phase in making a part or in carrying out a procedure.
Task	A work activity assigned to a worker which may be as small as one operation or as large as all the operations in one work component or all the components in one work process.
Job	The total of the tasks assigned to a worker which may be as small as one task or as large as all of the tasks composed in one work component or in one work process.
Operation	The smallest unit of work activity a worker performs at the job.

A job may consist of two or any number of similar tasks in one or more work components or it may consist of any number of dissimilar tasks in one or more work components. However, our concern is not with the question of how tasks are allocated to jobs. What we are mainly concerned with are the typical results and consequences of this process and particularly with respect to task fragmentation, task repetition and task simplification as they relate to workers' organizational attachment.

Fragmentation of tasks is a typical outcome of the process of task specialization because when the work process is subdivided minutely the contribution of the individual job becomes a tiny fragment in the whole work process. The job of an automobile assembly-line worker is a good example of a high degree of task fragmentation. His job may be to tighten one or a few bolts on the bumper of a car, which might represent only a thousandth part of the completed car. When a limited number of tasks are assigned to an individual job, the work cycle becomes short and consequently the tasks are performed repetitively. Again, the job of an automobile-line worker offers a good example of task repetition. Because the worker is responsible for tightening bolts in the bumper of a car, he does so again and again on all cars which come to his work station. Since the work process is divided into various minute tasks and only a limited number of tasks are assigned to a job, it does not take long to learn the job. In most of the cases the jobs become so simplified that they can be learned in a matter of hours (Dubin, 1958, p.179).

Although it has been recognized since the beginning of industrialization² that an increase in task specialization leads to an

increase in productivity and efficiency, many have argued that increased task specialization has given rise to a number of human as well as technical problems in industrial organizations. Associated with increased task specialization are the problems of workers' negative attitudes towards work and company (Walker, 1950; Walker and Guest, 1952; Walker and Marriott, 1951; Chinoy, 1955; Wyatt and Marriott, 1956; Fairchild, 1930), alienation and dissatisfaction from work (Blauner, 1964; Shepard, 1971), lack of integration in the employing organization (Fullan, 1970) and lack of coordination of specialized tasks (Strauss and Sayles, 1967). There are an abundance of studies in industrial sociology and organizational behavior focusing on the problems associated with task specialization. The present research is an attempt to carry-forward our understanding of these problems. Specifically, the purpose of the present research is to examine the extent to which task specialization -- as exhibited in different man-machine relationships at each level of production-line mechanization -- affects workers' attachment to their employing organizations.

ORGANIZATIONAL ATTACHMENT

The concept of organizational attachment has never been defined precisely in the literature of industrial sociology and organizational behavior. Rather, four different concepts have been put forward with little difference in meanings. These concepts are organizational identification, organizational commitment, organizational loyalty, and organizational attachment. Recently, Patchen (1970, pp.155-160) reviewed

the different meanings attached to the concept of organizational identification and he concluded that the concept has been used to refer to three different but related attitudinal and behavioral traits in social research, namely: "... feeling of solidarity with the organization; support of the organization; and perception of the shared interests and goals with other organization members."

Porter and Smith (1971, p.2) in studying the organizational commitment of management trainees define commitment as "... a specific relationship between an individual and his organization in that a highly committed person will indicate a strong desire to remain a member of the particular organization, a willingness to exert a high level of effort on behalf of the organization, and a definite belief in and acceptance of the goals and values of the organization."

Lee (1968, pp.464-466) in his treatment of the concept of organizational loyalty provides us two similar definitions of the concept of 'loyalty'. For him, "... organizational loyalty ... is compounded of pride of association, and a feeling of identity with and participation in the accomplishments of the company." His second definition of organizational loyalty includes "... an understanding of the organization's purposes and a respect for the goals, ideals, and activities of the organization, as well as the people in it."

Blauner (1964, pp.162-64) in talking about organizational attachment among workers in automated jobs uses the concepts of organizational commitment, identification, and loyalty interchangeably. Although he does not define any of these concepts, one can infer from his measures that he uses these terms to refer to "... desire of the workers

to spend the rest of their life in the present organization."

Clearly, there are many similarities in these definitions (see Figure 1). For example, in Patchen's review, the feeling of solidarity with organization refers to a deep sense of belongingness to, and oneness with the organization, which is very similar to the desire to remain a member of the organization (Porter and Smith), pride of association and feeling of identity with the organization (Lee), and the desire to spend the rest of one's life in the same organization (Blauner). Similarly, the perception of shared interests and goals with other organization members (Patchen) is to some extent similar to having a definite belief in the goals and values of the organization (Porter and Smith), and respect for the goals, ideals and activities of the organization (Lee). Participation in the accomplishments of the goals of the organization as in Lee's definition is another way of saying that a worker exerts a high level of effort on behalf of the organization as in Porter and Smith's definition, and supporting the organization by actions and behavior as in Patchen's review.

Thus, it is clear that these definitions refer to a common phenomenon; a kind of emotional binding between a worker and his employing organization. More specifically, organizational attachment refers to a kind of relationship between a worker and his organization in which the worker:

1. accepts and supports the goals and policies of his employing organization;
2. shows a willingness to exert effort for the success of his employing organization; and
3. shows a strong desire to remain a member of his employing organization for an indefinite period.

FIGURE 1

	DESIRE	BEHAVIOR	GOALS
Blauner 1964	Desire to spend the rest of life in the employing organization.		
Lee 1968	Pride of association and feeling of identity with the organization.	Participation in the accomplishments of the organization.	Respect for goals, ideals, and activities of the organization.
Patchen 1970	Feeling of solidarity with the organization.	Support of the organization.	Perception of shared interests and goals with other organization members.
Porter and Smith 1971	Strong desire to remain a member of the organization.	Willingness to exert a high level of effort on behalf of the organization.	Definite belief in and acceptance of goals and values of the organization.

TASK SPECIALIZATION AND ORGANIZATIONAL ATTACHMENT

The main proposition of our research is that task specialization in jobs is negatively related to organizational attachment among industrial blue-collar workers. The present 'Organizational Attachment Survey' among Canadian industrial workers is an attempt to lend support to the above proposition. But before we turn to report the findings of the survey, let us see if we can draw any support for the proposition from the literature in industrial sociology and organizational behavior.

Our review of the literature in industrial sociology and organizational behavior will examine how the different components of task specialization affect the different dimensions of organizational attachment. It has been argued, for example, that task fragmentation affects workers' attachment to the goals and policies of the employing organization, task repetition affects workers' willingness to put forward effort for the success of the employing organization, and task simplification affects workers' desire to remain in the employing organization for an indefinite period of time. In the following sections, we will elaborate on the above relationships between the components of task specialization and the dimensions of organizational attachment.

FRAGMENTATION AND GOALS

In highly specialized jobs the degree of task fragmentation is at its height and the individual worker performs only a few minute operations in the whole work process. This subdivision of work gives the worker a feeling of incompleteness about his job. Many researchers

(Walker and Guest, 1952, p.58; Guest, 1957, p.9-16) have observed that the individual worker attaches great importance to doing work on the whole product. The lack of completeness in highly fragmented jobs is further accentuated when the worker fails to observe a clear relationship between his work and the final finished product. Since his contribution to the final product is very limited, it has been observed that in many instances the worker has only a vague idea of what his organization produces. His remoteness from the final product makes work simply an instrumental activity -- an activity, as Marx (Chinoy, 1955, p.85) argues, "... not to satisfy a need, but only the means to satisfy the needs outside it". The work which fails to give the worker a feeling of completeness about the job and to link his job with the finished product is less likely to attach him to the goals and policies of the employing organization.

In contrast to highly specialized jobs, in less specialized jobs, the degree of task fragmentation is low and the individual worker works on the whole product or on a big component of the whole product. This gives the worker a feeling of completeness about his job. Whenever he sees the finished product, he gets feelings of accomplishment and pride. Feelings of accomplishment help him to identify with the product and makes work a meaningful activity, or in the words of Marxian sociologists, "... an end in itself, rather than a means to an end". Thus, the less fragmented job, which appears to the worker as complete and meaningful, is likely to mean greater attachment to the goals and policies of the organization.

In jobs where task specialization is neither very high nor

very low, the work appears to the worker as moderately fragmented. The worker working on the moderately fragmented job does not work on the whole product or on a big component of the whole product as the worker in the less fragmented job does, but his work is usually large enough to give him a feeling of partial completeness of the job. Unlike the highly fragmented jobs where it is difficult for the average worker to link his work with the finished product, the moderately fragmented job gives the worker a greater share in the work process, which, in turn enhances his awareness of the final product. Thus, it is expected that the worker working on a moderately fragmented job will show a moderate degree of attachment to the goals and policies of his employing organization.

REPETITION AND EFFORT

In highly specialized jobs the worker experiences a high degree of task repetition. Since he usually performs one or a few minute operations in the work process in a short time, he has to perform them again and again with little or no change. Thus, the worker's chances to show initiative and originality are restricted and work becomes a mechanical activity devoid of emotional content. Since the worker's creative abilities are not used in the work process, as Sayles argues (1966, p.16), the worker often uses them in subversive activities. It has been found, for example, that in the automobile industry the incidence of walkouts and strikes is much higher than in any other industries, both in the United States and Britain (Kerr, 1954, pp.189-212). The explanation for this is the high degree of task repetition which production workers in this industry experience and particularly under

'Detroit automation'. Both Walker and Guest (1952) and Turner and Lawrence's (1965) studies report a high rate of absenteeism for workers having highly repetitive jobs. These findings clearly exhibit the worker's inherent dislike for and disinterest in repetitive jobs. The worker shows only that much behavioral involvement in work activities which is necessary to legitimize his stay in the organization. Thus, in highly repetitive jobs the chances are that workers will put forward a low degree of effort for the success of the employing organization.

In highly repetitive jobs, a worker's autonomy in planning and organizing his job is limited to the extent that even the tools of work are predetermined (Walker and Guest, 1952, p.12). In contrast, in a less repetitive job the worker exercises great autonomy in performing his large and usually unstandardized work. Autonomy in work provides the worker many chances to make certain decisions at the work station. It makes work challenging and gives the worker opportunities to show initiative and originality in doing his work. The job which utilizes creative abilities increases the worker's involvement in his job. It is, therefore, expected that workers in such jobs will exert a high level of effort for the success of the employing organization.

In jobs where task specialization is neither very high nor very low the worker experiences a moderate degree of task repetition. In a moderately repetitive job, the worker does not do his work again and again in a short time cycle like the worker in a highly repetitive job. Nor does he have to perform a variety of tasks at his job like the worker in a less repetitive job. Instead, he performs more or less routine work but in a long time cycle. This gives the worker some

opportunity to utilize his abilities in doing his work. Thus, the workers in jobs which provide them some opportunity to use their abilities are likely to put forward, at least, a moderate degree of effort for the success of their employing organizations.

SIMPLIFICATION AND DESIRE

A high degree of task specialization in jobs makes work highly simplified and easy to perform. Excessive task simplification in jobs deprives the worker of any real sense of skill. The worker who exercises skill takes pride in his achievement, but the worker who learns his job in no time knows that he can be easily replaced. This feeling of easy replacement is further accentuated because of the limited chances of advancement in simplified jobs. It has been observed that in departments where the majority of jobs are simplified there is a sharp distinction between skilled and unskilled jobs. Since the majority of jobs are unskilled, and since there are few skilled jobs to which workers can be promoted, chances of advancement for an average worker are very limited. Therefore, jobs which make the worker an easily replaceable commodity and block his advancement are less likely to instil in him a desire to remain in his employing organization.

In contrast to highly specialized jobs, in less specialized jobs the majority of workers are skilled craftsmen, who learn their jobs over a long period of time. Usually, the training in less simplified jobs is broad enough to be applied to a large part of the work process. The worker who exercises skill is not so easily replaced as one who has learned his job in a short time. Turnover, both voluntary and involuntary,

has always been reported higher for workers in simplified unskilled jobs. The job security associated with less simplified jobs frees the worker from the constant fear of replacement which, in turn, helps him to concentrate fully on the development of his skill. Therefore, it is expected that workers in their less simplified and highly secured jobs will exhibit a strong desire to stay in their employing organizations.

