

## CHAPTER III

### METHODOLOGY

#### Description of the Survey

The survey method is used for data-gathering purposes in this study. The samples selected consist of employees of the independent property and liability insurance agencies in the State of Georgia, namely 1) employees who have experience with the agency and have reached, in the minds of their principals, a terminal position and 2) the principals of the agencies. One thousand agencies were selected randomly from a population of 1,488 using a random number table.<sup>1</sup> A first group of 500 questionnaires was mailed to estimate response rate and determine if any changes needed to be made. There were no indicated changes, and response rate was about 1 questionnaire out of 5. The second group of 500 was then mailed. The final response rate was 20.6% for the principals and 11.1% for the employees.

The correspondence consisted of a cover letter explaining the purpose of the study, instructions for completing the questionnaire, and two questionnaires, one to be filled out by the principal and one to be completed by

an employee who met the conditions of the study. These conditions indicated that the employee should have been with the agency for some time and therefore would have reached, for all practical purposes, a terminal position. Also provided were two return envelopes to be used to send the completed questionnaires, separately, to the Division of Research, University of Georgia, to be forwarded to the author. The second group was sent out after most of the responses from the first group were returned to detect any possible problems with the design.

The mailing of two groups of questionnaires also provides the opportunity to compare the two groups to see if there is any statistically significant difference between them, creating a control technique for ensuring that the samples are representative of the entire population of principals and employees and therefore can be used for statistical inference.

The results of the comparisons between samples and identification of the variables (#1-13) are given in Table 3. As shown in the table, the only variable that showed a statistical difference was variable #13, for the employees only, which measures the Probability Index with agency money. Those employees surveyed in the second mailing exhibited a higher adherence to the theory of probability preferences than did those surveyed in the first mailing. Strict adherence to the theory would dictate a preference

TABLE 3

TEST FOR SIGNIFICANCE: FIRST MAILING VS. SECOND MAILING  
(t = 1.96 at 0.05 level)

| Variable | 1 <sup>b</sup>                         | 2 <sup>c</sup> | 3 <sup>d</sup> | 4 <sup>e</sup> | 5 <sup>f</sup> | 6 <sup>g</sup> | 7 <sup>h</sup> | 8 <sup>i</sup> | 9 <sup>j</sup> | 10 <sup>k</sup> | 11 <sup>l</sup> | 12 <sup>m</sup> | 13 <sup>n</sup> |
|----------|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
|          | <u>Principals, Sample #1 (n = 117)</u> |                |                |                |                |                |                |                |                |                 |                 |                 |                 |
| Mean     | 5.43                                   | 5.26           | 5.08           | 5.11           | 3.03           | 2.91           | 2.79           | 2.33           | 3.41           | 3.05            | 3.01            | 2.72            | 2.88            |
|          | 1.48                                   | 1.44           | 1.23           | 1.38           | 1.38           | 1.47           | 2.29           | 2.26           | 0.63           | 1.56            | 1.70            | 1.49            | 1.75            |
|          | <u>Principals, Sample #2 (n = 89)</u>  |                |                |                |                |                |                |                |                |                 |                 |                 |                 |
| Mean     | 5.37                                   | 4.94           | 5.03           | 5.24           | 3.25           | 3.20           | 3.17           | 2.96           | 3.35           | 3.22            | 3.36            | 3.12            | 3.16            |
|          | 1.58                                   | 1.57           | 1.23           | 1.32           | 1.33           | 1.45           | 2.39           | 2.45           | 0.49           | 1.50            | 1.83            | 1.62            | 1.75            |
| Δ Mean   | 0.06                                   | 0.32           | 0.05           | 0.13           | 0.22           | 0.28           | 0.38           | 0.37           | 0.06           | 0.17            | 0.35            | 0.40            | 0.28            |
| t-value  | 0.279                                  | 1.512          | 0.288          | 0.679          | 1.146          | 1.404          | 1.152          | 1.902          | 0.740          | 0.784           | 1.409           | 1.829           | 1.132           |

<sup>a</sup>Only one variable in the Employee sample was significantly different at the 0.05 level, variable #13. There were no variables in the Principal sample whose means were significantly different at the 0.05 level.

