Predicting Employee Turnover and Performance: Pre-Employment Tests and Questions that Work

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*Progress is the constant replacing of the best there is with something still better!*  
— Edward A. Filene
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REDDUCING TURNOVER AND ENHANCING PERFORMANCE

A hiring mistake is expensive, while a successful new hire is an asset to an organization. Yet the selection process is fraught with difficulties and is poorly understood. Recent research provides tools to substantially increase the likelihood of making successful new hires and avoiding undesirable ones. A credit union wants an employee to do two things: perform well, and stay. This study, which took place in four credit unions, demonstrates methods that can significantly improve performance and reduce turnover.

KEY FINDINGS

Study results are summarized in Table ES-1, which shows that if applicants are ranked on a set of criteria for predicting “voluntary avoidable turnover” and performance, high ranking applicants have a substantially greater probability of performing well and staying with the organization.

For example, applicants who rank in the top 30% on the criteria for low turnover have a 95% probability of still being with the credit union nine months later, whereas applicants who rank in the bottom 20% on these criteria have only a 25% probability of staying. Using these screening criteria, the top 30% of applicants are almost four times as likely to remain with the credit union as applicants who rank in the bottom 20%.

Applicants ranking in the top 30% on the performance predictor have a 70% probability of average performance or better and a 64% probability of superior performance or better in evaluations 3-6 months after hire. Those who rank in the bottom 20% have only a 39% probability of at least average performance and a 17% probability of superior performance. Put another way, screening by these criteria, the top 30% of applicants are nearly twice as likely to have average performance or better, and are three times more likely to have superior performance or better, than the bottom 20%.
These results are based on actual applicants to credit unions and actual outcomes. Our definition of turnover in the study was “voluntary avoidable turnover.” This is widely regarded as the best measure of turnover, because it excludes employees who were asked to leave, and it excludes turnover that the credit union can’t avoid, such as an employee whose spouse is re-locating.

**HIGH PERFORMANCE WITH LOW TURNOVER**

Applicants who score well on the criteria that predict low turnover also score well on the criteria that predict high performance. Therefore, using these criteria for selection enhances performance and lowers voluntary avoidable turnover.

**PREDICTORS OF PERFORMANCE AND TURNOVER**

What criteria generated these results? We used ten items to predict turnover and performance, as shown in Table ES-2. Three of them are readily collected from the employment application. We call these “biodata” since they are based on the applicants’ background and experience, or biography. The remaining seven are from questionnaires completed by the applicants and based on questions from well-validated tests available commercially at low cost.

---

**Table ES-1**

Expectancy Chart Reflecting Various Hiring Decisions

<table>
<thead>
<tr>
<th>*Percentile ranking based on the selection criteria</th>
<th>Probability of at least average performance**</th>
<th>Probability of at least superior performance**</th>
<th>Probability of staying***</th>
</tr>
</thead>
<tbody>
<tr>
<td>90th</td>
<td>73%</td>
<td>64%</td>
<td>100%</td>
</tr>
<tr>
<td>70th</td>
<td>70%</td>
<td>55%</td>
<td>95%</td>
</tr>
<tr>
<td>50th</td>
<td>55%</td>
<td>36%</td>
<td>86%</td>
</tr>
<tr>
<td>20th</td>
<td>39%</td>
<td>17%</td>
<td>59%</td>
</tr>
<tr>
<td>10th</td>
<td>18%</td>
<td>0%</td>
<td>25%</td>
</tr>
</tbody>
</table>

*An applicant in the 90th percentile ranks higher than 90% of all applicants, an applicant in the 70th percentile ranks higher than 70% of all applicants, etc.

**Performance was evaluated 3-6 months after hire.

***Outcome at nine months after hire.

These results are based on actual applicants to credit unions and actual outcomes. Our definition of turnover in the study was “voluntary avoidable turnover.” This is widely regarded as the best measure of turnover, because it excludes employees who were asked to leave, and it excludes turnover that the credit union can’t avoid, such as an employee whose spouse is re-locating.
Table ES-2

<table>
<thead>
<tr>
<th>Characteristics measured before hire</th>
<th>Outcomes Predicted:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Voluntary avoidable turnover (desired low)</td>
<td>Job performance (desired high)</td>
</tr>
<tr>
<td>Biodata (from application information)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referred by an employee of the credit union</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of friends and family working at the credit union</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of months in prior job</td>
<td>No*</td>
<td>Yes</td>
</tr>
<tr>
<td>General work-related attitudes (from testing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Confidence</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Decisiveness (takes care in making decisions)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Perseverance in keeping commitments</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Job-specific attitudes (from testing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire for the job</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Overt intent to quit</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Personality traits (from testing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Emotional stability</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*This predicted in the right direction but was not statistically significant, possibly due to the young median age of the sample (20).

LEGAL ISSUES

In this study we also address legal issues surrounding selection of new employees. Legal criteria for selection must meet the following requirements:

1. They must be well-validated as effective predictors of relevant, job-related outcomes.

2. The predictive ability must be more than just correlation. There must also be a valid theoretical basis for why such a relationship between the predictor and the outcome should exist.

All of the predictors used here meet these two legal requirements.
CONCLUSIONS

Low cost, commercially available testing and a few key items on an application can screen applicants to substantially reduce voluntary avoidable turnover and significantly enhance performance on the job. This report provides more detail on how we obtained these results and how credit unions can apply them. Commercial sources for tests used in this study are listed in Appendix B.
CHAPTER 1: 
Introduction

COSTS AND BENEFITS OF HIRING DECISIONS

Most people hiring for performance agree that the best-qualified candidates should be hired and promoted. In the long run, hiring the best candidates makes a tremendous contribution to the firm’s performance. Research indicates that above average employees are worth about 40% of their salary more to the organization than average employees (Schmidt and Hunter, 1982). Thus, an above-average new hire in a management job with a $50,000 salary could be worth $20,000 more to the organization than an average employee hired for the same position. Over ten years, the above-average employee's added value through performance gains to the company would total over $200,000.

The potential negative consequences of poor hiring decisions are equally graphic. Poor hiring decisions are likely to cause problems from the start. Unqualified and unmotivated workers require closer supervision and direction. They may require additional training yet never reach the required level of performance. They may also give members inaccurate information or cause members to go to competitors.

Hiring for Retention

Employee turnover can also be expensive. The personnel costs associated with turnover include:

- Separation costs – administrative costs, unused vacation time, lost client revenues due to vacancy, temporary employment, and other expense.
- Replacement costs – recruiting and selection expenses.
- Training costs – orientation and job training
- Lost productivity costs – lower performance while learning the job

Research indicates that these costs typically range from one to two and a half times the employee’s annual salary (Hom & Griffeth, 1995). Thus, the cost to replace each departing employee for the management job discussed previously could cost a credit union $50,000 to $125,000. Ultimately, the expense of turnover is depends in part on the performance levels of the departing and incoming employee. When poor performers leave and good
performers join the credit union, turnover is less expensive and may even have positive organizational consequences over the long term.

