Prediction of Turnover in a St. Louis Bank by Use of a Weighted Application Blank

Soon Meng Tow

Western Michigan University

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PREDICTION OF TURNOVER IN A ST. LOUIS BANK BY USE OF A WEIGHTED APPLICATION BLANK

by

Soon Meng Tow

A Thesis
Submitted to the
Faculty of the Graduate College
in partial fulfillment
Degree of the Master of Arts

Western Michigan University
Kalamazoo, Michigan
December 1974
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Soon Meng Tow
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Western Michigan University, M.A., 1974
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Labor turnover is a problem in almost all businesses and industries today. Generally, industries or firms with a high proportion of workers in a relatively low-skilled repetitive-type operations experience the highest turnover rate.

It is an established fact that labor turnover is a costly phenomenon as it increases operating costs considerably, especially to organizations which have invested resources in training. The most costly item is the expense in training a new person to fill a vacancy. But the cost of labor turnover is more than the direct training costs involved. The most obvious factors are a decrease in quality and quantity of work after a loss of an experienced employee and training of a new employee. Whether the training is formal or otherwise, there is invariably a minimum time period before which the new employee can contribute to productivity sufficiently to compensate for his marginal cost of training. The longer the tenure of the employee, the greater the units of production over which the initial costs can be spread. Lost production and extra burden costs
(including employer contribution to social security, unemployment, insurance, taxes, and other benefit plans) are significant factors in the total cost. Time lost by supervisors in breaking in new employees is also an important cost factor.

However, other costs such as paperwork and machine time associated with terminations and new hires, and interviewing time, must also be considered.

Furthermore, there is usually an appreciable lag between the time that an employee leaves and a qualified replacement is hired. Too often, employees leave without giving sufficient notice, and their absence can cause some hardship on their supervisors and co-workers. This can also cause the company some expenses when it is necessary for other employees to work overtime to make up for the work previously performed by the terminated employee.

Thus the hiring and training of new employees for even routine and unskilled jobs becomes unreasonably expensive if the turnover of employees on the job is high. According to Inskeep (1970) a turnover cost study undertaken in California several years ago showed that the average cost per worker was $481. It would have cost even more today because of inflation. In 1972 the Department of Labor and National Service in Australia (Kangan, 1972) estimated that labor turnover costs the Australian manufacturing industries
some $50,000,000. The Department's studies have shown that about half of all labor turnover took place among employees with less than three months of service. They also found a higher rate of turnover amongst the younger people and the less skilled people. Moreover, labor turnover rates tend to be higher during times of full employment. Full employment, however, is not the cause of labor turnover. It merely makes it easy for people to change employment as an expression of job dissatisfaction. When employment is not so freely available people are more willing to remain on a job.

Cook (Knowles, 1964a) indicated that labor turnover rates are higher when labor is scarce than when there is a labor surplus. A survey conducted by Behrend (Knowles, 1964a) in Great Britain revealed that labor turnover decreased appreciably in practically all factories when unemployment increased.

Clarke (1946) in his labor turnover studies found that at least half the labor turnover took place during the first year of service and about 40% of these took place during the first three months.

The most common factors normally thought of as contributing to turnover are salary, fringe benefits, supervision, training, working conditions, company policies and labor shortages. Knowles (1964a) grouped these factors into four categories: external factors, institutional factors,
characteristics of individual workers, and workers' reaction to their job. External factors are those which individual organization can exercise little or no control (e.g., labor market and locality); institutional factors refer to those within the organization over which it can exercise some control (e.g., physical working conditions, pay, job skill, work groups, supervision and management).