- <sup>b</sup>Satisfaction Measure, Personal
- <sup>c</sup>Satisfaction Measure, Occupational
- <sup>d</sup>Success Measure, Occupational
- <sup>e</sup>Success Measure, Personal
- <sup>f</sup>Variance Preference, Own Money
- <sup>g</sup>Variance Preference, Agency Money
- <sup>h</sup>TAFR, Personal
- <sup>i</sup>TAFR, Occupational
- <sup>j</sup>TSD
- <sup>k</sup>Risk Index, Own Money
- <sup>l</sup>Probability Index, Own Money
- <sup>m</sup>Risk Index, Agency Money
- <sup>n</sup>Probability Index, Agency Money

TABLE 3 (Continued)

| Variable <sup>a</sup> | 1 <sup>b</sup>                                   | 2 <sup>c</sup> | 3 <sup>d</sup> | 4 <sup>e</sup> | 5 <sup>f</sup> | 6 <sup>g</sup> | 7 <sup>h</sup> | 8 <sup>i</sup> | 9 <sup>j</sup> | 10 <sup>k</sup> | 11 <sup>l</sup> | 12 <sup>m</sup> | 13 <sup>n</sup> |
|-----------------------|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
|                       | <u>Employees, Sample #1 (n = 65)<sup>o</sup></u> |                |                |                |                |                |                |                |                |                 |                 |                 |                 |
| Mean                  | 5.52   | 5.09           | 5.06           | 5.24           | 2.46           | 2.62           | 2.49           | 2.26           | 3.05           | 2.84            | 2.75            | 2.66            | 2.44            |
|                       | 1.22   | 1.31           | 0.97           | 1.07           | 1.19           | 1.43           | 2.38           | 2.36           | 0.81           | 1.56            | 1.76            | 1.65            | 1.63            |
|                       | <u>Employees, Sample #2 (n = 46)</u>             |                |                |                |                |                |                |                |                |                 |                 |                 |                 |
| Mean                  | 5.37   | 4.96           | 4.98           | 5.28           | 2.74           | 2.70           | 2.57           | 2.26           | 3.02           | 2.87            | 2.93            | 2.82            | 3.17            |
|                       | 1.19   | 1.28           | 1.12           | 1.12           | 1.26           | 1.41           | 2.22           | 2.27           | 0.67           | 1.42            | 1.59            | 1.53            | 1.82            |
| Δ Mean                | 0.15   | 0.13           | 0.08           | .05            | 0.28           | 0.08           | 0.08           | 0.00           | 0.03           | 0.03            | 0.18            | 0.16            | 0.73            |
| t-value               | 0.639  | 0.515          | 0.396          | 0.405          | 1.181          | 0.289          | 0.178          | 0.00           | 0.204          | 0.103           | 0.547           | 0.514           | 2.194           |

<sup>o</sup>Employees were not asked to evaluate the success of their agencies.

of 3.00, representing a 50/50 probability of winning. The first group was 0.56 below this level (2.44) and the second group was 0.17 higher than 3.00 (3.17). This qualitative difference was exhibited by the principals (2.88 and 3.16), but not significantly. This evidence does not indicate a conclusion that the samples are not representative of the population, since all other variables are not statistically different.

The return rate for the principals was 20.6%, for a total of 206. The return rate for the employees was 11.1%, for a total of 111. It was expected that supervisor pressure might contribute to a greater return rate for the employees than for the principals. Such was not the case.

In designing the survey, the question of sample size, hence response rate, was considered to be an important factor. The problem of non-response bias becomes less important as sample size increases, thereby minimizing non-response bias and providing clear results.