**KEY IMPLICATION**

All of this underscores a simple point: It is in the credit union’s best interest to make the right hiring decision to begin with and retain a high-performing employee. Despite the obvious importance of selecting and retaining the best available talent, the hiring process is fraught with challenges. Two of the most important are:

- Determining which characteristics are most important to predicting performance and turnover
- Measuring those characteristics

Existing research provides guidance on predicting performance (Heneman & Judge, 2003). Unfortunately, very little research has addressed whether employers can reduce turnover through effective hiring. This study undertakes that mission. We also examine whether applicants likely to quit are also likely to perform poorly.

The preponderance of research related to preventing turnover *before* employees start their jobs relies on realistic job previews to provide applicants with an accurate and up-front glimpse of both the favorable and unfavorable components of the job before they accept the position (Rynes, 1990; Wanous & Collela, 1989). However, the results show rather small reductions in turnover and gains in performance from using these realistic job previews (Phillips, 1998).

Other individual differences that have been studied include cognitive ability (i.e., intelligence), personal background and life history experiences. Although cognitive ability is one of the best predictors of job performance it does not predict turnover (Schmidt, 2002). Personal history information on an application blank, if properly measured and used, shows a moderate ability to predict turnover (Griffeth et al., 2000). This biographical information, often called biodata, can provide insight to an applicant’s background and interests. The principal assumption
behind the use of biodata is the axiom “The best predictor of future behavior is past behavior.” For example, obtaining information about whether an applicant has ever been fired from a job predicts job performance. But this method warrants concern, as it may create affirmative action problems (Gatewood & Fields, 1987). In this study, we focus on three sets of predictors that are particularly promising for predicting turnover. These predictors are discussed in detail in Chapters 2 and 3.
CHAPTER 2:  
Biodata as a Predictor of Turnover

Biodata

Both researchers and practitioners have tended to avoid using biodata, or the explicit scoring and weighting of applicants’ descriptions of their past experiences, to select employees. Although biodata can be a very good predictor of job performance (Rothstein, Schmidt, Erwin, Owens, & Sparks, 1990) and turnover (Griffeth, et al., 2000), the primary disadvantage is that employers often dislike it, since some of the measures may not be obviously job-relevant. In essence, it is difficult to accept or use something we do not fully understand. Finally, practitioners avoid biodata items for pragmatic purposes, such as fear of discrimination and lawsuits (Gatewood & Fields, 1987). Experience shows some of the most predictive biodata items often are either directly or indirectly related to age, gender, or race, which prevent these questions from being used (Schmidt & Hunter, 1998; Rothstein, et al., 1990) unless they can be shown to be job related and have a reason why they predict relevant behavior to inform hiring decisions.

To justify using biodata, researchers have emphasized the need to develop a theoretical basis for why particular items can be expected to predict important behaviors (Dean, Russell, & Muchinsky, 1999). For example, Fine and Cronshaw (1994) emphasize the importance of thoroughly understanding the requirements of the job when selecting biodata items. In one of the few studies assessing turnover before hire, Breaugh and Dossett (1989) found that theoretically relevant biodata items predicted turnover quite well. Specifically, tenure in previous jobs and whether the applicant has friends or relatives working at the organization are sound predictors of turnover. (These findings are also supported by Cascio, 1976, and Breaugh & Mann, 1984.) Bernardin (1985; 1987) found that having friends or relatives working at the organization and employee referrals predict employee turnover. Based on their practical and theoretical relevance, we examine these three biodata items (tenure in prior job, number of friends and family working at the firm, and referral by an employee) in the current study for their ability to predict turnover, and their incremental benefit when used jointly.
Tenure in Prior Job

The relevance of tenure in prior jobs is based on the theory that past behavior is the best predictor of future behavior (Goodenough, 1949; Wernimont & Campbell, 1968; Owens & Schoenfeldt, 1979). Tenure in previous jobs can also be linked to March and Simon’s 1958 model of turnover which includes an individual’s propensity to search as a prior variable to turnover. They hypothesized that an individual who is more apt to search for alternative employment identifies a greater number of potential jobs, which in turn leads to turnover. If an individual has a habit of seeking out other jobs, as evidenced by short tenure in the previous job, he or she is likely to do so again. Tenure in previous job also fits Mobley et al.’s 1979 expanded model of turnover, as this model includes “immediate versus delayed gratification” and “impulsive quitting” as direct influences on search and quit intentions and turnover, respectively. Employees who have shown a propensity to quit other jobs quickly and/or are unable to delay gratification are apt to repeat these behaviors in the future. Finally, short tenure in the previous job may reflect a lower work ethic, which Mathieu and Zajac (1990) show to have a moderate correlation with organizational commitment, and thus lead to more turnover.

Employee Referral and Number of Friends and Family

Biodata relative to whether a current employee referred the applicant and whether the applicant has friends or relatives working at the organization also have a theoretical basis (Breaugh & Dossett, 1989). If applicants have contacts within the organization, they are more apt to understand the nature of the job and the organization. Research shows that applicants who have more realistic ideas of the job and organization for which they are applying are more likely to stay. This is known as the “vaccination effect,” the result of small doses of organizational reality prior to entry, which lowers expectations, and in turn reduces job dissatisfaction and turnover (Premack & Wanous, 1987). Also, applicants who are fully informed and choose a job after being told what the job is actually like, including a description of the “bad” and the “good” (Wanous, 1977; Wanous, 1980), are more committed to their choice (O’Reilly & Caldwell, 1981; Ilgen & Seely, 1974; Premack & Wanous, 1985). This “personal commitment effect” has also been found to lead to
lower turnover (Phillips, 1998; Wanous, 1980). Finally, applicants who understand the advantages and disadvantages of the position for which they are applying are better able to engage in self-selection (Rynes, 1990; Wanous, 1980), as their perceptions of fit with the job and the organization (Premack & Wanous, 1985, Hom & Griffeth, 1995) are better informed.

In addition to providing a more “realistic” job preview, having friends or family within the organization will likely increase retention by means of “job embeddedness.” Having friends or family within the organization prior to hire is likely to strengthen commitment and reduce the likelihood of leaving. Mitchell et al. (2001) defined “job embeddedness” as reflecting links to others in the organization, perceptions of person-job fit, and losses that would occur if the employee were to leave the job. They connect job embeddedness to the perceived ease of movement. Specifically, the greater the number of links and the importance of those organizational links, the lower the perceived ease of movement.

In this study, we use a continuous scale reflecting the number of friends and family working at the organization. These social links, in addition to the vaccination and personal commitment effects of a more “realistic job preview,” increase the probability that the employee will remain with the organization. The foregoing factors lead us to form the following three hypotheses to test the use of biodata to predict turnover.