In jobs where task specialization is moderate the majority of production jobs are semi-skilled and require considerable time for learning. The worker working on a moderately simplified job does not face the constant fear of replacement as much as the worker in a highly simplified job, for the reason that whenever redundancy occurs, workers in highly simplified jobs are usually the first to be laid-off. Moreover, in moderately simplified jobs, the chances of advancement for the average worker are not as limited as in highly simplified jobs. In departments where most of the jobs are semi-skilled there tend to be enough opportunities for talented workers to find their way to the next higher position. Thus, we feel that jobs which are relatively secure and also provide some chances of advancement to workers might make workers moderately desirous to stay in their employing organizations.

In sum, it is clear from the preceding discussion that the three components of task specialization affect the three dimensions of organizational attachment: task fragmentation affects workers' attachment to the goals and policies of the employing organization; task repetition affects workers' effort for the success of the employing organization; and task simplification affects workers' desire to remain in the present organization. Since the main proposition of the present research is

about the relationship of task specialization in jobs with workers' overall attachment to their organizations, the principal focus of our analysis in Chapter III would be to test the main proposition rather than the relationship between the components of task specialization and the dimensions of organizational attachment. However, at certain points, we will examine the relationship between the components of task specialization and the three dimensions of organizational attachment³.

MEASUREMENT OF TASK SPECIALIZATION AND ORGANIZATIONAL ATTACHMENT

As mentioned previously, task specialization occurs when the components of work process are divided into various minute tasks and only a limited number of tasks are assigned to an individual job. Recent writers in technology (Faunce, 1965, pp.149-160; Shepard, 1969, pp.185-194) have noted that each stage in the development of production technology is associated with a specific degree of task specialization. It has been argued, for example, that task specialization is highest at the stage of machine-line technology⁴ because at this stage the majority of the production jobs are unskilled and workers who occupy them perform one or a few minute operations on the total product. There is a high degree of functional dependence for the work involved in that one job is directly dependent on the work of others. A high degree of standardization of product coupled with minute task subdivision in machine-line technology makes work highly repetitive and simple to perform. Walker and Guest's classic study of automobile workers (1952, p.12) reports six dominant characteristics of the machine-line technology: mechanical pacing of work;

predetermination of work tools; repetitiveness; minimum skill requirements; minute subdivision of task worked on; and surface mental attention. These characteristics are primarily the results of a high degree of task specialization in machine-line technology.

It has been argued that the hauling and handwork⁵ stages in the development of production technology represent a low degree of task specialization. At these stages the majority of production jobs are highly skilled and workers who occupy them are equipped with hand tools with which they fashion the product from raw materials. Workers in highly skilled jobs work on the whole product or on a big component of the whole product. Their work is characterized by little or no differentiation in task. Almost every worker can work at any stage of the product. Since the nature of every product is quite different from others the degree of task repetition in less specialized jobs is minimal. In sum, task specialization is low in these production systems.

It has been argued that task specialization is moderate in automated production technology. At this stage almost everything is built into machines and the worker's task is reduced to watching special purpose technical instruments within a completely integrated work process. The worker takes 'readings' of the various instruments under his jurisdiction at fixed time intervals and thus experiences a moderate degree of task repetition. The job in automated technology involves more mental and visual skill than manual and physical skill. Therefore, on-the-job training for workers in automated jobs is quite extensive. Though the worker in automated technology does not have as much say in

the production process as a craftsman in hauling and handwork stages, his share in the work process is, usually, much greater than that of the worker in machine-line technology. Thus, in sum, it is argued that automation reverses the historical trend of task specialization in industrial organizations (Blauner, 1964, p.169).

As there is enough support in the literature for the proposition that each stage in the development of production technology represents a specific degree of task specialization, it was decided to measure the degree of task specialization with the level of production-line mechanization. Recent writers concerned with technology, however, report that no industrial organization employs a single homogeneous production technology (Blauner, 1964, p.7; Shepard, 1969, p.189). Therefore, we classified departments in each company into different levels of technology on the basis of what types of technological work processes are present in the jobs of the majority of workers. In each company we assigned code 1 to departments where the majority of workers were not working on the line, code 2 to departments where the majority of workers were working on automated jobs, and code 3 to departments where the majority of workers were working on the machine or machine-feeding line jobs.

Organizational attachment refers to a kind of emotional binding between a worker and his employing organization whereby the worker exhibits the following characteristics: (1) accepts and supports the goals and policies of the organization; (2) shows willingness to put forward effort for the success of the organization; and (3) shows a strong desire to remain in the present organization for an indefinite period of time.

Each of the above characteristics was measured by asking four different questions of workers (see Table 5). The questions were designed in such a way as to tap directly the idea involved in the characteristic. The four questions in each dimension had three response categories: agree, undecided, and disagree. To increase the validity of the responses, questions were worded positively as well as negatively. Workers who agreed to a positive question by marking the Agree response category or disagreed with a negative question by marking the Disagree category were given a score of 1. Workers who disagreed with a question worded positively or agreed with a question worded negatively were assigned a score of 0. Workers who were undecided on a negative or a positive question by marking the Undecided response category were also given a score of 0. Thus, every respondent, potentially, had a chance to score from 0 to 12; zero by remaining undecided or disagreeing to all positively-worded questions and by agreeing or remaining undecided to all negatively-worded questions; twelve by agreeing to all positively-worded questions and disagreeing with all negatively-worded questions. Workers who scored from 9 to 12 were considered to have a high degree of organizational attachment; those who scored from 5 to 8 were labelled as having moderate organizational attachment; and those who scored from 0 to 4 were considered to have a low degree of organizational attachment.

RESEARCH HYPOTHESIS

To test the main proposition of the research we formulate hypothesis 1 (H1).

H1 Organizational attachment as measured with twelve questions in the 'Organizational Attachment Questionnaire' will be highest among workers working in departments where the majority of production jobs involve handwork and hand-operated machine-work, whereas organizational attachment will be lowest among workers working in departments in which machine-line jobs predominate.

FOOTNOTES TO CHAPTER I

1. Our discussion of task specialization is a modified version of Louis Davis' Job Centered Approach on Job Design. See L. Davis and Canter. 1955. "Job Design". Journal of Industrial Engineering 5: 3-6.
2. Adam Smith (1937, p.7) was one of the earlier social scientists who emphasized the importance of increased task specialization in increasing productivity and efficiency in industrial organizations. Later on, in the beginning of the twentieth century Fredrick W. Taylor (1911) became the founding father of the Scientific Management Approach whose main emphasis was to increase productivity through increased task specialization. More recently, industrial engineers have also emphasized the importance of task specialization in increasing productivity.
3. In the 'Organizational Attachment Survey' we do not have data on task fragmentation. Therefore, we will not examine the relationship between task fragmentation and workers' attachment to the goals and policies of the employing organization.
4. In recent years various classifications of production technologies have been set forth - unit/small batch, mass/large batch, continuous process/automation (Woodward, 1965), craft, mass, automation (Faunce, 1965), hauling, handwork, machine-line, automation (Meissner, 1969). We decided to use Meissner's classification because it appeared to be more refined and appropriate for the problem under investigation.
5. We have combined these two production technologies simply because there is little, if any, difference between the two in terms of the degree of task specialization. Both production technologies represent a low degree of task specialization.

CHAPTER II RESEARCH PROCEDURE

This chapter describes in detail the various steps and procedures involved in conducting the 'Organizational Attachment Survey'. The discussion has been organized into four sections: (1) the sampling procedure; (2) the research instruments for the collection of data; (3) response patterns; and (4) decisions about analysis.

SAMPLING PROCEDURE

The 'Organizational Attachment Survey' was conducted among industrial blue-collar workers in Vancouver, British Columbia. Since the main hypothesis of the research concerned variation in organizational attachment among workers at different levels of production technology, it was necessary to have workers working at different levels of production technology in the sample. In a survey research, like ours, it is very difficult to have a true random sample because of many uncontrollable factors; therefore, it was decided to have a purposive sample of industrial organizations employing different types of technology in their production departments.

A total of 15 companies were contacted over a period of four months¹. Since the survey was conducted on an individual basis rather than by a research team, the companies were contacted one at a time. Two different methods were employed to contact the management in various companies. The first method involved locating the names of senior management personnel for some chosen companies from the Directory of

Influential Contacts (1970), calling one of them, and requesting an appointment. In subsequent meetings, the objectives of the survey were explained in detail to senior management personnel and they were asked for their cooperation. The second method of contacting companies involved writing to senior management personnel, explaining in brief the purposes of the survey and requesting their cooperation in the survey. As the main objective of the survey was to obtain information on workers' subjective feelings about their work and company, some management personnel and their plant unions refused to permit the survey to be undertaken in their organizations due to the sensitive nature of the area of investigation (Appendix A presents the list of the companies contacted for the survey along with their responses to the 'Organizational Attachment Survey'). The refusal rate was higher among companies contacted by the second method. No definite reason can be put forward for the high refusal rate for companies contacted by the second method. One possible reason is that our initial letter of contact may have met the 'bureaucratic fate'.

Of the nine companies which agreed to participate in the survey, six were selected in such a way as to have approximately an equal number of workers at each level of production technology. Table 1 indicates that we were moderately successful in this attempt. Of the 550 potential respondents who were given questionnaires, 42 percent were working on machine-line jobs, 38 percent on craft-type jobs, and 20 percent had automated jobs.

The main reason for the under-representation of workers in automated jobs was a high refusal rate among companies (4 out of 5

TABLE 1: WORKERS HAVING JOBS IN DIFFERENT PRODUCTION
TECHNOLOGIES ARE SUFFICIENTLY REPRESENTED.

Levels of Technology	Potential Respondents	Percentage Respondents
Handwork and Hand-operated Machine Work	212	38%
Machine-line	229	42%
Automation	109	20%
Total	550	100%

refused to participate) having an automated production technology. It was learned during our discussion with union officials and senior management personnel in these companies that they had a six-months strike in 1969. For this reason, both management and union were afraid of allowing an attitude survey to be undertaken, which they felt might disturb the 'industrial peace' of their plants.

Since we were primarily interested in examining the impact of production technology on organizational attachment among industrial workers, it was decided to include in the sample only the production workers for the reason that the jobs of production workers are the only jobs which are greatly influenced by the production technology of the organization. Maintenance personnel, utilitymen, and delivery workers were excluded from the survey on the ground that their jobs are less affected by the production technology of the organization and, furthermore, their jobs appear to differ little from one type of production technology to another.

Initially, the plan was to select twenty-five workers, randomly, from the production departments of each company. During the course of actual survey, it became impossible because, in most cases, management did not like the idea of sampling the production workers and wanted all the production workers to be included in the sample. Therefore, we decided to include all the production workers in six companies in the sample. Our total sample thus comprised 550 production workers.

Table 2 presents the marginal distributions on demographic (age, sex, marital status, income, education), background (length of

TABLE 2: THE DATA SHOW A GREAT AMOUNT OF VARIATION
ON VARIOUS DEMOGRAPHIC, BACKGROUND AND
JOB CHARACTERISTICS AMONG COMPANIES.

Characteristics	Companies						Total N=377
	(A) N=63	(B) N=39	(C) N=34	(D) N=136	(E) N=27	(F) N=78	
<u>Age</u>							
18-29 years	24% ¹	13%	27%	37%	0%	24%	26%
30-44 years	43	28	18	52	33	30	39
45-65 years	33	51	50	10	67	44	32
<u>Sex</u>							
Male	70	97	71	50	100	72	68
Female	30	3	29	49	0	26	31
<u>Marital Status</u>							
Single	11	15	35	15	0	21	16
Married	76	69	38	73	96	68	71
Others ²	13	15	27	12	4	12	13
<u>Income per Month</u>							
Under \$600	70	41	50	55	0	50	50
Over \$600	29	59	50	43	100	50	49
<u>Education</u>							
Up to 10 Grade	62	41	50	27	30	60	44
Over 10 Grade	37	56	44	71	70	37	54
<u>Length of Service</u>							
Under 5 years	48	33	32	54	15	41	43
Over 5 years	52	67	68	46	85	59	57

/Contd.

TABLE 2 (contd.)