Many studies report that the work itself or work conditions including supervision were primary reasons for early turnover. Clarke (1946) found plant policy, foremen's interpretation of company policy, and large work groups to be related to turnover. Disney (1954) emphasized dissatisfaction with duties or work conditions whereas Kriedt and Gadel (1953) emphasized type of work and autonomy. McCreadie and Phelon (Ronan, 1967) believed that how new employees are introduced to the job to be a significant determinant of early turnover; and Ross and Zander (Ronan, 1967), recognition, autonomy, and ego-involvement with the organization including making decisions on the job. Interests were found as predictors by Bolanovich, Boyd, and Tiffin and Phelan (Ronan, 1967). Ronan (1967) found that employee's decision to leave a job is based upon an assessment of the job in total but primarily oriented around economic aspects such as pay and promotional opportunity. Finally, a study by Poidevin (1956) found that inability to do the work, dissatisfaction with pay, job, supervision and management affect labor turnover. He concluded
that there is no single cause for high labor turnover but rather, a clusters of dissatisfaction.

However, it is not the purpose of this study to investigate the factors affecting labor turnover. The purpose of this study is to develop a weighted application blank (WAB) for future selection in order to predict turnover in a St. Louis Bank.

The WAB has come into wide use as a selection tool in recent years. This trend reflects, in part, the desire to express selection methods in quantitative terms, and in part, the increasing recognition that the application blank has potential value beyond its use as anecdotal information (Wernimont, 1962).

Barrett and Lang (1963) are of the opinion that the application blank can serve as an effective selection instrument, sometimes more effective than testing. Ahern (Barrett and Lang, 1963) suggested that the WAB be looked upon as a test in itself.

The WAB is a fairly simple and standardized method for development of predictors from personal history or application blank information, and for development of weights for test scores in prediction.

The WAB can markedly increase the efficiency of the company's selection procedures. There is considerable evidence that careful evaluation of the kind of information elicited by application blank can result in the selection of better
qualified employees and reduction of labor turnover. The rationale for using the application blank is that the applicant's personal history, such as his age, years of education, previous experience, interests, and marital status represent important aspects of a person's total background, and as such is predictive of his future success on the job. Furthermore, data such as previous employment history, special skills, education, financial status, marital record, etc. also reflect a person's motives, abilities, skills, level of aspiration, and adjustment to working situations.

The WAB technique identifies those items on the application blank which differentiate between groups of desirable and undesirable employees in a given occupation. The WAB technique is therefore, a way of combining the important aspects of a person's total background to predict whether or not a person is likely to be successful in a given occupation. Weights are then assigned to each application blank item in accordance with its ability to discriminate between the criterion groups. Weights for these items may then be totalled for each individual and a minimum total score established, which, if used at the time of hiring, will eliminate the maximum number of undesirable candidates. Weights so developed are applied to new applicants to predict later success.

The WAB technique, then, provides a systematic method
for determining which personal factors are important in specific occupations and how to use them in selection. The use of this technique in the employment process permits rapid screening of applicants by means of a simple scoring of the application blank. Stone and Kendall (Barrett and Lang, 1963) estimated that the empirical research and development of a WAB can be accomplished in about 100 hours. Once constructed, the WAB can serve as a rapid screening device. Predictive criteria can be scored quickly, objectively, and simply; and applicants with a minimum chance for success in certain jobs - success in terms of tenure and/or performance - can be eliminated. WAB results can also be combined with tests and interview information to further improve screening and placement.

Numerous studies have shown the application blank to be a valuable predictive device in the selection of employees as related to job success. Personal factors such as age, marital status, participation in social and professional organizations, previous employment record, education, etc. often are closely correlated with length of service on a job, and with the degree of effectiveness realized in the performance of the job such as sales volume, supervisory ratings, average salary increase and other criteria of job success. However, it should be emphasized that the items found to be predictive of success in one job may not be the
same for another similar job even in the same company. Furthermore, even for the same job, some items on the application blank may be more predictive of one particular aspect of job performance than of other aspects (e.g., turnover, accidents or earnings).

According to England (1961, p. 3), the Wab technique has already proved useful in the selection of managers, supervisors, production workers, clerical workers, cab drivers, sales personnel, and engineers.