- **Hypothesis 1**: New hires that had longer tenure with their former employers are more apt to stay with their current employer than those who had shorter tenure with their previous employer.

- **Hypothesis 2**: New hires referred by a current employee will be more likely to remain with their current employer.

- **Hypothesis 3**: The more friends and family new hires have in the organization at the time of hire, the more likely they are to remain.
CHAPTER 3: Attitudinal and Behavioral Characteristics as Predictors of Turnover

INTRODUCTION

Central to all conceptualizations of turnover is the notion that poor attitudes stimulate the termination process. Traditionally, the primary job attitudes researched have been job satisfaction and organizational commitment — attitudes about the job and the organization after the applicant is hired. In this study, we posit that applicant attitudes toward the job, organization, and work in general before being hired may predict turnover as well.

We cannot expect applicants to have feelings or attitudes about satisfaction with a job for which they are applying. Consequently, we do not expect job satisfaction to be a useful predictor at hire. However, some evidence indicates that circumstances surrounding the initial decision to join an organization underpin commitment to the organization (Mowday, Porter, & Steers, 1982). For example, prior studies suggest that newcomers, by choosing one employer over others, can become psychologically attached to their firms (Lee, Ashford, Walsh, & Mowday, 1992). Other research indicates that some personal characteristics predispose new employees to develop company attachments (Lee et al., 1992). We posit that the applicant’s desire for the job, confidence of success, and propensity to keep and maintain commitments predict the applicant’s subsequent commitment to the credit union and likelihood of quitting.

Prior research demonstrates organizational commitment after hire is an important predictor of turnover decisions. In this study we examine whether an applicant’s attitudinal and behavioral commitment prior to hire predicts voluntary turnover.

We believe an applicant’s propensity to commitment can be specific to the job: for example, desire for the job and intent to quit the job. It can also be general to work, such as the applicant’s perseverance to commitments and confidence in new settings. Both types of attitudinal commitment measures are relevant to turnover decisions. Research has found that job-specific attitudinal measures predict turnover of current employees better than general work attitudes. However, as predictors before hire, we submit that both types of attitudes are equally useful predictors because the job-specific attitudes, like the general work-related attitudes, are based on informal or general impressions.
In this study we focus on two sets of attitudinal and behavioral variables that are expected to relate to propensity to commitment.

1) The applicant’s job-specific attitudes
2) The applicant’s general work-related attitudes

We focus on predictors that prior research has shown are related to turnover for current employees (Griffeth et al., 2000), yet would also be expected to be relevant for new hires.

**JOBSPECIFIC ATTITUDES**

Two attitudinal commitment variables specific to the job and likely to be relevant to the turnover decision are:

- Desire for the job
- Intent to quit

** Desire for the Job**

Recent research shows most employees have developed attitudes about the job for which they are applying before starting the job (Hom & Griffeth, 1995). One such attitude is how much they desire the position (Lee, et al., 1992; Mowday, et al., 1982). New employees with a strong desire to work for the organization require less time to be assimilated into the organization’s culture (Van Maanen & Schein, 1979). Employees who desire the job more are likely to have greater psychological identification with the job and are therefore less likely to leave (Kanungo, 1982). If employees identify with a job, the job conforms to their self-image. Based on March and Simon’s 1958 model, this conformity of job to self-image predicts job satisfaction and is a precursor to turnover.

- Hypothesis 4: New hires with a greater desire for the job will be less likely to quit than those who do not have as much desire for the job.

** Intent to Quit**

Intent to quit is one of the best, if not the best predictor of turnover (Griffeth et al., 2000; Tett & Meyer, 1993). This is not surprising, as the intent to perform a behavior is often the best predictor of that behavior (Fishbein & Azjen, 1975). Fishbein and Ajzen argue that attitudes toward the act (quitting), not attitudes
toward the object (the job or work role), lead to the intent to quit. For this reason, intent by the applicant to quit the job before starting a new position is likely to be an effective predictor of later turnover behavior. For example, applicants may be waiting until a more suitable job comes along, intending to find a permanent career once they finish school, or may be trying to earn extra money to pay for a specific purchase. Other applicants have shown evidence of the “hobo syndrome,” where the individual has a habit of leaving job after job (Hulin, 1991; Ghiselli, 1974). Individuals who intend to quit even before starting the job have an increased propensity to search for other employment, which affects their perceived ease of movement and turnover. For these reasons, intent to quit is likely to be an important predictor of turnover, even when assessed before hire.

• Hypothesis 5: New hires that have a greater intent to quit will be more apt to do so than those who are not intending to quit.

GENERAL WORK RELATED ATTITUDES

Three general work-related attitudinal commitment variables are:

• Self-confidence
  • Decisiveness
  • Perseverance to commitments

Self-Confidence

Research shows that employees with high self-confidence respond more favorably to the challenges of a new environment (Lee, Ashford, Walsh, & Mowday, 1992). There is a strong correlation between self-confidence and organizational commitment (Mathieu & Zajac, 1990), which in turn is related to lower turnover. Lee et al. (1992) found that confidence, as an important component of the combined construct-commitment propensity predicted organizational commitment one year after joining the U.S. Air Force Academy, and commitment predicted turnover. Hom and Griffeth (1995) found that self-esteem based on job accomplishments predict turnover. Based on these findings, we expect applicants with higher self-confidence to be more persistent in striving to adapt to novel job demands or the work
setting, and less likely to withdraw from work due to anxiety from low performance or ineffective adjustment. These applicants have an additional internal resource they can draw on to help them overcome the uncertainty of achieving success in new situations. For applicants low in self-confidence, external performance cues (e.g., production counts, supervisory feedback, etc.) that are available to all employees are the only means to reduce uncertainty.

- **Hypothesis 6:** New hires with higher self-confidence are more likely to stay with the organization than those with lower self-confidence.

**Decisiveness**

Decisiveness is our second work-related attitudinal measure. Here we use the term “decisive” to describe people who give more deliberation to important decisions, and consequently are more committed to those decisions and are less likely to leave the organization. Hom and Griffeth (1995) find empirical support for job choice as an antecedent to commitment, which directly affects organizational commitment, and indirectly affects turnover.

- **Hypothesis 7:** Employees who are more decisive in making choices at work will be more apt to stay than employees who are less decisive.

**Perseverance to Commitments**

Our third work-related attitudinal commitment measure is perseverance to commitments. Perseverance to commitments reflects the person’s long-standing attitude towards fulfilling prior commitments. This construct reflects a tendency to keep and maintain commitments. In this study, we focus on work-related commitments. Mowday, Porter, and Steers (1982) proposed that such a variable predisposes new employees to develop company attachments, which in turn, reduces turnover. Lee et al. (1992) illustrated that a composite of variables related to propensity to commitment predicts new employees’ initial and subsequent commitment to the firm.