The questionnaire deals with much sensitive information, such as salary, age, and personal traits, with which respondents might not want to be identified. For this reason, questionnaires were mailed on an anonymous basis in an attempt to maximize response rate. It was not possible, therefore, to identify those individuals who did not respond, thus preventing a follow-up survey of non-respondents.

In order to compensate for this, the questionnaires were mailed in two groups, as has been explained, to show that those who did respond were representative of the entire population. For the purposes of this study, given the constraints of an anonymous survey, this technique is sufficient.

Tests for significance are carried out using the parametric t-test. The size of the samples analyzed was sufficient to enable the use of the non-parametric t-test. If  $n_1$  and  $n_2$  had both been less than 30 and the data were non-normal, a non-parametric test (i.e., the Chi-square) would be appropriate and would be considered the "exact test." However, in this study, whenever the difference between two sample correlation coefficients (calculated by the Fisher z'-transformation) is examined, both  $n_1$  and  $n_2$  are much greater than 30.<sup>2</sup> Therefore, the form of the distribution of the original data, which can be assumed to be normal, indicates that the t-test for significance can be considered appropriate.

#### Description of the Instrument

The data in this study are gathered by use of the survey technique. The type of question used is forced response, or multiple choice, which allows respondents to indicate easily the information required of them. There are possibly two problems that may be encountered in this type of questions: 1) data must be divided into groups for which range of responses is strategically determined, and

2) there must be the facility to indicate any possible response in the given answers from which subjects may choose. The terms continuous and exhaustive have been used most frequently to describe these two requirements.

The questions in the instrument used here (see Appendix A) satisfy both of these requirements. The possible responses are continuous, and in each question the choices range from infinity in the direction of negativity to infinity in the direction of positivity, with the range subdivided into specific groups. This ensures that there always is a possible choice to be made by the respondents no matter what their preference may be.

The size of the intervals from choice to choice in a given question has been determined by assessment of the nature of the question and the expected maximum and minimum values to be found in the sample. Experience, inquiries, and common sense indicated the ranges to be chosen for the choices for any given question; the data gathered indicated that the ranges were chosen appropriately.

The desire to compare the two groups of individuals performing the tasks of employment work in role, the principals of the agencies and the employees in the agencies, required that two questionnaires be prepared because there are some inherent differences in the two roles. They involve minor wording differences as in question #14, which involves the perceived assessment of the effect of the

individual's performance in the employee questionnaire and the effect of market trends in the principal's questionnaire. The intent of the question in both cases is to obtain an indicator of the length of time the individual might look ahead in his role; the effect is the same in both cases. Question #12 in the employee questionnaire and question #15 in the principal questionnaire essentially are the same, involving the frequency of evaluation of performance, but the wording is somewhat different, as is the case in question #14.

Question #12 in the principal questionnaire is peculiar to that questionnaire as it involves evaluation of the agency' financial position by means of financial statements, a function of the principal. Question #15 of the employee questionnaire is concerned with the preferred frequency of evaluation of the employee by a superior and is peculiar to the employee questionnaire. This question is not included in the principal questionnaires as such because questions #12 and #14 will indicate this preference indirectly without the question being brought to the attention of the principal directly. This avoids some redundancy in the questionnaire. The remaining questions in the instruments essentially are the same as the information sought is common to both groups. (For a more detailed analysis of the questions, see Appendix B.)



Calculation of the Indices for Time Span  
and Risk Propensity

The questionnaire includes seven questions related to the notion of time span (questions #9-15). To calculate an acceptable measure of time span, the average of the responses to these questions for each individual in the sample is used. Since these questions are concerned with different approaches to the measurement of time span, the value calculated for the time-span index for each subject is expected to be a good approximation of that individual's perceived notion of his optimum time span in role.

The risk measures are more complicated and require more intricate analysis. As described in Chapter II, there are many techniques that have been used in the past to measure risk propensity. One of those used here concerns the measurement of utility, which has been proven to be related closely to risk.

