LABOUR TURNOVER IN
THE BUILDING INDUSTRY

A thesis
submitted in partial fulfilment
of the requirements for the Degree
of
Master of Arts in Psychology
in the
University of Canterbury
by
D. G. Miller

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ABSTRACT

This is a study of the turnover of carpenters in the building industry in Auckland and Wellington. The literature on labour turnover was critically reviewed, and a research rationale developed, focussing on turnover of building firms and tenure of carpenters, through extensive surveys of each. The extent, nature and personal characteristics of carpenters associated with tenure were investigated. Also studied were the cost of turnover to firms, and the financial implications of turnover for carpenters. Turnover was found to be moderately high, mostly voluntary and to vary greatly between firms. Organisational and other characteristics of firms were found to relate to turnover, but were not always stable across firms of different sizes and undertaking different types of work. Several personal characteristics of carpenters were found to relate to tenure. While the cost of turnover varied greatly between firms, most carpenters lost no working time in changing jobs, and most increased their income as a result of the job change. The research findings and related methodological and conceptual issues are discussed.
CHAPTER I

INTRODUCTION

I. ORIGIN OF THE RESEARCH

In 1971, the author was employed by a research organisation providing research and advice to all sectors of the New Zealand building industry, to undertake research into labour recruitment and turnover in that industry. This thesis does not cover recruitment, although the topic was researched simultaneously with turnover.

Labour turnover statistics for the building industry have never been recorded by the New Zealand Department of Labour. Building industry employees have thereby been placed in the same category as seasonal workers. This treatment reflects the traditional nature of the industry in which employees were often taken on by companies for a contract and frequently laid off at its completion.

However, since World War II, the more steady availability of work has altered the employment pattern of most building industry labour in New Zealand. Tradesmen in particular have generally been employed on a permanent basis. Retrenchment has become much less common, and necessary mainly in times of particularly adverse economic conditions.
Prior to World War II it would have been difficult to justify applying the accepted notion of labour turnover to the building industry because of its inherent employment instability. It would have been necessary to restrict any measurement of turnover to large-scale individual contracts spanning a long period. This was in fact done by Koon (1919). The described changes in employment since then have been such that labour turnover in that industry has become meaningful both as an academic and an industry problem.

II. PREVIOUS RESEARCH

The historical employment pattern in the building industry - evident in other Western countries at least as much as in New Zealand - may account for the lack of formal investigations into labour turnover in building and construction. (For the purposes of this discussion, "building" and "construction" may be considered as synonymous). Gaudet (1960b) listed 636 references on labour turnover, spanning approximately 1915-58. He categorised his references by industry, but listed only two relating specifically to the construction industry. Both are dated 1919, and only one contains significant information on labour turnover (Koon, 1919). The information is of limited value because it relates to highly atypical war-time circumstances. Pettman (1970) listed 367 references to "labour turnover studies".
As is also true of Gaudet's references, some are informal articles from industry magazines rather than research studies. None of Pettman's titles include the words "building" or "construction".

The only other studies making more than passing reference to labour turnover in the building industry are a British Committee of Inquiry into labour issues in building and civil engineering (Phelps Brown Report, 1968), and portions of two British studies reported by Nelson (1969). None of these considerable research efforts were aimed primarily at labour turnover. With these exceptions it was necessary in surveying the literature on labour turnover to turn to non-building industry studies. The Phelps Brown Report was, however, considered sufficiently important to warrant a separate review at the end of the survey.
CHAPTER II

REVIEW OF THE LITERATURE ON LABOUR TURNOVER

I. INTRODUCTION

Labour turnover has been a subject for study for more than half a century. Gaudet (1960b) graphed the number of articles on the subject from before 1915 up to 1958. He noted that interest in the subject has been greatest during periods of labour shortages. For example, there was a surge of articles during World War I and the years immediately following, and a dearth of publications during the economic depression of the early 1930's.

This chapter describes research into numerous aspects of labour turnover, and encompasses a small number of methodological discussions of the subject. These discussion-type references are largely restricted to the measurement and cost of labour turnover.

II. DEFINITION AND MEASUREMENT OF LABOUR TURNOVER

An initial distinction needs to be drawn between labour mobility and turnover (Gaudet 1960a). Whereas mobility refers to the movement of labour between regions, occupations or industries, the term labour turnover applies only to workers moving to and from particular employing organisations. Turnover may be considered a particular case of mobility.
Definition and measurement of turnover may be viewed as elements of the same problem. Gaudet in fact notes that definitions have tended to derive from measurement formulae, rather than vice-versa. Defining turnover as "the number of employees leaving during a particular period of time" is in effect simply a translation of a basic turnover measurement formula. The following discussion therefore pertains equally to definition and measurement.

The difficulty in obtaining a satisfactory formula for measuring turnover is illustrated by the 25 formulae enumerated by Gaudet. Most of these formulae can be categorised broadly into two groups:

(i) termination measures;
(ii) length of service measures.

Gaudet also cites an accession formula based on the number of employees hired or rehired.

The basic formula for measuring terminations has traditionally been the number of employees leaving an organisation over a specified period, usually a year, divided by the average number of employees in the organisation during the period concerned.

Many of the 25 formulae cited by Gaudet are variations of this basic measure. The variations have been introduced to improve the meaningfulness of the turnover measure, or to make it useful for a specific purpose.
Perhaps the most important modifications are the following:

(i) measuring only those leavers who are actually replaced;

(ii) including only avoidable (controllable) separations, and omitting internal transfers and unavoidable separations (e.g. illness, retirement);

(iii) differentiating between voluntary and involuntary separations. The latter comprise lay-offs and dismissals.

Long (1951) argued against including redundancy (also known as retrenchment or lay-offs) in turnover figures on the grounds that redundancy differs from other labour losses in its responses to certain changes in the general economic environment, especially fluctuations in employment. This was confirmed by Behrend (1952) and Knowles (1965).

In contrast to their results, Stoikov and Raimon (1968) found that redundancies and voluntary quits co-varied. This contradictory finding is discussed in section V of this chapter.

Although the various measures of labour turnover described above are intended as improvements on the basic measure, they too have their problems. Retrenchment in one case described by Knowles (1965) extended to dismissing those with poor attendance records, which indicates that the distinction between redundancy and other forms of
dismissal can be a fine one. "Unavoidable" turnover has been defined in several different and not always consistent ways (cf Gaudet, 1960a; Van der Merwe and Miller, 1971).

The second broad set of measures pertain to length of service. In this case, it is not as easy to identify a "most common" measure on which the others are based. Silcock (1955) devised a wastage rate which recorded for a given group of entrants, the number of survivors at specified points in time, e.g. after three months, six months, nine months and so on. He also originated the idea of the "half-life", i.e. the time taken for half of a group of new entrants to terminate their employment. Duncan (1955) developed a measure of the number of staff employed with one year's experience as a proportion of those employed one year earlier.

Gaudet's generally comprehensive discussion of measures of length of service does not include a simple breakdown of length of service, irrespective of recruitment date. Approaches along this line have been adopted by several researchers. For example, Ley (1966) established two groups of former employees with different length of service histories (less than one month; one month up to one year) and recorded the average length of service of each group; Byrt (1948), Long (1951) and Saleh, Lee and Prien (1965) measured length of service
of leavers; Minor (1958) and Shott, Albright and Glennon (1963) studied short and long tenure groups of present employees. These approaches do not suffer from the constraint of requiring all subjects studied in a group to have commenced employment at the same time. This constraint is a severe practical limitation on Silcock's measure, and on a similar measure adopted by Rice, Hill and Trist (1950). The difficulty is illustrated by the results of Mason (1962) who applied Silcock's method in a manufacturing concern. Presumably to obtain sufficiently large entrant groups, Mason categorized entrants over a series of three month periods into groups. He then recorded leavers and survivors of each group after various times, commencing with "under three months". Given the three month range of possible recruitment dates for each group of entrants, length of service of leavers and survivors in the "under three months" group could theoretically have varied from less than one day up to six months (Mason, 1962, Table 1, p.14). A similar criticism may be made of Knowles' (1965a) results.

Knowles (1965a) and Van der Merwe and Miller (1971) have pointed out that a measure such as Silcock's is really only suitable for large establishments where a sizeable group of entrants may be recruited at one time. This point is especially important in New Zealand, where many companies are small, and frequently employ new staff on an individual basis or in very small numbers.
Both Knowles, Van der Merwe and Miller suggest using another measure of tenure - the proportion of workers who have been employed by a firm for various periods of time, measured at one point in time. Thus a firm could determine the stability of its workforce by the proportion of workers who had been with it for three months, six months, one year, two years, and so on. Van der Merwe and Miller state that this conceptualization could enable a firm to establish at what point or points in the length of service distribution workers were most likely to leave. They indicate that reasons for leaving could vary with length of service. In similar vein, MacLeod (1968) advocates analysis of the periods for which workers engaged in the past have remained with a firm. Significantly, this measure was adopted in two rare building industry studies (Koon, 1919; Phelps Brown Report, 1968). The possibility of there being practical difficulties in persuading companies to adopt anything more than simple measures of turnover has received little attention in the literature. The problem is briefly touched on in a review of labour turnover research by Moffat and Hill (1970). After referring to "six main measures", they give the formula only for the simple separation rate - leavers expressed as a percentage of average number employed. They emphasise that the calculation of more specific indices involves extra effort, which is only justified if the indices are to be used in a purposeful manner.
Spencer (1970), in a study of 317 Australian firms each employing fewer than 300 people, found that only 12% of the firms bothered to measure labour turnover. Nearly all of these were in the manufacturing sector. Clearly, the degree of enthusiasm of management for measuring turnover could be a major constraint on attempts to research the subject in the field, especially in studies involving a number of organisations.

III. COST OF LABOUR TURNOVER TO ORGANISATIONS

Many studies have been undertaken to ascertain the cost of labour turnover to organisations. Most have arrived at a monetary figure (e.g. $x per company, $y per man leaving). Because of inflation and international currency fluctuations, it could be misleading to express in monetary terms turnover costs derived from a series of such studies undertaken at different times and in different countries. Therefore in this review of research into the cost of turnover, monetary values are avoided.

Information on the cost of labour turnover is important because, along with data on the extent and nature of labour turnover, it has a major bearing on the resources and effort likely to be assigned by an organisation to control the problem (Moffat and Hill 1970).
Information on cost can also be of value in determining how best a labour turnover problem can be attacked. This will be the case when the costing method employed allows costs to be calculated for specific elements of the turnover process (Gaudet, 1960a).

The various methods of costing turnover have been exhaustively described in a lengthy treatise on the subject by Gaudet (1960a). He identifies certain basic approaches to costing the labour turnover process.

The replacement cost calculation method involves calculating the cost of the steps encountered in losing an employee. Gaudet provides extensive examples of replacement costs, under the sub-headings of -

(i) recruitment costs (e.g. advertising, employment agency fees);

(ii) selection and placement costs (e.g. screening letters of application, interviewing, obtaining references, applicants' travel expenses);

(iii) on-the-job costs (e.g. induction, training, lower productivity, higher production costs - spoilage, more supervision);

and

(iv) separation costs (e.g. lower productivity, reduced productivity of other staff, exit interviewing, severance pay).

This breakdown of costs covers similar elements to other comparable lists (Furness, 1950; Samuel, 1969), although
the headings differ in each case. Kangan (1948) reviewed several attempts to cost turnover using the replacement cost approach. He sounded a note of warning as to the difficulty of isolating turnover cost elements and claimed that the methods employed were not sufficiently comprehensive. Kangan listed a number of other factors affecting the cost of turnover: the nature and comprehensiveness of definition of turnover; the extent of turnover; the state of the labour market; the skill required for the job, and the type and value of equipment used by the new employee.

Whereas the replacement cost method is oriented towards individual companies, the survey method is usually concerned with an industry or part of an industry. Companies are asked for estimates of turnover costs, either for specific types of employees or for company averages. Gaudet (1960a) warns that this approach can result in a wide range of estimates being provided. These, although possibly reasonably accurate, can make it difficult to derive a meaningful industry average cost against which all kinds of companies may compare their own turnover costs.

Gaudet also describes in detail an example of the survey method which differs from the general approach described in that more specific cost information was requested than overall company averages. The survey was carried out among Californian merchants and manufacturers.
The major turnover cost elements were determined, and companies were asked to provide estimates of each. The cost elements were similar to those encountered by individual companies employing the replacement cost calculation method. Thus, although listed by Gaudet as typical of the survey method, the approach in fact draws upon both methods.

Gaudet asserts that the approach has the advantages of simplicity and ease of calculation, and could be extremely useful as a yardstick for companies if the data are representative and accurate. He shows clearly that in the Californian example, the sample was so small that the group medians derived were virtually useless (24 companies and 15 classifications of company type x size). In addition, some companies evidently grossly underestimated their turnover costs.

Glover (1967) used a similar approach and obtained much more realistic medians derived from estimates of advertising and interviewing costs by 55 companies. However, he noted considerable variation in the cost estimates, which he considered could have been reduced by further definition of the turnover process.

Two other approaches to costing of labour turnover are based on comparisons of an actual situation and a theoretical one in which a company experiences no turnover and suffers no consequent loss. Gaudet (1960a) describes these as the worker value unit approach and the profit foregone technique.
The worker value unit approach begins with profit less total fixed costs for a given period. This is expressed per man-day worked, which gives the worker value unit. This value unit can then be applied to all man-days lost as a result of labour turnover. The method is relatively simple, but provides only very gross figures, and still depends upon assumptions about time lost.

The profit foregone technique is based on the actual profit for a given period, subtracted from the estimated profit which would have been realised had no turnover existed. Typical of several Australian studies which used this approach was a study by Jacobs (1960). Jacobs expressed the profit foregone formula in terms of the amount by which sales value of output would have been increased with no labour turnover, less the increase in costs necessary to achieve this sales increase. To obtain a total financial effect of turnover, Jacobs added the overhead costs directly chargeable to turnover. In all three companies investigated by Jacobs, the profit foregone was substantially greater than company overhead costs chargeable to turnovers.

An interesting aspect of Jacobs' study is that even with the use of an intensive case-study approach, he still found very large turnover cost differences between companies, although they were in different industries. Such differences are typical of several studies, e.g. Byrt (1955). Moffat and Hill's (1970) review indicated major cost differences within the same
industry and the same skill level. Byrt outlined several difficulties associated with the profit foregone method, for example, the assumption that extra output in a zero labour turnover situation could be sold at the same unit prices as was the actual output (Deacon, 1968).

These approaches are by no means exhaustive. A typical variation was an investigation which restricted the concepts of fixed and variable costs to the personnel function and the consequences of labour turnover, instead of relating them to the whole production process, (British Institute of Management, 1958). Thus variable costs included advertising for new labour, while fixed costs included a proportion of personnel and medical departments' costs. Fixed and variable costs and lost sales resulting from labour turnover were aggregated for the 16 firm sample, and extrapolated to provide labour turnover cost estimates for both British manufacturing industry and the whole economy. The validity of such a massive extrapolation must be highly dubious.

In New Zealand little research has been undertaken into the cost of turnover. The survey of Glover (1967) extended to only a few of the known costs in the turnover process. A cost survey is cited by the New Zealand Department of Labour (1966) as having been undertaken by the Hutt Valley Chamber of Commerce. It is said to have covered 84 firms employing over 12,500 employees in different
types of occupations - unskilled and highly skilled, manual and professional. To the author's knowledge, the results have never been published, although an average cost per termination is quoted. No breakdown by skill or type of occupation is given, no information is available on the survey method employed and, apart from the sample size and mean, no statistical data are available which would permit more explicit interpretation of the mean.

On the basis of the mean derived from this survey, the Department of Labour came up with a total cost of turnover to New Zealand industry, which is stated to be equivalent to the combined annual salaries of about 30,000 workers.

The results of the research into turnover cost do not permit an unequivocal judgement to be made as to which approach is best. This conclusion is in accord with Moffat and Hill's (1970) opinion that "there appears to be no completely satisfactory method for calculating the financial effect of labour turnover" (p. 148). It has been shown that all methods have their weaknesses. Byrt (1955) emphasised the subjective element inherent in most of them. Gaudet (1960a) asserted that the preferred technique depended on the cost information required, i.e. whether it was for a company, an "average" employee, or a particular type of employee. Unfortunately, Gaudet does not specify which technique is most suitable for which type of cost information.
IV. FINANCIAL EFFECTS OF LABOUR TURNOVER UPON EMPLOYEES

Although a very large number of studies of labour turnover have been undertaken (Gaudet, 1960b), the author is aware of only three which have investigated the financial effects of turnover on employees changing jobs.

One was part of a broader study by Myers and MacLaurin (1943), of the employment experience and earnings of workers in a New England (United States) industrial community from 1937 to 1942. Some of their information on the financial effects of changing jobs is not easy to interpret; in particular the reasoning behind their presentation of statistical data is not always apparent.

Nevertheless, it is possible to derive from their tabulated data an indication of the change in income after changing jobs, presented in Table 1.
Table 1

CHANGE IN EARNINGS AFTER MOVING FROM ONE FIRM TO ANOTHER (from Myers and MacLaurin, 1943, Appendix B, Tables 13 and 16, pp. 101 and 103).

<table>
<thead>
<tr>
<th>Hourly Earnings* (% change)</th>
<th>N</th>
<th>Not given</th>
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<tr>
<td>(Selected) voluntary leavers</td>
<td>63%</td>
<td>10%</td>
</tr>
<tr>
<td>Discharged</td>
<td>40%</td>
<td>23%</td>
</tr>
<tr>
<td>Laid off</td>
<td>34%</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>40%</td>
<td>18%</td>
</tr>
</tbody>
</table>

*First six months' average hourly earnings at new firm compared to last six months' average hourly earnings at previous firm.

Table 1 comprises males and females from a variety of industries, from professional work to agriculture. Not all voluntary leavers are included, although the reasoning behind this is obscure. The sample contains an unusually large proportion of laid off employees, reflecting current economic and war-time conditions. It is not clear whether persons employed for less than six months with either or both firms are included. It is, however, apparent that there is little difference between the change in earnings of those discharged and those laid off. These two groups of involuntary leavers together differ markedly from the limited sample of voluntary leavers. The latter were much more likely to increase their earnings, and less likely to decrease their earnings or stay at the same rate.
Myers and MacLaurin's results are important for reasons other than their uniqueness. As will be shown later in this Chapter, pay is often a significant determinant of labour turnover, though its relative importance varies markedly in different situations. Myers and MacLaurin provided data (see Table 2) which indicate that those who left because of dissatisfaction with wages and earnings, gained no more financially than two other groups of voluntary leavers who left for different reasons.

Table 2

CHANGE IN EARNINGS AFTER MOVING FROM ONE FIRM TO ANOTHER - VOLUNTARY LEAVERS (from Myers and MacLaurin, 1943, Appendix B, Table 13, p.101).

<table>
<thead>
<tr>
<th>Reason for Leaving</th>
<th>Hourly Earnings* (% change)</th>
<th>N</th>
<th>Not given</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissatisfaction with wages and earnings</td>
<td>62% 12% 25%</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>Better job</td>
<td>58% 11% 31%</td>
<td>80</td>
<td>5</td>
</tr>
<tr>
<td>Return to former job</td>
<td>74% 7% 19%</td>
<td>42</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>63% 10% 27%</td>
<td>138</td>
<td></td>
</tr>
</tbody>
</table>

* First six months' average hourly earnings at firm moved to compared to last six months' average hourly earnings at firm moved from.
The reservations expressed about Table 1 hold also for Table 2. Table 2 in particular would be more valuable if comparative data on earnings changes were available for employees who remained with one firm over the 12 months period concerned. Even without that information, Myers and MacLaurin's results suggest that voluntary leavers at least generally gain financially from leaving jobs.

Bezanson (1928) studied upholstery workers in 25 mills which she divided into three groups based on the level of wages paid. She found that 67% of the entrants to the high and medium wage mills increased their weekly earnings. Workers moving to low wage mills generally decreased their earnings.

Gaudet (1960a) comments on these studies by Bezanson and Myers and MacLaurin, and also on a Canadian study undertaken during World War II. This last study noted a great deal of uncertainty about the relationship between wage levels and labour turnover. Gaudet queries whether people changing job do usually move to higher-paid positions. If they do, he asks, why do so many high-paying industries have high turnover rates, and what accounts for the large number of employees who return to a former employer?

The author is not aware of any studies which have considered longer-term financial effects of turnover on employees, or have taken account of income gained or expenses incurred either in the course of the actual transition itself or from time lost between jobs.
Myers and MacLaurin (1943) did, however, provide data on average time lost between jobs according to the reason for the termination. Most of the medians were around 1-4 months (means were around 3-6 months). However, the range of the eight groups classified according to reason for leaving, extended from a median of 0-1 months (left for better job) to 11-12 months (left voluntarily for miscellaneous reason). The lost times are almost certainly unusually high because of the high proportion of lay-offs in their sample, and the unusual economic conditions applying.

In conclusion, despite some evidence that voluntary leavers in particular may gain financially by changing jobs, and that the level of wages in firms may be partially responsible for increases or decreases in earnings experienced by job changers, the research is much too limited and dated to draw any definite general conclusions about the relationship between turnover and earnings. The same limitation holds for time lost between jobs.

Overall, the literature is lacking in up-to-date information on how employees fare financially by changing jobs.

V. FACTORS AFFECTING LABOUR TURNOVER

The most widely accepted classification of factors affecting labour turnover is that offered by Long (1951). She identified four types of possible causes:

(i) external factors – which the organisation is little able to influence;
(ii) organisational factors;
(iii) personal characteristics of the employee;
(iv) the employee's reaction to the job.

This classification has been frequently employed in reviews of investigations into factors affecting labour turnover. (Byrt, 1955; Knowles, 1964a; Macleod, 1968; Moffat and Hill, 1971).

(1) **External Factors**

(a) **Economic Influences and the Level of Employment.**

The most widely investigated external influence on labour turnover has been the economic climate, particularly its effect via the level of employment. Behrend (1953) examined the question of whether a change in the economic climate which had led to increased unemployment, also improved labour stability and reduced the level of turnover. Behrend's study extended over 38,000 men and 14,000 women in 31 redundancy-free British Midlands factories during 1951-52. Examination of the labour turnover trend showed that there had been a marked reduction during a year of falling employment.

Long (1951) in another Midlands investigation, but of a single firm over a longer period (1923-29), Cook (1951), and Crowther (1957) also produced evidence consistent with the view that there is an inverse relationship between the levels of employment and labour turnover. Knowles (1965) examined seven years of records of an Australian manufacturing company. Although he
found that the undertaking's labour turnover did respond to economic and labour market conditions, he noted some divergence from the national trend over the period, which indicated that other factors in the organisation had tended to outweigh the economic influences. Conversely, Stoikov and Raimon (1968) analysed cross-sectional statistical data from 52 industries in the United States covering the years 1963 and 1966. They obtained positive correlations of 0.367 and 0.368 between lay-offs and quits for 1963 and 1966 respectively.

The reasons for the apparent contradiction between their findings and those of earlier authors can only be guessed at. It is unlikely that structural unemployment in the United States was a significant factor in their finding, because although unemployment was at a high level in 1963, it was at only a moderate level in 1966. It appears that in Stoikov and Raimon's American industries, lay-offs derive from the seasonal nature of many such industries (Stoikov and Raimon, p. 1295). It is significant that lay-offs and new hires were closely related ($r = 0.665$ for 1963). In view of this, and the fact that different industries (and possibly companies) evidently varied enormously in their lay-off rates (Stoikov and Raimon, pp. 1284 and 1295), it is quite conceivable that while some industries or companies were shedding workers, others were taking on new staff. This is an entirely different situation to the structural
employment problems of the British Midlands outlined by Long (1951) and Behrend (1953), when alternative employment was very scarce. Their work, along with that of Cook (1951) is not cited by Stoikov and Raimon.

Notwithstanding the above explanation of Stoikov and Raimon's findings, those authors made no attempt to explain their tabulated statistics (p.1295), which show that between 1963 and 1966, while annual quit rates rose from 15.7% to 29.9%, lay-offs decreased from 20.2% to 13.0%. (It has already been noted that unemployment was also lower in 1966). These movements are in contrast to the correlations obtained from annual data in the same study, and in line with the findings of other authors mentioned. It appears that Stoikov and Raimon may not have recognised two entirely different patterns of labour movement: in the short-term, industries seasonally shedding labour (and people quitting in anticipation); and in the long-term, industry lay-offs and quits varying inversely, in response to more fundamental macroeconomic trends. Without more adequate data such a conclusion can only be tentative.

The findings of Long, Behrend and others that unemployment is inversely related to turnover are supported by New Zealand experience. New Zealand Department of Labour statistics (Labour and Employment Gazette, various issues, Statistical Supplement, Table 1) show a definite positive relationship between turnover and vacancies.
(b) Geographical and Seasonal Factors. Byrt (1949) in a study embracing four industries in Sydney and Melbourne, found no overall difference between the turnover rate of companies in inner viz a viz outer suburbs. While individual firms' labour turnover was influenced by location, other influences proved more important. Some firms located in areas with keen competition for labour had very low turnover rates.

Long (1951) however, found that workers living in districts with many factories at which work was available tended to have relatively high turnover rates. A related finding was that undertakings in industrialized areas generally experienced more turnover than those in isolated areas.

Russell (1968) found no difference between labour turnover in Australian provincial and country areas, but noted that both such areas had lower turnover rates than metropolitan areas. For some of the eight industry groups, however, metropolitan areas exhibited the lowest rates. No overall interstate differences were recorded for New South Wales, Victoria and Queensland.

A New Zealand study in 1963 (Labour and Employment Gazette, 1963) obtained similar results to Russell. Large urban areas recorded higher turnover than smaller towns. Lower Hutt had the highest turnover, although generally the remainder of the central North Island had lower rates than the northern region. The South Island experienced the lowest rate of all. Several influences on regional turnover rates were listed:
(i) varying rates of industrial development;
(ii) differences in composition of industry between areas;
(iii) the degree to which industries in particular areas provide areas for employment;
(iv) competition between industry groups for labour.

Seasonal effects have also been observed in labour turnover patterns. Byrt (1948) and Clarke (1951) noted that turnover in Australia was highest in winter, declined until December, then rose sharply in January. That such effects do not apply to all undertakings was demonstrated by White (1960) who recorded turnover rates in a Melbourne chemical manufacturing plant from January to June. June had the lowest monthly separation rate, and January the second lowest rate.

Pearce (1954) cited U.S. statistics from various sources covering the period 1910-1950. All the figures are characterised by low winter turnover, rising in spring to a summer peak, perhaps reflecting an entirely different annual pattern of industrial activity to that prevalent in the Australian setting of Byrt's (1948) and Clarke's (1951) studies.

Clearly, there is no universally applicable relationship between the seasons and labour turnover. This does not detract from the importance of seasonal influences, which "must be taken into account in drawing conclusions from comparisons of rates for different periods"
(Cook, 1951, p. 4). Cook adds that seasonal factors — whether they be of climatic, economic or sociological origin — if not clearly defined or allowed for, can invalidate comparisons of labour turnover between firms, localities or countries.

(c) Size of Organisation. At various times, labour turnover has been postulated to be positively, inversely and curvilinearly related, and even unrelated, to the size of an organisation or part of an organisation. (Gaudet, 1960a, p. 75; Greystoke, Thomason and Murphy, 1952; Stoikov and Raimon, 1968; March and Simon, Ch. 4, 1958; Knowles, 1964).