- **Hypothesis 8:** Employees who are more likely to persevere in their commitments are more apt to stay than employees who fail to keep and maintain commitments.
SUMMARY

Attitudinal variables have a long history of being important predictors of turnover. In most studies, the best predictors have been based on attitudes that are specific to the job rather than general, work-related attitudes. However, this study examines these predictors during the hiring process rather than assessing current employees’ attitudes. At the time of hire, most applicants do not have extensive information on the specific job and work area. For this reason, we expect general, work-related attitudes to predict turnover as well as job-specific attitudes.
CHAPTER 4: 
Personality Traits as a Predictor of Turnover

CONSCIENTIOUSNESS AND EMOTIONAL STABILITY

Recent research reveals that employees selected using personality tests, particularly tests that assess conscientiousness and emotional stability, are better overall performers (Barrick, Mount, & Judge, 2001). These employees also actively look for more responsibility and challenges at work, are more service oriented, may exhibit greater integrity and are less likely to engage in counterproductive or irresponsible behaviors at work.

Conscientiousness and emotional stability have also been found to (negatively) predict an individual’s propensity to leave a job. Barrick and Mount (1996) showed that both of these traits predict voluntary turnover. Other research (DeMatteo, White, Teplitzky, & Sachs, 1991) finds that among personality traits, emotional stability is the best predictor and conscientiousness is the second best predictor of turnover in the military.

Why do these two traits relate to turnover? Conscientiousness is a predictor of voluntary turnover because conscientious employees are more responsible and reliable, and they are more likely to be involved in and committed to the organization. Individuals with these traits are less likely to leave the organization (Mathieu & Zajac, 1990). Recent research also shows that individuals who view life negatively (i.e., lower emotional stability) are more prone to absenteeism, intentions to quit, and voluntary turnover (Barrick & Mount, 1996; George, 1990). Based on this reasoning, we expect:

• Hypothesis 9: Selecting applicants high in conscientiousness and emotional stability leads to lower voluntary employee turnover.

SUMMARY

Over the past ten years, there has been considerable interest in the predictive ability of personality traits. This is largely because researchers have only recently revealed the true value of using personality in selection contexts (Barrick & Mount, 1991). In large part, this is due to the recognition that two personality traits, conscientiousness and emotional stability, are useful for predicting a wide variety of important behaviors at work, including
performance, integrity, customer service, and teamwork, in nearly all jobs. Based on this evidence, we anticipate that these two traits are also related to voluntary, avoidable turnover.
Our study also examines whether those predicted to quit reflect functional turnover (poor performers quit) or dysfunctional turnover (high performers quit). Prior research finds that among existing employees poor performers are more likely to leave voluntarily than high performers. This study differs somewhat from prior work, however, as we examine new hire relationships. Recent research shows that, other things being equal, individuals high in conscientiousness and emotional stability perform better.

Substantial evidence also shows that biodata predict job performance when biodata are screened for job relevance. Therefore, we expect the three biodata measures used in this study to predict job performance as well as voluntary, avoidable turnover.

Past research shows retention-related attitudes and intentions may not be strongly related to performance. In part, this is because organizational commitment has a weak relationship with job performance. The job-specific and general work-related attitudinal commitment and behavioral commitment measures used in this study are likely to have the weakest relationships with performance of all variables examined in this study. Thus, we expect:

• *Hypothesis 10*: Voluntary, avoidable turnover is negatively correlated to job performance.

• *Hypothesis 11*: The predictors of turnover (biodata, job-related attitudes, general work-related attitudes, and personality traits) are significantly related to job performance. Biodata and personality traits have the largest effects on performance.
CHAPTER 6: Method

PARTICIPANTS AND PROCEDURES

Our sample consisted of job applicants hired by four credit unions. Only one of these credit unions hired a sufficient number of applicants to provide a large enough sample (Study 1) to obtain meaningful results. The results from this sample are reported throughout this paper. Results (correlations) obtained from the three smaller samples (Study 2) are reported in Appendix A. These results provide comparative data to examine the generalizability of the findings across some variation in credit union size. However, because the number of employees who were hired (8, 6, and 24 respectively) and later quit (1, 0, 4 respectively) in the three smaller samples is so small (particularly for turnover, which is simply inadequate), any conclusions drawn from the statistical results must be interpreted with caution.

The total sample for Study 1 was 354 applicants, of whom 119 were hired. The typical participant was white (93%), female (about 75%), in her early twenties (median age was 20-21), with at least a high-school education. As part of the hiring process, all applicants completed the Work Styles Attitudinal survey and the Wonderlic Productivity Index. However, the results from these questionnaires were not used for hiring. Applicants not hired (N = 235) were told so at that time and were excluded from consideration for the purposes of this study. Consequently, the participants were actual applicants and believed their responses would influence the hiring decision. Therefore, the predictive validities reported here also incorporate any effect due to potential distortion or social desirability while responding. Previous research reveals that this effect, if it occurs, will result in a more conservative validity estimate (Barrick & Mount, 1996). Nevertheless, the validities should correspond to the actual value employers would realize if they used the test results from applicants to guide their hiring decisions.

MEASURES

The measures used in this study relied on commercially available questionnaires selected or developed based on their expected relevance to turnover. The contact information regarding use of these questionnaires is reported in Appendix B. Appendix B also reports on other commercially available tests credit unions might
consider using to increase retention and performance. However, it is critical to examine these tests carefully to determine whether they are appropriate for the particular work situation.

Credit unions should request the following information of any test provider:

1) The reliability of the various measures assessed by the test
2) The validity (either predictive (better), content, or construct validity) of those measures, specifically regarding voluntary turnover and job performance, and predictive validity assessed using applicants (better) or current employees
3) A description of any legal challenges regarding the assessment test and associated outcomes
4) A description of the legal support that the test provider will provide regarding use of the test
5) Whether the test provider will help conduct a validity study to ensure the relevance of these measures for the specific work setting
6) The names of five companies with which the test provider currently conducts business or provides services similar to those being considered by the credit union

The following measures were used as source information for this study.

**Biodata Measures**

The number of months the applicant worked in his or her most recent job represented the first theoretically relevant biodata item, *time in prior job*. The second biodata measure, *number of friends and family*, asked the applicant in two questions the number of friends and relatives working at the credit union. For each question, applicants were asked to report the number of friends or relatives (respectively) working at the credit union. The sum across both questions was used to reflect the *number of friends and family* variable. *Employee referrals* was the third theoretically relevant biodata measure. It indicated whether the applicant had been referred by an employee of the credit union.
**Pre-Hire General, Work-Related Attitudes**

Three general attitudinal predictor variables focused on the applicant’s pre-hire self-confidence, decisiveness, and perseverance to commitments. Self-confidence was assessed with 8-items (see Lee et al., 1992) \( \alpha = 0.76 \) in Study 1. Examples of self-confidence items include: “I have always been able to do well in anything I have tried” and “I expect to do well at this company.” Decisiveness was measured with a 5-item scale adapted from Lee et al. (1992) \( \alpha = 0.76 \) in Study 1. Examples of items were: “I never make major decisions quickly,” and “I often make quick decisions, which have a huge effect on my life.” Perseverance to commitments was assessed using an 8-item scale \( \alpha = 0.82 \) in Study 1. Items include: “I have taken sick leave from work or school even though I wasn’t really sick.” And “I always try to fulfill my personal commitments.” A 5-point response scale, ranging from strongly disagree (1) to strongly agree (5) was used.