Fleishman and Berniger (1960) designed a study to explore the possibility of using the application blank as part of a selection program aimed at reducing office turnover. They found that items on age, reason for leaving last employment, occupation of husband, number of children and local address differentiated between the long tenure and short tenure female clerical employees. Address in suburb is characteristic of the short tenure group. Their findings showed that a high degree of predictability of turnover among female office employees was achieved from a WAB study.

Another study on the prediction of turnover of female clerical employees by use of the WAB was done by Minor in 1958. A sample of 440 female clerical employees at a large midwestern insurance company was utilized. Half of the subjects were used as the weighting groups while the remaining half were used as the holdout groups for cross validation. The subjects were restricted to those below the secretarial
level to insure that only the routine clerical jobs, which accounted for the majority of the turnovers, were included. In addition, the terminated groups were limited to voluntary terminations only, thus excluding discharges and resignations due to pregnancy. The cut-off point was set at nine months. The results showed that of the 32 predictive variables, 11 variables were found to differentiate between the long and short tenure groups.

Shott, Albright and Glennon (1963) also conducted a WAB study on predicting turnover in an office situation. In attempting to reduce the high rate of turnover among clerical employees working in a highly automated office, they examined items on the application blank which might discriminate the short tenure from the long tenure employees. In addition, scores on the Wonderlic Personnel Test (Forms A, B, I and II) and the Card Punch Aptitude Test were available for about 25% of the total sample, since the tests have been incorporated relatively recently in the selection process. Their analysis yields nine significant items for women and seven for the men. For both men and women the long tenure employees tend to have prior work experience, an average of at least ten months of service with their previous employers, no unfavorable employer references, left their last jobs to seek advancement, have Wonderlic scores of 26 or less, and have not lived on the north side of Chicago. Other characteristics of women having long service are that they lived in the city rather than in the suburbs, were
older at the time of application (24 years of age or more), and have Card Punch Aptitude Test scores of 120 or more. The long tenure men had served in the Armed forces. In general, the long tenure employees, thus showed to have a history of stable, creditable experience with previous employers and were more mature than their short tenure colleagues.

Another study where the application blank was used with other tests to predict turnover of office personnel was conducted by Kriedt and Gadel (1953). They found that they could predict quite successfully quick turnover among the newly hired girls for routine clerical jobs using a combination of Biographical Data, an Interest Questionnaire, General Ability Tests, and Clerical Speed Tests. However, the Biographical Data were found to be the best predictor for turnover. The other measures increased only slightly the effectiveness of prediction.

Since most of the studies on the WAB were concerned with persons working on one specific job, Kirchner and Dunnette (1957) applied the WAB technique to a variety of office jobs. Their study was based on female office employees who held and performed a variety of jobs including clerical, stenographic, secretarial, and personal contact. Fifteen personal history items on the application blank were found to differentiate significantly between those female office employees who left the company fairly soon.
after being employed and those who stayed much longer. The
success of this study also indicates that WAB studies need
not be restricted to specific occupations but can often
be applied to broader occupational groupings.

WAB studies have also proved to be successful in the
selection of sales personnel. One such study was done by
Mosel and Wade (1951) for reduction of turnover on Department
Store Sales Clerks. They found that an ideal long term
applicant to be from 35 to 54 years of age, not over 62 inches
in height, over 126 pounds in weight, not more than twelve
years of formal education, widowed, keep house (avoid those
living with parents), has one to three dependents, five years
or more of previous selling experience or at least one year
of non-clerical experience, and no time lost on last job.

Ohman (1941) utilized a WAB at the Tremco Manufacturing
Company for selection of salesmen and obtained a validity
coefficient of 0.67. Kurtze (1939) had also utilized the
Personal History items for predicting success in selling
life insurance and job tenure.