Most of the research has found no relationship (Kerr, 1947; Byrt, 1948; Long, 1951; Russell 1968; Macleod, 1968). Greystoke, Thomason and Murphy (1952) in an extensive study of several industries in Sheffield, England noted a generally positive relationship between size and turnover rate, though with major fluctuations in the relationship as size increased. In fact, their sample of companies grouped by number of employees correlated only weakly with corresponding all-industry turnover rates. (Spearman's rank correlation = 0.03 for men and 0.26 for women). The only really consistent finding in this part of their investigation was that the group of smallest companies (less than 100 employees) had the lowest turnover among both men and women.
Gaudet (1960a) cited a large-scale study by Parkinson (1928) which found a positive relationship between turnover among salesmen and the size of the sales-force. Also quoted by Gaudet (1960) is a study of hospital size (number of beds) and staff turnover which indicated a positive association.

The British Institute of Management (1949) found no regular trend in the relationship between factory size and turnover, but did note that factories with over 1,000 employees had lower turnover than the rest.

The reasons for the inconsistent findings may lie with certain factors discussed by Greystoke et. al. (1952), Gaudet (1960a) and Stoikov and Raimon (1968). These include the amount of personal contact between staff and management; the existence of a personnel department; the status or prestige associated with working for the company; the expenditure per employee on staff welfare; the perceived conflict between an individual's organisational role and his other roles in life; the perceived possibility of intraorganisational transfer.

These can be expected to interact in a variety of ways with organisational size and turnover. Complicating the whole issue in many studies is that large organisations are generally comprised of identifiable sub-units which in many respects make each function like a similar-sized independent organisation.
(2) **Organisational Factors**

(a) **Pay and Incentives.** Several studies have produced results showing that workers leaving a job sometimes cite pay (or pay and promotion) as a major reason for their termination. (Myers and MacLaurin, 1943; Smith and Kerr, 1953; Poidevin, 1956; Knowles, 1964; Ronan, 1967; Green, Palmer and Sanger, 1967; Hulin, 1968; Nelson, 1969). Only two of these describe instances in which high turnover was found not to be associated with low pay rates (Saleh, Lee and Prien, 1965; MacLaurin and Myers, 1943). Kerr (1974), Smith and Kerr (1953) and Poidevin (1956) found turnover to be associated with low wages.

In line with the majority evidence, Stoikov and Raimon (1968) found a low but negative correlation between turnover and wage increases over a preceding three year period.

The picture is complicated by the findings of Stockford and Kunze (1950). They analysed the wage history of leavers and non-leavers of an aircraft corporation. The leavers had tended to experience a relatively low mean rate of pay over a two year period prior to joining the corporation, but a relatively high rate of pay immediately preceding their move to the corporation. The non-leavers had experienced much less variation in pay-rates, but had received higher starting rates on joining the corporation.
The finding that people who received a relatively high rate of pay immediately prior to joining an organisation tended not to stay long with that organisation was also recorded by Ley (1966). He commented, "if the economic incentive of higher wages is a factor in maintaining workers on a job, the finding that the hourly wages of the last employment of the Turnover group were higher than those of the Steady group suggests that whatever motives underlie the Turnover group's job changing overrode the financial incentive of the jobs they left" (Ley, p.500).

It is not clear just how important pay is as a factor in the decision to change jobs. The proportion of leavers citing pay as a major reason for leaving varies markedly between studies. Saleh, Lee and Prien (1965) and White (1960) reported no cases. Myers and MacLaurin (1943) reported wages to constitute 1% of primary reasons given; this also represented 1% of people proposing reasons, and 4% of voluntary turnover. Ronan (1967) found 42% of reasons given by voluntary leavers were associated with wages. Green, Palmer and Sanger (1967) reported that 47% of voluntary leavers gave "offer of better salary" as a reason for resigning, but this represented 8% of total reasons given. Other relevant replies to their survey were "different job with higher earnings" 28% (5% of total reasons), and "more overtime available" 13% (2% of total reasons).
Green, Palmer and Sanger also reported that many controlling officers were quite certain that the only reason that staff were leaving was to get more money. The authors considered that this opinion reflected what the controlling officers had been told by the resignees.

There is some evidence that employees' expectations about pay relates more closely to the propensity to resign than does the absolute amount of pay. This proposition derives from three sources. First, as mentioned, not all studies have found high turnover to be clearly associated with low wages. Second, there is evidence that perceived equity of rewards for performance is related to feelings of self-esteem and justice (Zaleznik, Christensen and Roethlisberger, 1958) and also to the propensity to resign (Knowles, 1964b; Hulin, 1968). Minor (1958) found that turnover tended to be high when expected wages were greater than wages actually received. Third, the findings of Green, Palmer and Sanger (1967) indicated that people may be influenced to terminate their employment because of their expectations of future higher pay in another sector of the economy. They compared a group of New Zealand public service resignees with a control group of non-resignees. There was no significant difference between the two in their expected earnings within the service over the following decade. However, significantly more resignees considered that their salary would be better in 10 years time if they left the service. It should be noted that even many non-resignees thought that financial prospects were better outside the service.
The role of financial incentives in reducing turnover has been the subject of several investigations. Mosel and Wade (1951), Butler (1954) and Deacon (1966) found that either or both incentives and bonuses appeared to reduce turnover. Argyle, Gardner and Cioffi, (1958) noted that departments in eight British electrical manufacturing factories differed in the type of incentive paid. Although not specifically tested by Argyle et. al., it can be shown from figures they provided (pp. 32-33) that group bonus departments were significantly more likely to have zero turnover than direct incentive department (chi-square = 4.32, p < 0.05).

Kerr (1947) and Kerr, Koppelmeier and Sullivan (1951) reported that high turnover was associated with the operation of a wage incentive scheme. Eaton (1947) found that New Zealand factories paying a bonus were no better off than other factories with regard to the turnover of their girl workers.

The findings on the influence of bonus and incentive systems on turnover are inconsistent. It is likely that the relationship between the variables is not a simple one, and could conceivably vary by type of work, the perceived impact of personal effort on production, and the nature of the incentive system in operation.

(b) Supervision and Management. There is a considerable body of evidence that the quality of supervision exerts a substantial influence on an
organisation's labour turnover. (Baruch, 1944; Mayo and Lombard, 1944; Clarke, 1946; Giese and Ruter, 1949; Wickert, 1951; McMurray, 1952; Poidevin, 1956; Fleishman and Harris, 1962; Sayles and Strauss, 1966).

Argyle, Gardner and Cioffi, (1958) found no relationship between mode of supervision and labour turnover in incentive departments. It is possible that supervision would be less important in an incentive department than in wage departments. Baruch (1944), from a series of interviews with an unstated number of female employees in various American plants, emphasised the importance of human understanding by foremen as a factor in morale, and, implicitly, in the decision to quit. Although commonly cited in the literature, Baruch's report combined facts with her own personal views, and is of little value.

Clarke (1946) showed that foremen with perfect attendance and high estimated interest in in-company training classes had much lower turnover amongst their staff than did foremen with low interest and poor attendance at the classes.

One of the more significant studies was that of Fleishman and Harris (1962), who studied the association of foremen's consideration and initiating structure with labour turnover. Initiating structure was a dimension derived from a series of foreman behaviours. It roughly described the foreman's concern with attainment of work
goals. Fleishman and Harris found that below a certain level of consideration and above a certain level of initiating structure, turnover went up. They also noted that although structure and consideration interacted with turnover in a curvilinear manner, turnover was highest among work groups with foremen low in consideration, regardless of initiating structure.

Consideration also featured in the results of Saleh, Lee and Prien (1965), who reported lack of supervisory consideration to be the second most frequently cited reason for nurses terminating employment. Ley (1966) found that authoritarianism of the foreman correlated positively and significantly with turnover on two shifts, though not on a third shift on which the overall turnover rate was especially low.

Notwithstanding the negative finding of Argyle, Gardner and Cioffi (1959), there seems to be plenty of support for the early contention of Mayo and Lombard (1944) that methods of first-line supervision are critical to the control of turnover.

The research into supervision and turnover is paralleled to some extent by studies of management and turnover, although these are much fewer in number.

King (1969) noted that reasons for New Zealand student nurses resigning included remote and authoritarian attitudes of senior personnel. White (1969) lists lack of human interest on the part of management and inadequate
communication between management and operative as reasons for leaving given by mostly semi-skilled operatives in a small Australian chemical manufacturing plant. White found from unstructured interviews that remaining employees rated foremen slightly more favourably than they did management. In similar vein, Poidevin (1956) reported that among female factory staff in high turnover sections, dissatisfaction with supervision was exceeded by dissatisfaction with those on a level higher in the organisation. Criticism centred on interference by middle executives and their issuing of contradictory instructions to staff. Poidevin expressed the view that many of the weaknesses in supervision resulted from a vaguely defined organisational structure, poor communications and inadequate middle management.

Poidevin's view receives support from Knowles (1964a), who cited an India study by Chowdhry and Pal (1957) in which high turnover among managerial staff was associated with inadequately assigned managerial functions and lines of authority not being maintained.

(c) The Work Group. Although the bulk of the research has not shown organisational size to be related to turnover, several studies have shown that turnover is high when conditions inhibit the development of small group cohesiveness and morale (Mayo and Lombard, 1944; Clarke, 1946; Kerr, Koppelmeier and Sullivan, 1951; Sawatsky, 1951; Brown, 1956). Such conditions have
included a lack of opportunity for conversation on the job, the nature of the task and a lack of group goals.

Evan (1963) found that turnover decreased as peer group interaction increased, provided that the interaction involved more than one peer. Similarly, Sagi, Olmsted and Atelsek (1955) found maintenance of experimental groups to be positively associated with personal involvement in the group and to sociometric status within the group.

Most of the conditions described above which have been linked with low labour turnover are more characteristic of small groups than large ones. However, Kerr (1947), Argyle, Gardner and Cioffi (1958) and Sawatsky (1951) all reported no relationship between size of group and turnover. In addition, Ross and Zander (1957) noted that lack of satisfaction of the need for affiliation was not significantly related to turnover. In the case of Sawatsky, his conclusion may not be entirely consistent with his data, as two of his tables suggest that size of department may mediate the relationship between two other variables and labour turnover.

Overall, however, it would appear that the dynamics of a group are more critical to turnover than its size. Ross and Zander's finding is not in harmony with the other literature. It is likely that people enjoy staying in small groups for reasons other than simply affiliation. For example, small groups may afford satisfaction to members and conduce group stability by facilitating attainment of work goals.
(d) Status and Nature of the Job. Although Macleod (1968) considered it likely that job status is inversely related to turnover, most of the literature she cited in support can be better explained in terms of other variables. For example, she quoted the findings of Kerr (1947) that high turnover in an electronics factory was associated with job monotony and lack of promotional probability. Kerr in fact also correlated job prestige with turnover in his two studies, and found them to be significantly associated in only one case.

Macleod admits that turnover can be particularly low in jobs of low social status (e.g. coal-mining in New Zealand). She may well be correct in proposing an explanation by Bass (1965), that control over technical and social environment, along with freedom from supervision, contribute to high job satisfaction and low turnover. These favourable influences are not necessarily associated with higher job status, but, in line with the results of Kerr (1947) on monotony and promotion probability, suggest that the nature of the job can sometimes be an important determinant of labour turnover. Long (1951) also noted that monotony led to higher turnover, somewhat more among men than among women.

Kilbridge (1961) found turnover in one factory to be lower among operators doing non-repetitive work than among their counterparts undertaking repetitive work. In another factory, there was no significant
difference between the two. Kilbridge also found inconsistent differences between more mechanized "line" repetitive jobs and "batch" repetitive work, in which operators could exert greater control over the work flow. He concluded that other factors such as sex differences, group pressures, preferences for day shifts, company recruitment and promotion policies and pay differentials were of greater importance than job repetition in explaining labour turnover levels.

It is not possible to draw any consistent conclusion about the relationship between labour turnover and the nature and status of the job. It would seem that greater attention needs to be paid to not only the effects of other factors, but also to determining whether certain job characteristics relate more to turnover than others. Repetition and status may be less important than other constituents of the job. Wickert (1951) found that the turnover of young female employees was lower when they were allowed to take an active part in decisions affecting their jobs. Such decision-making could conceivably apply to both repetitive and non-repetitive jobs.

(e) Physical Working Conditions. Research into the relationship between physical working conditions and labour turnover is fairly thin in quantity, despite Knowles (1964a) claim that "research since the First World War has concentrated heavily on the relationship
between physical working conditions and labour turnover" (p.26). This assertion is not borne out by available literature references. Nor is it borne out by Gaudet's (1960b) extensive classified bibliography on labour turnover which includes hundreds of pre-1940 references, yet with negligible mention of physical working conditions in the associated text.

Knowles (1965a) asserted that the introduction of a cooling system in a factory with very hot working conditions reduced turnover, as did the elimination of an arduous aspect of a task.

Long (1951) concluded from available literature that good working conditions appeared conducive to low turnover, but did not guarantee it. Turnover could still be low in a harsh working environment. Long added that noise and dirt had some effect on turnover, but only among short-service employees. This was endorsed by Baldamus (1951) who affirmed that new employees' initial concern over physical conditions (e.g. smell, light, heat, dirt) decreased as they become acclimatised, and had correspondingly less influence on the probability of termination. Sawatsky (1951) found noise to be associated with higher turnover, but as noise increased with size of department, his finding is of uncertain value. Ley (1966) analysed the effects of working environment (temperature, cleanliness and safety hazards) on turnover. None of these factors proved statistically significant.
At least as important as the above findings is the failure of employees in numerous studies to cite physical working conditions as a major reason for termination. (Myers and MacLaurin, 1943; Greystoke, Thomason and Murphy, 1952; McNaughton, 1956; Personnel Group of the New Zealand Institute of Management, 1957; Holt, 1959; Saleh, Lee and Prien, 1965; Green, Palmer and Sanger, 1967). Poidevin (1956) and Moran (1959) list physical working conditions as accounting for substantial proportions of reasons for leaving in two instances. However, analysis of Moran's base sample and Poidevin's data-gathering time-frame indicates that physical working conditions in reality represent only a minor proportion of reasons given for leaving.

In contrast with the findings described so far, Knowles (1965a) asserted that improvements to working conditions were associated with reduced voluntary turnover in a manufacturing organisation. Nelson (1969) in large-scale surveys of building operatives in the United Kingdom reported that site conditions were not frequently cited by operatives as a reason for having left their previous job, nor as a reason for accepting their current job. However, site conditions were the most frequent reason proposed for contemplating a future change. According to Nelson (p.16), "Observers unused to building sites all commented that amenities were primitive but operatives are aware that a change of site is unlikely to produce improvement".
Overall, it can be concluded that physical working conditions have been shown not to exert a major influence on labour turnover. This could be explained partly by constancy of conditions within an industry and also perhaps by the preponderance of non-manual occupations studied in the literature described above.

(f) **Induction and Training.** Many researchers have reported labour turnover to be highest among new workers. (See section entitled Length of Service, p. 48). Cook (1951) following Rice and Hill (1950) described this as the period of "induction crisis". Reduction of turnover by providing new employees with clear information on job duties and the company's expectations has been described by Weitz (1956) and Byrt (1949). Knowles (1956b) reported that high turnover among new factory employees was reduced abruptly by improvements to their training procedures.

Induction and training have been most recognised for their role in reduction of labour turnover by people writing for trade or industry readers. Articles of this type comprise the great majority of the 31 references cited by Gaudet (1960b) in support of his assertion that "probably the most frequently mentioned technique to reduce turnover has been training. This includes indoctrination of new employees and training of both hourly employees and foremen" (p.10). If Gaudet's claim is correct, it would seem that industry is ahead of research in the collection of information on and understanding of the effect of training on labour turnover.
(g) Other Institutional Factors.

(i) Baruch (1944), McCreadie and Phelan (1947) and Ley (1966) reported turnover among night shift-workers to be higher than that of day-workers. Ley postulated that people temporarily working an extra shift ("moonlighting") could account for the difference. It is also likely that personal and domestic stress resulting from working at night has an effect.

(ii) Knowles (1956b) observed that turnover tended to be low during periods of industrial harmony and high during times of industrial unrest.

(3) Personal Characteristics of the Employee

Studies under this heading have frequently attempted to classify employees into high and low turnover groups. Included among factors studied have been age, sex, marital status, skill or educational level, intelligence, aptitudes, interests, personality and biographical data.

(a) Age. Long (1951) found increasing age to be associated with a decline in turnover. This relationship held even when the author controlled for length of service. Bucklow (1955) reported that turnover among bank staff was higher among younger personnel, although in this case groups were not equated for length of service. Other studies supporting the contention that younger employees change jobs more frequently are those by Holt (1954), Hurley (1955) and Ley (1966).
Greystoke, Thomason and Murphy (1952) observed that age and sex interacted in their effect on turnover. Turnover was highest among males up to 35 years and among females between 15 and 21 years. Similarly, the Personnel Group of the New Zealand Institute of Management (1957) found male turnover to be much greater than normal between 19 and 30, with the maximum between 22 and 25. However, age made little difference to female turnover. Gaudet (1960a) lists several unreferenced studies, evidently including Greystoke, Thomason and Murphy (1952), showing high turnover to be prevalent among younger employees, but across various age ranges. Gaudet suggests that the usual age of marriage in a community and for a type of worker could partly account for the varying age ranges cited, in addition to other interacting variables such as marital status, number and age of dependents and financial stake in a home.

Knowles (1964b) found no statistically significant relationship between age and turnover, although the data from his small sample were in the direction of the expected inverse relationship. Kerr (1947) and Sawatsky (1951) reported turnover to be unrelated to age, both in large manufacturing organisations.

Despite these exceptions and qualifications, the weight of the evidence suggests that job instability declines with age, especially for male employees. Bucklow (1963) observed that leaving a job can involve
losing entitlements such as pensions and long service leave, presumably of greater importance to older employees.

(b) **Sex.** Numerous studies have reported turnover among females to be higher than that of males (e.g. Baruch, 1944; McCreadie and Phelan, 1947; Greystoke, Thomason and Murphy, 1952; Jennings and Swanston, 1953; Bucklow, 1955; Poidevin, 1956; Green, Palmer and Sanger, 1967). In addition, the New Zealand Department of Labour has traditionally differentiated between males and females in collating its labour statistics, which show consistently higher rates for females at a national industry level (Labour and Employment Gazette, various issues).

Macleod (1968) discussed how work goals are likely to differ between men and women, with the latter often more concerned with short-term considerations.

Knowles (1964a) referred to a few studies showing women to have lower turnover than men, as was also reported by Byrt (1955).

It has already been noted that age and sex can interact in their effect on turnover. Knowles (1964a) made the point that a difficulty of comparing labour turnover rates for men and women is to equate characteristics such as occupation, career opportunities, level of skill and educational level. These have been shown to influence turnover, and are likely to vary
substantially between men and women. Discussing this issue, Gaudet (1960a) asserts that many of the relevant research reports are useless because of failure to control for extraneous variables. He concludes that investigations in this area have emphasized the danger of generalising on the basis of inadequate statistical analyses.

Thus the differences recorded at a national level in New Zealand by the Department of Labour could conceivably be due, at least partially, to age and occupational differences, between men and women, rather than resulting from sex differences.

(c) Marital Status. Greystoke, Thomason and Murphy (1952) found marital status of men to make little difference to their mobility, but, like Long (1951), noted that married women had much higher turnover rates than their single counterparts. The Personnel Group of the New Zealand Institute of Management (1957) observed turnover to be greater among unmarried males and married females. Tiffin, Parker and Habersat (1947) found long tenure of male factory workers to be positively associated with being married and with number of dependents. Knowles (1962) confirmed the greater stability of married men, but noted no difference in tenure of those with small or large families.

In contrast to these last two studies, Stone and Athelstan (1969) reported that tenure of women correlated inversely with number of children and with
the presence of children under 12; tenure also correlated negatively with spouse's income. Mosel and Wade (1951) tried to develop a weighted application blank in order to reduce turnover of female clerks. Among the characteristics they associated with long tenure were widowed status and one to three dependents.

Unlike the previous investigations, Sawatsky (1951) Knowles (1964b) and Schuh (1967) found turnover to be unrelated to marital status, while Long (1951) found turnover in one group of factories to be highest for men, followed in order by single and married women.

Overall, it would appear that marriage is a stabilising influence upon male employees, but can have the reverse effect on the tenure of women employees. The differences would appear to be a function of family responsibilities, having opposite effects on the job stability of men ("breadwinners") and women ("working mothers"/"home-makers").

It is possible that some of the negative findings derive from studies in which the usual influence of marital status is outweighed by factors such as economic circumstances, personnel policies (e.g. hours of work), the type of work available, and the age and family structure of the labour force. Again, Gaudet (1960a) emphasises the necessity of controlling for the effect of such extraneous variables.
(d) **Length of Service.** A number of studies have shown that turnover is higher among new workers than among those who have been employed for a longer period of time. (Byrt, 1948; Rice, Hill and Trist, 1950; Long, 1951; Greystoke, Thomason and Murphy, 1952; Saleh, Lee and Prien, 1965; Ley, 1966; Stoikov and Raimon, 1968).

These investigations have generally either compared turnover of short and long tenure groups of employees (e.g. Greystoke, Thomason and Murphy, 1952), or measured length of service of leavers (e.g. Long, 1951). Stoikov and Raimon departed significantly from tradition by using the new hire rate as an indicator of the proportion of the workforce with brief service.

A New Zealand study worth quoting is that of Jennings and Swanston (1953). They obtained data on length of service of both current staff and of employees leaving, from 11 Wellington and Hutt Valley manufacturing firms employing 1,030 men and 582 women. From their tabulated data, it can be ascertained that median lengths of service of current staff were 19 months for men and 13 months for women, whereas lengths of service of leavers were only 6.5 weeks for men and 2 months for women.

A particularly important set of studies has found length of service on previous jobs to be an indicator of tenure in a later position. Mosel and Wade (1951) found that they could discriminate between
potential long and short service clerical employees on the basis of a weighted application blank of 12 items, including length of service on the employees' last and last-but-one jobs. Shott, Albright and Glennon (1963) developed a scoring key for the same purpose. They noted that male and female office workers most likely to stay at least a year could be identified on the basis of a series of item responses, including an average of at least 10 months of service with previous employers. Similarly, Ley (1966) reported that unskilled male production workers who terminated employment in a factory within the first year had held more jobs during the two years prior to joining the company than their longer-serving counterparts.

The evidence outline above demonstrates that length of service is important in two respects. First, the probability of termination may decrease as length of service increases. Second, length of service on one or more jobs can provide an indication of likely length of service on a subsequent job.

(e) Skill Level. Long (1951) studied the turnover of male workers of various levels of skill in 75 British firms during 1948-49. She found skill level and turnover to be inversely related. Long considered that availability of alternative employment at similar rates of pay together with a relatively low degree of commitment towards their work accounted for the higher
turnover of unskilled workers. Macleod (1968) has pointed out that Long's findings were partially "confounded by the presence of workers so specialized in their activities that their skills would have been of little use to them elsewhere" (p.9)

Byrt (1949), in a large-scale investigation covering skilled, semi-skilled and unskilled workers in 106 Australian industrial companies came to similar conclusions to Long, but noted that frequently there was no definite difference between the turnover rates of unskilled and semi-skilled workers. Further confirmation of the lower turnover rate of skilled employees in Australia resulted from a series of measures made between 1962 and 1966. (Deacon, 1962; Gray, 1965; Phillips, 1966). Byrt's (1949) point that semi-skilled and unskilled workers' turnover may not necessarily differ was affirmed by Disney (1954). Disney also observed that semi-skilled workers' turnover could sometimes be as low as that of skilled workers.

The link between skill and low turnover appears well-established, although the assumption that lack of work skills is necessarily indicative of high turnover is much more questionable. It is likely that different kinds of semi-skilled and unskilled work vary greatly in attractiveness, due both to their intrinsic content and organisational setting. The potential association between skill level and other personal attributes should
also not be ignored. For example, increased skill level is likely to be associated with increased age and possibly with being married, both of which have been shown to relate to longer service.

(f) Education. March and Simon (1964) hypothesized that within a given occupational level, higher education would be associated with higher labour turnover. However, after surveying large Lower Hutt factories, the Personnel Group of the New Zealand Institute of Management (1957) reported education and turnover to be inversely related. The authors postulated that lack of application in the school setting extended to the work situation. However, this explanation is inadequate because the authors do not differentiate between different occupations in their sample, thereby failing to control for the effect of job content on the education/labour turnover relationship. Age differences between the young employees could also have influenced their turnover. Despite these reservations, the markedly inverse nature of the education/turnover relationship recorded in the Lower Hutt study remains a significant finding.

However, two studies produced different outcomes. Ley (1966) controlled to some extent for occupational level by sampling from hourly-paid production workers within a limited wage range. He found higher education to be positively linked to higher turnover, but pointed
out that the result could arise from college students attempting to work full-time while studying and eventually finding the pressure such that they had to give up work. Mosel and Wade (1951) found less than 12 years education to be one of several characteristics of sales clerks with long tenure.

No relationship between educational level and turnover of workers in a large manufacturing company was observed by Sawatsky (1951).

The importance of the effect of education on job tenure and labour turnover remains uncertain. The relationship between the variables is likely to remain cloudy until researchers take account of variables such as the type of education received and the content of the job.

(g) Intelligence, Aptitudes, Interests and Personality. Literature on the relationship between intelligence, aptitude, interest and personality test scores and employee tenure has been summarised particularly well by Schuh (1967). He found no systematic relationship between length of service and scores from either intelligence or aptitude tests, although most investigations concerning intelligence tests had covered clerical occupations. It is clear that if tests of intelligence or aptitude are to be applied in an effort to reduce labour turnover, they need to be validated for the particular situations in which they are to be used.
Interest inventories show somewhat more promise as predictors of tenure. Schuh drew particular attention to positive results obtained when the Kuder Preference Record was related to length of service in a variety of situations. He postulated that the application of non-linear statistics to data derived from interest inventories might further the utility of such tests. However, Stone and Athelstan (1969) un成功fully applied non-linear analysis to Strong Vocational Interest Blank data derived from female physical and occupational therapists in an ex-post facto attempt to predict job tenure.

Discussing personality tests as predictors of tenure, Schuh observed that a wide variety of tests had been used, with negligible replication of studies. The best that could be concluded was that some personality tests used in some situations yielded good predictive results. A more positive prospect emanated from the work of Wickert (1951), who noted a striking attitudinal difference between current and terminated female staff of a telephone company. The 'stayers' reported having more opportunity to make decisions on the job and also a greater feeling of making or having made a contribution to the success of the company.

Because the chance to make decisions on the job hardly varied from one employee to another, Wickert postulated the existence of a personality trait
(ego-involvement) as a factor in the decision to leave. 
(Biographical data and a variety of test scores were shown to be unrelated to tenure).

In general however, the measurement of intelligence, aptitude, interests and personality do not appear to be promising techniques for improving employees' tenure. This conclusion is exemplified by the findings of Kriedt and Gadel (1953). They developed a battery of tests and questionnaires covering intelligence, clerical aptitude, interests, job preference and biographical data, in an attempt to predict turnover of new female insurance workers. Biographical data proved to be the best predictor, and the other measures added little to a multiple correlation subsequently calculated.

(h) Biographical Data. Numerous studies have attempted to link a wide variety of biographical data to job tenure. In many cases, the object has been to develop a job application blank to enable prediction and selection of potentially long term employees. Age, sex, marital status, education and tenure in previous jobs have been frequently covered, and are reviewed in earlier sections.

Another variable used in job application blanks which has been fairly consistently related to job tenure is the location of an employee's home, usually relative to his place of work. Studies have either noted proximity of residence to workplace to relate positively
to length of service, or have found longer serving employees to live in a particular area (Dunnette and Maetzold, 1955; Shott, Albright and Glennon, 1963).

With the important exceptions of the variables just listed, there are few substantive and generally applicable relationships between specific biographical data and job tenure. Dunnette and Maetzold (1955) and Minor (1958) related 24 and 32 biographical variables respectively to job tenure. In each case they found close to half were statistically significant. On the other hand, Mosel and Wade (1951) reported that 12 of 13 items discriminated between short and long tenure groups; Wickert (1951) analysed numerous biographical data and found none to relate to tenure. The wide variety of variables used in such investigations have frequently been inconsistent in their relationship to tenure. For example, long service has been associated with employees who are married with no children (Dunnette and Maetzold, 1955); employees with larger families (Tiffin, Parker and Habersat, 1947), and employees who have from one to three dependants (Mosel and Wade, 1951).