**Pre-Hire Job-Specific Attitudes and Intentions**

Job-specific attitudinal measurements focused on the applicant’s pre-hire desire for the job at the credit union. The behavioral intention measurement asked overt questions about pre-hire intent to quit. Desire for a job was assessed with 8-items (see Lee et al., 1992) \( \alpha = 0.76 \) in Study 1. Examples of desirability items were: “I have a strong desire to be an employee of this company” and “I feel very committed to this company.” Overt intent to quit was assessed with 5-items \( \alpha = 0.80 \) in Study 1 (e.g., Chatman, 1991). These items were based on items written for traditional intent to quit scales. Examples of items were: “I intend to remain with this company for a long time” and “If I have my own way, I will be working for this company six months from now.” The same 5-point response scale was used for both attitudinal and intention scales.

**PERSONALITY TRAITS**

The Wonderlic Productivity Index consists of 90 items designed to comprehensively measure conscientiousness, emotional stability, and agreeableness. The WPI has proven acceptable evidence of construct validity. Coefficient alpha reliabilities are 0.87, 0.86, and 0.82, respectively. Examples of items for conscientiousness include: “I put a great deal of effort into my work,” and “Others
have described me as a very disciplined person.” Examples of emotional stability items were: “I become irritated when others criticize me,” and “I tend to get over embarrassing situations very quickly.” A 5-point response scale ranging from strongly disagree (1) to strongly agree (5) was used.

**TURNOVER**

Turnover data was collected 9 months after the applicant was hired. There were two turnover categories of interest: stayers (in Study 1 \(N = 90\); in Study 2 \(N = 33\)) and leavers (in Study 1 \(N = 29\); in Study 2 \(N = 5\)). Of those employees who left during the study, 18 left for voluntary, avoidable reasons and 11 left for voluntary, unavoidable reasons. The voluntary, avoidable turnover category refers to turnover that reflected the individual’s choice to leave that the organization may have been able to avoid (e.g., through raises, providing better work conditions, etc.). Voluntary, unavoidable turnover occurs when the employee chooses to leave but the credit union has no control over it (e.g., quitting to accompany a relocating spouse, to resume an education path, etc.). Abelson (1987) found that those who leave the organization for unavoidable reasons resemble stayers more than they resemble leavers, whose departure is avoidable. In fact, Hom and Griffeth (1995) concluded that voluntary, avoidable turnover is “a superior criterion for testing prevailing turnover models.” For these reasons, this study examines the predictive validity of the various selection variables (biodata, personality, etc.) by focusing on voluntary, avoidable turnover. Correlations with voluntary turnover are also reported, but only for comparison with previous findings.

**JOB PERFORMANCE RATINGS**

In all credit unions, the employees’ supervisors rated employee job performance after a probationary period ranging from three to six months. Employees were evaluated on a number of dimensions, including quality of work, quantity of work, suitability for the position, rule-following behavior, communication skills, initiative, and customer service. Performance was evaluated on a 5-point Likert scale ranging from definitely unsatisfactory to outstanding (\(\alpha = 0.84\)). Overall performance was the mean of the ratings across all dimensions.
Chapter 7: Results

Correlations Between Predictors and Outcomes

The left hand column of Table 1 (with the exception of the last row) lists characteristics of applicants that were measured before hire. The two columns on the right give the correlation coefficients between these measured characteristics and two desired outcomes after the hire—voluntary avoidable turnover, where a low, negative correlation is desirable; and job performance, where a high, positive correlation is desirable. Correlation coefficients can range in value from -1 to +1, where +1 means perfect correlation, -1 means perfect inverse correlation, and 0 means uncorrelated. For example, consider the first row in the table under “Biodata.” The characteristic of the applicant is “referred by an employee of the credit union.” The correlation between this characteristic and voluntary, avoidable turnover after the hire is -0.22. This negative correlation means that new hires that were referred by an employee have lower turnover rates after hire. The correlation between “referred by an employee of the credit union” and job performance after the hire is +0.27. This positive correlation means that new hires referred by an employee have higher job performance ratings after the hire.
In addition to “referred by an employee of the credit union,” the number of friends and family of the applicant who are working at the credit union predicts turnover and performance. Correlations of -0.17 and +0.16, respectively, show that the larger the number of friends and family of the applicant who work at the credit union, the lower the turnover rate and the higher the job performance rating after hire. The number of months the applicant spent in a prior job is also negatively correlated with turnover. That is, longer tenure in the prior job is correlated with lower turnover. While this

<table>
<thead>
<tr>
<th>Characteristics Measured Before Hire</th>
<th>Voluntary Avoidable Turnover (Desired Low)</th>
<th>Job Performance (Desired High)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodata</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referred by an employee of the credit union</td>
<td>-0.22*</td>
<td>+0.27*</td>
</tr>
<tr>
<td>Number of friends and family working at the credit union</td>
<td>-0.17*</td>
<td>+0.16*</td>
</tr>
<tr>
<td>Number of months in prior job</td>
<td>-0.13</td>
<td>+0.18*</td>
</tr>
<tr>
<td>General work-related attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-confidence</td>
<td>-0.16*</td>
<td>+0.05*</td>
</tr>
<tr>
<td>Decisiveness (takes care in making decisions)</td>
<td>-0.16*</td>
<td>-0.01*</td>
</tr>
<tr>
<td>Perseverance in keeping commitments</td>
<td>-0.22*</td>
<td>+0.16*</td>
</tr>
<tr>
<td>Job-specific attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire for the job</td>
<td>-0.18*</td>
<td>-0.04*</td>
</tr>
<tr>
<td>Overt intent to quit</td>
<td>+0.18*</td>
<td>+0.07*</td>
</tr>
<tr>
<td>Personality traits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-0.23*</td>
<td>+0.18*</td>
</tr>
<tr>
<td>Emotional stability</td>
<td>-0.35*</td>
<td>+0.19*</td>
</tr>
</tbody>
</table>

**Correlation Between Outcomes**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary avoidable turnover and performance</td>
<td>-0.38</td>
</tr>
</tbody>
</table>

*Statistically significant at the 95% level (one-tailed test)."
correlation is not statistically significant, it is in the expected direction. One reason for the lack of a relationship could be that applicants in the sample were young, on average 20 years old. With older applicants, this characteristic is more likely to be predictive because they have more work experience and more opportunity for tenure in previous jobs. The correlation between number of months in the prior job and job performance after hire is statistically significant and positive, which means longer tenure in a prior job is associated with better performance after hire.