Studies have also shown that the WAB technique can also
be used in the selection of employees engaged in a wide
variety of industrial jobs instead of limiting its use to
persons employed in sales or clerical positions. Dunnette
and Maetzold (1955), for example, proved the WAB to be
successful in hiring seasonal employees engaged in canning
of peas and corns in the Green Giant Company which operates
eight plants in Minnesota.

Tiffin, Parker and Habersat (1947) found personnel data to be related to turnover on a factory job. They showed how an analysis of personnel data obtained at the time of employment for all new employees in a certain department of an optical manufacturing company revealed certain significant differences between employees who stayed on the job for only a short time and employees who later acquired long tenure. They found that, at the time of employment, employees who stayed at least nine months (long term) on the job were older, had less formal education, were more frequently married, and had more dependents than employees who left the job prior to three months (short term). Under these conditions, employees who were married, at least thirty years old, had at least one (preferably more) dependent, and had less than ten years of formal education should be hired.

Knowles (1964 b) also found that the short tenure factory employees had short length of service on their previous jobs, and that employees with one or more children remained longer on the job than employees who were single, or married with no children. In addition, employees who did not attain their expected wage, had no change of job or were rated as performing below requirements also tended to have short length of service. Moreover, Knowles also found that a discrepancy between actual and expected wage appeared to have a greater influence on
labor turnover than actual wage even when this was in excess of the standard wage.

The WAB was also found to be successful in predicting not only tenure but also productivity and absenteeism in a garment industry by Inskeep (1970). The characteristics which showed a relationship with the forementioned criteria were home ownership, age when hired (30 to 39 years of age), prior working experience (over 36 months), level of education (nine years or less of formal education), and age of youngest child (over six years of age). Kerr and Martini (1949), on the other hand, found marital status to have the greatest relationship with success on the job when they validated a check-list based on employment applications with supervisory and raw merit ratings in the RCA Victor Division of Radio Corporation of America. Scholl and Bellows (1952), however, found previous employment record to contribute most heavily to successful prediction of whether or not a woman worker would stay in a pharmaceutical firm.

The WAB have proved useful in the selection of managers and engineers too. An example was a study conducted by Scollary in 1957 where he validated the personal history data to predict success or failure of 116 assistant district managers engaged in promotional activities. He also found that the use of unit weights yielded a higher validity coefficient (0.32) than that obtained with variable weights (0.23).
Soar (1956) also found the application blank to be useful in the prediction of success in service station management. Of the 39 items of the application blank studied, Soar found 14 to discriminate more successful dealers from the less successful, and to retain validity with cross-validation. The significant items were: height, weight, age, children, jobs held while in high school, subjects liked in school, held office in high school organizations, whether wife is employed or not, living arrangement, availability of car, carry insurance in addition to life insurance, and the amount of savings.

The purpose of a WAB study on engineers by Hoose (1963) was to determine if application blank items could successfully differentiate between desirable and undesirable engineers, and if the items found predictive in one concern are also predictive in another. The criterion selected was promotion from junior to senior engineer on one hand and forced resignation on the other. The responses on every item on the application blank were analyzed and items that did not differentiate between the criterion groups (desirable vs. undesirable) were discarded whereas those that differentiated significantly were assigned weights. This study was conducted in two companies - Company A and Company B. In both companies, items that appeared to predict success in engineering were found. These differed, however, quantitatively and qualitatively between the two companies. Company A found 15 items
predictive (age, weight, marital status, age at marriage, number of children, education, type of degree, quartile of class, grade point, activities in college, reasons for leaving last job, father's occupation, military service, rank in military service, and what he would like to be doing in ten years) while Company B found only seven (age, marital status, education, grade point, work experience, number of jobs in last five years, and military service). The success pattern was consistent except in one case which completely reversed itself. Company A found married employees more successful, whereas Company B found single employees more desirable. These results indicated that the WAB must be fitted to the specific company since items which appear successful in one organization are not necessarily effective in another. Siegel (1969) is also of the opinion that it is not possible to structure a WAB that will be usable for all jobs in all organizations or even for very similar jobs in different organizations. Every selection program presents a unique problem both with respect to the phrasing of items for inclusion in the blank and the weighting of responses to these items. Thus to be most effective, application forms should be tailored to the needs of the specific company desiring to use such a device. Furthermore, in view of the fact that background factors change with time and changes in the business cycle, the WAB should be periodically re-evaluated.