To determine comparative indicator of utility among subjects, it is necessary to determine the point at which the individual enters into the portion of his utility curve that is indicative of a turning away from risk or becoming risk averse. For example, an individual might be willing to accept a relatively low probability of success in a venture that involves amounts of money of low magnitude. As the amount of risk increases, he or she would be expected to demand a higher probability of success

in the venture. If an arbitrary point is consistently used in all cases as a benchmark point against which all responses are measured, noting the amount at risk beyond this point, the point in dollars at which the individual becomes risk averse can be determined, giving an indication of his utility. (The point chosen for this study is 4/6 probability, since it is indicated that there should exist a preference for intermediate probability. It is clear that an individual will deviate from this preference only in the presence of another factor, his aversion for risk when large sums of money are involved.)

The trade-off here between a preference for intermediate probability (3/6 or a 50/50 chance) and the amount at risk shows us where the effect of probability preference is overcome by aversion to risk involving increasing sums of money. If the point at which the subjects become more sensitive to risk can be identified, an indication of their utility for risk can be approximated.

The technique then will be to determine the point at which an individual requires at least 4/6 probability of success as the amount of risk increases (questions #22-26, employees and questions #23-27, principals). This point will be determined for both personal risk when the individual's money is involved in the probability preference questions and his or her occupational risk when the agency's money is involved in the probability preference questions.

This tendency has been demonstrated by Swalm, and is represented graphically by the gradual flattening of an individual's utility function past some monetary level.<sup>3</sup> Swalm indicates that this point is related closely to an individual's "planning horizon," that is, the largest single amount of money he or she would recommend be spent by his or her firm.

There are several special situations that require explanation. If an individual will not accept any risk in the questions, that is, 6/6 probability is required for all ventures given, he or she is considered extremely risk averse and will receive a score of zero, indicating a very low utility for risk. If, on the other hand, the individual indicates that he or she would prefer probabilities less than 4/6 for all ventures, he or she is considered to have a very high utility for risk and will be scored with a 7. The other possibilities, 1 through 6, will be indicated according to the number of the question to which the individual responds with the preferred probability of at least 4/6 for the first time in the series of questions. If he or she first indicates a preference of 4/6 or higher in the questions--an expected value of \$1,000--the utility score will 4, since this is the fourth question in the series on probability preferences. This point calculated for both personal and occupational roles will be referred to as the personal turn-away-from-risk

point and the occupational turn-away-from-risk point (TAFR). (See discussion, pp. 79-80.)

There are four more indices to be calculated from the series of questions involving probability preferences: questions #22-26, employees and #23-27, principals; risk indices, personal and occupational, and the probability indices, personal and occupational. The probability indices will be calculated as the average of the responses to the questions in the personal and occupational roles ranked according to the degree of adherence to the theory of probability preferences for any given question. For example, if an individual chooses response #3 for any given question, indicating preference for the probability of 3/6 for the venture, we can say that he or she is adhering to the theory of probability preferences.<sup>4</sup> For a response such as this, a score of 6 would be assigned, indicating the high degree of adherence to the theory. If the individual were to choose response #6, the largest deviance from the theory, the lowest score, 1, would be assigned to his or her adherence to the theory. The other conversion factors derived according to this process are as follows:

| <u>Indicated Response</u> | <u>Converted Score</u> |
|---------------------------|------------------------|
| 1                         | 2                      |
| 2                         | 4                      |
| 3                         | 6                      |
| 4                         | 5                      |
| 5                         | 3                      |
| 6                         | 1                      |

The index for the probability preference indicator will be calculated as the average of scores (converted) for the questions involving the probability preferences.

For example, in the employee questionnaire, if a respondent chose answer #3 for any of the questions #22-26 (3/6 probability), he or she would be scored very high (6) because an alternative was chosen that is in keeping with the theory of probability preferences (a preference for intermediate probability). If the individual chose alternative #6 (6/6 probability), he or she would be scored very low since intermediate probability was avoided. After all scores for the five questions have been determined, they will be averaged to give the probability preference index for that individual.