**GENERAL WORK-RELATED ATTITUDES**

General work related attitudes were measured by the Work Styles Survey. Applicants with greater self confidence exhibited lower turnover after hire. This characteristic was also associated with higher job performance ratings, although the correlation was not statistically significant. Applicants who were more decisive (they tended to consider important decisions carefully) as measured by the Work Styles Survey, exhibited lower turnover after hire, but this characteristic did not predict job performance. Perseverance in keeping commitments, as measured by the Work Styles Survey, was associated with lower turnover and better job performance after hire.

**JOB SPECIFIC ATTITUDES**

The two job specific attitudes “Desire for the job,” and “Overt intent to quit,” as measured by the Work Styles Survey, both predicted turnover, but not job performance.

**PERSONALITY TRAITS**

We measured the two personality traits “conscientiousness” and “emotional stability,” using the Wonderlic Productivity Index. Both traits predicted turnover and job performance after hire, with applicants who are conscientious and emotionally stable exhibiting lower turnover and better performance on the job.

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1 Information about the test and where it may be obtained are provided in the appendix.
2 Information about the test and where it may be obtained are provided in the appendix.
SUMMARY

Table 2 provides a summary of characteristics that predict voluntary, avoidable turnover and those that predict job performance. Nine of the ten measures predicted voluntary, avoidable turnover, and six of the ten also predicted job performance. Therefore, applicants who are more likely to stay are also more likely to perform better. In fact, the correlation coefficient between the two outcomes—voluntary, avoidable turnover and job performance—is -0.38 (last row of Table 1), which shows a substantial statistical correlation between the two outcomes. A credit union can reduce turnover by assessing these characteristics before hiring, and at the same time hire applicants promising better performance.

<table>
<thead>
<tr>
<th>Characteristics Measured Before Hire</th>
<th>Outcomes Predicted:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Voluntary Avoidable Turnover (Desired Low)</td>
</tr>
<tr>
<td><strong>Biodata (from application information)</strong></td>
<td></td>
</tr>
<tr>
<td>Referred by an employee of the credit union</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of friends and family working at the credit union</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of months in prior job</td>
<td>No*</td>
</tr>
<tr>
<td><strong>General work-related attitudes (from testing)</strong></td>
<td></td>
</tr>
<tr>
<td>Self-confidence</td>
<td>Yes</td>
</tr>
<tr>
<td>Decisiveness (takes care in making decisions)</td>
<td>Yes</td>
</tr>
<tr>
<td>Perseverance in keeping commitments</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Job-specific attitudes (from testing)</strong></td>
<td></td>
</tr>
<tr>
<td>Desire for the job</td>
<td>Yes</td>
</tr>
<tr>
<td>Overt intent to quit</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Personality traits (from testing)</strong></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Yes</td>
</tr>
<tr>
<td>Emotional stability</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*This predicted in the right direction but was not statistically significant. This may be due to the 20 year average age of applicants in the sample.
SUB-SETS OF PREDICTORS

We have seen that the predictor variables (applicant traits) are correlated with outcomes (turnover and performance). The predictor variables are also correlated with one another (Table 3). This means that using all of them may not be necessary, even though each of them individually may predict outcomes. We used a regression analysis to assess whether each predictor adds value to the prediction of either turnover or job performance, while controlling for the predictive value of other predictors. To do so, we entered the variables in the regression equation in groups: biodata, general work-related attitudes, job-specific attitudes, and personality traits. We did this separately for predicting turnover and performance.

The regression analysis results in a multiple R that can be interpreted much like an ordinary correlation coefficient, except that multiple R ranges from 0 to 1.00 rather than –1.00 through 0 to +1.00. It has been argued that these results can be used as a direct indicator of the proportional “gain” in the quality of the selection decision (over flipping a coin). Thus a multiple R of 0.50 reflects a 50% increase in the utility of one’s selection decision, using that set of predictors.

The attitudinal variables, those representing both general work-related attitudes and job-specific attitudes, are substantially correlated with other variables. As a result, considerable experimentation with including or omitting different sets of groups in the predictive regression equations showed that the attitudinal variables did not add much predictive value for either turnover or performance, if the biodata and personality variables were already included. Further experimentation showed some differences in the ability of biodata and personality traits to predict turnover and performance.
Table 3
Correlations Among Variables (N = 119)

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Employee Referral</td>
<td>1.41</td>
<td>(0.49)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. No. of Friends and Family</td>
<td>1.21</td>
<td>(1.40)</td>
<td>.10</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Time on Prior Job(a)</td>
<td>22.60</td>
<td>(26.3)</td>
<td>.25</td>
<td>.17</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4. Self-Confidence</td>
<td>4.13</td>
<td>(0.54)</td>
<td>.02</td>
<td>.08</td>
<td>.13</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Decisiveness</td>
<td>3.94</td>
<td>(0.56)</td>
<td>.02</td>
<td>.13</td>
<td>.05</td>
<td>.23</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6. Persevere to Commitments</td>
<td>4.35</td>
<td>(0.54)</td>
<td>.03</td>
<td>.02</td>
<td>.03</td>
<td>.44</td>
<td>.45</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7. Desire for the Job</td>
<td>4.15</td>
<td>(0.40)</td>
<td>.01</td>
<td>.09</td>
<td>.12</td>
<td>.36</td>
<td>.10</td>
<td>.31</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8. Overt Intent to Quit(b)</td>
<td>1.80</td>
<td>(0.51)</td>
<td>.06</td>
<td>.22</td>
<td>.05</td>
<td>-.10</td>
<td>-.12</td>
<td>-.25</td>
<td>-.61</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>9. Conscientiousness</td>
<td>4.30</td>
<td>(0.34)</td>
<td>.09</td>
<td>.16</td>
<td>.06</td>
<td>.26</td>
<td>.36</td>
<td>.56</td>
<td>.35</td>
<td>.43</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>10. Emotional Stability</td>
<td>3.90</td>
<td>(0.36)</td>
<td>.17</td>
<td>.24</td>
<td>.04</td>
<td>.31</td>
<td>.40</td>
<td>.53</td>
<td>.24</td>
<td>-.31</td>
<td>.73</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>11. Vol., Avoidable Turnover</td>
<td>1.17</td>
<td>(0.37)</td>
<td>-.22</td>
<td>-.17</td>
<td>-.13</td>
<td>-.16</td>
<td>-.16</td>
<td>-.22</td>
<td>-.18</td>
<td>-.18</td>
<td>-.23</td>
<td>-.35</td>
<td>—</td>
</tr>
<tr>
<td>12. Job Performance</td>
<td>3.32</td>
<td>(0.61)</td>
<td>.27</td>
<td>.16</td>
<td>.18</td>
<td>.05</td>
<td>-.01</td>
<td>.16</td>
<td>-.04</td>
<td>.07</td>
<td>.18</td>
<td>.19</td>
<td>-.38</td>
</tr>
<tr>
<td>13. Voluntary Turnover</td>
<td>1.24</td>
<td>(0.43)</td>
<td>-.16</td>
<td>-.13</td>
<td>-.11</td>
<td>-.19</td>
<td>-.13</td>
<td>-.18</td>
<td>-.14</td>
<td>.08</td>
<td>-.12</td>
<td>-.30</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: \(N = 119\). \(a\)Measured in months. \(b\)Intent to quit is reverse scored here, so that the direction of the relationship is consistent with other variables (i.e., a high score means the applicant is likely to stay). The 95% confidence interval for correlations greater than or equal to .18 does not include zero (95% CI: .01 ≤ .18 ≤ .36). The 90% confidence interval for correlations greater than or equal to .16 does not include zero (90% CI: .01 ≤ .16 ≤ .31).