The determinants of the apparent discrepancies between results are several. First, most samples have included either male or female subjects, and the sex-linked nature of many biographical variables precludes across-the-board generalisations. (This has been recognised by Shott, Albright and Glennon (1963) who
carried out separate analyses for males and females in their study of tenure.) Second, studies have covered both white-collar and blue-collar occupations. Third, length of service measures and statistical techniques have varied markedly between studies, (Schuh, 1967). Finally, many biographical variables have only intermittently been hypothesized to relate to job tenure, (e.g. church attendance, Schuh, 1967b).

As with intelligence, aptitude, interest and personality inventories, it would appear that, with the exception of a few notable variables, the use of biographical data to predict tenure is best done individually for specific work situations.

(4) The Employee's Reaction to the Job

(a) Job Satisfaction. Most studies of turnover and job satisfaction have found the expected negative relationship between the variables - or positive, as expected of tenure and job satisfaction, (Kerr, 1948; Weitz and Nuckols, 1953; Weitz and Nuckols, 1955; Weitz, 1956; Sagi, Olmstead and Atelsek, 1955; Hulin, 1966; Schuh, 1967; Hulin, 1968; Katzell, 1968). Morale and averaged job satisfaction scores have also been found to vary inversely with turnover (Giese and Ruter, 1949; Kerr, Koppelmeier and Sullivan, 1951; Fleishman, Harris and Burtt, 1955).
In general, it can be said that many of the early studies suffered from certain methodological weaknesses. For example, Weitz and Nuckols (1953) admitted some sample bias arising from a disproportionately small number of respondents who subsequently terminated employment; Kerr (1948) relied on subjects' memories of their total work experience in deriving a measure of tenure. Correlations in these earlier studies obtained between job satisfaction and tenure, while in the expected direction, have been low to moderate.

A well-designed study was that of Ross and Zander (1957), which related turnover to differences between expressed importance of several needs and reported satisfaction of those needs. Their group of resignees was compared with two matched control samples drawn from female skilled workers in a large company operating in several cities. The authors controlled for the effects of several possible influences, e.g. work section, type of work, supervision, financial circumstances and employee benefits. Recognition, autonomy and fairness of the company's expectations were found to be statistically significant in differentiating between potential stayers and leavers. Sagi, Olmsted and Atelsek (1955) achieved moderate predictability of maintenance or severance of group membership among college students, using personal involvement in the group as one of two predictor variables.
Later studies tended to be further oriented towards prediction of tenure on the basis of job satisfaction measures. In this vein Katzell (1968) adopted an approach analogous to that followed by Ross and Zander (1957), in comparing expected satisfactions with satisfaction experienced on-the-job by new entrants to nursing school. Katzell considered that despite the low correlations obtained, the independent variables could still be useful as a predictive instrument for reducing withdrawals if applied to large numbers of entrants. It should be noted that both Ross and Zander and Katzell utilized a "subtractive" approach to job satisfaction (Vroom, 1964), which could be deficient in that it does not imply any interaction between motivational and work role variables.

Hulin (1966 and 1968) compared Job Description Index scores of leavers and stayers drawn from female clerical workers. Leavers reported significantly less satisfaction with their jobs. Hulin went on to demonstrate that a deliberate attempt to increase staff job satisfaction could reduce labour turnover. The attempt consisted of a variety of policy changes (e.g. revision of wage and salary administration). Satisfaction with pay and promotion showed the largest increase over an eight month period. Although Hulin stressed that his 1968 study was "pre-experimental" and not definitive, he was able to develop a moderately effective linear
multiple correlation equation based on J.D.I. scores, with turnover as the dependent variable.

A major study which produced results at variance to those reported so far was that of Talacchi (1960). He found no significant relationship between turnover and satisfaction in 81 departments in 4 organisations. Organisations and departments were carefully selected to minimise the effects of confounding variables on the satisfaction/turnover relationship. Talacchi proposes three possible explanations for his finding: (i) dissatisfied employees display a number of behaviours detrimental to the organisation (he found a negative relation between satisfaction and absenteeism) but do not terminate employment for this reason; (ii) where individuals perceive alternative employment to be readily available, the tendency to verbalize dissatisfaction diminishes; (iii) in large organisations, employees may consider that causes of dissatisfaction can be removed by internal transfers, reassignment of supervisors, grievance procedures or other means. (Ash, 1970, found a negative correlation between grievances and turnover.)

While these explanations are all plausible, they do not explain the contrast between Talacchi's finding of no significant link between satisfaction and turnover and the negative relationship reported in other studies. Certainly Talacci's methodology and measuring instrument (the S.R.A. Employee Inventory) appear particularly sound.
Limited support for Talacci's position may be found in the detailed findings of other authors who have reported that not all their measures of satisfaction were associated with tenure or turnover as predicted. These findings have tended to have been ignored by later writers (Schuh, 1967; Macleod, 1968) who have given greater emphasis to the main findings of earlier authors, or have ignored certain studies.

Weltz and Nuckols (1955) devised a questionnaire based on satisfactions and dissatisfactions most often mentioned in a preliminary survey of insurance agents. The authors attempted to use the questionnaire responses to predict organisational survival or non-survival. Although their results were generally in the hypothesized direction, the items predictive of survival and non-survival were by no means the ones checked most frequently as being sources of satisfaction or dissatisfaction.

Ross and Zander's (1957) investigations of need satisfactions found satisfaction of affiliation and achievement needs to be unrelated to the propensity to leave an organisation.

Hulin (1966), while able to discriminate between reported satisfaction of leavers and stayers, found that satisfaction still actually increased among leavers between their responding to the questionnaire and their quitting.
These findings emphasize the lack of clarity surrounding the nature of the relationship between job satisfaction and turnover. Hulin (1966) discussed the possibility of there being a dimension of "propensity to leave if dissatisfied" in the work-force. At the "likely to leave" extreme would be young, highly skilled workers, with few economic obligations living in an area which demanded their skills; the other end of the dimension would be characterized by old unskilled workers living amidst substantial unemployment.

This conceptualization draws attention to other variables influencing the turnover/job satisfaction link, and contributing to the small size of the correlations frequently reported. Macleod (1968) refers to two hypothetical forces affecting the probability of resignation: those influencing the person to remain in his present job and those acting upon him to leave. Only the former set of forces are generally assumed to be reflected in job satisfaction scores. Herzberg, Mausner and Snyderman (1959) theorized that job satisfiers and dissatisfiers were mostly independent sets of variables. Although their theory in toto has been criticized for being based on an unrepresentative sample and for oversimplifying job satisfaction (Blum and Naylor, 1968 p.378), their approach would suggest that measurement of job satisfaction would be unlikely to provide many clues as to the determinants of labour
turnover. This postulation would also account for the low correlations generally reported between satisfaction and turnover.

These correlations might be expected to be greatest in times of full employment, when availability of alternative positions is not such a constraint on turnover. To the author's knowledge, this possibility has not been tested.

(b) **Expectations.** The results of several studies suggest that new employees' expectations about a job and the consequent vindication or otherwise of those expectations, can influence their tenure in the job. This has already been referred to in the context of pay and turnover.

Katzell (1968) found no significant difference between expectations of stress and satisfaction of nursing drop-outs and survivors. However, she did find that the groups differed in terms of the number of expected satisfactions and stresses they subsequently experienced on the job. King (1969) noted that disappointment with the clinical situation was a major reason cited by student nurses for leaving their profession. Long (1951) observed that unfulfilled expectations of promotion seemed to be responsible for high turnover of labourers in one factory. Long ascribed the cause of the false expectations and consequent turnover to the firm's job placement and promotion policies.
The amount of information given to new employees about the nature of the job and what they are expected to achieve has been linked to turnover. Using two matched groups, one of which was a control group, Weitz (1956) showed that giving potential insurance agents a clear picture of their job duties reduced later terminations by about 30%. Byrt (1949) observed that turnover among new employees in a factory was reduced when their jobs were explained more accurately and the company's expectations clarified.

(c) Feelings of Frustration, Failure and Success
Marrow and David (1951) found that turnover was highest among production workers approaching, but not yet achieving, the standard production rate in a large textile firm. They theorized that this could arise from employees becoming frustrated and quitting as a result of two conflicting forces: the increasing desire to reach a goal (standard production) as it gets closer, and the greater difficulty of achieving significant productivity increases as the goal is approached. This conflict they termed the frustration-failure hypothesis. By introducing progressive subgoals and emphasising the success element when these were attained, Marrow and David were able to reduce turnover at all levels of productivity, with monthly average turnover for trainees reduced from 13% to 5%. Bucklow (1950), citing an earlier report of Marrow and David's study, set out to
apply their approach to four Australian factories in which turnover was high. However, she found that turnover followed an entirely different pattern, being high among new employees, but low - in all four factories - among staff in later weeks of training who were approaching the production standard. Bucklow's explanation of the different result was that employment was at a higher level in Australia, favouring higher turnover for reasons other than success or failure at reaching a production standard. However, most American research reviewed here indicates that is equally true of the United States. The value of Marrow and David's findings may, in fact, be limited to factories with similar personnel policies and modes of production. Their frustration-failure hypothesis requires much more extensive testing before its general applicability can be determined.

The importance of a feeling of success in a job is echoed by Wickert (1951). He noted a striking difference between young women employees who stayed and those who left, in their expressed feelings of making, or having made, an important contribution to the success of the company.
VI. THE PHELPS-BROWN REPORT

The Report of the Committee of Inquiry under Professor E.H. Phelps Brown into Certain Matters concerning Labour in Building and Civil Engineering, generally known as the Phelps Brown Report, is reviewed separately, as it contains considerable information on labour turnover in the building industry, albeit in the United Kingdom.

The Report draws on information from several extensive government and government sponsored surveys, including that described briefly by Nelson (1969). Labour turnover in the building industry was estimated at 100%, about twice the national average for all industries and services. About 12% of company sites reported that their current contract had been delayed by labour turnover. Two-thirds of construction operatives in the private sector were estimated to stay in the same job for at least a year, and more than a third for at least five years. These figures, combined with the high overall turnover rate, suggested to the Committee that the industry contained a majority of stable workers, and a substantial minority of much more mobile workers.

Both labour turnover and stability were found to be inversely related to size of firm. From the limited information available for 1966-67, (2 - 7 employees versus 8 - 79 employees), size of firm had little effect on turnover of "small" firms, i.e. employing less than 80 employees. However, very small firms (2 - 7 employees), had a much higher proportion of employees
with long service than did other firms. Half of the small firms had a turnover rate of 20% or less.

Although as a general rule, low turnover and high stability tended to coincide, there were some instances of firms having a fairly large permanent core of workers and a rapidly fluctuating additional force.

Turnover also increased with the size of contract undertaken by firms. Firms concentrating on small contracts were considered to be in a better position to maintain continuity of work for their staffs.

Type of work had an influence on turnover, which was lowest among specialist subcontract trades, little higher among main contractors specialising in dwellings, and much higher among other main contractors. It was postulated that dwelling specialists were better able to cope with fluctuations in their work than other main contractors, e.g. by subcontracting out work, and by engaging in speculative house-building. On a sample of large building sites, stability was found to be much greater among subcontract trades (e.g. electricians) than among main contract employees, especially labourers, carpenters and bricklayers. The reasons for the variations between trades could reflect different educational requirements for new entrants, different working conditions and varying demand for particular trades by the building industry.
Local authorities were found to have very much lower turnover than firms, annual turnover being around 30% of average employment. Stability levels in local authorities were correspondingly higher - similar to those of small firms.

About two-thirds of all leavers were reported to have left voluntarily while one-third were dismissed. Impending lack of work was considered to be an important influence on those leaving voluntarily. No information is given as to the proportions dismissed as unsatisfactory or redundant. The former type of dismissal is stated to be "relatively frequent" for unsuitability or misconduct (Phelps Brown Report, p.69).

The Report noted that most building workers who changed jobs did so within their home area. Mobility varied with age, being highest among men in their twenties and thirties. According to the committee, "there appears to be a pattern of young workers on completion of apprenticeship moving into larger scale new construction work in which they change employers rapidly but in which earnings are higher. As men get older, they move into more secure but less remunerative work in repair and maintenance, smaller firms and local authorities." (Phelps Brown Report p.70).
At the commencement of the research it was necessary to make several basic but related decisions on objectives and strategy.

(i) What should be the objectives of the research?
(ii) What overall approach should be adopted to achieve the objectives?
(iii) In what areas of New Zealand should the research be undertaken?
(iv) What trade or trades should be covered by the research?

Although these decisions are listed in a logical order, in practice, because of various constraints, they were not always considered sequentially as listed. For example, the objectives of the research necessarily incorporate the trade selected for the study.

I. OBJECTIVES OF THE RESEARCH

The objectives of the research were determined primarily by the need to provide useful information on labour turnover for the building industry. With this requirement in mind, the following four objectives were formulated:
(i) to determine the extent and nature of turnover of carpenters;
(ii) to ascertain the causes of turnover of carpenters;
(iii) to estimate the cost of turnover to firms;
(iv) to estimate the costs, if any, incurred by carpenters changing jobs.

II. OVERALL APPROACH

Much of the literature on labour turnover describes research in which information has been sought about either organisations or their employees, or about external conditions affecting labour turnover. Few studies have investigated all three factors. Many have not sought information on the subject from both employers and employees. These limitations reduce in particular the value of some descriptions of the extent and nature of turnover, as well as the explanations proposed for the determinants of the turnover.

An early decision was therefore made to obtain information from and about both firms and carpenters. It was clear from the industry-oriented nature of the objectives that surveys of many firms and carpenters would be preferable to a study based on one company or a small number of companies as adopted in many investigations.
The absence of official statistics on labour turnover in the building industry made it impracticable to determine directly the impact of external factors on turnover of carpenters. It was therefore decided to draw on comparable information from related occupations outside the building industry in order to get some indication of the extent to which turnover of carpenters was affected by external conditions.

III. LOCATION OF RESEARCH

Initial discussions with building industry personnel revealed that labour turnover was perceived to be most serious in the Auckland and Wellington regions. This was generally supported by regional labour turnover statistics for males in all industries. Figures from 23 employment districts in 1964 and 1969 show Lower Hutt to have had the highest turnover in both years, while Auckland ranked third and second respectively and Wellington sixth and eleventh (McDonald, 1969, p.132).

However, the author, who was undertaking the research as an employee of a research organisation, was required for policy reasons to be based initially in Christchurch. It was necessary to restrict first efforts to the Canterbury province.

The Christchurch Employment District also recorded high labour turnover in 1964 and 1969, being ranked fifth and third highest in those years (McDonald, 1969, p.132).
For these reasons, it was decided to use Canterbury as the location for a pilot study, while the main research effort would subsequently shift to Auckland and Wellington.

IV. TRADES INVESTIGATED

The original intention was to study immediately labour turnover among carpenters, painters, electrical workers and builders' labourers. However, a series of constraints made such a goal excessively optimistic.

First, it was intended that the Canterbury phase of the research should provide information of immediate benefit to the building industry in that province. To achieve this through the investigation of several trades in Canterbury would have been too time-consuming, especially as the major focus of the research was to be in Auckland and Wellington. Second, technical difficulties were encountered with two trades, involving access to Trade Union records in one instance and adequate definition of the population for sampling purposes in another.

For these reasons and because carpenters constitute the most numerous and the primary trade in the building industry, it was decided to restrict the pilot study to Canterbury carpenters and building firms. It was, however, envisaged that further trades would be included
when the investigation was extended to Wellington and Auckland. The painting and electrical trades were, in fact, covered in the principal investigation but for reasons of space are not incorporated in this thesis.

V. SPECIFICATION OF RESEARCH QUESTIONS AND HYPOTHESES

Once the objectives and overall approach had been established, it was possible to define the specific questions and hypotheses necessary to achieve the objectives. This step was based initially on the literature survey and on preliminary interviews with building industry personnel.

In addition, further hypotheses arose out of the unusual nature of the Canterbury-based pilot study. As the study was required to produce useful information for the local building industry, it had to be much larger in scope than a conventional pilot study. As such, it resulted in the identification of several other topics of potential importance to the understanding of labour turnover in the New Zealand industry.

(1) The Extent and Nature of Labour Turnover

The literature survey indicated clearly that no single measure of labour turnover is adequate. Initial contacts with building companies revealed that measurement of turnover could entail a conflict between the preferred
measures identified in the literature, and the practical limitations on what could realistically be achieved in the New Zealand building industry.

In the first instance, while it would have been worthwhile to have obtained information on tenure patterns within individual firms, this information was often not available or difficult to aggregate precisely. Further, because recruitment is sometimes sporadic and new employees are frequently recruited individually, Silcock's otherwise useful idea of analysing survival rates of groups of entrants could not be adopted. Only a very small number of the largest building companies bother to record simple separation rates on a regular basis.

After considering both the literature survey and the practical constraints, two sets of measures were adopted - separation measures, obtained from companies, and tenure measures, obtained directly from carpenters.

(a) Separation Measures. The separation measures employed for determining the extent and nature of turnover in firms were defined as follows:

(i) total turnover:—
the number of carpenters leaving a building firm during a specified year, divided by the average number of carpenters employed by the firm during that year. (Denominator = N);
(ii) voluntary turnover:
the number of carpenters leaving a building firm of their
own accord during a specified year, divided by N;

(iii) lay-offs:
the number of carpenters laid off by a building firm
during a specified year, divided by N;

(iv) dismissals:
the number of carpenters dismissed by a building firm
during a specified year, divided by N;

(v) replacement turnover:
the number of carpenters leaving a building firm during
a specified year and who were replaced, divided by N;

The five separation measures defined so far occur
frequently in the literature. The replaced turnover
rate represents an attempt to obtain a more meaningful
measure than the raw percentage of separations.

However, the pilot study demonstrated that because
of the finite nature of building contracts and the
fluctuating level of activity in the industry, firms
may sometimes either be unable to replace all of the
leavers they would like, or not wish to replace all
leavers. In the former case, the replaced turnover rate
would understate the real loss to the company. For this
reason, a further measure of turnover was obtained:

(vi) desired replacement turnover:
the number of carpenters leaving a building firm during
a specified year which the firm wanted to replace divided
by N.
This measure would be identical to the replaced turnover rate if the firm was able to replace all the leavers it wished to.

To obtain figures for the whole industry on the types of turnover defined above, the appropriate numerator was totalled for all firms, and divided by the aggregate of the average number of carpenters employed by each firm.

(b) **Tenure Measures.** Carpenters were asked for details of tenure in their present job and, where applicable, their last (i.e. previous) job. This enabled two industry tenure distributions to be derived.

As industry estimates of the length of time carpenters spend in jobs, it was recognised that both distributions had deficiencies. Asking carpenters about tenure in their last job would not encompass tenure in their final job held in the industry; this information could only be provided by retired carpenters. Carpenters in their first job in the industry would obviously be unable to contribute a response. On the other hand, measuring the tenure of carpenters in their present job would provide an estimate of current tenure, but would not represent the full span of their eventual service in the position.
Determinants of Low Labour Turnover and Long Tenure

The importance of seeking information about both firms and carpenters in order to identify the determinants of turnover has been noted. Both have also been recognised as important sources of information. Hypotheses were therefore developed postulating relationships between a series of independent variables and firms' level of turnover, and also relationships between certain independent variables and carpenters' job tenure. The desired replacement turnover rate was selected as the measure most effectively representing the real loss suffered by building firms as a result of staff leaving. Both time in carpenters' last job and time on their present job were used as tenure measures. Because of the building industry's desire to reduce turnover and increase tenure, hypotheses were defined in terms of low turnover and long tenure.

(a) Organisational Characteristics.

Type of Work. The literature indicated that the nature of work can be a significant influence on labour turnover. The type of work undertaken by New Zealand carpenters can vary markedly.

Residential building consists largely of the construction of detached dwellings and small blocks of flats. The carpentry work varies as the building progresses over a period of weeks through foundations,
framing, closing in and finishing. Gangs usually consist of two to four carpenters, allowing close social relationships to develop on the job. Carpenters have a fairly high degree of control over their activities, e.g. order in which some activities are undertaken, methods used.

Commercial building projects are generally on a larger scale than residential buildings, and usually take much longer to complete. Almost invariably there is a greater amount of concrete work, and consequently preparing and stripping boxing for concrete frequently comprises a major part of commercial carpentry. Exposure to weather is usually a greater problem than in residential work. The proportion of higher class finishing carpentry in commercial buildings has been diminished by developments such as demountable partitions, and patent ceiling systems, which are usually erected by specialist subcontractors.

Commercial carpenters' degree of control over their activities is limited by several constraints. For example, large commercial structures depend on engineering calculations and foremen must ensure that their carpenters adhere to fairly clearly delineated methods.

Commercial building sites generally offer superior eating and tea-making facilities to residential sites reflecting a larger work-force, longer contracts and a
desire by management to compensate for the difficult conditions of work.

Based on the distinctions between residential and commercial carpentry, the following hypotheses were formulated:

Hypothesis 1: that low labour turnover is more frequent among firms undertaking mainly residential work than among firms undertaking mainly commercial work.

Hypothesis 2: that long tenure is more frequent among carpenters engaged mainly on residential work than among carpenters engaged mainly on commercial work.

Size of Company. It was concluded from the literature that any link between size of organisation and level of labour turnover was uncertain, although there was some evidence that very large companies had higher turnover. Most of the research had been undertaken among companies which were large by New Zealand standards. For this reason, these studies have limited application to the New Zealand building industry, where most companies are very small, and where even the largest companies would only be considered of moderate size by international standards.

From preliminary interviews, there were indications that labour turnover could, in fact, conceivably be related to size of building firms. While little information was gleaned on the impact of large company size on turnover, strong impressions were gained
of often excellent rapport between proprietors and staff of very small firms.

Hypothesis 3: that low labour turnover is more frequent among small firms.

Hypothesis 4: that long tenure is more frequent among carpenters working in small firms.

Supervisor-Employee Relationships. The literature indicated that the supervisor can have an effect on the rate of turnover in his work group.

Hypothesis 5: that low labour turnover is more frequent among firms which rate their supervisor-employee relationships as better than average.

Planning and Organisation. Although the quality of planning and organisation was only occasionally mentioned in the literature in connection with turnover, carpenters in preliminary interviews expressed considerable concern about this area.

Hypothesis 6: that low labour turnover is more frequent among firms which rate their planning and organisation as better than average.

Personnel Role. It might be expected that in very large building firms, a personnel department or officer would tend to reduce turnover, e.g. by better selection and orientation of staff, training of supervisors, execution of exit interviews.

Hypothesis 7: that low turnover among very large firms is more frequent in those with a personnel department or officer than in those without either.
(b) Personnel Policies.

Supervisory Training. The literature survey indicated that supervisory training resulted in a reduced level of labour turnover.

Hypothesis 8: that low turnover is more frequent among those firms in which the persons who supervise carpenters are provided with formal supervisory training.

Induction. Previous research also shows that sound induction of new employees can reduce labour turnover.

Hypothesis 9: that low turnover is more frequent among those firms which make a deliberate effort to orientate new carpenters to their job.

Wages. The link between level of wages and turnover has received considerable attention in the literature.

Hypothesis 10. that low labour turnover is more frequent among firms whose managers rate the wages they pay to their carpenters as higher than average.

Communications. "Keeping employees informed" is commonly proposed as an important component of good management. In building companies, information about future work resulting from successful tenders or negotiations is of vital interest to employees. The Phelps Brown Report indicated that perceived lack of future work can cause people to terminate employment. In large firms it would be expected that management
would inform foremen of impending contracts. In small firms, carpenters could be told directly by their employer.

Hypothesis 11: that low labour turnover is more frequent among firms immediately informing carpenters or foremen when contracts have been obtained.

Job Rotation. There is considerable scope in building operations for rotating carpenters from one type of work to another to reduce monotony, and possibly labour turnover.

Hypothesis 12: that low labour turnover is more frequent among firms which deliberately rotate carpenters between tasks.

(c) Managers' Ratings of Carpenters' Productivity. In the course of the pilot study, it appeared that managers sometimes differed quite markedly in their views on the productivity and capabilities of the majority of carpenters. Extreme positions were characterized by comments such as, "most carpenters work hard and generally do a good job" on the one hand, and "many carpenters are not capable of good quality work" or "carpenters should be registered or graded" on the other. While some of these statements were clearly gross generalisations, it was thought that the global nature of the beliefs apparently underlying the statements could have an influence on the firm's labour turnover. It was therefore decided to try to quantify managers'
views as to the productivity of their carpenters.

Hypothesis 13: that low labour turnover is more frequent in firms in which the manager considers a high proportion of the carpenters produce work of satisfactory quality;

Hypothesis 14: that low labour turnover is more frequent in firms in which the manager considers a high proportion of carpenters produce a satisfactory quantity of work.

(d) Personnel Benefits.

Pay-related benefits. There was some evidence from the literature that bonus payments could in some circumstances reduce labour turnover. In the building industry, several pay-related benefits in addition to production bonuses are sometimes paid to employees.

Hypotheses 15 to 19: that low labour turnover is more frequent among firms which:

* provide a bonus for long service; (15)
* provide other types of bonus; (16)
* operate a superannuation scheme; (17)
* make payment beyond award requirements when carpenters are off sick; (18)
* subsidise workers' compensation. (19)

Other Benefits. Many building firms offer other benefits, some financially oriented, some not. These benefits could also be expected to induce carpenters to stay longer with a firm.

Hypotheses 20 to 26: that low labour turnover is more frequent among firms which:
* provide travel arrangements or payments greater than award requirements; (20)

* offer special arrangements enabling carpenters to buy work-related items at discount rates; (21)

* offer special arrangements enabling carpenters to buy general items (e.g. hardware) at discount rates; (22)

* allow flexible working hours; (23)

* provide an annual formal or informal social function for carpenters; (24)

* provide more frequent formal or informal regular social functions; (25)

* provide special job-site amenities. (26)

(e) Personal Characteristics of Carpenters.

Several personal characteristics have been found to be related to job tenure. Those incorporated in the hypotheses below generally reflect either the consistency with which they have been linked with turnover in previous studies, their perceived importance in the industry, or both. The characteristics are age, marital status, qualifications, job status, previous employment with the firm and tenure in previous job.

Hypotheses 27 to 32: that long tenure is more frequent among:

* older carpenters; (27)

* married carpenters; (28)

* more highly qualified carpenters; (29)

* foreman and leading hand carpenters; (30)
* carpenters who have previously worked for their current employer; (31)

* carpenters with long tenure in their last job. (32)

(f) Carpenters' Reactions to the Job. Carpenters' reactions were sought to the "consideration" and "initiating structure" dimensions described by Fleishman and Harris (1962). It was not feasible to measure the dimensions comprehensively. A general question was, therefore, asked about consideration. A question pertaining to initiating structure was based on the item which in Fleishman and Harris' research had the highest factor loading on the dimension.

A further question sought carpenters' reaction to the quality of job planning and organisation. It has already been noted that these elicited considerable comment from carpenters during preliminary interviews.

Hypotheses 33 to 35: that long tenure is more frequent among carpenters who:

* rated the person they worked directly under as more considerate towards them than average; (33)

* considered that the person they worked directly under placed less emphasis than average on seeing that they worked up to their limit; (34)

* rated job planning and organisation as better than average. (35)
(3) Reasons for Leaving

The advantages of seeking information from a leaver about reasons for leaving an organisation after he has departed from the organisation have been described by McNaughton (1956). McNaughton pointed out that employees may feel uncomfortable telling their employers their true reason for leaving in a face-to-face situation at the time of termination.