Characteristics	Companies						Total N=377
	(A) N=63	(B) N=39	(C) N=34	(D) N=136	(E) N=27	(F) N=78	
<u>Shift-Time</u>							
Morning	86%	13%	18%	77%	0%	63%	58%
Afternoon & Night	11	21	0	2	0	27	10
Swing Shifts	2	67	32	18	100	9	30
<u>No. of Jobs Held in the Company</u>							
Less than 3 Jobs	51	62	32	63	37	55	54
3 and More	44	39	65	34	63	45	45

1. The difference between the sum of the percentages and 100% in each characteristic indicates the non-response percentage.
2. "Other" category includes workers who were separated, widowed or divorced.

service, number of jobs held in the present company), and job (shift-time) characteristics for each company and for the whole sample. Data presented in Table 2 indicate two important things. First, our sample is considerably heterogeneous on most of the demographic, background and job characteristics. Second, there is a great amount of variation on certain demographic, background and job characteristics among workers between some of the companies surveyed. However, the majority of workers in the sample are male, are below 45 years of age, are earning up to \$600 a month, are working on day-shifts, have over ten years of schooling, have held up to two jobs in the present company, and have been working in it for more than five years.

MEASUREMENT INSTRUMENTS

The chief research instrument used in the survey to collect information from workers was the 'Organizational Attachment Questionnaire' (see Appendix B). This questionnaire was designed in such a way as to gather information not only on task specialization and organizational attachment but on a variety of other things including perceived technological work constraints, workers' overall central life interests, job satisfaction, company satisfaction, work histories, and demographic and background characteristics.

Initially, it was planned to interview workers either at their work place or at their homes. A number of factors did not allow us to carry out this initial plan. The foremost reason was the disapproval of the senior management to interview workers at the work place on company

time. Furthermore, it was impossible to interview workers, either at their work place during lunch and coffee breaks or at their homes, because of the limited resources (time and money) available for the survey. The second important reason for not interviewing workers was the problem of accent. Since we were conducting the survey in an entirely different culture than our own, and since we did not get enough chances to talk to workers in our sample before the survey, we realized that for both workers and ourselves it would be difficult to understand each other's accent at the time of actual interviewing. Because of these factors we changed the early decision of interviewing workers in favour of a structured questionnaire.

The 'Organizational Attachment Questionnaire' was distributed among production workers in all companies one by one over a period of three months. The inability to control the time factor in administering questionnaires might have introduced some bias in the sample of workers we studied. But we think that even if it did introduce bias, it will be of insignificant nature, because the period of year (January to March) in which the survey was undertaken is, usually, least affected by the seasonal employment of students as compared to the period between May to August and the month of December.

Another research technique used in the survey to collect information about workers' jobs was 'direct observation'. An average of six to eight hours was spent in each company observing the technological processes entailed in jobs in order to classify departments onto different levels of technology on the basis of what types of technical work processes are present in the jobs of the majority of workers. In

each company code 1 was assigned to departments where the majority of workers were not working on the line, code 2 to departments where the majority of workers were working on automated jobs, and code 3 to departments where the majority of workers were working on the machine-line jobs.

FIELD EXPERIENCES

As mentioned previously, a total of 15 companies were contacted over a period of four months. The actual field work was started in the first week of January and was finished in the last week of March, 1972. As the survey was conducted by an individual rather than by a research team, when we contacted a company and found it suitable for the research we distributed questionnaires there. After distributing questionnaires in the first company, we approached the second company and in this way surveyed workers in all six companies. Companies were visited in the same chronological order as they are reported in Table 3. Table 3 also indicates that 68 percent production workers in six companies returned completed questionnaires. Response rates vary from 49 percent to 83 percent for individual companies. In the following section we will describe our field experiences in each of the six companies.

Company A is one of the leading meat-packing companies in the country. This company has not been studied by social scientists for over the last 25 years. Therefore, when we approached the company it appeared to be a great surprise for management. From the very beginning, management showed great interest in the survey and assured us of their

TABLE 3: A LITTLE MORE THAN TWO-THIRDS OF THE POTENTIAL RESPONDENTS RETURNED COMPLETED QUESTIONNAIRES.

Company	Type of Work	Nature of Product	Size of Plant	Potential ¹ Respondents	% Respondents
A	Machine Feeding & Assembly-Line	Meat Packing	200	106	63%
B	Automatic Work	Sugar Refining	300	70	56
C	Assembly-Line and Handwork	Sugar Packing	300	70	49
D	Hand and Machine Work	Telephone Transmission	350	170	83
E	Automatic Work	Power Generation and Distribution	400	34	79
F	Assembly-Line & Machine Work.	Milk Products	250	100	78
Total				550	68%

1. Only production workers were included in the survey; utilitymen, maintenance personnel and delivery workers were excluded.

full cooperation. The union officials had somewhat mixed feelings. They neither showed great interest nor clearly refused to cooperate. Some of them even had the impression that the survey was being conducted under the auspices of management.

One week after the initial contacts both with management and union officials, the questionnaires were distributed in self-addressed stamped envelopes among the production workers who were asked to fill them out and mail them. Since it was our first experience we did not realize the importance of direct communication with workers. Though we had a chance to attend a 'Safety Meeting' in one department we could not talk to workers because of the brief duration of the meeting.

In spite of an indifferent attitude by the union and the lack of communication on our part a substantive percentage (63%) of workers returned the completed questionnaires, which indicated that our first effort was neither too good nor too bad when compared with the response rates of the companies surveyed afterwards.

Companies B and C are two separate divisions of the same organization. Our main reason for treating them separately as companies B and C was that they had little or nothing in common. Division A was responsible for the processing of raw sugar and its production technology was largely automated. Division B was chiefly involved in the packing of finished sugar of various kinds and had an assembly-line technology. Moreover, the management itself emphasized the difference between the two divisions in daily conversation. For example, when we approached the plant superintendent for the first time, the first thing he asked was, "Are you interested in conducting the

survey in the whole plant or in Division A or Division B?" We also heard a senior management representative saying to a guide for a group of students, "Take these kids to the packing division only. It might be too much for them to walk in both divisions". For these considerations, we decided to treat these divisions as companies B and C, respectively.

When we approached the management of the plant, it appeared to us that management did not have much confidence in the union and, in turn, the union was suspicious of the intentions of management. The senior management gave its approval for the survey after a brief discussion on some of the sections of the questionnaire. When we approached union officials we faced a hard time in convincing them that the survey was not being conducted for management. With reluctance, the union also agreed to cooperate in the survey.

Since our first effort was not very successful it was decided to do two different things in companies B and C. One was to communicate the research to as many workers as possible on the shop floor. To achieve maximum communication, a notice was prepared describing the objectives of the survey and informing the workers that the survey had the approval of both management and union. This notice was posted on bulletin boards at different places in the plant approximately one week before the distribution of the questionnaires. Our second decision concerned the way in which questionnaires were to be returned. Instead of distributing the questionnaires in self-addressed stamped envelopes, in consultation with management and union, we distributed the questionnaires in sealable envelopes and advised the workers to put them in a box kept for this purpose in the office after filling them out. The box was

opened after five days and to our surprise the returns were much lower than expected. Fifty-six percent workers in company B and only 49 percent in company C returned the completed questionnaires. The tense union-management relationships and management's disapproval to undertake a follow-up were, probably, the main reasons for these response rates.

Company D was among those companies which encourage social scientists to do research in their plants. From the very beginning senior management was extremely enthusiastic about the survey and assured us of their cooperation. Personally, I was amazed at the extent of their cooperation, interest, and help in my research. Unfortunately, at the time of the survey, the union and management were on the verge of a conflict. (Recently we heard that the company had a six-weeks strike on this issue in the months of May and June, 1972.) The dispute was about the classification of certain new jobs into skilled and semi-skilled categories. The management's stand was that the new jobs require less time for learning, while the union was insisting that they take more time. In spite of this serious problem, the union officials approved the survey.

Approximately one week before the actual survey the management informed the workers through the first-line supervisors that a graduate student from U.B.C. would be conducting a survey in the plant. A notice describing the objectives of the survey and mentioning the approval of both management and union for the survey was also posted on different bulletin boards in the plant. The questionnaires were distributed in sealable envelopes, in each department through the first-line supervisors. Workers were asked to return filled-out questionnaires,

after sealing the envelopes, to their supervisors, who, in turn, were responsible for depositing them in the office of the production manager. Eighty-three percent workers returned the completed questionnaires in five days. This remarkable return rate was due mainly to greater communication of the research to the shop-floor workers and a highly favourable attitude towards scientific research both by management and union.

Company E was the smallest of the six companies surveyed in terms of production workers. Both management and the shop-floor workers showed considerable interest in the research. The same techniques of communication and questionnaire distribution were used in this company as those used in company D. The response rate in this company proved to be second best in the survey -- 79 percent of the workers returned the completed questionnaires.

The last company we surveyed, company F, is also one of those companies which encourage and, very often, participate in social researches in their plants. In addition to the techniques employed in companies D and E, a handout describing the goals and objectives of the survey was prepared and distributed with the help of the union, to all shop-floor workers participating in the survey. Because of the extensive communication with workers a substantial percentage (77 percent) returned completed questionnaires.

In conclusion, our field experiences confirmed² the importance of communication with shop-floor workers and the role of the first-line supervisors in increasing the response rate in survey-type research.

DECISIONS ABOUT ANALYSIS

As soon as all the questionnaires from a company were returned we transferred the precoded³ information onto IBM cards. Two days after the completion of the survey in company F we had all the data transferred on cards. Immediately, a complete run of marginal distribution was made on each item of the questionnaire so that punching errors would be eliminated. After correction, punching errors were reduced to below 0.5 percent level.

We examined the marginal distributions on each item carefully and decided to combine the response categories in some questions so as to appear, in the words of John Galtung (1969, pp.250-265), "more meaningful" to the research. After combining categories we ran SPSS Sub-Program Fastab (Nie et al., 1970) for cross-tabulating all the items in the questionnaire. This run produced over 1,300 cross-tables along with ten measures of association: Chi-square, Grammer's V, Contingency Coefficient, Kendall's tau b, and tau c, Lambda, Gamma, Somers' D, Eta, Percentage Difference.

The two variables (task specialization and organizational attachment) in the main hypothesis of our research are ordinal variables, that is, they have a natural ordering and an underlying continuum. It is evident from the theoretical discussion in Chapter I that the relationship between task specialization and organizational attachment is asymmetrical, i.e. task specialization in jobs can affect the organizational attachment of the workers but its converse is not likely to be possible. Since the 'Organizational Attachment Survey' was

undertaken not to examine the phenomenon of workers' attachment to their employing organizations in an exploratory or descriptive fashion but to test a specific research hypothesis about workers' attachment to their organizations at different levels of production technology in a limited sample of industrial blue-collar workers, we decided to measure the relationship between task specialization and organizational attachment under the condition of strong monotonicity. Strong monotonic relationship, as Somers argues (1962, p.801), is "... represented by a situation in which for two variables X and Y, the value of X increases as Y increases, and conversely, regardless of the rate of increase". Because the relationship between task specialization and organizational attachment is asymmetrical, in this research a strong monotonic relationship would mean a situation where task specialization increases, organizational attachment decreases.

Since we were measuring an asymmetric relationship between two ordinal variables under strong monotonicity, it was decided to use Somers' D as a measure to find out the extent of association between task specialization and organizational attachment. Somers' D is a strong monotonic asymmetric measure of association for ordinal variables which, in the words of its originator (Somers, 1962, p.804), expresses the "... difference between conditional probabilities of like and unlike order, under the condition that we ignore ties on the independent variable (although they will be present, in general, on the dependent variable)". Along with dyx, we decided to use percentage difference to get an idea of what other things, if any, the data presented in the tables suggested.

Since no book in statistics⁴ suggests explicitly what should be the ideal degree of association which should be termed as significant we solved this problem arbitrarily. For dyx, it was decided that if the amount of association between two variables is between -0.10 to +0.10, it will mean that there is no association between them. If the amount of association is between 0.10 and 0.30, it will mean that there is a weak association between two variables. If the amount of association is between 0.30 to 0.60, it will mean that there is a moderate association between them. And, if the amount of association is over 0.60, it will mean that there is a strong association between two variables.