**Turnover**

Table 4 shows that biodata alone has a multiple R of 0.27 with turnover. Personality traits alone have a multiple R of 0.35 with turnover. If a credit union wanted to use one or the other, these results reveal that personality traits would predict better than biodata. The incremental gain in multiple R to adding biodata would be only 0.07, whereas the incremental gain from adding personality variables after starting with biodata is 0.15. This suggests that using personality traits alone would be more effective than biodata alone. However, since the relevant variables in biodata can be readily collected on applications, there is little cost attached to adding them to personality data. Together the multiple correlation is 0.42, which is significantly larger than the
best correlation (0.23 from conscientiousness) of a single variable predicting turnover.

Table 4
Predicting Turnover, by Variable Groups

<table>
<thead>
<tr>
<th>Variables in predictive equation</th>
<th>Multiple R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodata only</td>
<td>0.27</td>
</tr>
<tr>
<td>Personality traits only</td>
<td>0.35</td>
</tr>
<tr>
<td>Biodata plus personality (no attitudinal variables)</td>
<td>0.42</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incremental gain from variables in predictive equation</th>
<th>Gain in Multiple R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding personality after starting with biodata (no attitudinal variables)</td>
<td>0.07</td>
</tr>
<tr>
<td>Adding personality after biodata (no attitudinal variables)</td>
<td>0.15</td>
</tr>
</tbody>
</table>

**Predicting Performance**

Table 5 shows the effectiveness of these subsets of variables in predicting job performance. Biodata alone has a multiple R of 0.34; while personality traits alone have a multiple R of 0.20, and combined the multiple R is 0.42. In contrast to the case of turnover, adding the biodata variables to the equation after first using personality produces a much larger incremental gain (0.22) in predictive accuracy than adding personality after starting with biodata (gain of 0.08). This suggests that when predicting performance, the biodata measures are more useful as predictors than are the personality traits. Nevertheless, adding personality traits provides a useful gain over biodata alone.

Table 5
Predicting Performance, by Variable Groups

<table>
<thead>
<tr>
<th>Variables in predictive equation</th>
<th>Multiple R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodata only</td>
<td>0.34</td>
</tr>
<tr>
<td>Personality traits only</td>
<td>0.20</td>
</tr>
<tr>
<td>Biodata plus personality (no attitudinal variables)</td>
<td>0.42</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incremental gain from variables in predictive equation</th>
<th>Gain in Multiple R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding personality after starting with biodata (no attitudinal variables)</td>
<td>0.08</td>
</tr>
<tr>
<td>Adding personality after biodata (no attitudinal variables)</td>
<td>0.22</td>
</tr>
</tbody>
</table>
EFFECTIVENESS: AN EXPECTANCY TABLE

Table 6 shows our results in the form of an expectancy table. To create it we took the statistical results of our predictive equation for performance and the predictive equation for turnover. We used these results to predict the performance level and the likelihood of staying for each of the applicants. We ranked the applicants with regard to predicted performance and predicted likelihood of staying. Then we looked at the actual outcome for each applicant.

Table 6 summarizes the results, which are presented in the form of the probability of different performance levels and the probability of staying, for various ranks out of a group of ten applicants. The first row shows that hiring the highest ranking applicant would give a 73% chance of at least an average performance and a 64% chance of superior performance, and a 100% probability of staying. Choosing the lowest ranking applicant produces an 18% probability of at least average performance, 0% probability of superior performance, and a 25% chance that the individual will stay. The results indicate that this approach to selecting new hires from applicants provides a powerful tool to enhance performance and reduce turnover.

<table>
<thead>
<tr>
<th>Out of 10 Applicants, if you choose the:</th>
<th>Average Performance</th>
<th>Superior Performance</th>
<th>Staying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest scoring applicant</td>
<td>73%</td>
<td>64%</td>
<td>100%</td>
</tr>
<tr>
<td>3rd Highest scoring applicant</td>
<td>70%</td>
<td>55%</td>
<td>95%</td>
</tr>
<tr>
<td>5th Highest scoring applicant</td>
<td>55%</td>
<td>36%</td>
<td>86%</td>
</tr>
<tr>
<td>8th Highest scoring applicant</td>
<td>39%</td>
<td>17%</td>
<td>59%</td>
</tr>
<tr>
<td>Lowest scoring applicant</td>
<td>18%</td>
<td>0%</td>
<td>25%</td>
</tr>
</tbody>
</table>

3 This is based on percentiles in the rankings.
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### APPENDIX A:
Correlations Among Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Employee Reference</td>
<td>1.77</td>
<td>(0.42)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. No. Friends and Family</td>
<td>1.18</td>
<td>(1.43)</td>
<td>.10</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Time on Prior Job*</td>
<td>27.30</td>
<td>(38.3)</td>
<td>.04</td>
<td>.03</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4. Self-Confidence</td>
<td>4.03</td>
<td>(0.49)</td>
<td>.02</td>
<td>.01</td>
<td>.01</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Decisiveness</td>
<td>3.91</td>
<td>(0.6 )</td>
<td>.01</td>
<td>.04</td>
<td>.06</td>
<td>.26</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6. Persevere to Commitment</td>
<td>4.17</td>
<td>(0.61)</td>
<td>.02</td>
<td>.02</td>
<td>.13</td>
<td>.43</td>
<td>.38</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7. Desire for the Job</td>
<td>3.81</td>
<td>(0.49)</td>
<td>.05</td>
<td>.06</td>
<td>.02</td>
<td>.52</td>
<td>.36</td>
<td>.54</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8. Overt Intent to Quit</td>
<td>1.88</td>
<td>(0.55)</td>
<td>-.01</td>
<td>-.02</td>
<td>-.03</td>
<td>-.47</td>
<td>-.25</td>
<td>-.49</td>
<td>-.72</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>9. Conscientiousness</td>
<td>4.20</td>
<td>(0.51)</td>
<td>.09</td>
<td>.04</td>
<td>.02</td>
<td>.40</td>
<td>.38</td>
<td>.49</td>
<td>.50</td>
<td>-.45</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>10. Emotional Stability</td>
<td>3.83</td>
<td>(0.37)</td>
<td>.05</td>
<td>.06</td>
<td>.05</td>
<td>.42</td>
<td>.30</td>
<td>.35</td>
<td>.36</td>
<td>-.31</td>
<td>.53</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>11. Vol. Avoidable Turnover</td>
<td>1.13</td>
<td>(0.34)</td>
<td>-.16</td>
<td>-.11</td>
<td>-.10</td>
<td>-.17</td>
<td>-.16</td>
<td>-.22</td>
<td>-.18</td>
<td>.18</td>
<td>-.23</td>
<td>-.35</td>
<td>—</td>
</tr>
<tr>
<td>12. Job Performance</td>
<td>3.14</td>
<td>(0.97)</td>
<td>.27</td>
<td>.23</td>
<td>.12</td>
<td>.19</td>
<td>.15</td>
<td>.13</td>
<td>.09</td>
<td>-.17</td>
<td>.17</td>
<td>.15</td>
<td>-.21</td>
</tr>
</tbody>
</table>