For this reason, it was considered that useful information could be obtained by asking carpenters their reasons for leaving their last job. It was anticipated that this approach should prove a useful adjunct to the hypotheses outlined and would be likely to identify additional turnover determinants.

Supplementary information was sought from carpenters who had left because they were dissatisfied in some way. These respondents were asked for suggestions about any circumstances which, had they occurred, might have caused the carpenters to change their minds about leaving.

Managers of building firms were also asked their views on why carpenters change jobs. It was envisaged that a comparison of the responses of the two groups would be a useful check on the validity of employers' beliefs about the principal factors influencing carpenters to leave jobs.
(4) **Turnover and the Level of Employment**

It has been noted that the absence of labour turnover statistics in the building industry prevented estimation of the impact of external conditions on turnover. However, adequate turnover statistics are provided for other industries. Therefore it was decided to correlate labour turnover and vacancies in "manufacturing of woodwork and builders' joinery". Vacancies and unemployment traditionally relate inversely in New Zealand, so on the basis of previous research it was hypothesized that labour turnover and vacancies would be positively correlated.

(5) **Cost of Turnover to Firms**

The need to provide an industry estimate of the cost of turnover to building firms partly determined the costing techniques adopted. Firms were requested to provide estimates of the following costs where applicable when a carpenter leaves and is replaced:

**TERMINATION COSTS**

(i) Lower production before a carpenter leaves.

(ii) Clothing, tools or safety and other equipment retained by departing carpenters.

(iii) Time for sharpening saws, cleaning tools.

(iv) Exit interview.

(v) Completion of tax form.

(vi) Reduced efficiency of gang through being one man short for a time.
(vii) Any other costs.

REPLACEMENT COSTS

(i) Advertising in media, vacancy signs, telephoning and relevant clerical costs.

(ii) Interviewing

(iii) Issuing safety equipment, tools, clothing etc.

(iv) Orientation.

(v) Lower production of new carpenter.

(vi) Immigration costs, if applicable.

(6) Cost of Turnover to Carpenters

With the exception of the effect of turnover on wages, the dearth of relevant previous research on this subject was a handicap. It was, therefore, necessary to devise a set of questions based primarily on information gleaned from preliminary interviews and from initial analysis of typical job-changing practices in the building industry.

Carpenters were questioned about the following topics:

(i) wage changes associated with their last change of job;

(ii) work time lost in changing jobs;

(iii) casual work or holidays undertaken between jobs;

(iv) income received between jobs (e.g. compensation for accident, unemployment benefit);

(v) expenses associated with changing jobs (e.g. shifting house, vehicle expenses incurred seeking a job).
CHAPTER IV

METHOD

This chapter describes the methods employed to achieve the defined objectives, and encompasses information-seeking strategy, questionnaire design, derivation of samples, distribution of the questionnaires and execution of the pilot study.

I. INFORMATION-SEEKING STRATEGY

The strategy for obtaining the information required derived largely from the overall approach described in Section II of Chapter III. In that section it was noted that extensive surveys of firms and employees were preferred because of the industry-wide orientation of the research. Such a strategy was also necessary to facilitate statistical testing of the hypotheses established.

It was, therefore, decided to design and distribute appropriate questionnaires for managers of building firms and for carpenters. Interviewing of the two groups was deemed impracticable because of the large numbers involved.
II. QUESTIONNAIRE DESIGN

Separate questionnaires were designed for and tested on carpenters and on managers of building firms. The questionnaires were a balance of open-ended and closed questions, expressed in fairly simple terms. The carpenters' questionnaire contained a filter instruction to isolate any joiners, whose questionnaires were subsequently culled from those received. Certain questions were marked on the carpenters' questionnaire as being appropriate for carpenters who were in their first building job and therefore unable to answer questions about their experiences in previous jobs. Both questionnaires contained a guarantee of confidentiality of information, and each was printed on different coloured paper to facilitate collation and analysis. Copies of the questionnaires used are listed in Appendix A.

III. DERIVATION OF SAMPLES

(1) Firms

Published lists of building firms (Yellow Pages, commercial directories, members of Master Builders' Associations) proved to be insufficiently comprehensive for sampling purposes. The most comprehensive lists were held by District Offices of the Department of Labour. Employers in the building industry are required to complete a six-monthly return to the Department, containing a
variety of employment-related information. The Department agreed to the author copying out names and addresses of firms, providing that confidentiality was maintained. Apart from grouping firms according to number of carpenters employed, the author was not permitted to record any employment details of firms.

Building firms are not classified as such by the Department of Labour. It was necessary to record names and addresses of firms employing primarily carpenters and joiners. Known joinery establishments were then excluded.

Firms employing fewer than three carpenters and joiners were omitted from the list on the basis of the Canterbury pilot study which showed the labour turnover rate of such firms to average 0.56 that of larger companies. Nett populations of 236 and 147 companies were identified in Auckland and Wellington respectively. Because of the small numbers, 100% samples were selected in each case.

(2) Carpenters

The sampling of carpenters presented two options; approaching them via building firms, or contacting them directly after obtaining their names and addresses from branches of the New Zealand Carpenters and Related Trades Union. The first alternative had the major disadvantage of requiring the co-operation of both the carpenter and his employer. There was also the danger that
carpenters might be suspicious of the survey if they were approached through their employer. The second alternative had two disadvantages: the first, that the Trade Union branch might not possess a comprehensive or up-to-date list of carpenters in the region; the second, that some carpenters, being reluctant Union members, might be influenced not to co-operate in the survey.

After discussing these options with industry representatives, it was concluded that the disadvantages of the first option clearly outweighed those of the second. Therefore, the New Zealand Carpenters and Related Trades Union was approached for access to names and addresses of members. Access was permitted after the author provided a written guarantee of confidentiality of all information taken from Union files. In Wellington, it was necessary to appear before the Union Branch executive committee and convince them of the value of the survey to their members.

The boundaries for sampling of both building firms and carpenters were based on Department of Labour Employment Districts as follows:

<table>
<thead>
<tr>
<th>Area of investigation</th>
<th>Employment District(s) covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canterbury (pilot study)</td>
<td>Christchurch and Ashburton</td>
</tr>
<tr>
<td>Wellington</td>
<td>Wellington and Lower Hutt</td>
</tr>
<tr>
<td>Auckland</td>
<td>Auckland</td>
</tr>
</tbody>
</table>
Trade Union boundaries are determined by Department of Labour Industrial Districts which extend over larger areas than the Employment Districts. It was, therefore, necessary to exclude carpenters who resided outside the appropriate Employment Districts.

The New Zealand Carpenters and Related Trades Union covers carpenters, joiners, joiners' machinists, bricklayers and blocklayers. Apprentices and retired carpenters can also be members. Labour-only carpenters are strictly excluded. Joiners, joiners' machinists, apprentices and retired members were not always separable from carpenters, making definition of populations difficult. However, initial gross estimates were of 2,490 carpenters in Auckland and 1,407 in Wellington. Systematic samples of 500 were drawn from each.

IV. QUESTIONNAIRE DISTRIBUTION

As a partial alternative to mail distribution, it was decided to deliver some questionnaires personally to respondents. This decision was based on two assumptions. The first was that personal contact should increase the response rate over that which would be obtained by mail distribution alone. Oppenheim (1966) has pointed out that mailed questionnaires usually do not achieve good response rates. The second assumption was that personal distribution would enable a better
Areas of principal study

Figure 1: Map showing locations of survey

Pilot study area

AUCKLAND
WELLINGTON
LOWER HUT
CHRISTCHURCH
ASHBURTON
understanding of how current, comprehensive and homogenous were the populations from which samples were drawn.

Regardless of the form of distribution, questionnaire recipients were first sent a covering letter detailing the reasons for the survey, how it would benefit them and advising them that any information they provided would not be shown to anyone else. In the case of personal distribution, it was explained to recipients that either the author or an assistant would call and, subject to the recipient's approval, leave a questionnaire to be completed. The call was made within the next few days. In most cases, it was possible to run through the questionnaire with recipients and discuss any obvious problems. Questionnaires were either collected a few days later, or in a few cases, respondents were asked to return the questionnaire by mail.

In the case of mail distribution, recipients were advised that a questionnaire would be posted out within a few days. This approach was designed to avoid flooding the recipient with information as the introductory letter was a full page long. The questionnaire was sent a few days later with a short covering note, and recipients were asked to mail the questionnaire back to the author. To enable the author to know who had returned
questionnaires, without requiring respondents to put their names on the questionnaire, a simple check system was developed for people returning their forms by mail. Stamped cards addressed to the author were included with the questionnaire. The respondent filled in the card and returned it separately from the questionnaire. Approximately one month after delivery of questionnaire, non-respondents were sent a reminder letter and a further questionnaire in case they had lost the first one. Some non-respondents to mail questionnaires were subsequently contacted personally to improve the response rate.

The distribution of questionnaires took place from October to December 1973. Copies of introductory letters, covering letters and reminder letters are listed in Appendix B.

V. THE PILOT STUDY

It has been pointed out that the initial study in Canterbury was intended to be both a pilot study and also to provide useful information for the local building industry. As such it was necessary for the study to be large enough to permit data to be fully analysed and useful results obtained. In effect, the procedures required for executing the pilot study were similar to those necessary for undertaking a full scale investigation. However, for the purposes of this research, details of the pilot study are only reported in so far as they affected the principal investigation in Auckland and Wellington.
Draft questionnaires were administered to small samples of firms and carpenters, some by interviews and some by asking them to fill in the questionnaire. The questionnaires were then modified and retested on a further small number of each group. A few minor changes were made and the questionnaires retested briefly before final distribution to 456 carpenters (estimated, however, to include some joiners), 39 large firms and 98 small firms.

All large firms (i.e. those employing more than 10 carpenters), more than 95% of small firms and more than 90% of carpenters received personally distributed questionnaires. University students were employed to assist with distribution. The remainder were sent out by mail, including virtually all carpenters and firms in rural areas (i.e. outside towns). The mail distribution also included a systematically sampled group of carpenters representing 5% of the base sample. This was to enable comparison of the responses to mailed and personally distributed questionnaires.

Contrary to expectations, mail distribution resulted in a marginally higher response rate than personal distribution. Overall pilot study response rates for both firms and carpenters were estimated to be about 65-70%.

The Canterbury pilot study verified the overall approach adopted. Changes made to the questions and hypotheses are noted in Chapter III, Section V.
"Specification of Research Questions and Hypotheses."

Once the focus of the research moved to Auckland and Wellington, some further preliminary interviewing and a brief pilot study was undertaken before the main investigation was begun.

VI. ANALYSIS

The difficulties of analysing and interpreting nominal data are considerable, even when the data are in 2 x 2 tables. (Guilford, 1965; Blalock, 1960). The approach adopted in this study was to test the significance of the hypotheses by the chi square test, applying Yates' correction when any expected frequencies were less than 10. A 5% level of significance was applied, using a one-tailed test, reflecting the direction of prediction inherent in the hypotheses.

Fishers' Exact test of significance was employed when the constraints on application of chi square outlined by Siegel were evident (Siegel, 1956, p. 110).

The same procedures were adopted for determining the effects of other potentially relevant variables on those hypothesized relationships found to be statistically significant. Kendall's (i.e. Yule's) Q was used to determine the strength of association of these primary relationships. Q was chosen in preference to the phi coefficient because of difficulties in interpreting the latter, whose maximum in any given situation varies according to the relative size of the marginal subtotals.
In addition Blalock (1960, p.232) recommends Q in situations where the dependent variable is a dichotomized continuous variable, as was the case with both tenure and turnover.

Analyses of descriptive data were restricted to frequency distributions and cross-tabulations where appropriate. Analyses of financial effects of turnover on firms and carpenters are described concurrently with the relevant results.
CHAPTER V

RESULTS

I. RESPONSE TO THE SURVEY

The difficulties inherent in providing a definite percentage response rate for any of the groups surveyed can be demonstrated by considering the case of Auckland carpenters:

(i) All names and addresses of people believed to be carpenters were copied from the files of the Auckland Branch of the New Zealand Carpenters and Related Trades Union. These totalled 2,490;

(ii) A sample of 500 was drawn by systematic sampling;

(iii) Of these, 27 were excluded because they lived outside the Auckland Employment District, or were known to have resigned from the Union. This left 473;

(iv) Of these, 250 were identified, 104 through personal contact, and 146 from contact by mail;

(v) Of the 250 people identified, 186 responded;

(vi) Some information was available on nearly all the carpenters the author attempted to contact personally. A considerable number were found to be ineligible for the survey. "Ineligibles" included
joiners, joiners' machinists, aluminium workers, labour-only contract carpenters, self-employed carpenters, apprentice carpenters, retired, former or deceased carpenters and joiners, and carpenters who had shifted to an unknown address, left the region or gone overseas.

(vii) Based on the proportion of ineligibles in the personally contacted group, an estimate was made of the probable number of ineligibles and genuine refusals in the original sample of 473. Subtracting the estimated 98 ineligibles, the original sample reduced to a net figure of 375. On this basis, the return of 186 represented a response rate of about 50%.

(viii) Similarly, the population of eligible Union members was more likely nearer to 1,868 than 2,490. The same procedure was applied to Wellington carpenters and also to building firms. In the case of firms, ineligibles were mostly those which had gone out of business. A few were firms which employed only labour-only contract carpenters.

Details of the numbers of questionnaires distributed to firms and carpenters and returned are presented in Table 3.
Table 3

RESPONSE TO SURVEYS

<table>
<thead>
<tr>
<th></th>
<th>Population * (estimated)</th>
<th>Sample *</th>
<th>Questionnaires returned</th>
<th>Returns as a % of sample</th>
<th>Returns as a % of population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AUCKLAND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building firms</td>
<td>210</td>
<td>210</td>
<td>124</td>
<td>59%</td>
<td>59%</td>
</tr>
<tr>
<td>Carpenters</td>
<td>1,875</td>
<td>375</td>
<td>186</td>
<td>50%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>WELLINGTON AND HUTT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building firms</td>
<td>129</td>
<td>129</td>
<td>74</td>
<td>57%</td>
<td>57%</td>
</tr>
<tr>
<td>Carpenters</td>
<td>1,032</td>
<td>369</td>
<td>198</td>
<td>54%</td>
<td>19%</td>
</tr>
</tbody>
</table>

* Excludes ineligible companies and persons as defined in the text.
In contrast with the pilot study in Canterbury, there was a better response to questionnaires delivered personally and returned by mail than to those distributed and returned by mail. This could reflect a greater aversion to unsolicited commercial mail in Auckland and Wellington than in Canterbury. It could also reflect the higher level of building activity at the time of the main surveys. With greater work demands on their time, managers and carpenters could be expected to be more easily persuaded to participate by a personal approach than by mail.

II. DETAILS OF SAMPLES

This section describes statistically the characteristics of the samples of firms and carpenters, and also indicates how representative the samples are of their parent populations.

(i) Builders

(a) Type of Work

No statistics are published which classify the number of building firms undertaking the types of work described in Table 4. However, building firms' six-monthly returns to the Department of Labour contain information of this nature. Although it was not possible to compare directly this information with the figures in Table 4, the author did carry out an informal analysis of the
Table 4
FIRMS - MAIN TYPE OF WORK

<table>
<thead>
<tr>
<th>Type of Work</th>
<th>Auckland</th>
<th>Wellington</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial - new work</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>Commercial - maintenance</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Residential - new work</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>Residential - maintenance</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Commercial/Residential</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

N = 124        N = 74

of the returns to the Department for the six months ended April 1973. This indicated initially that residential building firms were probably under-represented in the Auckland sample. It was evident from the Department's returns that many of the firms describing themselves in this survey as commercial-residential, probably undertook more residential than commercial work.

The apparent under-representation of residential building firms in the sample is complicated by the presence of labour-only contracting in the residential sector. The Department of Labour figures referred to contain an unknown number of residential building firms employing labour-only carpenters. This is because of
some confusion over the statistical status of such people at the time the sample was drawn. It is, therefore, likely that residential building companies are not seriously under-represented in the sample.

(b) **Size of Firm**

Table 5

<table>
<thead>
<tr>
<th>Size of Firm (number of carpenters employed)</th>
<th>Auckland</th>
<th>Wellington</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 10</td>
<td>62</td>
<td>70</td>
</tr>
<tr>
<td>11 - 20</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>21 - 50</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>more than 50</td>
<td>9</td>
<td>4</td>
</tr>
</tbody>
</table>

* N = 124                                        N = 74

Table 5 breaks down the samples of building firms by size, as measured by number of carpenters employed. New Zealand building companies generally do not employ other sub-trades such as painters, plumbers or electricians. However, larger commercial companies often employ labourers, and the largest companies have substantial office and site administration staff as well as specialist professional staff (e.g. quantity surveyors). Thus the relative size of these companies compared to smaller firms could be expected to be greater than indicated by Table 5.
Table 6 shows the Labour Department's distributions of firms in Auckland and Wellington according to the number of carpenters and joiners employed. Joiners in the Table are very few in number; that trade is mostly employed by specialist joinery establishments which are not incorporated with building firms by the Department.

Table 6
DISTRIBUTION OF SIZE OF FIRMS (IN POPULATION)

<table>
<thead>
<tr>
<th>Size of Firm (number of carpenters and joiners employed)</th>
<th>Auckland</th>
<th>Wellington</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - 10</td>
<td>74</td>
<td>66</td>
</tr>
<tr>
<td>11 - 20</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>21 - 50</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>51 or more</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

N = 228
N = 141


A comparison between Tables 5 and 6 reveals that the survey samples are fairly representative of their respective populations, based on size of firm.

(2) Carpenters

(a) Age

Table 7 gives age distributions for Auckland and Wellington carpenters in the samples. Also presented in Table 8 are similar data for New Zealand carpenters and joiners.
Table 7
AGE OF CARPENTERS IN SAMPLES

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Auckland</th>
<th>Wellington</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 25 years</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>25 - 29 years</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>30 - 34 years</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>35 - 39 years</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>40 - 44 years</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>45 - 49 years</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>50 - 54 years</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>55 - 59 years</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>60 years or more</td>
<td>9</td>
<td>5</td>
</tr>
</tbody>
</table>

N = 175
no response: n = 11

N = 187
no response: n = 11

Table 8
AGE OF CARPENTERS AND JOINERS IN NEW ZEALAND (1971)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 24 years</td>
<td>17</td>
</tr>
<tr>
<td>25 - 34 years</td>
<td>27</td>
</tr>
<tr>
<td>35 - 44 years</td>
<td>24</td>
</tr>
<tr>
<td>45 - 54 years</td>
<td>20</td>
</tr>
<tr>
<td>55 - 64 years</td>
<td>11</td>
</tr>
<tr>
<td>Over 65 years</td>
<td>2</td>
</tr>
</tbody>
</table>

(N = 29352)
Source: 1971 Census, Department of Statistics.

Note: the "under 24 years" group and the total have been adjusted to exclude apprentices.

Compared to the New Zealand figures, the samples are biased towards the oldest group of carpenters, while the youngest group is under-represented. Some, but probably not all of the bias could be due to the presence of labour-only carpenters in the national statistics. Because of the incentive inherent in labour-only contracting, it tends to attract younger men able to keep working at a fast pace and therefore able to maintain high earnings.

(b) Marital Status

Table 9

MARITAL STATUS OF CARPENTERS IN SAMPLE COMPARED TO NEW ZEALAND MALES

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Auckland Carpenters</th>
<th>Wellington Carpenters</th>
<th>N.Z. Males *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>85</td>
<td>88</td>
<td>77</td>
</tr>
<tr>
<td>Single</td>
<td>14</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Other (divorced, widowed, legally separated)</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

N = 175  N = 190  N = 724,948

No response n = 11  n = 8

* Source: 1971 Census, Department of Statistics Adjusted to include only males between 20 and 65 years of age, and only those specifying marital status.
Assuming that carpenters are typical of New Zealand males, the married people are over-represented in both samples, while both single and other (divorced etc.) carpenters are under-represented.

(c) Qualifications

Table 10

QUALIFICATIONS OF CARPENTERS IN SAMPLES AND OF CARPENTERS AND JOINERS IN NEW ZEALAND

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Auckland carpenters</th>
<th>Wellington carpenters</th>
<th>New Zealand* carpenters and joiners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced trade certificate, certificate or diploma or equivalent</td>
<td>8</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Trade certificate, London City and Guilds or equivalent</td>
<td>33</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Other qualifications</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Completed apprenticeship or equivalent</td>
<td>36</td>
<td>44</td>
<td>56</td>
</tr>
<tr>
<td>No qualifications</td>
<td>20</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

N = 176                                              N = 189                                             N = 29352

No response: n = 10                                    n = 9


Note: data have been adjusted to exclude apprentices.
Although finer comparisons are not possible, the available evidence in Table 10 indicates that the distribution of qualifications in the samples is similar to the national pattern.

(d) **Type of Work**

Table 11

<table>
<thead>
<tr>
<th>Type of Work</th>
<th>Auckland</th>
<th>Wellington</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial-new work</td>
<td>47</td>
<td>54</td>
</tr>
<tr>
<td>Commercial-maintenance</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Residential-new work</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Residential maintenance</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Commercial and residential; shop-fitting; demountable partitions</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

N = 150

Employed in a job outside the building industry (e.g. maintenance in factory, freezing work or local authority):

n = 28

No response:

n = 8

As in the case of firms, direct comparison of the type of work on which carpenters in the sample are engaged with other carpenters is not possible. This is mainly because official figures make no allowance for individual
carpenters working on both commercial and residential carpentry, although the pilot study confirmed that this was fairly common. However, again it was possible to make an informal analysis of 6-monthly returns to the Department of Labour for the period to April 1973, and to compare this with the sample data in Table 11. Both sets of statistics exclude carpenters not employed in the building industry. The exercise indicated that, taking account of the prevalence of labour-only contracting in the residential sector, the carpenters in both samples were fairly typical of their parent populations in terms of the work on which they were employed.

(e) **Size of Firm**

<table>
<thead>
<tr>
<th>Size of Firm</th>
<th>Auckland</th>
<th>Wellington</th>
</tr>
</thead>
<tbody>
<tr>
<td>(number of carpenters employed)</td>
<td>Sample</td>
<td>Population</td>
</tr>
<tr>
<td>1 - 2</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>3 - 10</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>11 - 20</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>21 - 50</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>more than 50</td>
<td>25</td>
<td>33</td>
</tr>
</tbody>
</table>

N = 150 N = 3304 N = 178 N = 2089

no response: n = 4 n = 8

Table 12 shows that the samples are slightly biased towards employees of smaller firms, especially in Wellington.

(3) **Overall Representativeness of Samples**

Analysis of the sample of builders shows it to be fairly representative in terms of type of work and size of firm.

The sample of carpenters appears to be satisfactory with respect to qualifications and type of work, but somewhat biased towards older and married carpenters, and towards those working in smaller firms. This has a bearing on the interpretation of carpenters' tenure, as previous research has found longer service to be characteristic of older and married men and, in a few instances, of employees of smaller organisations. In addition, the turnover rate of very small building firms was found to be particularly low in the pilot study.

III. **ANALYSIS OF RESULTS**

(1) **The Extent and Nature of Labour Turnover**

(a) **Separation Measures.** Table 13 describes the pattern of turnover among carpenters in Auckland and Wellington.
### Table 13

**Mean Rates of Turnover Among Carpenters in Auckland and Wellington**

<table>
<thead>
<tr>
<th>Region</th>
<th>Total</th>
<th>Voluntary</th>
<th>Lay-offs</th>
<th>Dismissals</th>
<th>Replaced</th>
<th>Desired Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auckland</td>
<td>66%</td>
<td>53%</td>
<td>6%</td>
<td>7%</td>
<td>43%</td>
<td>57%</td>
</tr>
<tr>
<td>N = 121</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wellington</td>
<td>51%</td>
<td>42%</td>
<td>5%</td>
<td>5%</td>
<td>35%</td>
<td>43%</td>
</tr>
<tr>
<td>N = 74</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Although firms employing 1 - 2 carpenters were excluded, these only account for about 10% of carpenters employed in the private sector. Even if the turnover rate in this group was half that of the remainder of the industry, the Auckland building industry total turnover figure would still be about 63%, and the appropriate Wellington figure about 48%.

The Auckland and Wellington figures were slightly higher than the comparable all-industries figures of 52% in Auckland and 46% in Wellington.

Table 13 indicates that - according to managers - about 80% of the turnover was voluntary, with the remainder comprised of dismissals and lay-offs in approximately equal proportions. The value of the desired replacement measure is demonstrated by the fact that firms in both regions replaced about two-thirds of their leavers, but would have liked to have replaced about 85% of those leaving. The number of unreplaced leavers almost certainly reflects the upsurge of building activity in both areas during the period surveyed; the annual value of building permits increased from March 1972 to March 1973 by 31% in Auckland and 78% in Wellington. It may have been expected that Wellington firms facing the greater building upsurge might have had much more difficulty with replacements. In fact, they had only fractionally more difficulty than their Auckland counterparts. Tables 14 and 15 show how turnover was distributed among firms.
<table>
<thead>
<tr>
<th>Type of Turnover</th>
<th>Turnover rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
</tr>
<tr>
<td>Voluntary</td>
<td>22</td>
</tr>
<tr>
<td>Lay-offs</td>
<td>89</td>
</tr>
<tr>
<td>Dismissals</td>
<td>71</td>
</tr>
<tr>
<td>Replacement</td>
<td>40</td>
</tr>
<tr>
<td>Desired replace-</td>
<td></td>
</tr>
<tr>
<td>ment</td>
<td></td>
</tr>
</tbody>
</table>

\( N = 121 \)

No response or information not available = 3
Table 15
PERCENTAGE OF WELLINGTON FIRMS EXPERIENCING VARIOUS RATES OF LABOUR TURNOVER

<table>
<thead>
<tr>
<th>Type of Turnover</th>
<th>Turnover rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
</tr>
<tr>
<td>Voluntary</td>
<td>34</td>
</tr>
<tr>
<td>Lay-offs</td>
<td>95</td>
</tr>
<tr>
<td>Dismissals</td>
<td>85</td>
</tr>
<tr>
<td>Replacement</td>
<td>54</td>
</tr>
<tr>
<td>Desired Replacement</td>
<td>38</td>
</tr>
</tbody>
</table>

N = 74
Tables 14 and 15 enable a more complete interpretation to be made of the industry averages presented in Table 1.

First, for all types of turnover in both regions, the approximate median rates which can be estimated from Tables 2(a) and 2(b) are substantially lower than the mean figures presented in Table 1. Thus the median Auckland total turnover rate was about 41%, compared with a mean of 66%. For Wellington the respective figures are about 23% and 51%. Clearly, the mean rate of turnover was disproportionally influenced by very high turnover in a relatively small number of companies.

Second, the figures show that dismissals and lay-offs only occurred in a small minority of companies.