FOOTNOTES TO CHAPTER II

1. The list of the companies was compiled mainly from three different sources. Contacts Influential, Commerce and Industry Directory for Greater Vancouver, lists all the companies in the area of Greater Vancouver, every year. Names of some of the companies were taken from its 1970 volume. Second, some of my family friends, especially Mrs. R. A. C. Douglas, helped me in contacting some of the industries. Third, Dr. Philip H. White, Dean of the Faculty of Commerce and Business Administration, U.B.C., recommended some of the companies which encourage social scientists to undertake research in their plants.
2. A similar conclusion has been arrived at by the research team of the 'Attachment to Work Survey', conducted by R. Dubin, A. Hedley and T. Taveggia. See Hedley, 1971. "A Study of British Factory Workers". Unpublished Ph.D. dissertation, University of Oregon. Taveggia, 1971. "The Necessity of Work: An Empirical Study of British Factory Workers". Unpublished Ph.D. dissertation, University of Oregon.
3. All questions, with the exception of the question inquiring about departments in which the worker worked, in the 'Organizational Attachment Questionnaire' were precoded and were thus transferred onto cards immediately. Departments were coded after observing their technical processes a week later.
4. Most of the books in statistics and research methodology ignore the discussion on the amount of association which should be labelled as significant. A recent book by James Davis (1971), however, devotes a few pages on the discussion of this issue. Our decision, though arbitrary, is close to the criterion set by Davis (p.49).

CHAPTER III DATA ANALYSIS

TESTING OF HYPOTHESIS

The present chapter deals with the testing of the main hypothesis of the research, namely:

... Organizational attachment as measured with twelve questions in the 'Organizational Attachment Questionnaire' will be highest among workers working in departments where the majority of production jobs involve handwork and hand-operated machine-work, whereas organizational attachment will be lowest among workers working in departments in which machine-line jobs predominate.

Table 4 shows the marginal distribution on production-line mechanization. It is evident from the table that we are considerably removed from the ideal distribution of an equal number of workers at each level of production-line mechanization. Workers working in departments where the majority of jobs involve automated work are almost 50 percent less in number to workers who work on handwork and hand-operated machine jobs and to workers who work on machine-line jobs.

Table 5 reports the marginal distribution on organizational attachment items under their three separate sub-headings. One thing which is evident from the examination of this table is the low percentage of non-response, which suggests that the questions were intelligible to the majority of workers. Table 6 presents the coefficients of inter-item association (Gamma values) between the twelve items of organizational attachment. Inter-item association, as John Galtung argues (1967,

TABLE 4: THE MAJORITY OF THE WORKERS REPORTED THEMSELVES
WORKING ON HANDWORK AND HAND-OPERATED MACHINE JOBS.

Production-Line Mechanization	Total Respondents	Percentage Respondents
Machine-Line	148	39%
Automation	66	18
Handwork and Hand- Operated Machine Work	155	41
Non-Response	8	2
Total	377	100%

TABLE 5: MARGINAL DISTRIBUTIONS ON ORGANIZATIONAL
ATTACHMENT ITEMS.

Organizational Attachment Items: GOALS		Total Respondents	Percentage Respondents
(1) The things this company makes are important to Canada.			
	Agree	308	82%
	Undecided	39	10
	Disagree	27	7
	N.R.	3	1
(2) I find my goals and this company's very similar.			
	Agree	139	37
	Undecided	104	28
	Disagree	131	35
	N.R.	3	1
(3) Often I find it difficult to agree with company's policies on important matters relating to workers.			
	Disagree	108	29
	Undecided	79	21
	Agree	186	50
	N.R.	4	1
(4) I really care about the fate of this company.			
	Agree	243	65
	Undecided	60	16
	Disagree	72	19
	N.R.	2	1

TABLE 5 (Contd.)

Organizational Attachment Items: EFFORT	Total Respondents	Percentage Respondents
(5) I am willing to work extra hard at my job in order to help this company be successful.		
Agree	233	62%
Undecided	74	20
Disagree	66	18
N.R.	4	1
(6) This company really inspires the very best in me in the way of job performance.		
Agree	122	33
Undecided	100	27
Disagree	151	40
N.R.	4	1
(7) I don't mind putting in extra time if the company needs me to.		
Agree	260	70
Undecided	39	10
Disagree	76	20
N.R.	2	1
(8) It bothers me very much to be absent from work.		
Agree	259	69
Undecided	51	14
Disagree	65	17
N.R.	2	1

TABLE 5 (Contd.)

Organizational Attachment Items: DESIRE	Total Respondents	Percentage Respondents
(9) I would accept almost any type of job assignment in order to keep working for this company.		
Agree	149	40%
Undecided	74	20
Disagree	151	40
N.R.	3	1
(10) There is not too much to be gained by sticking with this company indefinitely.		
Disagree	147	39
Undecided	110	29
Agree	117	31
N.R.	3	1
(11) I would keep working for this company even if I were offered more money to work somewhere else.		
Agree	107	29
Undecided	74	20
Disagree	193	51
N.R.	3	1
(12) I could just as well be working for a different company as long as the type of work were similar.		
Disagree	130	34
Undecided	108	29
Agree	133	36
N.R.	6	2

TABLE 6: ORGANIZATIONAL ATTACHMENT ITEMS ARE SIGNIFICANTLY ASSOCIATED WITH EACH OTHER WHEN MEASURED BY GAMMA COEFFICIENT OF ASSOCIATION.

Organizational Attachment Items	Gamma Coefficient											
	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0											
2	0.60	0.0										
3	0.40	0.45	0.0									
4	0.60	0.62	0.63	0.0								
5	0.80	0.62	0.40	0.77	0.0							
6	0.81	0.67	0.51	0.74	0.83	0.0						
7	0.64	0.69	0.55	0.84	0.60	0.70	0.0					
8	0.58	0.35	0.33	0.63	0.68	0.71	0.72	0.0				
9	0.56	0.68	0.54	0.67	0.68	0.77	0.71	0.66	0.0			
10	0.44	0.25	0.41	0.59	0.70	0.58	0.53	0.51	0.53	0.0		
11	0.54	0.66	0.69	0.73	0.69	0.72	0.75	0.61	0.79	0.69	0.0	
12	0.33	0.17	0.28	0.39	0.42	0.37	0.39	0.40	0.31	0.44	0.52	0.0

pp.292-300), is one criterion to measure the internal consistency among the items of an index. Examination of the table suggests that all the items on organizational attachment are significantly related to each other, which suggests that all of these items 'tap' the same phenomenon, whatever it may be.

To observe clearly the structure underlying the inter-item associations of organizational attachment items, it was decided to use the Guttman and Lingoes Smallest Space Analysis (Lauman and Guttman, 1966; Bloombaum, 1968; Guttman, 1968; Bloombaum, 1970). Figure 2 presents the two dimensional smallest space analysis solution for the relationship among twelve items of the organizational attachment (coefficient of alienation is = .16). It is evident from this figure that these items tap three dimensions of organizational attachment and that the three dimensions of organizational attachment appear to greatly overlap.

Table 7 shows the marginal distribution on the index of organizational attachment. It is clear from the table that the largest percentage of production workers in our sample, when measured by the 'Organizational Attachment Questionnaire' are moderately attached to their organizations. Approximately an equal number of workers reported high and low attachment to their organizations.

Table 8 is the result of cross-tabulation of production-line mechanization with the index of organizational attachment. Data in this table suggest that there is no association between production-line mechanization and the overall organizational attachment; that is, the knowledge of the independent variable does not help in predicting the

Figure 2

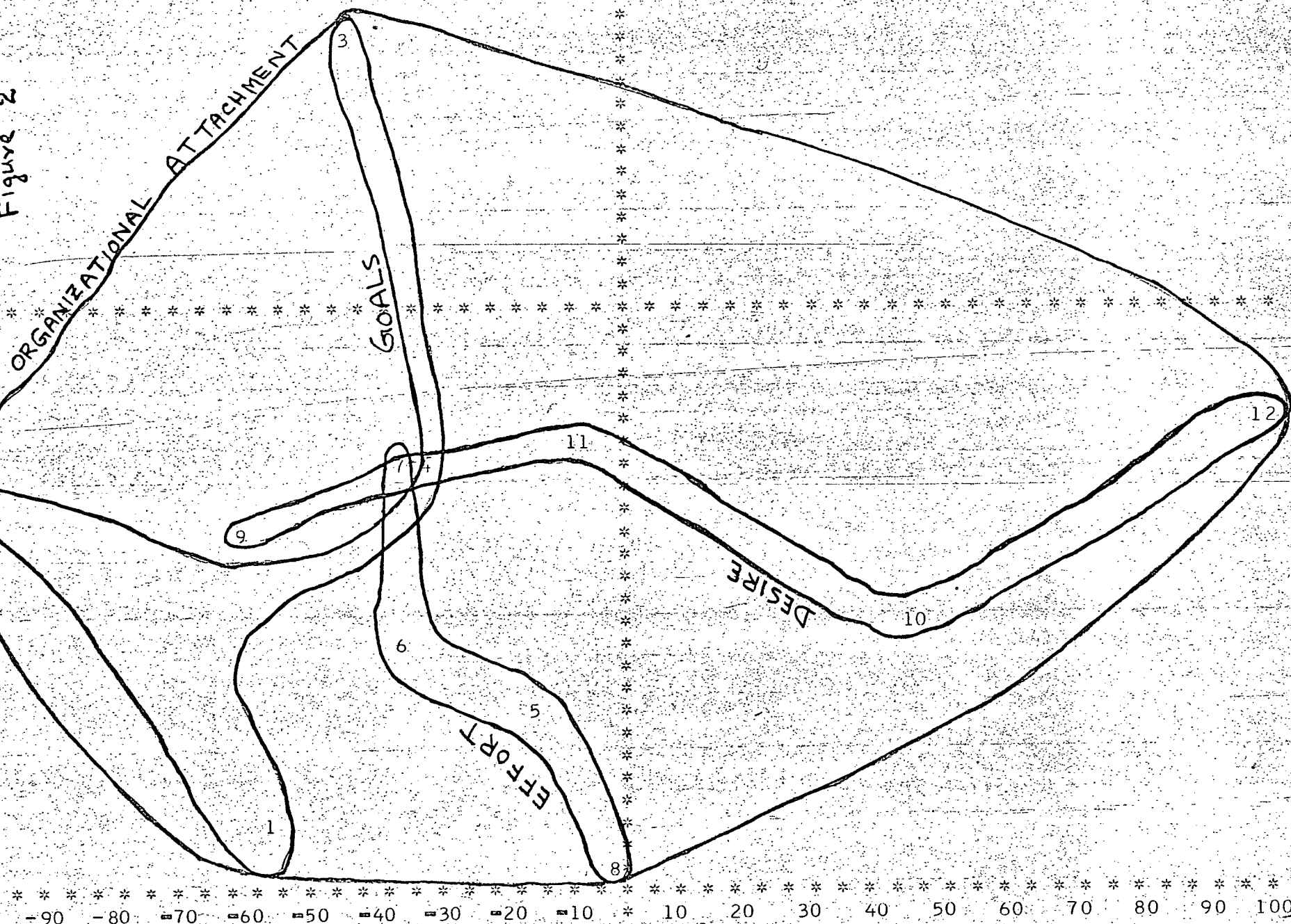


TABLE 7: ALMOST TWO-THIRDS OF THE WORKERS REPORTED MODERATE OR HIGH ATTACHMENT TO THEIR COMPANIES.

Organizational Attachment: INDEX	Total Respondents	Percentage Respondents
High	91	24%
Moderate	178	48
Low	105	28
Total ¹	374	100%

1. Three respondents did not respond to any statement on organizational attachment.

TABLE 8: THERE IS NO ASSOCIATION BETWEEN PRODUCTION-
LINE MECHANIZATION AND ORGANIZATIONAL ATTACHMENT.