Note: N = 38 (hired; 166 applicants). *Measured in months. The 95% confidence interval for correlations greater than or equal to .30 does not include zero (95% CI: .01 ≤ .30 ≤ .59). The 90% confidence interval for correlations greater than or equal to .26 does not include zero (90% CI: .01 ≤ .26 ≤ .59).
APPENDIX B: Measures and Tests

This appendix describes the measures and tests used in this study. It also describes similar tests that could be used instead.

BIODATA MEASURES
(assessing relationships with current credit union employees; prior work history)

The actual measures used in this study:

Measures Assessing Relationships with Current Credit Union Employees:

- Did an employee of this company refer you? (check one)
  □ Yes  □ No

- How many of you or your spouse’s (or significant other’s) relatives work for this company? (check one)
  □ Zero  □ One  □ Two  □ Three  □ Four  □ Five  □ Six  □ Seven or more

- How many of your close personal friends work for this company? (check one)
  □ Zero  □ One  □ Two  □ Three  □ Four  □ Five  □ Six  □ Seven or more

Measures Assessing Prior Work Experiences Related to Turnover:

- How long did you work at your last job (if presently working, use your present job)? _______

APPLICANT ATTITUDES AND INTENTIONS RELATED TO TURNOVER

In this study, the Work Styles Survey was used. This can be obtained from:

Barrick Resources Unlimited
1902 Woodberry Ct.
Iowa City, IA 52242
319-335-3784
M-Barrick@uiowa.edu
Additional tests that also predict turnover include:

- EI Tenure Scale from:

  Personnel Decisions Inc (PDI) or their partner, EPredix
  2000 Plaza VII Tower
  45 South Seventh Street
  Minneapolis, Minnesota 55402-1608
  Phone 612 904 7170 Fax 612 904 7120
  (Within U.S. 800 633 4410)
  http://www.personneldecisions.com/m/A_Home_M_
  EmploymentInventory.htm
  http://www.personneldecisions.com,
  http://www.epredix.com/

- Job Compatibility Questionnaire (JCQ) from:

  Behavior Analysts & Consultants
  3601 SE Ocean Boulevard
  Stuart, FL 34996
  0561-286-6248

- CultureFit from:

  LIMRA International
  300 Day Hill Road
  Windsor, Connecticut 06095
  888-785-4672
  http://www.limra.com/Products/NorthAmerica/culturefit.a
  sp

PERSONALITY TESTS THAT WOULD PREDICT TURNOVER

*(be sure they assess conscientiousness and emotional stability/neuroticism)*

In this study, the Wonderlic Productivity Index was used. This can be obtained from:

  Wonderlic, Inc.
  1795 N. Butterfield Rd.
  Libertyville, IL 60048-1238
  800.323.3742
  www.wonderlic.com
Additional personality tests that assess Conscientiousness and Emotional Stability:

- Hogan Personality Inventory from:
  
  Hogan Assessments Systems  
  2622 E. 21st Street  
  Tulsa, Oklahoma 74114  
  U.S.A  
  800.756.0632  
  Fax 1.918.749.0635  
  [http://www.hoganassessments.com](http://www.hoganassessments.com)

- NEO-PI from:

  Research Psychologists Press, Inc.  
  P.O. Box 3292, Station B  
  London, ON N6A 4K3  
  800.401.4480  
  Fax 800.361.9411  
  [http://www.rpp.on.ca/contact.htm](http://www.rpp.on.ca/contact.htm)

- Personal Characteristics Inventory (PCI) from:

  Wonderlic, Inc.  
  1795 N. Butterfield Rd.  
  Libertyville, IL 60048-1238  
  800.323.3742  
  [www.wonderlic.com](http://www.wonderlic.com)
MURRAY BARRICK

Murray Barrick is the Stanley M. Howe Leadership Chair at the Tippie College of Business at the University of Iowa. He received his Ph.D. from the University of Akron in industrial/organizational psychology. Professor Barrick is from Clarion, Iowa and received his undergraduate degree from the University of Northern Iowa. His research interests include assessing the impact individual differences in behavior and personality have on job performance, on methods of measuring and predicting such differences, and organizational processes associated with developing compensation systems. His research has been published in the *Academy of Management Journal, Journal of Applied Psychology, Personnel Psychology,* and *Organizational Behavior and Human Decision Processes* among others. Along with Ann Marie Ryan, he was the volume editor for “Personality and Work: Reconsidering the role of personality in organizations,” a publication in the Organizational Frontiers Series sponsored by SIOP.

Along with Michael Mount, he was recognized by the Academy of Management with the “Outstanding Published Paper Award” in 1992 by the Scholarly Achievement Award Committee of the Personnel/Human Resources Division. This paper, published in *Personnel Psychology* in 1991, was recognized as being the most frequently cited article in that journal during the past decade. In 2001, he was the recipient of the Owens Scholarly Achievement Award. This award was given to the author (co-authors include Tim Judge, Chad Higgins, and Carl Thoresen) recognized as publishing the best publication during 1999. In 1997, he was elected a Fellow of the Society of Industrial and Organizational Psychologists in the American Psychological Association. He also serves on the editorial boards of the *Journal of Applied Psychology, Personnel Psychology,* and has served on the editorial board of the *Journal of Management.* In 2001, he was the keynote speaker at the Annual Society of Industrial and Organizational Psychology Conference in Pretoria, South Africa and was the Unilever Visiting Professor at the Australian Graduate School of Management during fall 2001. In 2003, he was the keynote speaker at the 5th Annual Australian Industrial and Organizational Psychology Conference in Melbourne, Australia.
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