Results of a re-evaluation study of a WAB for office
personnel by Wernimont (1962) showed that scoring weights based on application blank responses need to be re-evaluated from time to time. He suggested that this ought to be re-viewed at least every three to five years. The maximum time that a given set of weights can safely be used without review thus depends upon a large number of factors - economic conditions, locale, type of industry, selection ratio, the criterion used, etc.

Thus far, the WAB has been proved useful in the selection of employees in various positions as related to job success (e.g., tenure, job performance or some criteria of job success). Hence the author will attempt to develop a weighted application blank for selection of female bank employees in order to predict turnover in a St. Louis Bank.
METHOD

Data were collected from a bank in St. Louis which has a high labor turnover in the teller and book-keeping departments. Most of the employees left the bank within a year, and in some, as early as one week.

This bank presently employs a total of 85 full-time employees and eight part-time employees (59 female employees and 26 male employees). Of the total force, 19 are bank tellers (all, with the exception of one are female), and six in the book-keeping department. The book-keeping department has three proof operators and three clerical workers. The bank tellers are of two types - exchange and the commercial tellers. The commercial tellers deal strictly with savings deposits and withdrawals and cashing of checks. The exchange tellers deal with all other banking services such as travellers' checks, payments of utilities, etc. Since last year the bank has stopped hiring part-time bank tellers.

Subjects: The subjects (Ss) were all full-time female employees in the teller and book-keeping departments who were hired by the bank within the period of 1962-1973. The total sample is 100, with 50 Ss in each high and low criterion groups. The high criterion group consisted of all the applicants who were hired in teller and book-keeping departments within the period of 1962-1973. Quota sampling according to years was
used for the low criterion group since the number of applicants in this group far exceeded that of the high criterion group. Fifteen Ss in each group were used as the holdout groups for cross-validation, thus leaving 35 each in the high and low weighting groups.

Criterion*: The criterion used in this study is the length of service of the employees. This is important because of the time and expenses involved in hiring and training new employees, who often quit within a year. Thus the high criterion group consisted of those who had stayed with the bank for one year or more. The low criterion group, on the other hand, were those who left the bank within a year.

Procedure: Twenty two items on the application blank were analyzed by using the Chi-square tests to determine which items significantly differentiate between the high (long tenure) and the low criterion (short tenure) groups. The 22 items used in this study were:

1. Present residence
2. Length of time at present residence
3. Previous residence
4. Length of time at previous residence
5. Age
6. Height
7. Weight
8. Marital status: single, engaged, married, separated, divorced or widowed
9. Number of years married
10. Number of dependents  
11. Number of children  
12. Does husband work?  
13. Husband's occupation  
14. Living arrangement: own, rent or with parents  
15. Availability of car  
16. Position(s) applied for  
17. Rate of pay expected per week  
18. Years of education  
19. Years of banking experience  
20. Type of last employment  
21. Tenure on last job  
22. Scores on the Wonderlic Personnel Test (Form A)  

The other six items (citizenship, physical defects, major illness, receiving of compensations for injuries, previous employee of the bank, and convicted of crime) on the application blank were discarded because of either uniformity in responses or too few responses. Furthermore, items on the Military Service Record were ignored as these were not applicable in this study since all the subjects were female.  