(b) Tenure measures. Where applicable, carpenters were asked to state the length of service in their last carpentry job, and also how long ago it was since they had left it. Other questions checked on any time between jobs, and whether the respondent's last job was a carpentry job. This enabled the respondent's tenure in his present job to be gauged.
Table 16
CARPENTERS' TENURE IN THEIR LAST CARPENTRY JOB

<table>
<thead>
<tr>
<th>Tenure</th>
<th>Auckland (%)</th>
<th>Wellington (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 week</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1 week or more but less than 2 months</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>2 months or more but less than 4 months</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>4 months or more but less than 7 months</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>7 months or more but less than 2 years</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>2 years or more but less than 6 years</td>
<td>26</td>
<td>33</td>
</tr>
<tr>
<td>6 years or more but less 11 years</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>11 or more years</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>N = 154</td>
<td>N = 172</td>
</tr>
<tr>
<td>No response</td>
<td>n = 8</td>
<td>n = 4</td>
</tr>
<tr>
<td>Not applicable</td>
<td>n = 24</td>
<td>n = 20</td>
</tr>
</tbody>
</table>

According to Table 16, the median tenure for carpenters on their last carpentry job was very close to two years in both regions.
Table 17  
CARPENTERS' TENURE ON THEIR PRESENT JOB

<table>
<thead>
<tr>
<th>Tenure Duration</th>
<th>Auckland</th>
<th>Wellington</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 week</td>
<td>3 (%)</td>
<td>2 (%)</td>
</tr>
<tr>
<td>1 week or more but less than 2 months</td>
<td>7 (%)</td>
<td>5 (%)</td>
</tr>
<tr>
<td>2 months or more but less than 4 months</td>
<td>7 (%)</td>
<td>6 (%)</td>
</tr>
<tr>
<td>4 months or more but less than 7 months</td>
<td>8 (%)</td>
<td>13 (%)</td>
</tr>
<tr>
<td>7 months or more but less than 2 years</td>
<td>22</td>
<td>22 (%)</td>
</tr>
<tr>
<td>2 years or more but less than 6 years</td>
<td>29</td>
<td>23 (%)</td>
</tr>
<tr>
<td>6 years or more but less than 11 years</td>
<td>10</td>
<td>16 (%)</td>
</tr>
<tr>
<td>11 years or more</td>
<td>16</td>
<td>12 (%)</td>
</tr>
<tr>
<td>Total</td>
<td>N = 152</td>
<td>N = 171</td>
</tr>
<tr>
<td>No response</td>
<td>n = 3</td>
<td>n = 6</td>
</tr>
<tr>
<td>Information not available</td>
<td>n = 31</td>
<td>n = 21</td>
</tr>
</tbody>
</table>

Table 17 indicates that tenure of carpenters in their present job also varied around a median of approximately two years.
It has already been noted that neither of the distributions listed in Tables 16 and 17 give an unbiased indication of how long carpenters stay in jobs in the building industry. Table 17 excludes carpenters in their first carpentry job. These can be divided into two sub-groups: those who entered carpentry after completing their education and those who came from a different occupation.

In both Auckland and Wellington, nearly all of the first sub-group had undertaken apprenticeships with their employer and the median age of these carpenters was the 25 - 30 years category. (Most carpenters commence their three year apprenticeship at 16 - 17 years of age).

The second sub-group, deriving from other occupations, mostly had no formal carpentry qualifications, but two-thirds had been with their employer more than five years. These proportions indicate that the median of two years in Table 17 may be conservative. The fact that the distributions in Tables 16 and 17 are similar, even though the latter represents service only partially realized, is likely to reflect the lack of carpenters' terminal job in the industry in the distribution of time in last job. The similarity between the tables is also likely to reflect the influence of age on tenure, noted later.

The distributions in Tables 16 and 17 are comprised of cross-sectional data. If it were assumed that the same distributions were obtainable at any point in time,
and if those reporting short service on last or present jobs were consistently short stayers, a very high rate of turnover would be implied. Thus, if the 3 out of 154 carpenters who spent less than one week on their last job did so throughout a year, this small group alone would account for upwards of 150 job changes per year, or 100% turnover for the industry. The disproportionately large contribution of short stayers to the rate of turnover has been well documented in the literature (e.g. Long, 1951; Jennings and Swanston, 1953; Ley, 1966).

An analysis of 33 carpenters in both regions who spent less than four months on their last job, showed that 30 had spent more than four months on their present job, and 15 had achieved two years' service.

Similarly, of the 47 carpenters with less than four months service on their present job, 37 had spent more than four months on their previous job, though only 14 had stayed on it more than two years.

These proportions suggest that if turnover in the building industry is dominated by employees with short tenure, the latter are not restricted to a fixed set of workers drifting from one job to another, and staying only a short time on each. While there are clearly some who fit that description, it appears that a wider range of carpenters also occasionally spend a short time in a job. This could reflect odd fluctuations in the level of building activity occasionally affecting carpenters' job opportunities.
On the positive side, there is evidence that many carpenters stay with firms more than two years, and in some cases, for a considerable number of years. The longest service with one firm reported in the survey was 39 years.

(2) **Determinants of Low Labour Turnover and Long Tenure**

Given the fairly similar turnover patterns and tenure patterns in Auckland and Wellington, data from the two regions were aggregated for the purpose of analysing the 35 hypotheses postulated with respect to turnover and tenure.

The primary 2 x 2 tables pertaining to each of the hypotheses specified are listed in Appendix C. The effects of certain third variables, which were considered likely to have a bearing on relationships established as statistically significant, are recorded in Appendix D. Statistically significant relationships are summarised below. As one-tailed chi square tests were used, the predicted state of the variables is given:

<table>
<thead>
<tr>
<th>Hypothesis Number:</th>
<th>Predicted State of Independent Variable:</th>
<th>Predicted State of Dependent Variable:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Residential/mixed work</td>
<td>Low turnover</td>
</tr>
<tr>
<td>3</td>
<td>Small firm size</td>
<td>Low turnover</td>
</tr>
<tr>
<td>5</td>
<td>Supervisor-employee relationships rated by manager as above average</td>
<td>Low turnover</td>
</tr>
<tr>
<td>Hypothesis Number</td>
<td>Predicted State of Independent Variable:</td>
<td>Predicted State of Independent Variable:</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>Frequent job rotation</td>
<td>Low turnover</td>
</tr>
<tr>
<td>13</td>
<td>High rating by manager of proportion of carpenters producing satisfactory quality work</td>
<td>Low turnover</td>
</tr>
<tr>
<td>14</td>
<td>High rating by manager of proportion of carpenters producing satisfactory quantity of work</td>
<td>Low turnover</td>
</tr>
<tr>
<td>19</td>
<td>Extra accident insurance for carpenters</td>
<td>Low turnover</td>
</tr>
<tr>
<td>27</td>
<td>Carpenters aged over 40</td>
<td>Long tenure in last or present job</td>
</tr>
<tr>
<td>28</td>
<td>Married carpenters</td>
<td>Long tenure in present job</td>
</tr>
<tr>
<td>30</td>
<td>Foreman or leading hand (but see Appendix D analysis number 21)</td>
<td>Long tenure in last or present job</td>
</tr>
<tr>
<td>32</td>
<td>Long tenure in last job</td>
<td>Long tenure in present job</td>
</tr>
<tr>
<td>33</td>
<td>High supervisory consideration on last job</td>
<td>Long tenure in last job</td>
</tr>
</tbody>
</table>

**NOTE:** Low turnover was defined as less than 30% desired replacement rate (see page 76), and long tenure as more than two years. Both were approximate medians. The upper limit of 30% turnover is consistent with the levels of 25-30% considered by Gaudet (1960a) as acceptable rates of turnover.

(a) **Organisational Characteristics and Turnover.**

As predicted lower labour turnover was significantly more frequent in firms primarily involved in residential or mixed building work, in small companies and in companies rating their supervisor-employee relationships as better than average. On the other hand, self-ratings of company planning and organisation were not related to turnover. The number of large companies with a specialist personnel function was insufficient to permit a satisfactory analysis.
Given that commercial building companies are generally larger than their residential/mixed counterparts, it was recognised that type of work and size of firms could interact in their effect on labour turnover.

Predicted differences in turnover between commercial firms and residential/mixed firms were still apparent when size of firm was controlled. However, it was evident that larger size and commercial work interacted to produce high turnover. Only 32% of large commercial firms (N = 41) had low turnover, compared with 48% of small commercial firms (N = 42); 56% of large residential/mixed firms (N = 25), and 66% of small residential/mixed firms (N = 87).

When type of work was controlled, differences in turnover between small and large firms were reduced. The findings suggest that although size and type of work do interact in their effect on turnover, type of work is the predominant variable.

Given that the relationship between organisational size and turnover has been inconsistent in previous research, and given the broad definition in this study of all building firms employing more than 10 carpenters as large firms, further analysis of the relationship between turnover and size of firm was undertaken, using means rather than frequencies. The analysis showed turnover to increase with size of firm in Auckland.
In Wellington, the mean turnover rate of firms employing 11 - 20 carpenters was strongly influenced by one firm with extraordinarily high turnover, and the relationship between size of firm and turnover was inconsistent. However, in both regions, the highest turnover was experienced by the largest firms - i.e. those employing more than 50 carpenters, compared with the 3 - 10, 11 - 20 and 21 - 50 carpenters groups.

Controlling type of work made little difference to the association between low turnover and above average supervisor-employee relationships. However, the strength of the relationship between type of work and turnover was evident from the fact that low turnover was as frequent in residential/mixed firms with average/below average supervisor-employee relationships (56%) as in commercial firms rating above average (53%).

The same pattern was apparent when comparing small firms scoring average/below average supervisor-employee relationships (51% reported low turnover) with their larger counterparts with above average supervisor-employee relationships. Fifty per cent of the latter group had low turnover. The effect of sound supervisor-employee relationships was strongly evident in small firms. This is likely to reflect the vital importance of sound interpersonal relationships in the small building firm, where the employer himself frequently supervises his carpenters' work.
Overall, it was apparent that both small firm size and residential/mixed work combined with above average supervisor-employee relationships to achieve a high frequency of low turnover - 69% and 72% respectively.

(b) Organisational Characteristics and Tenure. If the effect of several organisational characteristics on turnover was well established, their impact on carpenters' job tenure was certainly not. Neither carpenters' type of work, nor the size of building company for which they worked, affected tenure in the direction predicted - even though both last and current jobs were analysed.

In addition, there were major inconsistencies in the relationships between type of work and size of firm, and job tenure. For example, carpenters whose last job had been with a residential/mixed firm had approximately the same proportion in the long tenure category as those who had worked in commercial building firms (50% against 48%). In contrast, data for tenure on present job showed the respective proportions to be 36% and 59%. Regional differences were also apparent. In Auckland, 33% of carpenters presently working for small firms fitted into the long tenure group, compared with 65% of those in large firms. In Wellington, the respective proportions were both 58%.

(c) Personnel Policies and Turnover. With one exception - job rotation - personnel policies were not related to turnover.
Supervisory training was undertaken by so few firms (15), that meaningful analysis was impossible. As was the case with induction, observed frequencies were not even in the direction predicted.

Good communications - advising carpenters of successful tenders - was not significantly linked to low turnover. However, job rotation was strongly related to low turnover. This is especially important in the light of the prominence of the nature of work undertaken as a reason proposed by carpenters for changing jobs.

The more frequent low turnover in small and residential/mixed firms has already been noted. It was, therefore, not unexpected to find job rotation more common in smaller and in residential/mixed firms. While firms' type of work made no difference to the job rotation/turnover link, the relationship was stronger in large companies than in small ones.

There were four response options to the job rotation question - "In your firm, are carpenters deliberately switched around from one task to another to give them a bit of variety?" - "frequently" , "sometimes", "not very often" and "never". Responses were skewed heavily towards the first two options. In view of the evident importance of the nature of work undertaken as a reason for carpenters changing jobs, a special analysis was made of the turnover rates of the 21 companies which
answered "never" or "not very often" to the job rotation question. The results further reinforced the overall findings. Only 14% of such companies were characterized by low turnover, compared with 49% of the group answering "sometimes" (N = 55), and 69% of those responding "frequently" (N = 109).

(d) Turnover and Managers' Ratings of Carpenters' Productivity. Positive ratings by managers of carpenters' quality and quantity of work were fairly strongly associated with low turnover. The associations were evident irrespective of type of work or size of firm, but were especially strong in small firms. In the case of managers' views of carpenters' quality of work, the link with turnover was very strong in the residential/mixed group. In the parallel case of quantity of work and turnover, associations were similar for commercial firms and residential/mixed firms.

The strength of the relationship between managers' views toward their carpenters' productivity and turnover could reflect a broader positive attitude by management towards their staff, as indicated in preliminary interviews. In this case, it would be expected that the positive ratings recorded would be more frequent in firms with higher self-ratings of employer-employee relationships. This proved to be the case for ratings of both quality and quantity of work.
Another aspect of the productivity rating/turnover relationship is the possibility that positive ratings derive from good management and organisation, careful recruitment of staff and subsequent effective staff performance and low turnover. Alternatively, the positive ratings could arise as a result of firms having low performance expectations of their carpenters, slack management and organisation and low turnover reflecting the accumulation of a lot of "dead wood" in the firm. Analysis of managers' ratings of carpenters' productivity and their self-ratings of the quality of their planning and organisation supported neither possibility. Thus the expressed ratings appear more likely to reflect sound intra-firm working relationships than either good or poor organisation and management.

(e) Personnel Benefits and Turnover. In general, personnel benefits offered by firms appeared to have no positive effect on turnover. Only one benefit - subsiding of accident compensation - was initially associated with low labour turnover. In the case of 7 of the 12 hypotheses concerned with benefits, the data were in the reverse direction to that predicted.

The apparent irrelevance of long service and other bonuses to turnover provide deceiving when the variables were re-defined as "long service bonus but no other bonus" and "other bonus but not a long service bonus". No bonus was re-defined as "neither long service
bonus nor other bonus." When the data were re-analysed according to these definitions, low turnover was found to be more frequent in firms paying a long-service bonus and also in firms paying other types of bonus. Half of the 24 firms paying both forms of bonus fell into the low turnover category compared with 62% of firms paying either type of bonus (N = 100), and 44% of firms paying no bonus at all (N = 77).

Given the well established importance of employer-employee relationships to maintenance of low turnover, the finding that staff social functions, both annual and more frequent, apparently bore no relationship to turnover, was somewhat surprising. However, closer analysis showed that all but four of the 45 firms providing frequent social functions also held annual functions, making analysis of the former of doubtful value. Fifty-three per cent of firms providing either form of social function but not both (N = 125) were in the low turnover category compared with 50% of firms offering neither (N = 34) and 42% of firms providing both (N = 41).

A check was also made to determine whether the total number of benefits affected turnover. The analysis showed no notable differences, with 63% of firms offering a moderate number (5 or 6) benefits (N = 63) falling into the low turnover group, compared with 56% of companies offering less than 5 benefits (N = 71) and 49% of companies providing from 7 to 9 benefits (N = 45). There was certainly no evidence that a larger number of benefits was associated with low turnover.
(f) Carpenters' Tenure and their Personal Characteristics. The analysis of age, marital status and qualifications of carpenters encompassed all carpenters. It was recognised, however, that level of responsibility, former employment with the organisation and tenure in last job could have very different connotations in organisations other than building firms, such as local authorities or large manufacturing organisations. Analysis of the effects of these variables on tenure was therefore restricted to carpenters working for building firms.

Long tenure in present job was found to be significantly more frequent among carpenters who were older, married, a foreman or leading hand, or with long service in their last job. Long tenure in last job was more frequent among those who had been older or who had been a foreman or leading hand in the job. Marital status in last job was not linked to tenure, while qualifications and former employment with the firm were unrelated to long tenure in present job.

Although it was realised that age and marital status would almost certainly be correlated, analysis of any interactive effect of the two variables was prevented by insufficient numbers of unmarried carpenters in the over-40 age group. A further complication was that while long tenure was significantly more frequent among married carpenters in the case of their present job, the
relationship was not confirmed with respect to tenure in last job. It is likely that the latter analysis suffered from the absence of older married carpenters in their final job in the industry.

Confirmation of the hypothesis that long tenure is more frequent among foremen and leading hands is deceptive. When foremen and leading hands were split, the tenure of leading hands was found to be more closely aligned to regular carpenters than to foremen. In the case of tenure on last job, 66% of foreman carpenters (N = 29) were in the long tenure group, compared with 50% of leading hand carpenters (N = 66) and 41% of regular carpenters (N = 152). For tenure on present job the respective proportions were 73% for foremen (N = 60), 44% for leading hands (N = 61), and 45% for regular carpenters (N = 129). The data were therefore re-analysed with leading hand and regular carpenters evaluated against foremen. The associations between foremanship and long tenure in both past and present job were stronger than in the original analysis in which foremen and leading hands were combined.

Given that experience is usually a pre-requisite for foremanship, it would be expected that foremen would be older than other carpenters. In fact, both groups contained similar proportions of old carpenters on both past and present jobs. Interactions of age, level of responsibility and tenure showed no consistent pattern.
Further evidence of the importance of level of responsibility to tenure was obtained by comparing responsibility levels on past and present jobs. Fifty-six per cent of those at a higher level of responsibility (N = 41) were in the long tenure group, compared with 52% of those at the same level (N = 128) and 30% of those at a lower level (N = 23).

(g) Carpenters' Tenure and their Reaction to the Job. Carpenters' tenure in their last job (building industry only) was evaluated against their ratings of consideration by their supervisor, the supervisor's concern for production, and the quality of planning and organisation. Only above average supervisory consideration was associated with long tenure, although above average quality of planning and organisation was very close to achieving statistical significance with respect to long tenure.

When type of work, size of firm and level of responsibility were controlled, supervisory consideration was found to have a greater effect on the tenure of carpenters whose last job was in a commercial firm, or who were regular carpenters rather than foremen or leading hands. Size of company had no effect on the relationship.

In view of the finding of Fleishman and Harris (1962) that initiating structure and consideration interacted in their effect on turnover, a check was made
to determine whether ratings of supervisors' concern for production and their consideration interacted in their effect on tenure. Above average consideration was found to be associated with long tenure irrespective of the level of concern with production.

(3) Stated Reasons for and Suggestions about Carpenters Leaving Jobs

Table 18
FIRST REASONS GIVEN BY CARPENTERS FOR LEAVING THEIR LAST CARPENTRY JOB

<table>
<thead>
<tr>
<th>Reason</th>
<th>Auckland (%)</th>
<th>Wellington (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of the work</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Geographical factors</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Firm ceased business</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>Pay/overtime</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>Job security/lack of work/laid off</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Relationship with employer or supervisor</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Organisation and management</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Site conditions and policies</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Personal/domestic/miscellaneous</td>
<td>24</td>
<td>15</td>
</tr>
</tbody>
</table>

Total N = 114 N = 148
No response n = 10 n = 5
Not applicable* n = 62 n = 45

* i.e. left non-carpentry job, educational institution or carpentry job in an organisation other than a building firm, or left unknown type of job.
The distribution of first reasons stated by carpenters for leaving their last carpentry job is described in Table 18. In order to seek further the determinants of labour turnover in building firms, the reasons are restricted to those advanced by carpenters whose last job was in such a firm.

Sixty-nine per cent of Auckland carpenters and 87% of Wellington carpenters left building firms of their own accord (weighted mean = 79%). This is consistent with the approximately 80% voluntary turnover reported by firms. However, whereas firms split the remaining turnover approximately equally between lay-offs and dismissals, only two carpenters admitted to having been dismissed, compared to 13 in Auckland, and five in Wellington who reported being laid off because of insufficient work. In addition, many of those who left firms which ceased business gave lack of work as the reason for their involuntary termination.

Some notable differences are evident in the pattern of turnover in the two regions surveyed. The business environment appears to have been tougher in Auckland, with considerably more carpenters forced to leave because of their employers ceasing business, and also more lay-offs and carpenters leaving because of a lack of work. Wellington carpenters were relatively more influenced by the nature of the work, geographical factors and pay/overtime issues. However, the nature of the work was the major category of
of voluntary reasons in both regions. Personal, domestic and miscellaneous reasons were more prominent in Auckland.

The regional data were aggregated in order to facilitate analysis of reasons x size of firm x type of work. Ignoring miscellaneous reasons, the three major sets of reasons for each size/type of work category are listed in Table 19.

Table 19
THE THREE MAJOR SETS OF CARPENTERS' REASONS FOR LEAVING CATEGORIZED ACCORDING TO SIZE AND TYPE OF THE FIRM LEFT

<table>
<thead>
<tr>
<th>Small Residential/Mixed</th>
<th>Number of reasons</th>
<th>% of subgroup total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Firm ceased business</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>2. Pay/overtime</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>3. Nature of the work</td>
<td>8</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Large Residential/Mixed</th>
<th>Number of reasons</th>
<th>% of subgroup total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nature of the work</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>2. (Pay/overtime</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>(Geographical factors</td>
<td>5</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Small Commercial</th>
<th>Number of reasons</th>
<th>% of subgroup total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (Firm ceased business</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>(Geographical</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>(Nature of the work</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>3. (Job security/lack of work/laid off</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Large Commercial</th>
<th>Number of reasons</th>
<th>% of subgroup total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nature of the work</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>2. Geographical</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>3. Relationship with Employer or Supervisor</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>
Clearly, loss of employment through the firm ceasing business is a much greater threat in small companies. Pay/overtime is a more frequent cause of turnover of carpenters in residential/mixed firms, while the nature of the work is most prominent in larger firms. Geographical factors affect carpenters irrespective of the size of firm and type of work. (Although not listed in the small residential/mixed sub-group in Table 19, geographical factors ranked fourth, accounting for 10% of the first reasons given by carpenters within the sub-group).

The actual reasons for leaving advanced by carpenters are outlined below.

(a) The Nature of the Work. The most frequent reason given in this section was monotony. This centred on repetitive work, generally in the commercial sector. Carpenters stated that not only was work repetitive, it involved too much concrete work, too much multi-storey building work or even labouring work. Several said that they left for a wider range of work; one mentioned that he moved from concrete boxing work to a better class of work - namely partitioning and finishing work. Another found State housing to be too repetitive. A few moved to jobs with greater responsibility.

(b) Geographical Factors. Reasons categorised as "geographical" mostly centred around two related themes. Either carpenters considered the distance between
work and home to be too great or they were dissatisfied by the excessive travel time between the two locations. A few mentioned moving from another town as a reason.

(c) Firm ceased business. Although not asked to comment if their last job termination resulted from their employer going out of business, a number of carpenters referred to insufficient work causing the firm's decline. Others reported their employer's bankruptcy, illness or death.

(d) Pay/Overtime. Most carpenters in this group left their last job because they wanted to earn more money. A smaller group wanted to work longer hours or to find a job where Saturday work was included. Others again mentioned fringe benefits not being paid, or only receiving very poor expenses.

(e) Job Security/Lack of Work/Laid Off. Carpenters who left for reasons of quantity of work, mentioned that there was either a work shortage or that hours had been reduced. Others mentioned that there were a lack of jobs and financial security; that the contract was coming to an end; or that they had agreed to become redundant. Some workers were put off because a contract ended, and a number quoted specifically the 1967 - 69 building recession.

(f) Relationship with Employer or Supervisor. Most carpenters who left for reasons within the category, referred to a conflict with their foreman. Supervisors were variously described as temperamental, "old style", 
inconsiderate, and inexperienced. A number of carpenters referred to a lack of communication and understanding between worker and employer or supervisor. Other causes of termination mentioned were being watched by employer all the time, promises not being kept, a lack of confidence in the carpenter on the part of the employer, and a foreman who disagreed with his employers over their methods of dealing with men.

(g) Organisation and Management. Most of the carpenters who left jobs because of the organisation and management, stated simply that one or the other was poor or lacking. Inadequate equipment could be the cause of termination - carpenters referred to tools, ladders, planks and saws. One carpenter said that his last employer had invariably refused to order materials until near the end of the month. This resulted in several jobs being partly done, and the workers continually scratching for materials. Another stated that his employer pushed the men and job along too fast, and created situations where an accident could have occurred.

(h) Site Conditions and Policies. Only a small number of carpenters left jobs for reasons of this type. Problems mentioned included poor amenities, i.e. toilets, wash basins or smoko shed; an unsafe site with a very high accident rate; a cold wet and muddy site; and no company vehicles being provided.
(i) **Personal/Domestic/Miscellaneous.** A considerable proportion of carpenters left their last jobs for reasons which could be considered to be beyond the control of the employer. A common reason for leaving was that a worker "just wanted a change". Others left because of accidents, disharmony amongst men or for promotion or more experience. Emigration to New Zealand and returning to a previous employer were mentioned sometimes. The theft of tools on the site was a further reason for terminating employment.

(4) **Managers' Opinions of Why Carpenters' Leave Jobs.**

All the topics advanced by managers as reasons for carpenters leaving jobs are listed in Tables 20(a) and (b). To permit comparison with carpenters' statements, subject categories in Table 20(a) are the same as in Table 18. A considerable number of managers gave reasons which applied to carpenters leaving the trade altogether. These are excluded from Table 20(a) and listed in Table 20(b).
### Table 20(a)

**TOPICS ADVANCED BY MANAGERS AS MAJOR REASONS WHY CARPENTERS LEAVE JOBS**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Auckland (% of reasons)</th>
<th>Wellington (% of reasons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of the work</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Geographical factors</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Firm ceasing business</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pay/Overtime</td>
<td>39</td>
<td>43</td>
</tr>
<tr>
<td>Job security/lack of work/lay-offs</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Relationship with employer or supervisor</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Organisation and management</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Site conditions and policies</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
<tr>
<td><strong>Total of all reasons</strong></td>
<td><strong>N = 155</strong></td>
<td><strong>N = 76</strong></td>
</tr>
<tr>
<td><strong>Number of respondents</strong></td>
<td><strong>N = 82</strong></td>
<td><strong>N = 50</strong></td>
</tr>
</tbody>
</table>

### Table 20(b)

**REASONS ADVANCED BY MANAGERS FOR CARPENTERS LEAVING THE TRADE**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Auckland</th>
<th>Wellington</th>
</tr>
</thead>
<tbody>
<tr>
<td>Going out on own account or labour only</td>
<td>n = 57</td>
<td>n = 28</td>
</tr>
<tr>
<td>Going overseas/other</td>
<td>n = 7</td>
<td>n = 1</td>
</tr>
</tbody>
</table>
Managers were asked to rank the reasons in order of importance. The distribution of first reasons given (excluding those in Table 20(b)) is similar in pattern to Table 20(a), with pay and overtime accounting for about 40% of the most important reasons.

A comparison of Tables 18 and 20(a) shows managers to more frequently attribute turnover to pay and overtime than indicated by carpenters. Managers had a strong appreciation of the role of geographical factors and site conditions and policies as determinants of turnover, and indicated some awareness of the nature of the work and personal reasons referred to by carpenters. However, managers exhibited little awareness of the other reasons for leaving offered by carpenters.

It is evident from managers' responses that some of their firm's turnover comprises carpenters leaving the trade or going into business on their own account, including labour-only carpentry.

(5) **Carpenters' Suggestions as to What Might Have Changed Their Mind About Leaving**

Carpenters who left their last job because they were dissatisfied were asked for suggestions as to what might have changed their mind about leaving. Subjects raised by those who left building firms are enumerated in Table 21.
Table 21

SUBJECTS OF FIRST SUGGESTIONS BY CARPENTERS LEAVING BECAUSE OF DISSATISFACTION AS TO WHAT MIGHT HAVE CHANGED THEIR MIND ABOUT LEAVING.

<table>
<thead>
<tr>
<th></th>
<th>Auckland (%)</th>
<th>Wellington (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship with employer or supervisor</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Site conditions and policies</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Organisation and management</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Nature of the work</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Pay/overtime</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Nothing would have changed mind</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Geographical factors</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Availability of work</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>N = 49</strong></td>
<td></td>
<td><strong>N = 79</strong></td>
</tr>
</tbody>
</table>

No response
(including those not dissatisfied) n = 75 n = 74

Not applicable n = 62 n = 45

(ie, left a non-carpentry job, educational institution or carpentry job in an organisation other than a building firm, or left unknown type of work).
The suggestion topics in Table 21 are not directly comparable with the reasons cited in Table 18. Whereas the latter table includes all carpenters who left building firms, Table 21 is restricted to the subset who were also dissatisfied. However, the prominence in Table 21 of carpenters' relationship with their employer or supervisor, site and conditions and policies, and organisation and management is reinforced by the fact that the absolute number of carpenters in both regions citing these factors as suggestions was greater than the number advancing them as reasons.

Analysis of suggestions with the regions aggregated showed relationship with employer or supervisor and site conditions to have been reported most frequently by carpenters leaving large firms and commercial firms. The suggestions most often received from carpenters who had left residential/mixed firms covered organisation and management and pay/overtime issues. Organisation and management and the nature of the work were more commonly cited by carpenters from small firms. These findings are listed in Table 22.