Organizational Attachment: INDEX	Production-Line Mechanization			Total
	Handwork ¹ and Machine Work	Automation	Machine- Line	
High	21%	44%	19%	24%
Moderate	53	39	47	48
Low	27	17	34	28
Total	101%	100%	100%	100%
(No. of Cases)	(154)	(66)	(146)	(366)

$$dyx = -0.04$$

$$pd = -02$$

1. For the sake of convenience, we will use Handwork and Machine Work instead of Handwork and Hand-Operated Machine Work in all of our tables of analysis.

dependent variable. Closer inspection of this table, however, suggests that the relationship between production-line mechanization and overall organizational attachment may not be a direct one as was originally proposed. Rather that it may be a curvilinear relationship, that is, organizational attachment is lowest among machine-line workers, is moderate among workers in handwork and hand-operated machine jobs, and is highest among workers in automated jobs.

To carry the analysis further it was decided to examine the relationship between production-line mechanization and the three sub-indices of organizational attachment (see note 1 for the construction of sub-indices). Table 9 presents the joint bivariate distribution on the production-line mechanization and the first sub-index of organizational attachment. Data in this table indicate a weak negative relationship between production-line mechanization and workers' attachment to the goals and policies of the employing organization. Our knowledge of the values of the independent variable would give us 10 percent reduction in error in predicting the values on the dependent variable. The percentage difference between workers who had high attachment to the goals and policies of the employing organization in machine-line jobs and in handwork and hand-operated machine jobs is -10.

Table 10 reports the joint bivariate distribution on production-line mechanization and the second sub-index of organizational attachment. Data presented in this table suggest that there is no association between production-line mechanization and workers' willingness to exert effort for the success of the employing organization. Table 11 presents the joint bivariate distribution on production-line mechanization and the third sub-

TABLE 9: THE DATA SHOW A WEAK NEGATIVE ASSOCIATION
BETWEEN PRODUCTION-LINE MECHANIZATION AND
WORKERS' ATTACHMENT TO GOALS AND POLICIES
OF THE ORGANIZATION.

Organizational Attachment: GOALS	Production-Line Mechanization			Total
	Handwork and Machine Work	Automation	Machine- Line	
High	42%	58%	32%	41%
Moderate	30	24	30	29
Low	23	18	38	30
Total	100%	100%	100%	100%
(No. of Cases)	(154)	(66)	(146)	(366)

$$dyx = -0.10$$

$$pd = -10$$

TABLE 10: THERE IS NO ASSOCIATION BETWEEN PRODUCTION-
LINE MECHANIZATION AND WORKERS' WILLINGNESS TO
EXERT EFFORT FOR THE SUCCESS OF THE ORGANIZATION.

Organizational Attachment: EFFORT	Production-Line Mechanization			Total
	Handwork and Machine Work	Automation	Machine- Line	
High	52%	67%	46%	52%
Moderate	17	15	19	17
Low	32	18	36	31
Total	101%	100%	101%	100%
(No. of Cases)	(155)	(66)	(146)	(367)

$$dyx = -0.04$$

$$pd = -06$$

TABLE 11: THERE IS NO ASSOCIATION BETWEEN PRODUCTION-
LINE MECHANIZATION AND WORKERS' DESIRE TO
STAY IN THEIR EMPLOYING ORGANIZATIONS.

Organizational Attachment: DESIRE	Production-Line Mechanization			Total
	Handwork and Machine Work	Automation	Machine- Line	
High	17%	36%	23%	23%
Moderate	19	18	15	18
Low	64	46	61	60
Total	100%	100%	99%	101%
(No. of Cases)	(155)	(66)	(145)	(366)

dyx = 0.04

pd = 06

index of organizational attachment. Data in this table indicate that there is no association between production-line mechanization and workers' desire to stay in the employing organization. However, a close inspection of this table suggests that although the association between production-line mechanization and workers' desire to stay in the organization is almost negligible, the direction of relationship is contrary to the major proposition of the research. Surprisingly, workers in machine-line jobs reported themselves more desirous to stay in the employing organization as compared to workers in handwork and hand-operated machine jobs.

In sum, a close examination of the data presented in Tables 9, 10 and 11 also suggests the same conclusion as suggested by the data in Table 8, that is, there is a curvilinear relationship between production-line mechanization and the three sub-indices of organizational attachment.

In brief, our analysis, up to this point, has suggested that the relationship between production-line mechanization and organizational attachment and its three sub-indices is not a direct one but a curvilinear one, that is, in the language of our theoretical argument, organizational attachment is lowest among workers in highly specialized jobs, is highest among workers in moderately specialized jobs, and is moderate among workers in less specialized jobs. This finding leads to two main alternative explanations: either the major proposition of the research that task specialization in jobs is negatively related to organizational attachment is incorrect, or the proposition prevalent in the literature of industrial sociology and organizational behavior that automation represents a moderate degree in task specialization is not true.

In the next section we will examine these two alternative explanations with the data available in the 'Organizational Attachment Survey'.

ALTERNATIVE EXPLANATIONS

If we accept the first alternative explanation, then we may conclude the analysis with the observation that the association between task specialization and overall organizational attachment is not a direct one as was proposed earlier. Rather that it is a curvilinear relationship, that is, organizational attachment is lowest in machine-line jobs, is moderate in handwork and hand-operated jobs, and is highest in automated jobs.

If we reject the first alternative explanation and accept the second one, then it is necessary to test this proposition with the 'outside' measures of task specialization such as task simplification, task repetition, and task fragmentation. In the 'Organizational Attachment Survey' data were available on two of the three measures of task specialization, namely, task simplification² and task repetition³. Tables 12 and 13, respectively, present the joint bivariate distribution on production-line mechanization and task simplification and production-line mechanization and task repetition. Data presented in Table 12 indicate that automated jobs appear to be less simplified to workers. Seventy-seven percent in automated jobs as compared to 54 percent in handwork and hand-operated machine jobs, and only 13 percent of the workers in machine-line jobs reported that they spent more than three months in learning their present jobs. Twenty-three percent of workers in automated

TABLE 12: AUTOMATED JOBS APPEAR TO BE LESS SIMPLIFIED
WHEREAS MACHINE-LINE JOBS APPEAR TO BE
HIGHLY SIMPLIFIED.

Task Simplification	Production-Line Mechanization			Total
	Handwork and Machine Work	Automation	Machine- Line	
High	47%	23%	87%	58%
Low	54	77	13	42
Total	101%	100%	100%	100%
(No. of Cases)	(155)	(66)	(146)	(367)

TABLE 13: AUTOMATED JOBS APPEAR TO BE LEAST REPETITIVE
WHEREAS MACHINE-LINE JOBS APPEAR TO BE GREATLY
REPETITIVE.

Task Repetition	Production-Line Mechanization			Total
	Handwork and Machine Work	Automation	Machine- Line	
High	26%	11%	46%	31%
Low	74	89	54	69
Total	100%	100%	100%	100%
(No. of Cases)	(154)	(65)	(147)	(366)

jobs in comparison to 47 percent in handwork and hand-operated machine jobs and 87 percent in machine-line jobs spent less than three months in learning their present jobs.

Examination of the data in Table 13 suggests the same conclusion suggested by the data in Table 12 -- automated jobs appear to be less repetitive to workers. Eighty-nine percent of the workers working in automated jobs as compared to 74 percent working in handwork and hand-operated machine jobs, and 54 percent working in machine-line jobs reported that they do many different things on their jobs. Eleven percent of the workers in automated jobs in comparison to 26 percent in handwork and hand-operated jobs and 46 percent in machine-line jobs had to do the same thing again and again in their jobs.

In sum, data in Tables 12 and 13 suggest that both task simplification and task repetition are lowest in automated jobs, are moderate in handwork and hand-operated machine jobs, and are highest in machine-line jobs.

RE-ANALYSIS

Since both outside measures clearly suggest that automation represents not a moderate degree of task specialization but a low degree of task specialization, it was decided to re-analyze our data after assigning different scores on the independent variable. We assigned score 1 to departments where the automated jobs predominated considering them as having a low degree in task specialization, and assigned score 2 to departments where the majority of production jobs involved handwork and hand-operated machine work considering them as representing a moderate

degree in task specialization. Table 14 reports the joint bivariate distribution on the production-line mechanization and overall organizational attachment. Data presented in this table suggest a weak negative association between production-line mechanization and overall organizational attachment. Knowledge of the departments in which the workers work gives us 16 percent reduction in error in predicting their organizational attachment. The percentage difference between workers who had high organizational attachment in machine-line jobs and in automated jobs is -25. The percentage difference between workers who had low organizational attachment in machine-line jobs and in automated jobs is +17.

Tables 15, 16 and 17 present the joint bivariate distributions on production-line mechanization and the three sub-indices of organizational attachment. Data in Table 15 indicate that there is a weak negative association between production-line mechanization and workers' attachment to the goals and policies of the employing organization. The -0.18 value of dyx suggests that knowledge about workers' departments reduces 18 percent error in predicting about workers' attachment to the goals and policies of the organization. The percentage analysis indicates that the difference between workers who had high organizational attachment to the goals and policies of the employing organization in machine-line jobs and in automated jobs is -26.

Data presented in Table 16 do not suggest anything different to the data presented in Table 15. Examination of Table 16 indicates that there is a weak association between production-line mechanization and workers' willingness to exert effort for the success of the employing

TABLE 14: THE DATA SHOW A WEAK ASSOCIATION BETWEEN
PRODUCTION-LINE MECHANIZATION AND ORGANIZATIONAL
ATTACHMENT.

Organizational Attachment: INDEX	Production-Line Mechanization			Total
	Automation	Handwork and Machine Work	Machine- Line	
High	44%	21%	19%	24%
Moderate	39	53	47	48
Low	17	27	34	28
Total	100%	101%	100%	100%
(No. of Cases)	(66)	(154)	(146)	(366)

$$dyx = -0.16$$

$$pd = -25$$

TABLE 15: THERE IS A WEAK ASSOCIATION BETWEEN PRODUCTION-LINE MECHANIZATION AND WORKERS' ATTACHMENT TO THE GOALS AND POLICIES OF THE ORGANIZATION.

Organizational Attachment: GOALS	Production-Line Mechanization			Total
	Automation	Handwork and Machine Work	Machine- Line	
High	58%	42%	32%	41%
Moderate	24	30	30	29
Low	18	28	38	30
Total	100%	100%	100%	100%
(No. of Cases)	(66)	(154)	(146)	(366)

$$dyx = -0.18$$

$$pd = -26$$

TABLE 16: THERE IS A WEAK ASSOCIATION BETWEEN PRODUCTION-LINE MECHANIZATION AND WORKERS' WILLINGNESS TO EXERT EFFORT FOR THE SUCCESS OF THE ORGANIZATION.

Organizational Attachment: EFFORT	Production-Line Mechanization			Total
	Automation	Handwork and Machine Work	Machine- Line	
High	67%	52%	46%	52%
Moderate	15	17	19	17
Low	18	32	36	31
Total	100%	101%	101%	100%
(No. of Cases)	(66)	(155)	(146)	(367)

$$dyx = -0.12$$

$$pd = -21$$

TABLE 17: THERE IS LITTLE IF ANY ASSOCIATION BETWEEN
PRODUCTION-LINE MECHANIZATION AND WORKERS' DESIRE
TO STAY IN THEIR EMPLOYING ORGANIZATIONS.

Organizational Attachment: DESIRE	Production-Line Mechanization			Total
	Automation	Handwork and Machine Work	Machine- Line	
High	36%	17%	23%	23%
Moderate	18	19	15	18
Low	46	64	61	60
Total	100%	100%	100%	101%
(No. of Cases)	(66)	(155)	(145)	(366)

$$dyx = -0.07$$

$$pd = -13$$

organization. Knowing the values on the independent variable reduces 12 percent error in predicting the values on the dependent variable. The percentage difference between workers who were willing to exert a high level of effort for the success of the employing organization in machine-line jobs and in automated jobs is -21.

Table 17 suggests that there is no association between production-line mechanization and workers' desire to remain in the employing organization according to dyx. However, the percentage analysis reveals that there is a weak association between the two. The percentage difference between workers who were highly desirous to stay in the present organization in machine-line jobs and in automated jobs is -13.

In sum, our re-analysis of data in the light of the second alternative explanation has, so far, suggested two things. First, there is a direct negative relationship between production-line mechanization and overall organizational attachment. Second, the relationship between production-line mechanization and organizational attachment and its sub-indices though negative is generally weak.