Item weights were then determined on the items which significantly differentiated between the short tenure and long tenure employees. The assigned weights were derived from E. K. Strong, Jr.'s Tables of Net Weights for Differences in Per Cents (England, 1961, p. 23). This was done by
subtracting the percentages of Group II (Low Weighting Group) from corresponding percentages for Group I (High Weighting Group) and the differences recorded, using the appropriate plus or minus sign as shown in Table 1. Net weights from these differences in percentages are then secured directing from the appropriate part of three tables developed by Strong, Jr., on the basis of a formula derived by T. L. Kelley (England, 1961, p. 24).

Items which did not differentiate between the two weighting groups were discarded. The assigned weights were applied to the holdout groups for cross-validation as shown in Tables 2 and 3. All the 15 individuals in each high and low holdout groups were scored on the responses to the personal history items which were found to differentiate between them. In order to get an over-all picture of how well the group of weighted items function in separating the long tenure from the short tenure employees, distribution of total scores for each holdout group were plotted graphically, using two baselines, one above the other as shown in Figure 1. Each dot represents one person, and its position along the horizontal scale indicates that person's score on the WAB.

The next step involved setting cutting scores for selection by using indexes of differentiation for each possible score known as the method of maximum differentiation. These are derived by subtracting the percentages for Group II (short tenure employees) from the percentages for Group
I (long tenure employees). The score at which the index of differentiation is greatest is the best or optimal cutting score (Table 4). The cutting score is a certain score on the WAB on which one will hire and below which one will not hire.

Expectancy Tables for predicting job success (tenure) from the WAB were also developed. These were shown in Tables 5, 6, 7 and 8. These tables were derived from Lawshe Expectancy Tables (Lawshe, 1966, pp. 368-372).
RESULTS

Four of the 22 personal history items were found to differentiate between the long tenure and short tenure female bank employees. These were present residence, types of last employment, years of formal education, and the amount of banking experience. Amount of banking experience was found to be the best predictor - at the 0.01 significance level. Years of formal education was found to differentiate between the two weighting groups at a significance level of 0.10. The other two items were found to differentiate at the 0.05 significance level.

The number and percentage of responses in each group for the four significant items were tabulated in Table 1. Only 38% of Group I (long tenure employees) showed no banking experience whereas 74% of Group II (short tenure employees) had no banking experience. With regard to residence, 20% (as compared to 46% in Group II) of Group I lived in Brentwood. Thirty-five per cent of Group I were last employed in a bank whereas Group II showed only 14% to be last employed in a bank. Finally, only 29% of Group I has more than twelve years of formal education as compared to 51% of Group II.

The results thus show that in general long tenure employees had some experience in banking, with twelve or
less years of formal education, were employed in banking on their last job, and lived outside Brentwood. The short tenure employees, on the other hand, lived in Brentwood, had more than twelve years of formal education, had no banking experience, and were employed in office or clerical work on their last job.

The cutting score was set at five as shown in Figure 1. For predictive purposes, therefore, persons scoring five or above can be considered potentially long tenure employees, whereas persons scoring four or below can be considered poor risks so far as tenure is concerned.

The Expectancy Chart for institutional prediction of female bank employees in the original group (Table 5) shows that if one hires only persons scoring five or above, one can expect 68% of the applicants to be long tenured. The holdout group (Table 6) shows that 58% of the applicants would be long tenured if one hires only persons scoring five or above.

The Expectancy Chart for individual prediction in the original group (Table 7) shows that an individual who scores between 0-1 has only 25% chance of being long tenured. On the other hand, a person who scores six or above has 75% chance of being long tenured. For the holdout group, the Expectancy Chart (Table 8) shows that a person who scores between 0-2 has only 39% chance of being long tenured whereas a person who scores six or above has 61% chance of
being long tenured.

The results thus showed that had such standards been available at the time of hiring and had the optimum cutting score been used on the holdout groups, 93% of the short tenure employees would have been rejected at the time of their application. At the same time, however, 60% of the long tenure group would have been hired, and only seven per cent of the short tenure group would have been hired as shown in Figure 2.
Table 1

Applying Weights to Significant Items of the Application Blank on the Weighting Groups by Using the Method of Net Weights for Differences in Per Cents.