The risk index is somewhat more simple to calculate, although it, too, involves a conversion, which simply is a reversal of the response indicated by the individual. A choice of alternative #1, for instance, would indicate that the individual was willing to accept the alternative involving the smallest probability of success; we could consider him or her to exhibit a high utility for risk. He or she would be scored high with a 6 for that particular questions. The index then is calculated as the average of the respondent's converted scores on the probability preference questions.

The manipulation of the data in the aforementioned

manner allows the indices for the important variables involving time span, risk, variance preferences and probability preferences to be calculated. These indicators then will be correlated with the other important responses to determine the relationships and their strengths existing among the responses chosen by the subjects in the study.

TABLE 4  
 EXAMPLE CALCULATIONS FOR RISK INDICES  
 QUESTIONS 22-26 EMPLOYEES AND  
 QUESTIONS 23-27 PRINCIPALS

| Number | Stated Dollar Amount | Response Set A | Response Set B | Response Set C |
|--------|----------------------|----------------|----------------|----------------|
| 1.     | \$ 1.00              | 6              | 1              | 1              |
| 2.     | \$ 10.00             | 6              | 1              | 2              |
| 3.     | \$ 100.00            | 6              | 2              | 3              |
| 4.     | \$ 1,000.00          | 6              | 3              | 4              |
| 5.     | \$ 10,000.00         | 6              | 3              | 5              |

If an individual in Response Set A responds with all 5s or 6s, he or she is considered to be extremely risk averse, since certain or near certain probabilities for success were chosen. The score will be 0, indicating a very low utility for risk.

An individual in Response Set B whose responses all

are below 4 is considered to be willing to accept low value for probability of success and exhibit a very high utility for risk. He or she would be scored 7.

An individual in Response Set C who prefers low probability for small amounts and high probability for large amounts will at some point exceed the set 4/6 probability. This point will indicate the initial infringement on his or her planning horizon and the point where he or she is said to turn away from risk. The example given for Response Set C would receive a score of 5, since he or she turns away at the fifth alternative.

This original scoring technique is an attempt to implement directly a method for measuring the concepts of utility analysis of choices involving risk. Since these techniques have not been validated by others as they exist here, there must be some method for showing that they produce suitable results. To do this, the results from these techniques will be compared with the results of the probability preference test validated by Jaques (Chapter II). This is done through the use of significance testing of correlation coefficients of the risk measure and the probability preference measure. If there is a highly significant correlation between the two, validity will be assumed to have been established. (See Chapter IV, pp. 110-111 , for this test.)

### General Hypotheses

To explain the hypotheses to be tested by this study, Figure 4 has been included. By examining it, a clear picture of the theoretical relationships can be gained. The figure is divided into a four-segment matrix, the horizontal elements representing the measures of perceived success in the individual role and perceived success in the organizational role, respectively. The vertical elements represent the measures of the time parameter, as indicated by the time span of discretion, and the risk-propensity parameter (Chapter II), as indicated by the risk measures. The correlation coefficients between the success measures and the time span and risk measures indicate the strength of the relationship between the pairs of observation. Statistical analysis of the differences in the correlation coefficients will show which is the better predictor of success, time span or risk propensity, in both personal and occupational roles. Since this is a conceptual framework, there is no attempt to indicate which of the risk measures is implied or if there is a combination of them implied. This will be detailed in an analysis of the results.

The first hypothesis to be tested stems from the relationship involving the perception of risk in personal roles as compared to occupational roles. The question to be answered is, Is there a difference in the perception of



|                              | How long an individual is willing and/or allowed to bear risk | How much and what type of risk an individual is willing to bear |
|------------------------------|---|---|
| Success in Individual Role   | Correlation Coefficient                                       | Correlation Coefficient   |
| Success in Occupational Role | Correlation Coefficient                                       | Correlation Coefficient   |

Fig. 3. Conceptual relationships between risk and success

risk from personal to occupational roles? The general hypothesis is stated as follows:

Risk Hypothesis: There is no difference between the perception of risk in personal roles as compared to the perception of risk in occupational roles for the individuals in the sample.