MULTIVARIATE ANALYSIS

In order to observe whether or not the zero order association between production-line mechanization and overall organizational attachment is spurious, the association between production-line mechanization and organizational attachment was examined after controlling test variables -- age, sex, marital status, education, income, length of service, number of jobs held in the present organization, shift-time. Tables C.1 to C.10 (see Appendix C) present the joint bivariate distri-

butions on production-line mechanization and organizational attachment after controlling each of the above test variables, respectively. Examination of these tables indicates that four (age, sex, length of service in the company, number of jobs held in the present company) out of eight test variables appear to be interacting⁴ (Blalock, 1965; Anderson and Zelditch, 1968, pp.170-183; Rosenberg, 1968, pp.105-168; Sonquist, 1970, p.55) with production-line mechanization in affecting organizational attachment. Data presented in (interacting) Tables C.3, C.4, C.8, C.9 (in Appendix C) suggest that there is an association between production-line mechanization and overall organizational attachment only for workers who are in the middle age group (30-44), who are male, who have been in the company for less than five years, and who have held less than three jobs in the present company. For workers who are in the age groups of 18-29 and 45-64, who are female, who have been in the company for more than five years, and who have held three or more jobs in the present company, production-line mechanization is not related to organizational attachment.

Our first order analysis is important in two respects. First, it is important because it, in agreement with Rosenberg's (1968, p.24) argument, "... increases our understanding of the original two variables relationship" between production-line mechanization and organizational attachment by specifying conditions under which this relationship remains intact, increases or disappears. Put differently, it suggests that the organizational attachment of industrial blue-collar workers is influenced not only by the extent of task specialization in their jobs but also by their demographic (age, sex) and background (length of

service, number of jobs held in the present company) characteristics. Second, it is important because it challenges the earlier empirical findings which suggest that task specialization in jobs affects the attitudes and behavior of industrial blue-collar workers notwithstanding demographic and background characteristics of workers. Our analysis in this section has suggested that task specialization affects the attitudes of only those workers who are in the middle age group, who are male, who have been in the company for less than five years and who have held less than three jobs in the present company.

Since in the 'Organizational Attachment Survey' data were available on two of the three measures of task specialization, namely, task repetition and task simplification, we decided to examine the relationship between task repetition and workers' willingness to exert effort for the success of the employing organization and between task simplification and workers' desire to remain in the employing organization. Tables 18 and 19, respectively, present the joint bivariate distributions on task repetition and the second sub-index (effort) of organizational attachment and task simplification and the third sub-index (desire) of organizational attachment. Data in Table 18 indicate that there is a moderate association between task repetition and workers' willingness to exert effort for the success of the employing organization. Our knowledge about the degree of task repetition in workers' jobs reduces 36 percent error in predicting their willingness to exert effort for the success of the employing organization. The percentage difference between workers who were willing to exert high level of effort for the success of their employing organizations in high repetitive jobs and

TABLE 18: THERE IS A MODERATE ASSOCIATION BETWEEN
TASK REPETITION AND WORKERS' WILLINGNESS
TO EXERT EFFORT FOR THE SUCCESS OF THE
ORGANIZATION.

Organizational Attachment: EFFORT	Task Repetition		
	Low	High	Total
High	62%	30%	52%
Moderate	16	20	18
Low	22	50	31
Total	100%	100%	101%
(No. of Cases)	(257)	(114)	(371)

$$dyx = -0.36$$

$$pd = -32$$

TABLE 19: THERE IS A WEAK ASSOCIATION BETWEEN TASK SIMPLIFICATION AND WORKERS' DESIRE TO REMAIN IN THE PRESENT ORGANIZATION FOR AN INDEFINITE PERIOD OF TIME.

Organizational Attachment: DESIRE	Task Simplification		
	Low	High	Total
High	33%	17%	23%
Moderate	20	16	18
Low	48	67	59
Total	101%	100%	100%
(No. of Cases)	(157)	(215)	(372)

$$dyx = -0.22$$

$$pd = -16$$

in low repetitive jobs is -32. Table 19 suggests that there is a weak association between task simplification and workers' desire to remain in the employing organization. Knowledge of the distribution on the independent variable gives 22 percent reduction in error in predicting the dependent variable. The percentage difference between workers who were highly desirous to remain in the present employing organization in high simplified jobs and in low simplified jobs is -16.

In order to observe whether or not the two components of task specialization on which data were available in the 'Organizational Attachment Survey' are related to workers' overall attachment to their organization, we decided to cross-tabulate task repetition and organizational attachment, and task simplification and organizational attachment. Tables 20 and 21 report the joint bivariate distributions on task repetition and overall organizational attachment and task simplification and overall organizational attachment, respectively. It is clear from Table 20 that there is a moderate association between task repetition and organizational attachment. Our knowledge of the values on the independent variable reduces 41 percent error in predicting the values of the dependent variable. Data presented in Table 21 also indicate a moderate negative association between task specialization and organizational attachment. Knowing the degree of simplification in workers' jobs would bring 31 percent reduction in error in predicting their overall organizational attachment. The percentage difference between workers who had high organizational attachment in high simplified jobs and in low simplified jobs is -23.

TABLE 20: THERE IS A MODERATE ASSOCIATION BETWEEN TASK
REPETITION AND ORGANIZATIONAL ATTACHMENT.

Organizational Attachment: INDEX	Task Repetition		
	Low	High	Total
High	32%	8%	25%
Moderate	50	42	48
Low	13	50	28
Total	100%	100%	101%
(No. of Cases)	(256)	(114)	(370)

dyx = -0.41

pd = -24

TABLE 21: THERE IS A MODERATE ASSOCIATION BETWEEN TASK
SIMPLIFICATION AND ORGANIZATIONAL ATTACHMENT.

Organizational Attachment: INDEX	Task Simplification		
	Low	High	Total
High	38%	15%	25%
Moderate	45	50	48
Low	17	36	28
Total	100%	101%	101%
(No. of Cases)	(157)	(218)	(375)

$$dyx = -0.31$$

$$pd = -23$$

TABLE 22: THERE IS A MODERATE ASSOCIATION BETWEEN
TASK REPETITION AND TASK SIMPLIFICATION

Task Simplification	Task Repetition		
	Low	High	Total
High	47%	84%	58%
Low	53	17	42
Total	100%	101%	100%
(No. of Cases)	(257)	(115)	(372)

$$dyx = 0.37$$

$$pd = 37$$

In sum, our analysis in this section has suggested that task repetition and task simplification in jobs, respectively, not only related to workers' willingness to exert effort for the success of the employing organization and to workers' desire to stay in the employing organization but also to workers' overall attachment to their organizations, which gives additional support to our main proposition that task specialization in jobs is negatively related to organizational attachment among industrial blue-collar workers.

It is quite evident from our analysis in this chapter that though task specialization in jobs, as operationalized in terms of production-line mechanization in departments, is negatively related to organizational attachment and its three sub-indices, yet these relationships are generally low in comparison to relationships between 'outside' measures of task specialization (i.e. task repetition and task simplification) and organizational attachment and its sub-indices, which suggests two things. First, production-line mechanization may not be an adequate measure of task specialization. Second, classifying workers' departments instead of workers' jobs into different degrees of task specialization may have introduced error in measurement thereby keeping these relationships low.

CONCLUSIONS

Our analyses in this chapter have suggested the following important conclusions:

First, the proposition prevalent in the literature of industrial sociology and organizational behavior that

automation represents a moderate degree of task specialization may not be true. The data on two 'outside' measures of task specialization clearly indicate that task specialization is lowest at the stage of automation.

Second, task specialization in jobs as exhibited by the production-line mechanization in departments is negatively related to overall organizational attachment for male workers, for workers in the middle age group (30-44), for workers who have been in the company for less than five years and for workers who have held less than three jobs in the present employing company.

Third, task repetition in jobs is negatively related to workers' willingness to exert effort for the success of the employing organization.

Fourth, task simplification in jobs is negatively related to workers' desire to remain in the employing organization.

Fifth, task repetition in jobs is negatively related to workers' overall organizational attachment.

Sixth, task simplification in jobs is negatively related to workers' overall organizational attachment.

FOOTNOTES TO CHAPTER III

1. Since each sub-index was based on four questions, every respondent, potentially, had a chance to score from 0 to 4 in each sub-index: zero by remaining undecided or disagreeing to all positively worded questions and by agreeing or remaining undecided to all negatively worded questions; four by agreeing with all positively worded questions and disagreeing with all negatively worded questions. Workers who scored 3 and 4 on any sub-index were considered high on that sub-index; those who scored 2 were termed moderate; and those who scored 0 and 1 were labelled low on that sub-index.
2. Task simplification was measured with the amount of time spent by a worker in learning his present job. Workers who spent less than three months were considered as having a high degree of task simplification in their jobs. Workers who spent more than three months were considered low on task simplification. The following question was used to obtain information on task simplification in workers' jobs.

How long does a person have to spend in training or experience to be able to handle a job like yours?

- ☐ Less than a month
- ☐ 1-3 months
- ☐ 3 months to 2 years
- ☐ Over 2 years

MARGINAL DISTRIBUTION ON TASK SIMPLIFICATION

<u>Task Simplification</u>	<u>Frequency</u>	<u>Percentage</u>
High	218	58%
Low	157	42%
Non-Response	2	1%
Total	377	101%

3. The following question was used to measure the degree of task repetition in workers' jobs:

In your jobs,

_____ Do you do many different things?

_____ Do you do the same thing over and over?

MARGINAL DISTRIBUTION ON TASK REPETITION

<u>Task Repetition</u>	<u>Frequency</u>	<u>Percentage</u>
High	115	31%
Low	258	68%
Non-Response	4	1%
Total	377	100%

4. Different writers use different terms for the phenomenon of "interaction". For example, some call it Specification, while others call it Interpretation or Conditional Relationship. But all of them agree that it refers to the condition where the original relationship is more pronounced in some partial tables than others when the total sample is divided by any third variable.

CHAPTER IV DISCUSSION

It was argued in the first chapter that although task specialization in jobs has increased efficiency and productivity, it has also given rise to a number of human as well as technical problems in industrial organizations. Since the research reported in this thesis is an attempt to carry forward our understanding of the human problems associated with increased task specialization, in the present chapter we would like to discuss the major findings of our research in the light of the available empirical researches on task specialization, task repetition, and task simplification. The following are the major findings suggested by the 'Organizational Attachment Survey':

1. There is a negative relationship between task specialization and the overall organizational attachment among industrial blue-collar workers.
2. There is a negative relationship between task repetition and workers' willingness to exert effort for the success of the organization.
3. There is a negative relationship between task simplification and workers' desire to remain in the present employing organization.

We feel, however, that no direct comparison is possible between the findings of this research and those of the available empirical researches in the area for two reasons. First, the uniqueness of the sample of workers we selected for the 'Organizational Attachment Survey'. Most of the researchers in the area of task specialization included in their samples not only production workers but also maintenance personnel, utilitymen, and delivery workers. Our sample consisted only of production

workers on the ground that a true representation of different degrees of task specialization is found only among production workers. Second, the phenomenon of organizational attachment, to our knowledge has never been examined, prior to this study, among industrial blue-collar workers¹. Therefore, nothing is available in the literature with which we could directly compare the findings of the 'Organizational Attachment Survey'. However, we feel that the researches focusing on workers' attitudes towards their jobs and the employing company are somewhat similar to organizational attachment and, therefore, might be useful for comparison purposes.

Social scientists and especially industrial social scientists have assumed that the degree of task specialization in jobs affects the attitudes and behavior of industrial workers, and as a result quite a few empirical researches have been conducted in this direction. But, unfortunately, the results of these researches are, as Warren argues (1958, pp.435-439), "... not as clear as we need them to be". A bird's eye view of the literature in industrial sociology and organizational behavior suggests that there is an on-going debate among scholars about whether or not increased task specialization in jobs adversely affects the attitudes and behavior of industrial workers. Scholars who believe that task specialization is not undesirable put forward the argument that workers' attitudes are not merely a function of the job, rather it is a function of both man and machine; a function of the man-job interaction (MacKinney, et al., 1962, pp.8-17). They also argue that if industry were to start reducing task specialization, it would end by finding itself back where the Industrial Revolution began. All auto-

mobiles would be individually hand-crafted and mass production would cease to exist. Thus for these scholars task specialization is neither an important factor in influencing workers' attitudes and behavior nor something to be avoided.