A comparison of the first suggestion offered by carpenters with their first reason for leaving showed that only 45% of positive suggestions were in the same subject category as the reasons. In addition, as evident in Table 21, there were a large number of non-respondents to the request for suggestions, as well as several carpenters who stated that nothing would have changed their mind about leaving.
Table 22

THE THREE MAJOR SETS OF CARPENTERS' SUGGESTIONS ABOUT NOT LEAVING CATEGORISED ACCORDING TO TYPE OF WORK AND SIZE OF THE FIRM LEFT

<table>
<thead>
<tr>
<th></th>
<th>Number of Suggestions</th>
<th>% of Sub-group total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Firms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Organisation and management</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td>2. Nature of the work</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>3. Site conditions and policies</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>Large Firms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Relationship with employer or supervisor</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td>2. Site conditions and policies</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>3. Pay/overtime</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Residential/Mixed Firms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Organisation and management</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>2. Pay/overtime</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>3. Nature of the work</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>Commercial Firms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Relationship with employer or supervisor</td>
<td>19</td>
<td>31</td>
</tr>
<tr>
<td>2. Site conditions</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td>3. Nature of the work</td>
<td>11</td>
<td>18</td>
</tr>
</tbody>
</table>

Some carpenters did give secondary suggestions which correspond to their first reason for leaving. In addition, some of the differences in category between the two are artificial. For example, a geographical reason for leaving could have been alleviated by a change in the employer's policies pertaining to staff transport and related allowances, or to flexibility of working hours. The major difference was one of emphasis; relationship with employer, site conditions and policies, and organisation
and management were much more prominent as suggestions than as reasons, whereas geographical factors were much less so.

Despite some lack of one-to-one correspondence between reasons and suggestions, in aggregate the topics raised covered similar ground. The actual suggestions proposed are outlined below.

(a) **Relationship with Employer or Supervisor.** The most common suggestion made by carpenters in this area was that they should receive greater consideration from their employer or supervisor. Some went as far as recommending the removal of unsatisfactory supervisors. A less drastic suggestion was a re-arrangement of foremen on the site. Better communication between management and men was sometimes mentioned. One carpenter commented that the owner of the firm for which he worked would never say "hello" to the workers. Another said he would have stayed on the job had there been greater personal communication between top management and workers, rather than contact only with leading hands or foremen. Another man referred to the need for greater flexibility for smoke time, and in general a more tolerant attitude rather than "if you don't like it, leave - carpenters are five cents a dozen". (This comment related to the late 1960's, when there was relatively high unemployment in the building industry.)
(b) **Site Conditions and Policies.** A general comment was the need for better working or site conditions, particularly improved lunch rooms. Some felt that these should be lined and heated for the winter months. Also suggested were better toilet facilities. One carpenter claimed he would have stayed in his last job had transport been provided, while another felt entitled to an allowance for his vehicle in lieu of one being provided.

(c) **Organisation and Management.** Carpenters commonly suggested that organisation should be improved. They considered that materials should be ordered months ahead to save a lot of time scratching around for them. Several mentioned the need for more labourers to do the heavy labouring work on the site. One man said that in large firms such as the one in which he was employed, the workers should be broken into gangs that work as a unit, without the existing chopping and changing between gangs. A number of carpenters asserted that they might have stayed in their last jobs had more modern methods been introduced, more use made of machines, or if the workshop had been modernised.

(d) **Nature of the Work.** The most prominent suggestion concerning the nature of the work was the desire to be left to do things in the way the carpenter wished, rather than have a foreman continuously "breathing down his neck". Another idea was that finishing work on jobs should be spread around more carpenters
rather than allotted to a select few. One carpenter commented that his employers could have given more thought to the type of work he liked doing.

(e) Pay/Overtime. Suggestions put forward covered a wide range:

- increased rates of pay to first rate tradesmen to compensate loss of overtime due to shortage of work;
- instead of a set rate for carpenters they should be paid for their ability and willingness to work;
- a few cents on top of the hourly rate would have kept men on the job;
- wages should have been reviewed after three months' service;
- there should have been more pay for travelling time;
- every carpenter should have been receiving the same amount of overtime;
- the firm should have given Saturday work;
- a bonus scheme should have been introduced;
- I should have received the right money for the responsibility thrust upon me.

However, two words sum up the most common suggestion received in this area - "more money".

(f) Other. A variety of suggestions were advanced by carpenters, the most common of which was "nothing would have changed my mind". Other suggestions were:
- stop labour only (contracting);
- the Union should be more discriminating as to whom it accepts;
- all employers should be members of the Master Builders' Association;
- less union trouble on the site;
- close the trade to all but indentured tradesmen;
- take politics out of the building trade;
- foremen and leading hands should be compelled to have special training in supervision before leading men;
- I shouldn't have had to work with unskilled and incompetent labour;
- I should have been promoted to a foreman;
- there should have been more punctual delivery of timber;
- I should have been put on a job closer to home.

(6) Managers' Suggestions for Reducing Turnover

Whereas carpenters' suggestions were concerned with their personal circumstances, managers commented on labour turnover in general. Ideas advanced were diverse and not amenable to meaningful tabulation.

The most common suggestion was that all employers should stick to ruling rates of pay, and standardise extra payments. Others saw the need for productivity bonus and incentive schemes, profit sharing, and superannuation schemes.
Paying a bonus to employees to recruit new carpenters, advertising pay rates, working overtime, and bidding for labour, were seen as factors which could be cut out in an effort to reduce labour turnover.

Further comments in the area of pay were that there should be a greater difference in pay between good and average carpenters, a greater difference between carpenters and unskilled workers, and that carpenters should be paid relative to other industries.

Stability in the building industry was also referred to in connection with labour turnover. Some felt that the government had a responsibility to stabilise the industry. Managers mentioned the need for a constant work flow and for greater security in the industry. Real estate agents forming building companies were frowned upon. One employer favoured a credit squeeze to reduce the high level of building activity at that time.

Apprenticeships and re-training were the target for a number of suggestions. Some considered that the apprenticeship term was too long, while others preferred a fuller training scheme, with the government subsidising apprenticeships. Labour-only contractors were mentioned as possible trainers of apprentices. Related to these ideas was the stated overall need at that time to train more men immediately and to increase immigration. One manager suggested that firm should contact the union when they required labour. It was held that older carpenters
should be given service awards, and should receive re-
training where necessary. Another called for education
of carpenters to help them realise the benefits of working
for wages as opposed to labour-only.

Several employers realised the importance of good
employer-employee relationships to a stable workforce,
including the need for more personal contact with workers,
and interest in their welfare.

The only suggestion made about the actual work
on which carpenters were involved, was from an Auckland
manager. He believed in giving a type of work which
ensured job satisfaction. Another employer stated that
all firms should demand a good standard of work. However,
several remarked on the importance of encouraging a team
spirit, and generally giving workers greater incentive.
Also favoured were the employment of labourers for
unskilled work, and greater scope for promotion of
carpenters.

Few managers commented on improved organisation and
management as a means of reducing labour turnover. Aspects
mentioned were well-organised work, and continuity of
supply of materials.

Working conditions were mainly remarked on by
Wellington managers. They called for improved conditions,
and for the provision of tools and clothing, medical care,
and a social programme for workers. An Auckland manager
suggested providing accommodation for workers.
Another idea favoured was the registration of either building firms or carpenters. Alternatively, a number of employers said that all firms should be members of a Master Builders' Association, whose Code of Ethics should be enforced.

(7) The Level of Employment and Turnover

As no longitudinal statistics on turnover of carpenters were available to permit analysis of the association with the level of employment, an industry sector was chosen with strong links with the building industry - "sawmilling, plywoods, etc; builders' woodwork; furniture and cabinets; other wood manufacture", as defined by the Statistics Department. The employees are referred to here as "wood-workers".

Male wood-workers' vacancies were used as an approximate inverse measure of unemployment. These were correlated with male wood-workers' terminations for six-monthly periods ranging from October 1958 to April 1973. Vacancies were also correlated with terminations lagged six and twelve months, on the assumption that there could be a delay before employees reacted to a high level of employment. Employers too might hold back as long as possible from laying off staff in recessionary times.

The Pearson product-moment correlations obtained are reported in Appendix C, Part 2. They show moderately high and statistically significant correlation between the variables, with six month lagged terminations correlating highest with vacancies.
Some indication of the relationship between vacancies for carpenters and joiners and vacancies for woodworkers can be gauged by the 0.84 correlation between the two variables. For the year ended 31 March 1973, the national total turnover rate of woodworkers was about 54%, compared with an aggregate figure of 59% for Auckland and Wellington, weighted according to the proportion of building firms in each area.

(8) Cost of Turnover to Firms

Considerable difficulties were encountered in estimating costs incurred by firms as a result of turnover. Overall, the response to questions on this topic was only fair. Managers of smaller firms in particular were sometimes simply unable to estimate some or all of the constituent costs. This problem was compounded by the experience of some smaller firms who commented that for several years before the survey they had not lost or recruited carpenters. Even apart from this, not all costs were applicable to all firms.

Even where costs were applicable, the estimates varied widely.

From the data obtained, profiles of three hypothetical firms' turnover have been developed in Table 23. The profiles are not "typical" of the industry - because of the range of the data, typical profiles could not be obtained. However, they are based on the median and inter-quartile deviations of the results obtained.
Table 23

PROFILES OF THREE HYPOTHETICAL FIRMS' LABOUR TURNOVER COST ESTIMATES: LOW, MEDIUM AND HIGH.

<table>
<thead>
<tr>
<th>Termination costs per man leaving</th>
<th>Estimates (1973 $ to nearest $5)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Lower production before a carpenter leaves</td>
<td>15</td>
</tr>
<tr>
<td>Items retained by departing carpenter</td>
<td>0</td>
</tr>
<tr>
<td>Time for sharpening saws, cleaning tools, completing tax form</td>
<td>5</td>
</tr>
<tr>
<td>Exit interview</td>
<td>0</td>
</tr>
<tr>
<td>Reduced efficiency of gang through being one man short for a time</td>
<td>20</td>
</tr>
<tr>
<td><strong>SUBTOTALS</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Replacement Costs per Man Leaving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising</td>
</tr>
<tr>
<td>Interviewing</td>
</tr>
<tr>
<td>Orientation, issuing of safety equipment, tools, etc</td>
</tr>
<tr>
<td>Lower production of a new carpenter</td>
</tr>
<tr>
<td><strong>SUBTOTALS</strong></td>
</tr>
<tr>
<td><strong>TOTAL COST ESTIMATES</strong></td>
</tr>
</tbody>
</table>

* Based on lower quartile, median and upper quartile of managers' estimates of constituent costs.

Zero costs were only included in calculations of costs associated with items retained by departing carpenters, exit interviews and advertising.
The total figures exclude occasionally reported costs deriving from sponsored immigration of carpenters and from miscellaneous items.

Low estimates generally appear to reflect inexpensive recruitment practices such as direct contact of new carpenters, small newspaper advertisements and site notices. These were sometimes accompanied by informal orientation practices. The higher costs are indicative of more intensive and larger newspaper advertising, more formal orientation procedures, and sometimes training of new workers for firms with specialised building methods. This last cost, though rarely mentioned, involved several hundred dollars per man in the firms concerned.

Although lower estimates were more common, the higher figures generally appeared to have been calculated more carefully.

It is evident that reduced production arising out of the turnover process accounts for over half of the estimated costs.

(9) The Financial Effects of Turnover on Carpenters

In both Auckland and Wellington, 63% of carpenters increased their take-home pay in moving from their last job to their present one. In Wellington, the remainder were split about equally between those who decreased their pay, and those who stayed about the same. Auckland carpenters who stayed on the same take-home wage outnumbered those who moved to a lower wage.
Table 24 indicates that about one-third of carpenters who increased their take-home pay did so by between 11% and 15%. Of those who decreased their pay, most did so by less than 15%. The median was an increase of 10%, with a lower quartile of no change and an upper quartile of a 20% increase.

Table 24
THE CHANGE IN CARPENTERS' TAKE-HOME PAY AS A RESULT OF THEIR LAST JOB CHANGE

<table>
<thead>
<tr>
<th>Direction of Pay Change</th>
<th>Size of Pay Change (%)</th>
<th>N (%) of carpenters in row</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-5 6-10 11-15 16-20 21-25 26-30 31-40+</td>
<td></td>
</tr>
<tr>
<td>Increase</td>
<td>8 14 31 9 8 7 14 173</td>
<td></td>
</tr>
<tr>
<td>No change</td>
<td>NOT A P P L I C A B L E 62</td>
<td></td>
</tr>
<tr>
<td>Decrease</td>
<td>19 24 26 5 7 10 5 42</td>
<td></td>
</tr>
</tbody>
</table>

Amount of pay change not given: Increase: n=28
Decrease: n=12

No response: n=29
Not applicable: n=38

Thirty (86%) of the 35 carpenters who gave pay as their first reason for leaving their last job, increased their take-home pay as a result of the job change. This compares with 56% of the 210 carpenters who did not give pay as a first reason for leaving and who provided information on pay changes.
Although promotion as a determinant of pay increases was not controlled for, it was possible to take account of carpenters' level of responsibility on their last and their present job. This is demonstrated on Table 25.

Table 25

CHANGES IN TAKE-HOME PAY CONTROLLING FOR LEVEL OF RESPONSIBILITY ON LAST AND PRESENT JOBS

<table>
<thead>
<tr>
<th>Responsibility Level on Present Job Compared to Last Job</th>
<th>Take-Home Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increased</td>
</tr>
<tr>
<td>Higher</td>
<td>78</td>
</tr>
<tr>
<td>Same</td>
<td>61</td>
</tr>
<tr>
<td>Lower</td>
<td>44</td>
</tr>
</tbody>
</table>

Amount of pay change not given: Increase: n=28
Decrease: n=12
No response: n=67
Not applicable: n=38

Whereas 78% of those with increased responsibility on their present job increased their pay, 61% of the "same responsibility" group did so, as did only 44% of the carpenters with lower responsibility decreased in job to warrant the same analysis. A change in responsibility may not have occurred at the time of the job shift. It is also likely that potentially promotable employees are more likely to be able to move to higher pay than other carpenters. However, even taking account of these considerations, the available evidence suggests that promotion may be one determinant of pay increases resulting from job shifts.
Seventy-one percent of Auckland carpenters and 67% of those in Wellington lost no working days in changing jobs. The distributions of time lost between jobs were similar for both regions and are aggregated in Table 26.

Table 26

<table>
<thead>
<tr>
<th>Amount of Time Lost*</th>
<th>0</th>
<th>1 day</th>
<th>2-3 days</th>
<th>4 days</th>
<th>1 wk up</th>
<th>1 mth or more</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of carpenters (%)</td>
<td>69</td>
<td>6</td>
<td>9</td>
<td>6</td>
<td>8</td>
<td>3</td>
<td>317</td>
</tr>
</tbody>
</table>

Not applicable: n=67

* Time lost excludes holidays taken between jobs, and time spent renovating own home.

Although the number of workers incurring expenses or gaining income between jobs was small, the amounts of money involved in a very few individual cases were substantial. Notable examples were expenses incurred by carpenters shifting house from one region of New Zealand to another, and compensation obtained by carpenters off work for a long period as a result of a serious accident. Income gained and expenses incurred are depicted in Tables 27 and 28 respectively.
Table 27

INCOME GAINED BY CARPENTERS BETWEEN JOBS

<table>
<thead>
<tr>
<th>Source of Income</th>
<th>Amount of Income* ($)</th>
<th>Number of Carpenters Affected</th>
<th>% of Carpenters Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual work</td>
<td>7428</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Accident compensation</td>
<td>1310</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Unemployment benefit</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

N=317

Not applicable: n=67

* Income constituents are not adjusted to a constant dollar value.

Table 28

EXPENSES INCURRED BY CARPENTERS BETWEEN JOBS

<table>
<thead>
<tr>
<th>Type of Expense</th>
<th>Amount of Expense* ($)</th>
<th>Number of Carpenters Affected</th>
<th>% of Carpenters Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using car to look for job</td>
<td>261</td>
<td>23</td>
<td>7</td>
</tr>
<tr>
<td>Shifting house</td>
<td>7532</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>723</td>
<td>13</td>
<td>4</td>
</tr>
</tbody>
</table>

N=317

Not applicable: n=67

* Expenses are not adjusted to a constant dollar value.
CHAPTER VI

DISCUSSION AND IMPLICATIONS
OF RESEARCH

This chapter is divided into two sections. The first deals with the research findings and the second with methodological and conceptual issues.

I. RESEARCH FINDINGS

(1) Measurement and Level of Turnover

An important outcome of this research is the establishment of the fact that measurement of labour turnover is possible in the New Zealand building industry. There would appear to be no reason why the New Zealand Department of Labour should not extend its six-monthly survey of labour turnover to encompass the industry.

The utility of the "desired replacement" measure of turnover was evidenced by it being considerably higher than the widely known replacement rate. As such it more accurately represents the real loss suffered by firms as a result of labour turnover. Its only disadvantage would appear to be its subjectivity - managers have to assess implicitly the ideal sized labour force they would have liked to have maintained during the period of measurement. Such subjectivity
in defining the numerator is not a characteristic of the various measures outlined by Gaudet (1960b). Against this disadvantage must be weighed the likelihood of underestimating the loss from turnover as a result of using other measures. Further research into the validity and reliability of the desired replacement measure would be of value; for example, do senior managers in large firms agree on a desirable number of replacements?

The overall level of total turnover, and the proportion of voluntary and involuntary turnover are roughly in accord with the figures provided for comparably sized firms in the Phelps Brown Report (1968). Dismissals and layoffs were considerably lower in the present study, reflecting the strong demand for labour in the New Zealand building industry during the period covered by the survey of firms. In both studies, a disproportionately large amount of the industry turnover was accounted for by a relatively small number of firms.

The distinction between voluntary and involuntary turnover associated with lack of work is especially fine in the building industry. Carpenters left voluntarily because of insufficient work and were laid off for the same reason. The difference between the two types of turnover may have only been a few days or weeks.
(2) Tenure of Carpenters

The deficiencies of the distributions of tenure have already been noted. To some extent the effects of the deficiencies have been reduced by using the two distributions as dependent variables in testing some of the hypotheses. However, the tendency for the distribution of time in last job not to be as strongly related to independent variables as time on present job, indicates that the former distribution suffered considerably from the absence of carpenters in their final building industry job. These carpenters are likely to be older, perhaps more likely to be married, and because of difficulties in changing jobs towards the end of their working life, probably dominated by carpenters with long service records.

Some difficulties were encountered during the preliminary stages of the research in obtaining information from firms on tenure of their carpenters. This was unfortunate, as the information would have added a greater understanding to the nature of the turnover experienced by firms.

Since the research was initiated, some further valuable information on tenure of building industry employees in the United Kingdom has come to hand. The information is contained in a publication concerned primarily with operatives' skills, but with a valuable section on their employment experiences (Thomas, 1968). It is unfortunate that the Phelps Brown Report (1968) referred only obliquely to Thomas' work in the
introduction and failed to incorporate his findings. Thomas was able to determine proportions of operatives staying with firms one and five years. Because he obtained his data via the firms, he was able to relate the firms' stability and their level of turnover. Thomas concluded (p. 39): "Whilst there is an obvious relationship demonstrated between turnover and stability, the correlation is not as high as expected. It is implicit in this finding that there are firms with high turnover and high stability. This factor was explicitly confirmed by more intensive analyses of the data". The relationship between turnover and stability is discussed further in the next section.

Certainly building firms need to recognise the importance of a stable core of carpenters to efficient organisational performance. Lost production was the major cost identified in the turnover process, and could almost certainly be minimised by having new carpenters guided by experienced workers. The latter would also more easily cope with occasional labour shortages resulting from turnover than would inexperienced carpenters.

The measures used by Thomas (1968) are along the lines of those suggested by Knowles (1965a) and Van der Merwe and Miller (1971). Because of the nature of building operations - varying levels and stages of work underway at different times - such measures as employed by Thomas may be even more worth monitoring
than a stability measure such as that proposed by Silock (1955). In the longer term, larger building companies could benefit from analysing in greater depth the periods for which carpenters have stayed with the firm in the past, an approach advocated by MacLeod (1968), and used in the Phelps Brown Report (1968). This would enable the identification of any particular problem service periods - eg, carpenters frequently leaving because of boredom after x months. However, such analysis would require far more commitment to personnel data collation and the personnel function in general than observed during the survey.

(3) Determinants of Turnover and Tenure

(a) Organisational Characteristics. The associations identified between small organisational size, better type of work, above average supervisor-employee relationships and low labour turnover are generally consistent with previous research.

While a relationship between small firm size and frequency of low turnover was noted, closer analysis of the data showed some inconsistencies. The variables postulated in the literature review as mediating in the relationship between size of organisation and level of turnover - presence of a personnel function, perceived possibility of intraorganisational transfer, status associated with the firm, etc - may have less effect on
the size/turnover relationship in the New Zealand building industry than certain idiosyncrasies of the industry. For instance, while it was not feasible to encompass it in this study, contract size could be an important consideration. While larger firms tend to undertake larger contracts, smaller firms also sometimes undertake quite large contracts. In the residential sector, there may be little relationship between size of firm and size of contract. If anything, smaller firms may be more inclined to build larger, more expensive homes to order. Carpenters may be more conscious of the size of the contract on which they are working than their firm's size. The Phelps Brown Report (1968) found both size of firm and size of contract to correlate with turnover. (Phelps Brown Report, Research Supplement, 1968, p30).

Another potentially important aspect of a building firm's size is its rate of growth. Some firms are content to stay at a certain size while others are keen to develop into major construction organisations. During the course of the fieldwork, the writer observed two commercial companies in the 11-20 carpenters size group with a strong orientation to growth. In both cases, the managers were over-committed and turnover was particularly high. The firms were of a size where the manager could not afford office assistance (eg, an estimator for calculating required materials), and relationships between staff and management were strained from the pressure of work.
There may be critical organisational sizes at which labour turnover and some of its determinants are prone to suffer, especially when organisations are growing rapidly. This aspect does not appear to have received any attention from researchers to date. As carpenters did not refer to size of firm as a reason for leaving jobs, it is also important to identify specific characteristics of particular sized firms which relate to turnover. The results indicate that type of work may be one of these.

In the case of both type of work and size of firm, the results with respect to tenure and turnover at first sight appear inconsistent. Commercial firms and large firms were both characterised by high turnover, while carpenters working for such firms were not characterised by correspondingly short tenure.

It is very difficult to explain the apparent discrepancies. Although the Phelps Brown Report did note some firms with high turnover and a substantial core of stable staff, overall, turnover and stability were inversely related. Further, stability was lowest in non-residential and larger firms (p. 38).

It could be that large commercial firms in New Zealand are characterised by high turnover caused by rapid mobility of a minority of their carpenters. However, analysis of tenure data suggested that short service is not restricted to a fixed group of carpenters. An adequate explanation of these results might have to consider the tenure distributions in specific companies involved in
different types of work, the characteristics of firms employing non-respondents, the contribution of non-union members outside the survey population (eg, Australians on working holidays), the commencement and completion of very large contracts with large work-forces, and possible differences in personal characteristics between carpenters involved in different types of work.

(b) The Nature of the Work. Perhaps one of the clearest findings arising from this research was the establishment of the nature of the work as a major determinant of turnover. Not only was it a prominent reason for leaving, but job rotation was found to be positively associated with low turnover. In addition, level of responsibility was linked to job tenure, with foremen appearing more often in the long service group than other carpenters.

Thomas (1968) found reasons linked to the nature of the work to account for about 14% of primary voluntary reasons, and about 21% of all voluntary reasons. Further, the references by carpenters to monotonous work are consistent with the findings of Kerr (1947) and Long (1951) who found turnover and job monotony to be related. However, elements of the work were more prominent as determinants of turnover than has been noted in most other labour turnover research.
In the review of the literature it was asserted that research was necessary to elicit which characteristics of jobs relate to turnover. The results of this research have identified from statistical analysis and from views expressed by carpenters, a number of job elements influencing turnover of carpenters.

(i) the degree of variety of the work;
(ii) the physical harshness of the work, (eg, concrete versus finishing work);
(iii) the degree of autonomy in the job (eg, whether a foreman is "breathing down your neck");
(iv) the degree of control over the work;
(v) the level of responsibility.

The third and fourth elements are similar to those postulated by Bass (1965) to affect job satisfaction and turnover. The influence of responsibility level of turnover requires further investigation to determine whether the stability associated with foremanship derives primarily from some of the elements outlined, from status or prestige associated with the position or, as is likely, from a combination of these factors. Secondary analysis of the responsibility level/tenure data showed that the level of responsibility borne by leading hand carpenters was not sufficient to influence their tenure beyond that of regular carpenters. Although responsible for very small groups of employees, leading hands undertake a high proportion of ordinary carpentry work and are much less distinctive than foremen.
It is likely that a more complete understanding of how the nature of the work affects turnover in the building industry would require consideration of each of the elements outlined. In addition, it would be necessary to distinguish between:

(i) terminations resulting from dissatisfaction with one or more of the job elements postulated when the leaver intends to find a similar type of work in which the elements are structured more to his liking;

(ii) terminations resulting from a desire to experience an entirely different type of carpentry work.

(c) Pay/Overtime, Incentives and Benefits. The finding that pay-related factors influenced a substantial proportion of carpenters to leave jobs is consistent with the results of several studies recorded in the literature review (eg, Knowles 1964b, Ronan 1967, Nelson 1969). Thomas (1968) found pay to be by far the most important cause of building operatives' changing jobs. Apart from frequently stating "more pay" as a reason for leaving, carpenters' suggestions as to what might have influenced them not to leave sometimes dealt with equity of pay, eg, payment for skill or responsibility; equitable distribution of overtime. This is in line with the results of Zaleznik et.al. (1958), Minor (1958), Knowles (1964b) and others that perceived equity of pay relates to turnover.
The finding that firms' level of wages was unrelated to level of turnover does not at first sight accord with the prominence of pay as a cause of termination. However, it is likely that any such difference in turnover between high and low wage firms would result from carpenters changing jobs in order to obtain more pay. This is supported by the finding that carpenters leaving for pay-related reasons were more likely to increase their take-home pay as a result of the job change than were carpenters leaving for other reasons. However, those leaving because of pay were a minority of the respondents, and evidently insufficient in number to influence the turnover rate of the firms they left, assuming these to be predominantly low-wage firms. They may, on the other hand, have moved from a firm paying high wages to a firm paying even more. This could explain the lack of any difference in turnover between high and low wage firms. It would also be consistent with the findings of Ley (1966) who observed that the more mobile of his two experimental groups had received relatively high pay prior to their job change. Gaudet (1960a) also commented that companies with high wage structures can experience just as much turnover as companies paying lower wages.

It is significant that while some topics were more prominent as suggestions about not leaving than as reasons for leaving, pay was not one of these. This signifies that in deciding whether or not to stay with
an employer, carpenters are not keen to consider higher pay as a palliative for other unsatisfactory circumstances. Balancing this is the finding that long-service and other forms of bonuses correlate with low turnover. Even with respect to bonuses, however, there is evidence that long service cannot simply be bought. Payment of both forms of bonus appeared to be no more advantageous than paying either type of bonus. The same principle applied to annual and more frequent social functions - provision of either one or the other was at least as beneficial as both. Finally, firms offering a large number of benefits to carpenters were less often characterised by low turnover than firms providing a moderate number of benefits. It is possible that firms offering an unusually large set of benefits may possess other unsatisfactory characteristics which lead to high turnover. It is also not known whether the level of turnover in these firms would have been even higher without the benefits.