Criteria: Accept the Risk Hypothesis if there is no significant difference between the two distributions as measured by the instrument (see Appendix E) at the 0.05 level.

The other general hypotheses to be tested concern a comparison of the two parameters of decision making: the time parameter and the perceived-risk parameter. It is of interest to determine which parameter is the best indicator of success in both personal and occupational roles. The question to be answered essentially is, Which is the best indicator of success in the two roles--personal and occupational--the perceived time-span measures or the perceived risk-propensity measures?

The nature of the time-span measure lends itself to the occupational role, since the time-span concept is presented in the context of that role. Its relationship to the personal success of the individuals in the sample is therefore indirect, while it is related directly to the occupational roles. It might be expected that there would be a very good predictor to be found in terms of the occupational role and perhaps a less accurate predictor of the

individual role. The risk-propensity measures can be related to both personal and occupational roles merely by changing the scope of the risk to involve direct reactions in both roles. It might be the case, then, that the risk notions would be better indicators of success in the personal roles since the relationship is direct in nature of both roles. The hypotheses to be tested are as follows:

Success Hypothesis,  
Personal:

In personal roles, the risk-propensity index provides a better indicator of success than the time-span index.

Criteria:

Accept Success Hypothesis, Personal if there is a significantly higher correlation between the risk propensity measure and success in personal roles than the correlation between the time-span measure and success in personal roles. Tests for significance at the 0.05 level.

Success Hypothesis,  
Occupational:

In occupational roles, the risk-propensity index provides a better indicator of success than the time-span index.

Criteria:

Accept Success Hypothesis, Occupational if there is a significantly higher correlation between risk-propensity measure and success in occupational roles than the correlation between time-span measure and success in occupational roles. Significance is tested at the 0.05 level.

The significance of the differences between the correlation coefficients is tested using the Fisher  $z'$ -transformation test (see Appendix D).

### The Computer Model

To analyze effectively the data from the sample in the manner desired, as described in the preceding sections, it is necessary to utilize a computer model that can accept many variables and compute the detectable correlations existing between them. There also are certain intermediate processes such as the calculation of indices to be used in the process that must be done by the computer. In general, there have been two techniques involved in this process: 1) the use of a FORTRAN program written by the author to tally data by question and response and to compute indices and 2) the use of a factor analysis model for discovering correlations between variables. The FORTRAN programs perform their functions in line with the processes described in the text.

The raw data and the indices then are used as input for a regression and correlation model that computes a correlation matrix, giving factors for the relationships existing among the variables. The correlation matrix indicates positive or negative correlation between the variables as well as strength of the relationship.

### The Research Design for Factor Analysis

The key to the successful analysis of data in the factor analysis process is to correctly structure the data, that is, they must be in a form that allows the formation of a matrix for input to the computer program to

be used. The questionnaire form of gathering data and the indices computed by the FORTRAN programs developed for this specific purpose are suited perfectly for the factor matrix approach. If each questionnaire is considered to be a row in the matrix and each component (chosen responses and indices) is thought to be a column, the data fit nicely into a two-dimensional matrix. That matrix is used as input into the computer run and the correlation matrix is formed. Also, the mean and standard deviation of each column are calculated and included in the output.

#### Evaluation of Results

With the data given by the factor analysis run-- correlation matrix, standard deviation, and means of the individual components of the research tool--it is possible to detect any relationships between them and make certain statements and conclusions about the sample from which the data were obtained and, in turn, the population of independent property-liability agency principals and the chosen employees. The results given by this model enable the hypotheses in the study to be tested, and they provide information for predictive purpose in line with the major objectives of the study.

### Footnotes

<sup>1</sup>Charles T. Clark and Lawrence L. Schkade, Statistical Analysis for Administrative Decisions (Cincinnati, Ohio: Southwestern Publishing Co., 1974), pp. 852-859.