Scholars who believe that task specialization is undesirable advance the argument that though the majority of industrial workers are satisfied with their wages, general working conditions and supervision², yet for a substantial percentage of workers work does not appear to be a "meaningful activity" (Chinoy, 1956; Blauner, 1964; Shepard, 1969, 1971, 1972). They argue that the widespread feelings of alienation among industrial workers is primarily due to a high degree of task specialization in jobs. Thus, for these scholars task specialization per se is the main cause of workers' negative attitudes towards work and enterprise.

The empirical studies available in the area of task specialization and workers' attitudes and behavior overwhelmingly support the point of view of the writers in the latter category³. As early as 1930, Fairchild observed a significant association between task simplification and work satisfaction. The work of Charles Walker and his associates (Walker, 1950; Walker and Guest, 1952; Guest, 1954; Guest, 1957) at the Yale University under the 'Technology Project' has clearly shown the adverse effects of task specialization on workers' attitudes and behavior in different organizational settings. Turner's (1955) research indicated that task repetition was one of the most important sources of workers' dissatisfaction with work and company. Both Blauner's (1964) and Chinoy's researches suggested that workers high on task specialization tended to be less satisfied with their work and company. Turner and Lawrence (1965)

found a significant association between 'task complexity' and absence behavior. Alderfer (1969), after reviewing several empirical researches on job enlargement concludes that "... overall job satisfaction tends to be higher in enlarged jobs, and that the meaningfulness of the job tends to be higher in the enlarged job than in the more routine kind of blue-collar job". More recently, Shepard (1971) observed that workers high on 'functional specialization' were also high on the various dimensions of alienation -- powerlessness, normlessness, meaninglessness, self-evaluative involvement, and instrumental work orientation.

We, thus, feel that the results of the 'Organizational Attachment Survey' are the logical extension of the findings of the researchers who believe that task specialization affects workers' attitudes and behavior. Whereas the available empirical researches in the area clearly suggest that workers' overall satisfaction with work and company is influenced largely by the degree of task specialization in jobs, the 'Organizational Attachment Survey' suggests that workers' overall attachment to their employing organizations is also influenced by the extent of specialization in jobs.

DIRECTION FOR FUTURE RESEARCH

The research reported in this thesis has suggested the importance of task specialization in affecting workers' attachment to their employing organizations. We feel empirical research of this kind is helpful in understanding the relationship between the worker and his employing organization, and thus the industrial relations of the plant.

But before anything definite can be said about the role of this kind of research in understanding industrial relations, it is necessary to have extensive empirical researches in this direction not only among industrial workers in different socio-cultural settings but also among workers in a variety of occupational settings.

Another possible direction for further research in this area might be to examine whether or not the organizational attachment has any relationship with job performance. Empirical research in the area of job attitudes and job performance (Brayfield and Crockett, 1955, pp.268-282; Miles, 1970, pp.405-407) has, so far, failed to show a clear relationship between work satisfaction and work performance. We feel that workers who support the goals and policies of their employing organizations, are willing to exert effort for the success of their organizations and are highly desirous to remain in their present employing organizations are also likely to be highly productive workers.

FOOTNOTES TO CHAPTER IV

1. However, there are some researches conducted on organizational attachment among supervisory personnel. See Porter and Smith. 1971. "The Etiology of Organizational Commitment: A Longitudinal Study of Initial Stages of Employee-Organization Relationships". Department of Business Administration, University of California, Irvine. O. Grusky. 1966. "Career Mobility and Organizational Commitment". Administrative Science Quarterly. 10: 488-503.
2. For example, Blauner (1960) reports that more than two-thirds of the industrial workers in many industrially developed countries are satisfied. See R. Blauner. "Work Satisfaction and Industrial Trends in Modern Society". In W. Galenson and S. Lipset. Editors. 1960. Labor and Trade Unionism. New York: Wiley, pp.339-366.
3. There are, however, few studies which concluded contrarily, for example, Kennedy and O'Neill (1958), Kilbridge (1961), and Goldthorpe (1966, 1968).

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APPENDIX A

Companies Contacted for Survey

Nature of Product	Response to OAS	Reasons for not Including in Survey
1. Textile	Rejected	Concern over Organizational Attachment
2. Printing	Rejected	Union Refusal
3. Oil Refining	Rejected	Union Refusal
4. Meat Packing	Accepted - Surveyed	-
5. Engineering	Accepted - Not Surveyed	Plant was in Edmonton
6. Refining and Packing	Accepted - Surveyed	-
7. Truck Manufacturing	Rejected	Management Refusal
8. Telephone Transmission	Accepted - Surveyed	-
9. Oil Refining	Rejected	Union Refusal
10. Power Generation and Distribution	Accepted - Surveyed	-
11. Gas Distribution	Accepted - Not Surveyed	Time and Motion Research was in Progress
12. Milk Products	Accepted - Surveyed	-
13. Paper Products	Accepted - Not Surveyed	Over-Representation of Machine-Line Jobs
14. Truck Manufacturing	Accepted - Not Surveyed	Over-Representation of Machine-Line Jobs
15. Chemical Products	Rejected	Plant Extension was in Progress

APPENDIX E

Organizational Attachment Questionnaire

THE UNIVERSITY OF BRITISH COLUMBIA

VANCOUVER 8, CANADA

DEPARTMENT OF
ANTHROPOLOGY AND SOCIOLOGY

I am a graduate student at the University of British Columbia interested in the different kinds of work people do and how they feel about their work. I am asking you to help me in my research. The information you provide will be important in extending my understanding of the linkages between people and their work.

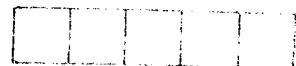
The attached questionnaire should take only a few minutes of your time. Most of the questions can be answered by a simple check mark. Please ignore any numbers you see on the questionnaire -- I will use them simply to tabulate answers.

Your individual answers will be held in strict confidence. This is a scientific study which I am doing as part of my graduate training. No single person can be identified on the basis of his answers since no one is required to put his name on the questionnaire. Furthermore, answers will always be studied and reported as group statistics representing the entire group of people who participate in my research.

Thank you for your interest in supporting my research.

Yours sincerely,

Muhammad Jamal



SOME QUESTIONS ABOUT YOUR WORKING HISTORY

The following questions are about your working history. Please answer these questions to the best of your ability by checking the appropriate boxes and filling in the information about your present job.

19 How long have you worked for this company?

- 1 ☐ Less than 6 months
- 2 ☐ 6 months to 2 years
- 3 ☐ 2 years to 5 years
- 4 ☐ 5 years to 10 years
- 5 ☐ Over 10 years

20-21 What department or section do you work in?

--	--

22 What shift do you work?

- 1 ☐ Morning
- 2 ☐ Afternoon
- 3 ☐ Night

23 What is your present job title?

--

24 How long does a person have to spend in training or experience to be able to handle a job like yours?

- 1 ☐ Less than 1 month
- 2 ☐ 1 - 3 months
- 3 ☐ 3 months to 2 years
- 4 ☐ Over 2 years

25 How many different jobs have you held altogether in this company?

--

 Jobs

26-27 How many full-time jobs have you held for 6 months or more since you finished school?

--

 Jobs

28-29 How many different companies have you worked for full-time, for 6 months or more, since you finished school?

--

 Companies

PLEASE TURN TO NEXT PAGE

SOME QUESTIONS ABOUT YOU

As a starting point, I'd like to find out a little about you. Other research has shown that a person's age, sex, etc. influence the way he thinks about work. I want to see if this is true. Could you please answer the following questions as accurately as possible. Remember, your answers are confidential and will only be reported in group statistics.

6 What is your status in Canada?

- 1 ☐ Citizen
- 2 ☐ Landed Immigrant
- 3 ☐ Other

7 How old were you on your last birthday?

Years old

9 Are you: ☐ Male ☐ Female

10 How many years of regular school have you completed?

Years

12 Are you: ☐ Single
☐ Married
☐ Separated
☐ Widowed
☐ Divorced

13 Do you have any children living at home?

1 ☐ No
 2 ☐ Yes → How many?

14 Children

15 If married, does your spouse also work?

- 1 ☐ No
- 2 ☐ Yes

16 About how much does your spouse earn a month before taxes?

- 1 ☐ Spouse doesn't work
- 2 ☐ Under \$300
- 3 ☐ \$300 - \$450
- 4 ☐ \$450 - \$600
- 5 ☐ \$600 - \$750
- 6 ☐ \$750 or more

17 On the average, approximately how much do you earn a month before taxes?

- 1 ☐ Under \$300
- 2 ☐ \$300 - \$450
- 3 ☐ \$450 - \$600
- 4 ☐ \$600 - \$750
- 5 ☐ \$750 or more

18 Do you have sources of income other than your (and your spouses salaries?)

- 1 ☐ No
- 2 ☐ Yes

PLEASE TURN TO NEXT PAGE

SOME QUESTIONS ABOUT YOUR WORKING HISTORY

The following questions are about your working history. Please answer these questions to the best of your ability by checking the appropriate boxes and filling in the information about your present job.

19 How long have you worked for this company?

- 1 ☐ Less than 6 months
- 2 ☐ 6 months to 2 years
- 3 ☐ 2 years to 5 years
- 4 ☐ 5 years to 10 years
- 5 ☐ Over 10 years

24 How long does a person have to spend in training or experience to be able to handle a job like yours?

- 1 ☐ Less than 1 month
- 2 ☐ 1 - 3 months
- 3 ☐ 3 months to 2 years
- 4 ☐ Over 2 years

20-21 What department or section do you work in?

--	--

25 How many different jobs have you held altogether in this company?

--

 Jobs

22 What shift do you work?

- 1 ☐ Morning
- 2 ☐ Afternoon
- 3 ☐ Night
- 4 ☐ Swing Shifts

26-27 How many full-time jobs have you held for 6 months or more since you finished school?

--

 Jobs

28 What is your present job title?

--

28-29 How many different companies have you worked for full-time, for 6 months or more, since you finished school?

--

 Companies

PLEASE TURN TO NEXT PAGE

SOME QUESTIONS ABOUT YOUR JOB

Here are some questions about your job. I have reason to believe that certain things about a person's job influence how he feels about work. Please describe your job by checking the appropriate answers to the following questions.

30 Can you talk to the people around you when you are working?

- 1 ☐ No
- 2 ☐ Yes

34 In your job are there,

- 1 ☐ Slack periods when you can do what you want?
- 2 ☐ No breaks except for lunch and coffee breaks?

31 Can you think about things other than your job when you are working,

- 1 ☐ Never?
- 2 ☐ Hardly ever?
- 3 ☐ Some of the time?
- 4 ☐ Most of the time?

35 In your job,

- 1 ☐ Do you do many different things?
- 2 ☐ Do you do the same thing over and over?

32 Does your job require you to work at a certain speed?

- 1 ☐ No
- 2 ☐ Yes.

36 Can you move around the factory while doing your job?

- 1 ☐ No
- 2 ☐ Yes

33 In working at your job,

- 1 ☐ Can you stop working when you need to?
- 2 ☐ Must you wait to be relieved before you can stop working?

37 Does your job require that you watch your machine or whatever you are doing,

- 1 ☐ All the time?
- 2 ☐ Most of the time?
- 3 ☐ Now and then?

PLEASE TURN TO NEXT PAGE

YOUR FEELINGS ABOUT WORK

Listed below and on the next page are a final series of statements about feelings people might have about work. Please indicate whether you agree, disagree or are undecided about each of these statements with a check mark.

	AGREE	UNDECIDED	DISAGREE
	1	2	3
38 In my free time, I most like to talk about work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe that work is more important than anything else.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40 Work is my major interest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer work over everything else I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The things this company makes are important to Canada.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am willing to work extra hard at my job in order to help this company be successful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would accept almost any type of job assignment in order to keep working for this company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45 I find my goals and this company's are very similar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There's not too much to be gained by sticking with this company indefinitely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47 This company really inspires the very best in me in the way of job performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PLEASE TURN TO NEXT PAGE.....