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<td>Under 6 mos.</td>
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<td>6-12 mos.</td>
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<td>Over 12 mos.</td>
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<td>Off./Clerical</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Sales</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>YEARS OF EDUCATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 12</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Over 12</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

*Figures have been rounded to the nearest whole per cent.
### Table 2

Applying Weights to Long Tenure Female Bank Employees - Holdout Group

<table>
<thead>
<tr>
<th>Ss</th>
<th>Residence</th>
<th>Last Employment</th>
<th>Banking Experience</th>
<th>Years of Education</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ballwin</td>
<td>Teller</td>
<td>7 mos.</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weights:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Crestwood</td>
<td>Gen. Off.</td>
<td>0</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Brentwood</td>
<td>Housekeeper</td>
<td>0</td>
<td>14.5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Cedar Hill</td>
<td>Teller - Book-keeper</td>
<td>8.75 yrs.</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Rock Hill</td>
<td>--</td>
<td>--</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3

Applying Weights to Short Tenure Female Bank Employees - Holdout Group.

<table>
<thead>
<tr>
<th>Ss</th>
<th>Residence</th>
<th>Last-Employment</th>
<th>Banking Experience</th>
<th>Years of Education</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Responses: St. Louis</td>
<td>Utility Clerk</td>
<td>0</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weights:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Cahokia Run Burr. machine</td>
<td>10 mos.</td>
<td>2</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pacific Closings on R. E.</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Rock Hill Made Sandwich</td>
<td>0</td>
<td>12</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Brentwood Register, phone</td>
<td>0</td>
<td>11</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Etc.
Table 4

Number and Per Cent of the Long and Short Tenure Bank Employees Receiving Indicated or Greater Scores on the Weighted Application Blank and Indexes of Differentiation for Scores - Holdout Group.

Number of Subjects at or Above a Given Score

<table>
<thead>
<tr>
<th>Number*</th>
<th>Percentage*</th>
<th>Index of Differentiation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I High Tenure Group</td>
<td>II Low Tenure Group</td>
</tr>
<tr>
<td>Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Optimum Hiring Score</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>1</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>0</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

*Cumulative figures are used.
Table 5
Expectancy Chart for Institutional Prediction of Female Bank Employees - Original Group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Min. Score</th>
<th>Percentage that will be long tenured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest 20%</td>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td>Highest 40%</td>
<td>5</td>
<td>68</td>
</tr>
<tr>
<td>Highest 60%</td>
<td>3</td>
<td>62</td>
</tr>
<tr>
<td>Highest 80%</td>
<td>2</td>
<td>56</td>
</tr>
<tr>
<td>All</td>
<td>0</td>
<td>50</td>
</tr>
</tbody>
</table>
Table 6

Expectancy Chart for Institutional Prediction of Female Bank Employees - Holdout Group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Min. Score</th>
<th>Percentage that will be long tenured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest 20%</td>
<td>6</td>
<td>61</td>
</tr>
<tr>
<td>Highest 40%</td>
<td>5</td>
<td>58</td>
</tr>
<tr>
<td>Highest 60%</td>
<td>4</td>
<td>55</td>
</tr>
<tr>
<td>Highest 80%</td>
<td>3</td>
<td>53</td>
</tr>
<tr>
<td>All</td>
<td>0</td>
<td>50</td>
</tr>
</tbody>
</table>
Table 7
Expectancy Chart for Individual Prediction of Female Bank Employees - Holdout Group.

<table>
<thead>
<tr>
<th>Scores</th>
<th>Chances in 100 of being long tenured</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-7</td>
<td>75</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>3-4</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>0-1</td>
<td>25</td>
</tr>
</tbody>
</table>
Table 8
Expectancy Chart for Individual Prediction of Female Bank Employees - Holdout Group.