<sup>2</sup>William L. Hays and Robert L. Winkler, Statistics: Probability, Inference, and Decision (New York: Holt, Rinehart and Winston, Inc., 1970), pp. 339-349.

<sup>3</sup>Ralph O. Swalm, "Utility Theory: Insights into Risk-Taking," Harvard Business Review, XLVII, No. 6 (November-December 1966), 123-136.

<sup>4</sup>John W. Atkinson, "Motivational Determinants of Risk Taking Behavior," in A Theory of Achievement Motivation (New York: John Wiley & Sons, Inc., 1966), pp. 359-372.

## CHAPTER IV

### RESULTS AND CONCLUSIONS

The results and conclusions of this study are presented in the following order. First, it is necessary to validate the author's method for calculating the risk index (RI). This is done in terms of Atkinson's probability preference index (PI). The correlation coefficients between the RI and the PI are tested for statistically significant difference.

The second step in the process is to test the major hypotheses using validated measuring techniques. Finally, the questionnaire response data are presented to complete the statistical picture of the two sample groups.

#### Validation of the Risk Index Measure

As explained in Chapter II, the risk index is an original technique, developed by the author, to implement the utility concept in a process that gives a measure of risk in terms of an individual's psychological assessment of risk (subjective risk).

To validate this measure, it is compared to results obtained from the same samples as measured by the

implementation of Atkinson's theory of probability preferences. If a statistically significant correlation can be shown to exist between the two, the author's risk-measurement device will have been validated. Table 5 shows the results of this comparison. As shown in Table 5

TABLE 5  
CORRELATION COEFFICIENTS FOR VALIDATION  
OF RISK INDEX (Significant at  
the .001 Level)

| Risk Index                     | Probability Preference Index |
|--------------------------------|------------------------------|
| Principals (personal life)     | .89270                       |
| Principals (occupational life) | .89954                       |
| Employees (personal life)      | .90740                       |
| Employees (occupational life)  | .89157                       |

and the calculations for the testing of significance of the correlation, the correlation between the risk index and the probability preference index is significant beyond the 0.001 level. This proves that the risk index used in this study is a valid risk-measuring technique (Appendix E).

Analysis of the Correlation Matrix  
and Testing of the Hypotheses

Previously, three pairs of hypotheses were presented as the main areas of concern in this study. The first pair



involved the perception of risk in personal and occupational roles, while the other two were concerned with the best indicators of success in the two types of roles, personal and occupational. Using data already presented (text and Appendix C) and the computations in Table 1 and Appendix D, tests of the success hypotheses can be made. The hypotheses were stated as follows:

**Risk Hypothesis:** There is no difference between the perception of risk in personal roles as compared to the perception of risk in occupational roles for the individuals in the sample.

**Criteria:** Accept the Risk Hypothesis if there is no significant difference between the two distributions as measured by the instrument. Reject Risk Hypothesis if there is a difference between the two distributions as measured by the instrument. Significance is tested at the 0.05 level.

**Success Hypothesis, Personal:** In personal roles, the risk-propensity index provides a better indicator of success than the time-span index.

**Criteria:** Accept Success Hypothesis, Personal if there is a significantly higher correlation between the risk-propensity index and success in personal roles than the correlation between the time-span index and success in personal roles.

**Success Hypothesis, Occupational:** In occupational roles, the risk-propensity index is a better indicator of success than the time-span index.

## Criteria:

Accept the Success Hypothesis, Occupational if there is a significantly higher correlation between the time-span index and the perceived occupational success measure than between the risk-propensity index and the measure of perceived success in occupational roles. Reject the Success Hypothesis, Occupational if there is a higher correlation between the risk-propensity index and the perceived occupational success measure than between the time-span index and the measures of perceived occupational success. Significance is tested at the 0.05 level.