AGREE UNDECIDED DISAGREE

48 Often, I find it difficult to agree with company policies on important matters relating to employees.

1	2	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I would keep working for this company even if I were offered more money to work somewhere else.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

50 I don't mind putting in extra time if the company needs me to.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

It bothers me very much to be absent from work.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

I could just as well be working for a different company as long as the type of work were similar.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

54 I really care about the fate of this company.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

.....

54 Overall, how do you feel about working for this company?

- 1 ☐ Very Satisfied
- 2 ☐ Satisfied
- 3 ☐ Indifferent
- 4 ☐ Dissatisfied
- 5 ☐ Very Dissatisfied

55 Overall, how do you feel about your job?

- 1 ☐ Very Satisfied
- 2 ☐ Satisfied
- 3 ☐ Indifferent
- 4 ☐ Dissatisfied
- 5 ☐ Very Dissatisfied

THANK YOU VERY MUCH FOR YOUR COOPERATION

APPENDIX C

Tables of Multivariate Analysis

TABLE C.1: ONLY AGE, LENGTH OF SERVICE AND COMPANY
APPEAR TO BE RELATED TO ORGANIZATIONAL
ATTACHMENT.

Test Variables	N	Organizational Attachment			
		Low	Moderate	High	Total
<u>Age</u>					
45-64 years	121	18%	53%	29%	100%
30-44 years	148	26	47	28	101
Under 30 years	98	43	44	13	100
<u>Sex</u>					
Male	256	26	49	25	100
Female	117	32	45	23	100
<u>Education</u>					
Over 10 years	204	31	46	24	101
Up to 10 years	164	24	51	26	101
<u>Income per Month</u>					
Over \$600	184	23	52	25	100
Under \$600	190	31	44	25	100
<u>Length of Service</u>					
Over 5 years	214	19	54	27	100
Under 5 years	163	39	40	22	101
<u>Marital Status</u>					
Single	62	34	44	23	101
Married	266	26	50	24	100
Others	49	27	43	31	101

/Contd.

TABLE C.1 (Contd.)

Test Variables	N	Organizational Attachment			
		Low	Moderate	High	Total
<u>Shift-time</u>					
Morning	216	29%	49%	22%	100%
Afternoon/Evening	39	26	39	36	101
Swing Shift	113	25	49	27	101
<u>No. of Jobs held in the Company</u>					
3 and more Jobs	169	24	55	21	100
Up to 2 Jobs	204	30	42	28	100
<u>Company</u>					
A	63	35	43	22	100
B	39	10	49	41	100
C	34	27	51	21	99
D	135	28	49	23	100
E	27	26	26	48	100
F	76	33	54	13	100

TABLE C.2: AGE, SEX, EDUCATION, INCOME, SHIFT-TIME AND
COMPANY ARE RELATED TO PRODUCTION-LINE
MECHANIZATION.

Test Variables	N	Production-Line Mechanization			Total
		Automation	Handwork	Machine-Line	
<u>Age</u>					
45-64 years	118	31%	16%	53%	100%
30-44 years	146	13	54	32	99
Under 30 years	97	5	57	38	100
<u>Sex</u>					
Male	250	26	34	40	100
Female	115	0	58	42	100
<u>Education</u>					
Over 10 years	202	20	53	28	101
Up to 10 years	158	16	29	55	100
<u>Income per Month</u>					
Over \$600	179	27	39	34	100
Under \$600	187	9	44	47	100
<u>Length of Service</u>					
Over 5 years	208	24	35	42	101
Under 5 years	161	11	52	38	101
<u>Marital Status</u>					
Single	62	10	39	52	101
Married	261	21	43	37	101
Others	46	13	44	44	101

/Contd.

TABLE C.2 (Contd.)

Test Variables	N	Production-Line Mechanization			Total
		Automation	Handwork	Machine-Line	
<u>Shift-time</u>					
Morning	214	2%	53%	45%	100%
Afternoon/Evening	39	21	15	64	101
Swing Shift	110	49	28	23	100
<u>No. of Jobs held in the Company</u>					
3 and more Jobs	167	19	37	44	100
Up to 2 Jobs	198	17	47	36	100
<u>Company</u>					
A	63	0	2	98	100
B	39	95	0	5	100
C	34	9	19	72	100
D	133	1	99	0	100
E	27	100	0	0	100
F	75	0	21	79	100

TABLE C.3: THERE IS A MODERATE NEGATIVE ASSOCIATION BETWEEN PRODUCTION-LINE MECHANIZATION AND ORGANIZATIONAL ATTACHMENT ONLY FOR WORKERS IN THE MIDDLE AGE GROUP (30-44).

Organizational Attachment	AGE											
	18-29				30-44				45-64			
	<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>			
	Auto- mation	Hand- work	Machine- Line	Total	Auto- mation	Hand- work	Machine- Line	Total	Auto- mation	Hand- work	Machine- Line	Total
High	40%	11%	11%	12%	70%	27%	13%	29%	32%	21%	30%	29%
Moderate	40	46	43	44	10	54	52	47	54	68	46	52
Low	20	44	46	43	20	19	35	24	14	11	25	19
Total	100%	101%	100%	99%	100%	100%	100%	100%	100%	100%	101%	100%
(No. of Cases)	(5)	(55)	(37)	(97)	(20)	(74)	(46)	(144)	(37)	(19)	(61)	(117)

dyx = -0.09

pd = -29

dyx = -0.30

pd = -57

dyx = -0.08

pd = -2

TABLE C.4: THERE IS A WEAK NEGATIVE ASSOCIATION BETWEEN PRODUCTION-LINE MECHANIZATION AND ORGANIZATIONAL ATTACHMENT ONLY FOR MALE WORKERS.

Organizational Attachment	SEX							
	Male				Female			
	<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>			
	Automation	Handwork	Machine-Line	Total	Automation	Handwork	Machine-Line	Total
High	44%	17%	19%	25%	0%	27%	20%	24%
Moderate	39	59	47	49	0	44	48	46
Low	17	25	34	26	0	29	33	30
Total	100%	101%	100%	100%	0%	100%	101%	100%
(No. of Cases)	(66)	(85)	(99)	(250)	(0)	(66)	(46)	(112)

dyx = -0.20

pd = -25

dyx = -0.08

pd = -07

TABLE C.5: PRODUCTION-LINE MECHANIZATION IS RELATED TO ORGANIZATIONAL ATTACHMENT FOR SINGLE WORKERS, MARRIED WORKERS AND FOR WORKERS WHO WERE SEPARATED, WIDOWED OR DIVORCED.

Organizational Attachment	MARITAL STATUS											
	Single				Married				Other			
	<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>			
	Auto- mation	Hand- work	Machine- Line	Total	Auto- mation	Hand- work	Machine- Line	Total	Auto- mation	Hand- work	Machine- Line	Total
High	33%	25%	19%	23%	43%	19%	18%	24%	67%	25%	26%	31%
Moderate	50	38	41	40	39	56	51	51	33	50	42	44
Low	17	38	41	37	19	25	32	26	0	25	32	24
Total	100%	101%	101%	100%	101%	100%	101%	101%	100%	100%	100%	99%
(No. of Cases)	(7)	(24)	(32)	(62)	(54)	(110)	(95)	(259)	(6)	(20)	(19)	(45)

dyx = -0.11

pd = -14

dyx = -0.16

pd = -25

dyx = -0.22

pd = -41

TABLE C.6: PRODUCTION-LINE MECHANIZATION IS RELATED TO ORGANIZATIONAL ATTACHMENT FOR WORKERS WHO HAD 10 YEARS OF EDUCATION AND FOR WORKERS WHO HAD OVER 10 YEARS OF EDUCATION.

Organizational Attachment	EDUCATION							
	Up to 10 Grade				Over 10 Grade			
	<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>			
	Automation	Handwork	Machine-Line	Total	Automation	Handwork	Machine-Line	Total
High	52%	22%	21%	26%	40%	19%	18%	23%
Moderate	36	59	51	51	40	51	41	46
Low	12	20	28	23	20	30	41	31
Total	100%	101%	100%	100%	100%	100%	100%	100%
(No. of Cases)	(25)	(46)	(85)	(156)	(40)	(105)	(56)	(201)

dyx = -0.20

pd = -31

dyx = -0.18

pd = -22

TABLE C.7: PRODUCTION-LINE MECHANIZATION IS RELATED TO ORGANIZATIONAL ATTACHMENT FOR WORKERS WHO WERE EARNING LESS THAN \$600 A MONTH AND FOR WORKERS WHO WERE EARNING OVER \$600 A MONTH.

Organizational Attachment	INCOME PER MONTH							
	Under \$600				Over \$600			
	<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>			
	Automation	Handwork	Machine-Line	Total	Automation	Handwork	Machine-Line	Total
High	53%	27%	19%	26%	41%	14%	20%	24%
Moderate	35	44	46	44	41	63	50	53
Low	12	29	35	30	18	14	30	24
Total	100%	100%	100%	100%	100%	101%	100%	100%
(No. of Cases)	(17)	(82)	(85)	(184)	(49)	(70)	(60)	(179)

dyx = -0.18

pd = -34

dyx = -0.15

pd = -21

TABLE C.8: THERE IS A NEGATIVE ASSOCIATION BETWEEN PRODUCTION-LINE MECHANIZATION AND ORGANIZATIONAL ATTACHMENT ONLY FOR WORKERS WHO HAVE BEEN IN THE COMPANY FOR LESS THAN FIVE YEARS.

Organizational Attachment	LENGTH OF SERVICE							
	Up to 5 Years				Over 5 Years			
	<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>			
	Automation	Handwork	Machine-Line	Total	Automation	Handwork	Machine-Line	Total
High	65%	18%	13%	21%	37%	24%	24%	27%
Moderate	24	45	39	41	45	61	53	54
Low	12	37	48	38	18	15	24	19
Total	101%	100%	100%	100%	100%	100%	101%	100%
(No. of Cases)	(17)	(82)	(61)	(160)	(49)	(72)	(85)	(206)

dyx = -0.26

pd = -52

dyx = -0.09

pd = -13

TABLE C.9: THERE IS A NEGATIVE ASSOCIATION BETWEEN PRODUCTION-LINE MECHANIZATION AND ORGANIZATIONAL ATTACHMENT ONLY FOR WORKERS WHO HELD LESS THAN THREE JOBS IN THE PRESENT COMPANY.

Organizational Attachment	NO. OF JOBS HELD IN THE COMPANY							
	Less than 3 Jobs				3 and more Jobs			
	<u>Production-Line Mechanization</u>				<u>Production-Line Mechanization</u>			
	Automation	Handwork	Machine-Line	Total	Automation	Handwork	Machine-Line	Total
High	59%	23%	20%	28%	28%	18%	20%	21%
Moderate	29	51	38	43	50	55	56	55
Low	12	26	42	29	22	27	24	25
Total	100%	100%	100%	100%	100%	100%	100%	101%
(No. of Cases)	(34)	(92)	(71)	(197)	(32)	(62)	(71)	(165)

dyx = -0.27

pd = -39

dyx = -0.03

pd = -8

TABLE C.10: PRODUCTION-LINE MECHANIZATION IS RELATED TO ORGANIZATIONAL ATTACHMENT FOR WORKERS WORKING IN MORNING, AFTERNOON AND NIGHT SHIFTS AND FOR WORKERS WHO SWING SHIFTS.

Organizational Attachment	SHIFT-TIME											
	Morning				Afternoon/Night				Swing			
	Production-Line Mechanization				Production-Line Mechanization				Production-Line Mechanization			
	Auto-mation	Hand-work	Machine-Line	Total	Auto-mation	Hand-work	Machine-Line	Total	Auto-mation	Hand-work	Machine-Line	Total
High	75%	23%	17%	21%	75%	17%	28%	36%	37%	16%	20%	27%
Moderate	25	52	49	50	25	33	44	39	43	58	48	48
Low	0	25	34	28	0	50	28	26	20	26	32	25
Total (No. of Cases)	100% (4)	100% (113)	100% (94)	99% (211)	100% (8)	100% (6)	100% (25)	101% (39)	100% (54)	100% (31)	100% (25)	100% (110)

dyx = -0.15

pd = -58

dyx = -0.27

pd = -47

dyx = -0.17

pd = -17