What is clear is first, that managers of building firms over-rate the importance of pay as a determinant of turnover, and second, that high wages and a comprehensive range of benefits are no guarantee of low labour turnover.
(d) **Carpenters' Relationship with Supervisor/Management.** The vital role of the supervisor in maintaining a stable work-force was amply demonstrated in this study. This is consistent with a strong body of evidence noted in the literature review.

Secondary analyses were undertaken of managers' ratings of their firm's supervisor-employee relationships and their association with turnover. Such analyses were also undertaken of the association between carpenters' tenure and their ratings of the consideration received from their supervisor in their last job. Both associations were affected by different organisational variables. Consideration and tenure were related in commercial firms, but not in residential/mixed firms. Size of firm made no difference to the relationship. Conversely, supervisor-employee relationships were associated with turnover in small firms, but not in large ones. The type of work carried out by the firm made no difference to the relationship. Further study of the effects of supervisory consideration on both tenure and turnover, in particular firms would be of value in clarifying the associations noted.

Communication of tendering information to carpenters was not found to be related to turnover. Despite reference by carpenters to inadequate communication with supervisors or employers as a reason for leaving jobs, communication of tendering information was probably too specific an aspect of intrafirm
communication to affect turnover significantly.

It is evident from carpenters' responses that both attitudinal and behavioural dimensions of supervision and management influenced their termination decisions. The importance of the attitudinal dimension was further demonstrated by the association between low turnover and managers' positive ratings of their carpenters' productivity. Further investigation of the concomitants of these ratings would be valuable. The writer gained a strong impression from interviews with managers of a "global" positive or negative attitude towards carpenters. It is possible that a cycle occurs in which managers' attitudes and employees' behaviour reinforce one another, leading to managers' developing stereotypes of carpenters' productive capabilities and achievements.

(e) Other Determinants of Turnover. In common with most previous labour turnover research, site conditions were not found to be a prime cause of employees' terminations. However, Nelson (1969) did report site conditions to be prominent in building workers' initial thinking about leaving, though not as an actual direct cause. Thomas (1968) reported the opposite finding, with working conditions a significant cause of departures. Both studies covered similar populations, but Thomas showed employees a list of
of possible causes of termination and asked them to indicate which applied in their case. It is hardly surprising that working conditions featured in their responses. Conditions of work are often difficult in the building industry and Thomas effectively reminded his respondents of the fact. Overall, site conditions in the New Zealand building industry do not appear to be a major cause of turnover. They may well however, be a significant cause of mobility out of the industry.

Geographical factors were a relatively more important determinant of job termination than generally observed in the literature. This reflects the regular change of workplace faced by carpenters, with each new contract varying in distance and time from their homes.

Organisation and management were also advanced as reasons for leaving more often in this study than in most others. Whereas the quality of organisation and management generally is fairly constant in static workplaces, on building sites the continuously changing situation possibly offers greater opportunities for carpenters to become dissatisfied with management errors and omissions, (eg, inadequate equipment, unpunctual ordering of materials.)
(f) Tenure and Personal Characteristics of Carpenters. Personal characteristics of carpenters appear to have a major bearing on their tenure. Further investigations are necessary to assess the interactive effects of the characteristics on tenure, with age treated as a continuous variable. It is likely that employees' tenure would be affected in a variety of ways by their changing personal circumstances throughout their working life (Greystoke, Thomason and Murphy, 1952).

(4) Reasons for Leaving and Suggestions About Reconsidering Leaving

The complex nature of the decision to leave a job is demonstrated by the different subject emphasis of the reasons and suggestions. Many carpenters who left because of factor A, would have stayed if factor B had been rectified. Generally, the "A" factors in such cases were not amenable to change, whereas the "B" factors were. On the other hand, it appears that in some cases, the decision to leave is not easily modified, given the considerable number of carpenters' offering no suggestions, or stating that nothing would have changed their mind.
(5) Implications of Research for Industry

This research has identified a considerable number of influences on turnover which could conceivably be of use to managers in reducing excessive turnover or maintaining it at a satisfactory level. However, there are a number of constraints which could affect the extent to which potentially valuable measures are applied.

First, the reasons advanced by carpenters for leaving jobs and their associated suggestions covered a wide range of subjects. No one category accounted for more than one quarter of all the reasons given. Any programme instigated by building firms to reduce turnover would probably need to address at least several of the major causes of termination. Further, firms of different sizes and undertaking different types of work would need to pay attention to different kinds of causes.

Second, managers exhibited only a limited understanding of the reasons behind labour turnover. Simply making additional information available to them might not be sufficient to change long-held views.

Third, firms may in certain circumstances use turnover as a means of reducing staff levels because of a shortage of work.
Finally, trade-offs would be necessary in applying some policies likely to reduce turnover. For example, job rotation may have a beneficial effect on turnover, but managers may not consider all of their carpenters to be capable of all types of work undertaken by the company, especially finishing work. Similarly, geographical problems experienced by carpenters could be overcome by firms seeking contracts close to the home location of most of their staff. Unfortunately, contracts are not always available in such convenient locations, or if they are, they not be as financially attractive as other more distant contracts. Thus, there are likely to be limits on specific actions firms can take to reduce turnover. Nevertheless, the information obtained in this research offers plenty of potentially worthwhile avenues for the minority of firms with grossly excessive turnover.

II. METHODOLOGICAL AND CONCEPTUAL ISSUES

(1) Survey Technique

The survey technique employed in this research using personally delivered and mailed questionnaires to obtain information on labour turnover, has both advantages and disadvantages. While it is possible to obtain information from a wide range of respondents and to more easily apply statistical analysis to test
Hypothesis, it is not possible to discuss material in-depth with respondents, or to follow up potentially important nuances of their replies.

The concept of a "multi-pronged" approach to turnover - seeking information from and about both firms and employees, and also from data on employment levels - has proven valuable in this research. In retrospect, a further valuable source of information would have been the supervisor, who is clearly a key element in the turnover of carpenters.

(2) Analytical and Conceptual Issues

The review of Mobley et.al. (1979) and to a lesser extent those of Pattman (1972) and Porter and Steers (1973), represent major steps in the understanding of the determinants of labour turnover. In addition to reiterating many of the known organisational, personal, reactive and external determinants of turnover, all of the authors discuss methodological issues more comprehensively than earlier authors. This is especially true of Mobley et.al. The latter further postulate a schematic model of the primary antecedent variables and the process of employee turnover (p. 517). In addition to drawing on the numerous variables traditionally associated with turnover, Mobley et.al. give prominence to some more recently studied and promising independent variables, such as intention to quit,
organisational commitment, reality of expectations and the centrality of work values. Mobley's model makes a major breakthrough by incorporating perception and evaluation of alternative jobs. This represents a first attempt to integrate with numerous other psychological variables, a construct widely recognised as influencing turnover, but generally regarded as external, the province of economists, and consequently expressed in non-psychological terms, eg, as the level of employment, distance between work and home, number of factories in the locality.

Mobley's model is entirely non-quantitative but is likely to be applicable to employees in a wide range of organisations. Its effective application would however require a highly sophisticated experimental design, which would in turn require a major commitment of time and effort by respondents. As such it could be difficult to apply in an industrial setting.

The model is a predictive one, and its complexity would be multiplied by the dynamic nature of most of the identified precursors of turnover. Ideally, its effective application would be enhanced by regular monitoring of the antecedents of turnover to determine changes in the intention to quit. Such an approach would unfortunately be even more difficult to apply in practice.
In addition to and deriving from their model of turnover behaviour, Mobley et al., along with Porter and Steers (1973) and Pettman (1972), make some perceptive recommendations for future labour turnover research. In particular, they call for research which:

(i) is multivariate, i.e., concurrently assesses the numerous antecedent variables affecting turnover;
(ii) is longitudinal;
(iii) is cross-organisational;
(iv) is predictive;
(v) is more rigorous;
(vi) attempts to integrate and understand at the individual level, the aggregate-level effects of various organisational or labour market variables.

Research according to these criteria is undoubtedly essential to further progress in the understanding of labour turnover. However, the writer believes that the type of research undertaken in this study is valuable in industries (such as the building industry) where conditions are unusual and where basic labour turnover research is lacking. "Multi-pronged", multi-disciplinary, relatively unstructured research is a useful step prior to the development of more rigorous, multivariate, longitudinal designs which focus on the individual - especially if these are to be effective in a variety of organisations. Without such
basic work, sophisticated single discipline studies run the risk of ignoring important influences external to the focus of the research. It is unfortunate that the rare building industry studies of Nelson (1968), Thomas (1968) and the Phelps Brown Report (1968) make no reference whatsoever to the substantial body of psychological literature on labour turnover and add little to the theoretical understanding of turnover. The reports have in turn been ignored by psychologists. (It is ironical that while recent psychological research has stressed the intention to leave as critical to the prediction of turnover behaviour, Thomas (1968) recorded the time between intention to leave and termination - independent of the mainstream of labour turnover research).

The difficulty of determining accurately the cost of turnover to firms, as discussed by Gaudet (1960a), Byrt (1955) and Moffatt and Hill (1970) was well demonstrated in this research. The wide range of estimates is consistent with Jacobs (1960), and with the New Zealand study of Glover (1967). Possibly a novel approach to the problem is needed. Video recording or participant observation in a limited number of firms might enable more precise determination of lost time and productivity resulting from labour turnover.
Although this study has shown that it is possible to assess the financial implications of changing jobs, a much more rigorous approach is necessary in order to quantify the costs and benefits.

Income changes and expenses need to be adjusted to a constant dollar value. Dollar values could be assigned to time lost between jobs. Income changes resulting from promotion need to be controlled.

Perhaps more important, longitudinal investigation of gains and losses experienced by matched groups of stable and mobile carpenters would be necessary before drawing any definite conclusions about financial advantages and disadvantages of changing jobs.
CHAPTER VII

CONCLUSIONS

I. THE LEVEL AND NATURE OF TURNOVER

Turnover of carpenters in Auckland and Wellington in 1972-73 was moderately high compared with other occupations, but by no means as grossly excessive as sometimes claimed within the industry. Nevertheless, there were a minority of building firms with very high rates of turnover which disproportionately influenced the industry's turnover level.

Most of the turnover was voluntary, with firms classifying only about one-fifth of the carpenters leaving as involuntary turnover. This comprised dismissals and layoffs in approximately equal proportions. The level of layoffs was low when viewed in the context of an industry associated on occasions with widespread redundancies. The low level of layoffs reflected the surge in building activity during the period surveyed, and the consequent strong demand for labour.

Because of fluctuations in the demand for labour, a "desired replacement" measure of turnover was coined, and appeared to be more suitable to building industry conditions than the replacement measure. Firms managed to replace only about two-thirds of carpenters who left but would have liked to have replaced more.
II. TENURE OF CARPENTERS

In both Auckland and Wellington, the majority of carpenters were found to have fairly stable recent work histories. Very short tenure did not appear to be the prerogative of a small proportion of carpenters, but was evidently experienced by a range of carpenters. However, discrepancies between tenure and turnover data suggest that high turnover in commercial firms may have resulted from rapid mobility of a section of carpenters not encountered in this survey. These carpenters may either have been non-respondents or not in the population of trade union members surveyed.

III. DETERMINANTS OF LOW TURNOVER AND LONG TENURE

Organisational characteristics were most strongly related to low labour turnover. Few personnel policies and benefits were so related. However, firms whose managers rated highly their carpenters' productivity were frequently associated with low turnover. Some of the relationships observed varied according to the firms' size and type of work undertaken.

Long tenure was associated with a series of personal characteristics of carpenters, and with high supervisory consideration. Again there was some evidence of interactions with organisational factors and interactions between personal characteristics.
IV. REASONS WHY CARPENTERS LEAVE JOBS, AND ASSOCIATED SUGGESTIONS

Carpenters left their last job for a wide variety of reasons. No one category of reasons accounted for more than a quarter of the first reasons advanced by carpenters. Carpenters leaving because of dissatisfaction gave a similarly wide range of suggestions as to what might have caused them not to have left the job. However, many carpenters offered no suggestions at all, and some indicated that nothing would have changed their mind about leaving.

The suggestions received did not always correspond with the reasons given in the first instance. This emphasizes the often complex nature of the decision to leave a job, and indicates that some carpenters who left for uncontrollable reasons would have stayed if controllable problems had been rectified.

Managers of building firms in aggregate overstated the importance of pay as a determinant of carpenters leaving jobs. They tended to ignore a variety of site practices within their control which carpenters proposed as reasons for leaving jobs. Managers' suggestions for reducing turnover of carpenters concentrated on industry characteristic of a structural nature. Again, few managers referred to practices within their control which were clearly perceived by carpenters to be important.
Long-standing lack of awareness of the causes of turnover and the need to consider other commercial objectives could well militate against managers' acting to reduce excessive turnover on the basis of information derived from this research.

Because official turnover statistics are not available for the building industry, turnover and vacancies were related longitudinally for a group of wood-working manufacturing occupations closely allied with the building industry. It was concluded that the level of employment exerted a strong influence on turnover. The level of turnover appeared to be most strongly affected by the number of vacancies several months earlier.

V. COST OF TURNOVER TO FIRMS

Estimates by managers of the cost of turnover to their firms varied widely. Low production by intending leavers, understaffed gangs and new carpenters accounted for almost half of the costs incurred.

The survey method employed to determine costs suffers from a number of inadequacies, as to alternative methods. It is concluded that novel approaches to determining turnover costs could be worthwhile (eg, video recording of turnover process).
VI. FINANCIAL IMPLICATIONS OF TURNOVER FOR CARPENTERS

Most carpenters moved directly from one job to another with no working time lost between jobs. Nearly two-thirds of the carpenters increased their take-home pay as a result of the job change. Some of the increases may have coincided with movements to jobs involving greater responsibility.

VII. FUTURE RESEARCH

Increased understanding of the turnover behaviour of carpenters will ideally require field research that is rigorous, multivariate, longitudinal and which focusses dynamically on the precursors of the individual carpenter's decision to leave his job. Present attitudes and conditions within the industry may not expedite the execution of such sophisticated research. The latter would place considerable demands on industry personnel, and require a strong commitment to the maintenance of low labour turnover.
ACKNOWLEDGEMENTS

The author wishes to acknowledge the assistance of the Building Research Association of New Zealand under whose auspices this research was undertaken. In addition, the research was only possible because of the goodwill and co-operation of many carpenters and managers of building firms in Auckland and Wellington. This too is deeply appreciated. Special thanks are due to the Auckland and Wellington Master Builders' Association and the New Zealand Carpenters' and Related Trades' Union for their support. Finally, the author wishes to express particular appreciation to Mr B D Jamieson for his patience and guidance during the research.


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APPENDIX A

1. Questionnaire for managers of building firms.

2. Questionnaire for carpenters

NOTE: Not all the questions in the questionnaires are relevant to the content of this thesis. These questions have been crossed out.
SURVEY ON TURNOVER AND RECRUITMENT OF CARPENTERS

ALL INFORMATION PROVIDED IN THIS QUESTIONNAIRE WILL BE TREATED IN STRICTEST CONFIDENCE. NOTHING WILL BE PUBLISHED WHICH WILL ALLOW ANY INDIVIDUAL FIRMS TO BE IDENTIFIED BY THEIR RESPONSES.

QUESTIONS REFERRING TO CARPENTERS APPLY ONLY TO QUALIFIED EMPLOYEES AND DO NOT APPLY TO APPRENTICES, JOINERS OR WORKING PROPRIETORS.

If your firm only employs carpenters on labour-only contracts, please tick the box on the right and answer those questions which apply to you.

Which type of work are most of your carpenters mainly engaged on?
(Please tick only one box)

Commercial building, including hospitals, schools, churches, etc.

- New work
- Maintenance and/or alterations and additions

Houses and flats
- New work
- Maintenance and/or alterations and additions

Other
- Please state: ___________________________________________

What was the approximate average number of

Carpenters ___________
Joiners ___________

employed by your firm during the months of April 1972 to March 1973 inclusive?

What was the TOTAL number of carpenters who left your firm during the above 12-month period?
Of the TOTAL number who left, about how many were:

(a) Laid off (not enough work ahead, end of project etc.)

(b) Dismissed or fired

Of the TOTAL number who left:

(a) How many would you have liked to replace:

(b) How many did you actually replace:

From your experience, what have you found to be the major reason(s) carpenters leave jobs? Please number the reason(s) in order of importance:

In your firm, are the persons who actually supervise carpenters provided with formal training in supervision?

☐ Yes
☐ No

If "Yes", please describe briefly the type of training:

Does your firm either have a personnel department or employ a personnel officer?

☐ Yes
☐ No
Which of the following methods do you use to recruit carpenters, and how often?

<table>
<thead>
<tr>
<th>Frequency of Use</th>
<th>Approximate percentage of carpenters recruited by each method used</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 75% of the time</td>
<td>Newspaper advertising, single column, less than 1 column</td>
</tr>
<tr>
<td>About 25% of the time</td>
<td>Newspaper advertising, single column, 1&quot; or more</td>
</tr>
<tr>
<td>Less than 25% of the time</td>
<td>Newspaper advertising, double column or larger</td>
</tr>
<tr>
<td>Notice outside sites</td>
<td>% Notice outside sites</td>
</tr>
<tr>
<td>Keep carpenters on after apprenticeships</td>
<td>% Keep carpenters on after apprenticeships</td>
</tr>
<tr>
<td>Contact directly carpenters who have been previously employed by the firm</td>
<td>% Contact directly carpenters who have been previously employed by the firm</td>
</tr>
<tr>
<td>Contact other carpenters directly</td>
<td>% Contact other carpenters directly</td>
</tr>
<tr>
<td>Ask your employees to contact carpenters on your behalf</td>
<td>% Ask your employees to contact carpenters on your behalf</td>
</tr>
<tr>
<td>Sponsor immigrants</td>
<td>% Sponsor immigrants</td>
</tr>
<tr>
<td>Approach Carpenters' Union</td>
<td>% Approach Carpenters' Union</td>
</tr>
<tr>
<td>Approach Labour Department</td>
<td>% Approach Labour Department</td>
</tr>
<tr>
<td>Other: Please state</td>
<td>% Other: Please state</td>
</tr>
</tbody>
</table>

If you marked more than one method of recruitment in question 9:

(a) Please list your methods in terms of the quality of carpenters recruited:

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8.

(b) Taking into account how often you use your recruitment methods, please list them in order of their effectiveness in getting numbers of carpenters:

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8.
When a new carpenter starts work with your firm, what steps, if any, do you take to orientate him to his new job?

How much difficulty do you generally have in recruiting carpenters?

- [ ] Very great difficulty most of the time
- [ ] Considerable difficulty most of the time
- [ ] Some difficulty most of the time
- [ ] Slight difficulty most of the time
- [ ] Little or no difficulty most of the time

Please describe any suggestions you may have for reducing turnover among carpenters between building firms:
Which of the following does your firm provide for carpenters?

☐ Bonus for long service

☐ Other bonus

☐ Superannuation scheme

☐ Travel arrangements or payments greater than award requirements

☐ Special arrangements enabling them to buy work-related items at discount rates (e.g. tools, boots, clothing, etc.)

☐ Special arrangements enabling them to buy other items at discount rates (e.g. hardware, fittings, personal use items, etc.)

☐ Christmas or other annual social function, either formal (e.g. party) or informal (e.g. "shout")

☐ Other more frequent regular social function, either formal or informal

☐ Flexible working hours

☐ Payment beyond award requirements when they are off work sick

☐ Workers' compensation subsidised

☐ Special job-site amenities. Please describe:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

☐ Other special policies or benefits. Please describe:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________
In your firm, are carpenters or foremen informed within a day or two when contracts have been successfully tendered for or negotiated?

☐ Always
☐ On most occasions
☐ Sometimes
☐ Not very often
☐ Never

In your firm, are carpenters deliberately switched around from one task to another to give them a bit of variety?

☐ Frequently
☐ Sometimes
☐ Not very often
☐ Never

Compared with other building firms of a similar size, and doing similar work to yours, would you say that supervisor-employee relationships in your firm are:

☐ Much better than average
☐ A bit better than average
☐ About average
☐ A bit below average
☐ Much below average

Compared with other building firms of a similar size, and doing similar work to yours, would you say that the average wages paid to carpenters in your firm are:

☐ Much higher than average
☐ Somewhat higher than average
☐ About average
☐ Somewhat lower than average
☐ Much lower than average

Compared with other building firms of a similar size and doing similar work to yours, would you say that planning and organisation in your firm was:

☐ Much better than average
☐ Somewhat better than average
☐ About average
☐ Somewhat below average
☐ Much below average

From your experience, about what percentage of your carpenters do you consider to be satisfactory workers:

(a) In the quality of their production? __________________%  
(b) In the quantity of their production? __________________%
We would like an estimate of the average cost to your firm of replacing a carpenter who leaves.

A. TERMINATION COSTS PER MAN LEAVING -- Time and Materials

1. Lower production before a carpenter leaves

2. Other costs incurred when a carpenter leaves:
   (a) Clothing, tools or safety and other equipment retained by departing carpenters
   (b) Time for sharpening saws, cleaning tools
   (c) Exit interview (time of interviewer and carpenter)
   (d) Completion of tax form
   (e) Reduced efficiency of gang through being one man short for a time
   (f) Any other costs (please describe)

B. REPLACEMENT COSTS PER MAN RECRUITED -- Time and Materials

1. Advertising for and telephoning carpenters
   (Also include clerical costs relating to advertisements, and costs of construction signs outside sites. A good way to estimate the cost per man is to work out the total cost for a month or a year and divide by the number of carpenters recruited during the period concerned.)

2. (a) Interviewing per applicant
   (Interviews may be formal office ones, or involve simply talking to the applicant on the site. Cost of time of interviewer.)
   (b) On the average what proportion of job applicants do you actually take on?

3. Issuing safety equipment, tools, clothing, etc.
   (Time of those involved)

4. Orientating a new carpenter to his job
   (Take into account time of supervisor, new carpenter and other employees)

5. Lower production of new carpenter
   (Could occur through lack of familiarity with site, plans, methods, people, etc.)

6. If you sponsored immigrants, please estimate the complete cost, including the direct cost to you and costs of all related correspondence.

[ ] Not applicable
Please describe any suggestions for encouraging carpenters to remain longer in the building industry:

THANK YOU VERY MUCH FOR YOUR CO-OPERATION
CONFIDENTIAL

SURVEY OF REASONS CARPENTERS LEAVE JOBS IN THE BUILDING INDUSTRY, AND THE COST INVOLVED

ALL INFORMATION GIVEN IN THIS QUESTIONNAIRE WILL BE TREATED IN STRICTEST CONFIDENCE. NOTHING WILL BE PUBLISHED WHICH WILL ALLOW ANY PERSON TO BE IDENTIFIED.

If you are employed on your present job as a joiner or joiner's machinist, please tick the box on the right and answer those questions which are applicable to you.

IF YOU CAME TO YOUR PRESENT JOB FROM SCHOOL, UNIVERSITY OR TECHNICAL INSTITUTE, PLEASE ANSWER ONLY THOSE QUESTIONS MARKED WITH AN *.

What is your age?

[ ] Less than 20  [ ] 35 - 39  [ ] 55 - 59
[ ] 20 - 24  [ ] 40 - 44  [ ] 60 - 64
[ ] 25 - 29  [ ] 45 - 49  [ ] 65 +
[ ] 30 - 34  [ ] 50 - 54

Please tick the boxes next to those qualifications which apply to you:

[ ] Have more than one year's experience as a carpenter
[ ] Have more than five year's experience as a carpenter
[ ] Completed an apprenticeship in carpentry or carpentry/joinery
[ ] Hold trade certificate in carpentry or carpentry/joinery
[ ] Hold advanced trade certificate in carpentry or carpentry/joinery
[ ] Other: Please state: __________________________________________
[ ] Not applicable
Which type of work are you mainly engaged on?

Commercial building, including hospitals, schools, churches, etc.

[ ] New work
[ ] Maintenance and/or alterations and additions

Houses and flats

[ ] New work
[ ] Maintenance and/or alterations and additions

Other

[ ] Please state: _______________________________________________________

On which type of work were you mainly engaged in your last job?

Commercial building, including hospitals, schools, churches, etc.

[ ] New work
[ ] Maintenance and/or alterations and additions

Houses and flats

[ ] New work
[ ] Maintenance and/or alterations and additions

Other carpentry

[ ] Please state: _______________________________________________________

Self-employed

[ ] Please state type of business: _______________________________________

Student at school, university or technical institute

[ ]

Other (not carpentry)

[ ] Please state: _____________________________________________________

Is this your first carpentry job?

[ ] Yes [ ] No

Are you employed by a building firm in your present job?

[ ] Yes [ ] No

If "No", by what sort of firm or organisation are you employed?

_____________________________________________________________________

Were you employed by a building firm in your last job?

[ ] Yes [ ] No

If "No", by what sort of firm or organisation were you employed?

_____________________________________________________________________

[ ] Not applicable because self-employed in last job.
Between your last job (or school, etc.) and your present one, did you do any casual work?

[ ] Yes  [ ] No

If "Yes", (a) For how long? ____________________________
(b) What type of work was it? ____________________________

How many carpenters are employed by your present employer? Please do not include apprentices or joiners.

[ ] 1 - 2  [ ] 21 - 50
[ ] 3 - 10  [ ] More than 50
[ ] 11 - 20

How many carpenters were employed by your last employer? Please do not include apprentices or joiners.

[ ] 1 - 2  [ ] 21 - 50
[ ] 3 - 10  [ ] More than 50
[ ] 11 - 20  [ ] Not applicable

How long ago did you leave your last carpentry job?

[ ] Less than 1 week  [ ] 7 months or more but less than 2 years
[ ] 1 week or more but less than 2 months  [ ] 2 years or more but less than 6 years
[ ] 2 months or more but less than 4 months  [ ] 6 years or more but less than 11 years
[ ] 4 months or more but less than 7 months  [ ] 11 or more years

Please state how many years: ___________

How long were you in your last carpentry job?

[ ] Less than 1 week  [ ] 7 months or more but less than 2 years
[ ] 1 week or more but less than 2 months  [ ] 2 years or more but less than 6 years
[ ] 2 months or more but less than 4 months  [ ] 6 years or more but less than 11 years
[ ] 4 months or more but less than 7 months  [ ] 11 or more years

Please state how many years: ___________
y did you leave your last carpentry job?

[ ] Put off by employer because contract came to an end
[ ] Left because of accident
[ ] Employer went out of business
[ ] Put off by employer before contract came to an end
[ ] Left of own accord

If you ticked either of the last two boxes, please state the reason(s) you left:

On your last job, were you a foreman or a leading hand?

[ ] Foreman
[ ] Leading hand
[ ] Not applicable

Are you a foreman or a leading hand now?

[ ] Foreman
[ ] Leading hand
[ ] Not applicable

If you left your last job because you were dissatisfied, what suggestions do you have which might have changed your mind about leaving?

What do (or did) you like most about the conditions or the policies of your employer on your present or any previous carpentry job?
What do (or did) you dislike most about the conditions or the policies of your employer on your present or any previous carpentry job?

On your last job, would you say that the person(s) you worked directly under were:

- [ ] Much more considerate towards you than average
- [ ] More considerate towards you than average
- [ ] About average in consideration towards you
- [ ] Less considerate towards you than average
- [ ] Much less considerate towards you than average

On your last job, how much emphasis would you say that the person(s) you worked directly under placed on seeing that you worked up to your limit?

- [ ] Much more emphasis than average
- [ ] A bit more emphasis than average
- [ ] About average emphasis
- [ ] A bit less emphasis than average
- [ ] Much less emphasis than average

How was the job planning and organisation on your last job?

- [ ] Much better than average
- [ ] A bit better than average
- [ ] About average
- [ ] A bit below average
- [ ] Much below average

Roughly, how much were you earning per week when you left your last job?

Take-home pay = $__________
When you left your last job and came to your present one, did your weekly take-home pay increase or decrease?