<table>
<thead>
<tr>
<th>Scores</th>
<th>Chances of 100% of being long tenured</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td></td>
</tr>
</tbody>
</table>
High Holdout Group
(Long Tenure Female
Bank Employees)
N = 15

Low Holdout Group
(Short Tenure Female
Bank Employees)
N = 15

Figure 1
Distribution of total scores on weighted application blank for long tenure female bank employees as compared with short tenure female bank employees. (Each dot represents one female bank employee).
Would have been hired

Cutting Score = 5

---Per Cent---
Surpassing Cutting Score
40% 7%

Would have been rejected

---Per Cent---
below Cutting Score
60% 93%

Figure 3

Differentiation achieved between long tenure female bank employees and short tenure female bank employees using the Weighted Application Blank.
DISCUSSION

The findings did suggest that certain personal history items would be predictive of job success in terms of tenure. The Expectancy Charts for both the original and holdout groups show a similar trend in that an individual who scores above the cutting score of five has a better chance of being long tenured - 75% in the original group and 61% in the holdout group. The fact that only four items were found to be significant predictors may be due to the small sample involved and the selection of criterion groups. England (1961, p. 8) has recommended that the two criterion groups be as large as possible, and that no study be undertaken without, at the minimum, 75 in each of the two groups. However, this study has only 50 Ss in each of the two criterion groups because of the difficulty of getting enough Ss for the high criterion group (i.e. for the long tenure employees).

Two major points should be considered in selecting criterion groups when tenure is the criterion. These are: (1) where should one set the cutoff point between the long tenure and short tenure employees, and (2) how far back, chronologically, can one go in the personnel file of employees to get subjects without distorting results because of changes that may have occurred in the labor market over a period of time? The cutoff point of this study was set at a tenure
of one year which did not differentiate well the short and
long tenure employees. Perhaps, one might get better results
using a cutoff point of six months since the majority of the
short tenure employees left the bank within six months. One
might also set the cutoff point of three months for the short
tenure group. Moreover, the Ss were hired by the bank within
a period of 1962-1973. This might be too wide an interval
since conditions in the labor market have changed considerably
in the 1970's. Again, one might get better results if one
were not to go too far back, chronologically, as in this
study.

Hence the study did not prove to be too successful in
predicting turnover. The fact that only 40% of the long
tenure employees in the holdout group were hired proved
the flaws in this study - too small a sample both in the
weighting and holdout groups, the choice of the cutoff point
at a tenure of one year, and the selection of subjects who
were hired too far back, chronologically.

However, the study did show that it is possible to predict
job tenure by using a weighted application blank. But care­
ful considerations should be put in indentifying the criterion
groups and samples should be as large as possible with no
less than 75 in each criterion group. Furthermore, weights
should be re-evaluated from time to time since conditions in
the labor market also change from time to time. This has
already been proved in the study by Wernimont (1962).

It is the author's recommendation that if the Personnel Director of the Bank wishes to do a WAB he might want to set his cutoff point of three months for the low criterion group and a cutoff point of one year for the high criterion group. This means that those who stayed with the bank for three months or less would be identified as the short tenure employees, and those who remained with the bank for one year or more would be identified as the long tenure employees. Moreover, he should have a larger sample than the one used in this study. Finally, he might include employees from the other departments of the bank instead of limiting it to the teller and book-keeping departments only. Kirchner and Dunnette (1957) had proved that the WAB could also make successful prediction when applied to a variety of jobs.

The results of this study and other researches indicate that the WAB can successfully identifies those items on the application blank which differentiate between groups of desirable and undesirable employees in a given occupation. It can thus increase the efficiency of the company's selection procedures and that it can be applied to any job. It has already proved useful in the selection of sales personnel, managers, supervisors, production workers, engineers, clerical and office personnel.
REFERENCES


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Soar, R. S. Personal History Data as a Predictor of Success in Service Station Management. J. Appl. Psychol. 1956, 40, 383-385.


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