[ ] Increased
[ ] Decreased
[ ] Stayed the same

If your weekly take-home pay did change, please state by about how much:

$________________________

In moving from your last job to your present one did you change from apprentice's to tradesman's wages?

[ ] Yes
[ ] No

You may have received some income from one or more of the following during the time between your last job and your present one? If so, please state how much:

Unemployment benefit $________________________
Casual work $________________________
Weekly accident compensation $________________________

Did you travel, or go away for a holiday between your last job and your present one?

[ ] Yes
[ ] No

If "Yes", for how long?

There may have been certain costs to you when you left your last job to come to your present one. If any of the following apply to you, please state the approximate cost:

(a) Travelling around in car or by other transport looking for a job $________________________
(b) Need to shift home to get present job $________________________
(c) Other costs, if any. $________________________

Please describe:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
What was the length of time between leaving your last job and beginning your present one?

[ ] None

If that time was less than a week, how many working days were lost, if any?

[ ] Working days

When you left your last job, were you married or single?

[ ] Married
[ ] Single
[ ] Other

What is your marital status now?

[ ] Married
[ ] Single
[ ] Other

How did you come to hear about, or to get, your present job?

[ ] Two or three line advertisement in the newspaper
[ ] Larger advertisement in the newspaper
[ ] Notice outside site
[ ] Heard from friend or relative who worked for present employer
[ ] Labour Department
[ ] Union
[ ] Came through an apprenticeship with present employer
[ ] Approached by present employer without my advertising
[ ] Other: Please state:

Have you previously worked for your present employer?

[ ] Yes
[ ] No
there were any unusual circumstances about your movement from your last job to your present one, please describe them: (e.g. last job overseas)


THANK YOU VERY MUCH FOR YOUR CO-OPERATION
APPENDIX B

Introductory letters, covering letter and reminder letters.
Dear Sir,

The Building Research Association (BRANZ) is a non-profit making body set up to conduct research into building and the building industry.

In establishing priorities for research, it became apparent that labour turnover and recruitment were costing the building industry (i.e. both employers and employees) a large sum of money annually. The costs to firms are largely invisible and often underestimated; most companies rarely take time out to calculate them. Consequently, we are presently investigating these problems with a view to reducing costs to both employers and workers.

To obtain the reasons for, and cost of, labour turnover, and to determine the best means of recruitment, it is necessary to undertake a survey of building firms and workers in the industry. Your assistance in this survey would be greatly appreciated.

The problems with which I would like your help, concern:
(a) The number of workers leaving your firm during the period indicated on the questionnaire.
(b) Costs to your firm of labour turnover.
(c) Personnel and recruitment practices which could influence labour turnover and recruitment difficulty.

Either I or a co-worker will be contacting you within the next few days to leave a copy of the survey form with you. This, of course, is subject to your approval.

I would like to stress that I will treat all information in the strictest confidence. Nothing will be published to make it possible for individual firms to be identified.

If you would like any further information, please do not hesitate to contact me at the above address or telephone number.

Yours sincerely,

David Miller,
Industrial Relations
Research Officer.

42 Vivian St., Wellington, P.O. Box 9375, 9446 - Tel 51-429 - Teleg. "BRANZ"
Dear Mr

The Building Research Association (BRANZ) is a non-profit making body set up to conduct research into all aspects of the building industry. Included in our projects is one which we hope will make building sites safer places to work on.

BRANZ is also making a survey of the reasons workers in the building industry leave or change their jobs. This project should be of considerable interest to you as it could lead to greater job satisfaction and security. There is little doubt that these are very important in the building industry today. They are likely to be even more so in the future.

We are also trying to work out how much workers gain and lose financially when they change jobs in the building industry. The combined annual cost to all workers could be considerable, taking account of wages sometimes lost and extra expenses incurred.

Firms are also being asked for information on their policies and operations which may affect the length of time people stay on jobs, and also affect their attraction to particular firms.

I would be most grateful for your help in the survey, which has already been completed in the Canterbury area and is now being expanded to cover the Wellington, Lower Hutt and Auckland areas.

A survey form will be posted to you in a couple of days. All you have to do is to fill it in and mail it back to me. A stamped addressed envelope will be provided. This, of course, is subject to your approval.

I would like to assure you that your individual opinion will be a great help, and that all information given will be treated as strictly confidential. It will not be shown to anyone else. To avoid the need for including your name in the survey, a stamped card with your name on it will be provided for you to post back separately if you wish. This way I will know who has returned the survey, while still guaranteeing complete confidentiality.

If you would like any further information, I will be please to answer any questions - phone one of the above numbers or write to P.O. Box 5499, Auckland.

Looking forward to having your assistance.

Yours sincerely,

David Miller,
Industrial Relations
Research Officer.

42 VIVIAN ST., WELLINGTON 1 - P.O. BOX 9375, 9446 - TEL. 51-429 - TELEG. "BR."
Dear Mr,

Recently I wrote to you concerning a survey being conducted by the Building Research Association on reasons building workers leave or change their jobs.

... The survey is now enclosed. I hope you find it interesting to fill in. Some of the questions, such as those about age and type of work you were engaged in, will allow more accurate results than would otherwise be possible. They will also ensure that those surveyed are a fair spread of workers in the Auckland building industry.

After you have completed the survey form, I would appreciate your sending it to me in the stamped envelope included. Also enclosed is the stamped card with your name on it, which you can return with the survey form, or post back separately if you wish.

Thanking you for your help.

Yours sincerely,

David Miller,
Industrial Relations
Research Officer.

Encls.
Dear Mr.

Some time ago a survey form on why building workers leave their jobs was posted to you. As more completed surveys than cards have been received, you may have already returned your questionnaire without my knowing it. If so, please accept my sincere thanks. If not, I would be most grateful if you could spare the time to complete and return the questionnaire. The accuracy and usefulness of the results are dependent on your assistance and that of others.

I am enclosing another form and envelope in case you have misplaced the other ones.

If you need any help please give me a ring—my home number is 759-358.

Thanking you for your assistance,

Yours sincerely,

David Miller
Commercial Relations
Research Officer

Enclosures
Dear Mr

A few weeks ago a survey form on why building workers leave their jobs was dropped off at your home. I notice that I haven't yet gotten it back. In case you misplaced it, I am enclosing another one, plus a stamped envelope and card.

Do you think you might be able to complete the form and card and return them when you get a chance. I would very much appreciate receiving them by the end of the month.

If you need any help please give me a ring - my home number is 486-499. Thanking you for your assistance.

Yours sincerely,

David Miller,
Industrial Relations
Research Officer.

Encl.
APPENDIX C

PRIMARY STATISTICAL ANALYSES

Part 1

(a) Organisational Characteristics X Turnover

Description of Variables (Hypothesis number) | Turnover Low | Turnover High | Chi-Square | Level of Significance (P ≤) | Kendall's ϩ
---|---|---|---|---|---
Type of work x turnover (1) | | | | | |
Residential/mixed | 70 | 43 | | | |
Commercial | 34 | 48 | 8.011 | 0.01 | 0.393
Size of firm x turnover (3) | | | | | |
Small | 66 | 42 | | | |
Large | 27 | 39 | 6.719 | 0.01 | 0.388
Quality of supervisor-employee relationships x turnover (5) | | | | | |
Above average relationships | 52 | 30 | | | |
Average/below average relationships | 50 | 57 | 5.203 | 0.05 | 0.327
Quality of planning and organisation x turnover (6) | | | | | |
Above average planning and org. | 64 | 51 | | | |
Average/below ave. pl. and org. | 35 | 36 | 0.713 | N.S | N/A

(b) Organisational Characteristics X Tenure

| Tenure | Long | Short |
---|---|---|
Type of work x tenure (2) | | | |
Last job: Residential/mixed | 54 | 58 | | | |
Commercial | 77 | 85 | 0.012 | N.S | |
Present job: Residential/mixed | 39 | 68 | | | |
Commercial | 93 | 64 | (13.216) | - | -
<table>
<thead>
<tr>
<th>Tenure Level</th>
<th>Chi Square (P&lt;)</th>
<th>Level of Significance (P&lt;)</th>
<th>Kendall's Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Short</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Size of firm x tenure (4)

- Last Small job: Large
  - Tenure: 55 59
  - Chi Square: (0.030)
  - Level of Significance (P<): -

- Present Small job: Large
  - Tenure: 83 68
  - Chi Square: (2.096)
  - Level of Significance (P<): -

(c) Personnel Policies x Turnover

- Supervisory training x turnover (8)
  - Training: 6 9
  - No Training: 96 81
  - Chi Square: (0.626)
  - Level of Significance (P<): -

- Induction x turnover (9)
  - Good induction: 48 52
  - Limited or no induction: 46 38
  - Chi Square: (0.835)
  - Level of Significance (P<): -

- Level of wages x turnover (10)
  - Above average wages: 36 30
  - Ave./below ave. wages: 66 58
  - Chi Square: 0.301
  - Level of Significance (P<): N.S

- Communications x turnover (11)
  - Above average comm.: 43 30
  - Average comm.: 51 55
  - Chi Square: 2.019
  - Level of Significance (P<): N.S

- Job rotation x turnover (12)
  - Frequent job rotation: 69 40
  - Some or no job rotation: 30 46
  - Chi Square: 10.221
  - Level of Significance (P<): 0.001 0.451

(d) Managers' Ratings of Carpenters' Work x Turnover

- Quality of work (13): High rating 87 48
  - Chi Square: 23.476
  - Level of Significance (P<): 0.001 0.689

- Quantity of work (14): High rating 69 36
  - Chi Square: 15.838
  - Level of Significance (P<): 0.001 0.559
<table>
<thead>
<tr>
<th>Personnel Benefits x Turnover</th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
<th>Kendall's Q</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long service bonus (15):</td>
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<td>36</td>
<td>27</td>
<td></td>
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<tr>
<td></td>
<td>No</td>
<td>68</td>
<td>64</td>
<td>0.543</td>
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<tr>
<td>Other bonus (16):</td>
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<td>50</td>
<td>35</td>
<td></td>
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<td></td>
<td>No</td>
<td>54</td>
<td>56</td>
<td>1.825</td>
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<td>Superannuation Scheme (17):</td>
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<td>17</td>
<td>24</td>
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<td></td>
<td>No</td>
<td>87</td>
<td>67</td>
<td>2.939</td>
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<td>Sick Pay (18):</td>
<td>Yes</td>
<td>50</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>54</td>
<td>47</td>
<td>0.001</td>
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<tr>
<td>Extra accident insurance (19):Yes</td>
<td>33</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>71</td>
<td>75</td>
<td>5.164</td>
</tr>
<tr>
<td>Special travel arrangements (20):Yes</td>
<td>51</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>53</td>
<td>46</td>
<td>0.003</td>
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<tr>
<td>Discount purchasing, work items (21):Yes</td>
<td>63</td>
<td>56</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>41</td>
<td>35</td>
<td>0.019</td>
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<tr>
<td>Discount purchasing, other items (22):Yes</td>
<td>58</td>
<td>49</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>46</td>
<td>45</td>
<td>0.264</td>
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<tr>
<td>Flexible working hours (23):  Yes</td>
<td>31</td>
<td>21</td>
<td></td>
<td></td>
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<td></td>
<td>No</td>
<td>73</td>
<td>70</td>
<td>1.124</td>
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<tr>
<td>Annual Social Function (24):  Yes</td>
<td>83</td>
<td>74</td>
<td></td>
<td></td>
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<td></td>
<td>No</td>
<td>21</td>
<td>17</td>
<td>0.071</td>
</tr>
<tr>
<td>More frequent social function (25):Yes</td>
<td>20</td>
<td>25</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>No</td>
<td>84</td>
<td>66</td>
<td>1.857</td>
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<tr>
<td>Special job-site amenities (26):Yes</td>
<td>18</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>86</td>
<td>82</td>
<td>2.238</td>
</tr>
</tbody>
</table>
### Personal Characteristics of Carpenters x Tenure

<table>
<thead>
<tr>
<th>Age (27); all carpenters</th>
<th>Tenure</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
<th>Kendall's Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age x tenure in last job</td>
<td>Long</td>
<td>Short</td>
<td>70 96</td>
<td>4.249 0.05 0.237</td>
</tr>
<tr>
<td>Estimated age Old in last job</td>
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<td></td>
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<tr>
<td>Age x tenure in present job</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Age: Young 47 74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old 115 69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status (28); all carpenters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status x tenure in last job</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Marital status Married 125 132</td>
<td></td>
<td></td>
<td></td>
<td>N.S</td>
</tr>
<tr>
<td>Other 27 37</td>
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<td>0.855</td>
<td></td>
</tr>
<tr>
<td>- Marital status x tenure in present job</td>
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<td></td>
<td></td>
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<tr>
<td>Marital status Married 150 120</td>
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<td></td>
<td></td>
<td>0.01 0.443</td>
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<tr>
<td>Other 13 27</td>
<td></td>
<td></td>
<td>7.427</td>
<td></td>
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<tr>
<td>Qualifications x tenure in present job (29); all carpenters</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Qualifications Trade cert or higher 68 58</td>
<td></td>
<td></td>
<td>0.042</td>
<td>N.S</td>
</tr>
<tr>
<td>Other 95 85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of responsibility (30); building industry carpenters only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of responsibility x tenure in last job</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resp. in Foreman or leading hand 52 42</td>
<td></td>
<td></td>
<td></td>
<td>0.05 0.236</td>
</tr>
<tr>
<td>last job: Other 65 89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Level of responsibility x tenure in present job</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resp. in Foreman or leading hand 71 45</td>
<td></td>
<td></td>
<td></td>
<td>0.01 0.299</td>
</tr>
<tr>
<td>pres. job: Other 57 67</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Previous employment with firm x tenure in present job (31); building industry carpenters only.

<table>
<thead>
<tr>
<th>Previous employee:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure in last job</td>
<td>Long</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Short</td>
<td>33</td>
</tr>
</tbody>
</table>

Tenure in last job x tenure in present job (32); building industry carpenters only.

<table>
<thead>
<tr>
<th>Tenure in last job:</th>
<th>Long</th>
<th>76</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short</td>
<td>57</td>
<td>78</td>
</tr>
</tbody>
</table>

(g) Carpenters' Reaction to the Job x Tenure in Last Job

Consideration of supervisor x tenure (33):

<table>
<thead>
<tr>
<th>Consideration:</th>
<th>High</th>
<th>44</th>
<th>28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>79</td>
<td>111</td>
</tr>
</tbody>
</table>

Concern for production x tenure (34):

<table>
<thead>
<tr>
<th>Concern for production:</th>
<th>Low</th>
<th>82</th>
<th>93</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>40</td>
<td>44</td>
</tr>
</tbody>
</table>

Planning and organisation x tenure (35):

<table>
<thead>
<tr>
<th>Planning and organisation:</th>
<th>Good</th>
<th>89</th>
<th>85</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor</td>
<td>37</td>
<td>54</td>
</tr>
</tbody>
</table>

**NOTES**

(i) The level of significance is only reported when the results are in the direction predicted. When this is not so, chi square values are enclosed in parentheses.

(ii) Kendall's Q is only calculated when results are in the direction predicted, and the chi square value derived is significant beyond the 0.05 level.
### Part 2 LEVEL OF EMPLOYMENT (VACANCIES) AND TURNOVER OF WOODWORKERS

#### Variables (6 month periods 1958-73)

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>95% Confidence Intervals</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodworkers' vacancies x Woodworkers' terminations</td>
<td>0.587</td>
<td>0.288-0.782</td>
</tr>
<tr>
<td>Woodworkers' vacancies x Woodworkers' terminations lagged 6 months</td>
<td>0.792</td>
<td>0.600-0.898</td>
</tr>
<tr>
<td>Woodworkers' vacancies x Woodworkers' terminations lagged 12 months</td>
<td>0.512</td>
<td>0.171-0.743</td>
</tr>
<tr>
<td>Woodworkers' vacancies x Carpenters' and Joiners' vacancies</td>
<td>0.840</td>
<td>0.687-0.921</td>
</tr>
</tbody>
</table>

#### NOTES

(i) All woodworkers' figures are for males only.

(ii) All coefficients are significant at the 0.01 level.
### APPENDIX D

#### SECONDARY STATISTICAL ANALYSES

<table>
<thead>
<tr>
<th>Description of Variables</th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
<th>Kendall's Q</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Type of work x turnover controlling for size of firm.

**Small Firms**
- Residential/mixed: 57 30
- Commercial: 20 22

**Large Firms**
- Residential/mixed: 14 11
- Commercial: 13 28

2. Size of firm x turnover controlling for type of work.

**Residential/Mixed Firms**
- Small: 57 30
- Large: 14 11

**Commercial Firms**
- Small: 20 22
- Large: 13 28

3. Supervisor-employee relationships x turnover, controlling for type of work.

**Residential/Mixed Firms**
- Above ave. relationships: 36 16
- Ave./below ave. relat.: 33 26

**Commercial Firms**
- Above ave. relationships: 16 14
- Ave./below ave. relat.: 17 31
4. Supervisor-employee relationships x turnover, controlling for size of firm.

<table>
<thead>
<tr>
<th></th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Small Firms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above ave. relationships</td>
<td>43</td>
<td>17</td>
<td>5.804</td>
</tr>
<tr>
<td>Ave./below ave relat.</td>
<td>34</td>
<td>33</td>
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<tr>
<td>Large Firms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above ave. relationships</td>
<td>11</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Ave./below ave relat.</td>
<td>15</td>
<td>27</td>
<td>0.701</td>
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</table>

5. Job rotation x turnover, controlling for type of work.

<table>
<thead>
<tr>
<th></th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Residential/Mixed Firms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent job rotation</td>
<td>48</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Some or no job rotation</td>
<td>17</td>
<td>19</td>
<td>4.162</td>
</tr>
<tr>
<td>Commercial Firms</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Frequent job rotation</td>
<td>21</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Some or no job rotation</td>
<td>13</td>
<td>27</td>
<td>4.106</td>
</tr>
</tbody>
</table>

6. Job rotation x turnover, controlling for size of firm.

<table>
<thead>
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<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Small Firms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent job rotation</td>
<td>52</td>
<td>28</td>
<td></td>
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<tr>
<td>Some or no job rotation</td>
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<td>20</td>
<td>2.151</td>
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<tr>
<td>Large Firms</td>
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<tr>
<td>Frequent job rotation</td>
<td>15</td>
<td>11</td>
<td></td>
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<tr>
<td>Some or no job rotation</td>
<td>11</td>
<td>27</td>
<td>5.288</td>
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</tbody>
</table>

7. Managers' ratings of quality of carpenters' work x turnover, controlling for type of work.

<table>
<thead>
<tr>
<th></th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Residential/Mixed Firms</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Quality of work: High rating</td>
<td>63</td>
<td>23</td>
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</tr>
<tr>
<td>Low rating</td>
<td>5</td>
<td>17</td>
<td>17.074</td>
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<tr>
<td>Commercial Firms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of work: High rating</td>
<td>24</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Low rating</td>
<td>8</td>
<td>22</td>
<td>3.844</td>
</tr>
</tbody>
</table>
8. Managers' ratings of quality of carpenters' work x turnover, controlling for size of firm.

<table>
<thead>
<tr>
<th></th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance</th>
<th>Kendall's Q</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Small Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of work: High rating</td>
<td>58 25</td>
<td>16.556</td>
<td>0.001</td>
<td>0.711</td>
</tr>
<tr>
<td>Quality of work: Low rating</td>
<td>9 23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Large Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of work: High rating</td>
<td>22 21</td>
<td>3.897</td>
<td>0.05</td>
<td>0.600</td>
</tr>
<tr>
<td>Quality of work: Low rating</td>
<td>4 16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Managers' ratings of quantity of carpenters' work x turnover, controlling for type of work.

<table>
<thead>
<tr>
<th></th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance</th>
<th>Kendall's Q</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Residential/Mixed Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity of work: High rating</td>
<td>50 19</td>
<td>6.020</td>
<td>0.01</td>
<td>0.523</td>
</tr>
<tr>
<td>Quantity of work: Low rating</td>
<td>14 17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commercial Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity of work: High rating</td>
<td>19 17</td>
<td>5.067</td>
<td>0.05</td>
<td>0.493</td>
</tr>
<tr>
<td>Quantity of work: Low rating</td>
<td>11 29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Managers' ratings of quantity of carpenters' work x turnover, controlling for size of firm.

<table>
<thead>
<tr>
<th></th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance</th>
<th>Kendall's Q</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Small Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity of work: High rating</td>
<td>50 18</td>
<td>12.723</td>
<td>0.001</td>
<td>0.618</td>
</tr>
<tr>
<td>Quantity of work: Low rating</td>
<td>17 26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Large Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity of work: High rating</td>
<td>17 17</td>
<td>2.889</td>
<td>0.05</td>
<td>0.440</td>
</tr>
<tr>
<td>Quantity of work: Low rating</td>
<td>7 18</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11. Managers' ratings of quality of carpenters' work x supervisor - employee relationships.

<table>
<thead>
<tr>
<th>Quality of work</th>
<th>High rating</th>
<th>Low rating</th>
<th>Chi Square</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>66</td>
<td>61</td>
<td>5.301</td>
<td>0.05</td>
</tr>
<tr>
<td>Low</td>
<td>16</td>
<td>33</td>
<td></td>
<td>0.381</td>
</tr>
</tbody>
</table>

12. Managers' ratings of quantity of carpenters' work x supervisor-employee relationships.

<table>
<thead>
<tr>
<th>Quantity of work</th>
<th>High rating</th>
<th>Low rating</th>
<th>Chi Square</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>52</td>
<td>54</td>
<td>4.729</td>
<td>0.05</td>
</tr>
<tr>
<td>Low</td>
<td>22</td>
<td>46</td>
<td></td>
<td>0.336</td>
</tr>
</tbody>
</table>

13. Managers' ratings of quality of carpenters' planning & organisation x quality of planning and organisation.

<table>
<thead>
<tr>
<th>Quality of planning &amp; organisation</th>
<th>High rating</th>
<th>Low rating</th>
<th>Chi Square</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Ave.</td>
<td>87</td>
<td>46</td>
<td>0.462</td>
<td>N.S</td>
</tr>
<tr>
<td>Ave. or below</td>
<td>30</td>
<td>20</td>
<td></td>
<td>0.115 (2-tailed test)</td>
</tr>
</tbody>
</table>

14. Managers' ratings of quantity of carpenters' work x quality of planning and organisation.

<table>
<thead>
<tr>
<th>Quantity of work</th>
<th>High rating</th>
<th>Low rating</th>
<th>Chi Square</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>71</td>
<td>33</td>
<td>2.152</td>
<td>N.S</td>
</tr>
<tr>
<td>Low</td>
<td>39</td>
<td>29</td>
<td></td>
<td>0.230 (2-tailed test)</td>
</tr>
</tbody>
</table>
15. Redefined long service bonus x turnover.

<table>
<thead>
<tr>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Long service bonus but no other bonus.</td>
<td>24 15</td>
<td>3.129</td>
</tr>
<tr>
<td>No bonus of any kind.</td>
<td>34 43</td>
<td>4.488</td>
</tr>
</tbody>
</table>

16. Redefined other bonus x turnover.

<table>
<thead>
<tr>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Other bonus but no long service bonus.</td>
<td>38 23</td>
<td>4.746</td>
</tr>
<tr>
<td>No bonus of any kind.</td>
<td>34 43</td>
<td>14.931</td>
</tr>
</tbody>
</table>

17. Redefined level of responsibility in last job x tenure in last job.

<table>
<thead>
<tr>
<th>Tenure</th>
<th>Long</th>
<th>Short</th>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreman carpenters</td>
<td>19 10</td>
<td></td>
<td>96 122</td>
<td>4.746</td>
<td>0.05</td>
</tr>
<tr>
<td>Other carpenters</td>
<td>16 18</td>
<td></td>
<td>105 130</td>
<td>14.931</td>
<td>0.001</td>
</tr>
</tbody>
</table>

18. Redefined level of responsibility in present job x tenure in present job.

19. Estimated age in last job x redefined level of responsibility in last job.

<table>
<thead>
<tr>
<th>Turnover</th>
<th>Chi Square</th>
<th>Level of Significance (P&lt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old</td>
<td>Young</td>
<td></td>
</tr>
<tr>
<td>Foreman carpenters</td>
<td>10 18</td>
<td>0.046</td>
</tr>
<tr>
<td>Other carpenters</td>
<td>79 130</td>
<td></td>
</tr>
</tbody>
</table>
20. Age in present job x redefined level of responsibility

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Chi Square</th>
<th>Level of Significance</th>
<th>Kendall's (\tau)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Old</td>
<td>Young</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreman carpenters</td>
<td>27</td>
<td>26</td>
<td>0.832</td>
<td>N.S.</td>
</tr>
<tr>
<td>Other carpenters</td>
<td>109</td>
<td>79</td>
<td></td>
<td>-0.141</td>
</tr>
</tbody>
</table>

21. Redefined level of responsibility in last job x tenure in last job, controlling for estimated age in last job.

<table>
<thead>
<tr>
<th></th>
<th>Tenure</th>
<th>Level of Significance</th>
<th>Kendall's (\tau)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long</td>
<td>Short</td>
<td></td>
</tr>
<tr>
<td>Young</td>
<td>Foreman carpenters</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Other carpenters</td>
<td>54</td>
<td>76</td>
</tr>
<tr>
<td>Old</td>
<td>Foreman carpenters</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Other carpenters</td>
<td>42</td>
<td>37</td>
</tr>
</tbody>
</table>

22. Redefined level of responsibility in present job x tenure, controlling for age.

<table>
<thead>
<tr>
<th></th>
<th>Level of Significance</th>
<th>Kendall's (\tau)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Young</td>
<td></td>
</tr>
<tr>
<td>Foreman carpenters</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>Other carpenters</td>
<td>22</td>
<td>57</td>
</tr>
<tr>
<td>Old</td>
<td>Foreman carpenters</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Other carpenters</td>
<td>63</td>
</tr>
</tbody>
</table>

23. Consideration of supervisor in last job x tenure in last job, controlling for type of work.

<table>
<thead>
<tr>
<th></th>
<th>Residential/Mixed</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Above ave. consideration</td>
<td>Above ave. consideration</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>41</td>
</tr>
<tr>
<td>Above ave. consideration</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>Ave./below ave. consid.</td>
<td>44</td>
<td>70</td>
</tr>
</tbody>
</table>
24. Consideration of supervisor in last job \times \text{tenure in last job, controlling for size of firm.}

<table>
<thead>
<tr>
<th></th>
<th>Tenure Long</th>
<th>Chi Square</th>
<th>Level of Significance (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>Above ave. consideration</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Ave./below ave. consid.</td>
<td>37</td>
<td>49</td>
</tr>
<tr>
<td>Large</td>
<td>Above ave. consideration</td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Ave./below ave. consid.</td>
<td>40</td>
<td>53</td>
</tr>
</tbody>
</table>

25. Consideration of supervisor in last job \times \text{tenure in last job, controlling for level of responsibility.}

<table>
<thead>
<tr>
<th></th>
<th>Tenure Long</th>
<th>Chi Square</th>
<th>Level of Significance (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foremen/Leading Hands</td>
<td>Above ave. consideration</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Ave./below ave. consid.</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>Regular Carpenters</td>
<td>Above ave. consideration</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Ave./below ave. consid.</td>
<td>40</td>
<td>72</td>
</tr>
</tbody>
</table>

26. Consideration of supervisor in last job \times \text{tenure in last job, controlling for supervisor's concern for production.}

<table>
<thead>
<tr>
<th></th>
<th>Tenure Long</th>
<th>Chi Square</th>
<th>Level of Significance (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above Average Concern For Production</td>
<td>Above ave. consideration</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Ave./below ave. consid.</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>Average/Below Average Concern for Production</td>
<td>Above ave. consideration</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Ave./below ave. consid.</td>
<td>53</td>
<td>75</td>
</tr>
</tbody>
</table>