To test the risk hypotheses, the means of the two distributions of the two groups will be tested to see if there is a significant difference between the perceived risk in personal roles and the perceived risk in occupational roles. The technique to be used is the analysis involving the t-distribution, since the sample means are now known.<sup>1</sup>

The relevant data are as follows:

|           | <u>Personal Roles</u> | <u>Occupational Roles</u> |  |
|-----------|-----------------------|---------------------------|--|
| Principal | $n_1 = 206$           | $n_2 = 206$               | Level of significance equals 0.05 for both tests |
|           | $\bar{x}_1 = 3.13$    | $\bar{x}_2 = 2.89$        |  |
|           | $\sigma_1 = 1.54$     | $\sigma_2 = 1.56$         |  |
| Employees | $n_1 = 111$           | $n_2 = 111$               |  |
|           | $\bar{x}_1 = 2.85$    | $\bar{x}_2 = 2.72$        |  |
|           | $\sigma_1 = 1.51$     | $\sigma_2 = 1.61$         |  |

Criteria: For principals, if the calculated t value

is greater than 1.960 (0.05 level of significance for infinite degrees of freedom), reject the Risk Hypothesis, (Principals) and reject the Risk Hypothesis (Employees), observing that there is a significant difference at the 0.05 level. Otherwise, accept the Risk Hypothesis, (Principals) and accept the Risk Hypothesis (Employees), concluding that there is no significant difference.

The calculated  $t$  values were as follows:

Principals:  $t = 1.568$ , so accept the Risk Hypothesis (Principals), observing that there is no significant difference at the 0.05 level.

Employees:  $t = 0.618$ , so accept the Risk Hypothesis (Employees), observing that there is not a difference that is significant at the 0.05 level. (See Appendix E for calculations.)

This finding seems to contradict one of the currently held beliefs about risk-handling behavior. Most authorities on the subject of risk believe that there is indeed a difference in the handling of risk on the individual level, from personal to occupational roles, and that most people are more conservative with other people's money. Why, then, does the contradiction exist between the findings of this study and the current literature. Perhaps it is due to the fact that people generally deal with more money in their occupational role than they do in their personal role. So the perception of risk does not vary, just the amounts of

capital dealt with. It would be interesting to test to see if persons who deal with similar amounts of capital in both roles differ in their risk perception from role to role, all else being held constant. It is the belief of the author that they would not. This finding also supports further use of the risk measure by indicating that it could be used in personal or occupational roles as a technique for individual role assessment.

The results of the hypothesis tests for significant difference between the perception of risk from occupational roles to personal roles show that neither principals nor employees see a significant difference at the 0.05 level.

To determine the validity of the other two sets of hypotheses, the correlation data obtained from the correlation matrix must be used. It is important to observe the values of the correlation coefficients between risk and time span in respect to the success measure. Tests for significant differences between the correlation coefficients utilize the Fisher  $z'$ -transformation. (See Appendix D for formulas used in the process and the actual computation.)

The Success Hypothesis, Personal is concerned with personal roles. Noting the correlation coefficients for the principals group for success in personal roles and the time-span index and risk index, it is clear that the

time-span index (.96014) is more closely correlated with success than is the risk index (.86475). The same is true for the employees group, where the correlation coefficients for success versus the time-span index and the risk index are .96020 and .86847, respectively. Therefore, we must reject the Success Hypothesis, Personal, since the time-span measure provides a stronger relationship with the personal success measure. This difference is significant beyond the .001 level for infinite degrees of freedom.

The Success Hypothesis, Occupational is concerned with the relationship in occupational roles of risk and time span with perceived success. To test the hypothesis, the figures from the correlation matrix are used again, but for the occupational roles (see Appendix D). Examination shows that for the principals group the time-span index value (.96927) again is more closely related to the success measure than the risk index (.85966); for the employees group the correlation coefficients for success versus the time-span index and the risk index are .95834 and .83553, respectively. Therefore, the Success Hypothesis, Occupational must be rejected since the time-span measure is more closely correlated with success than is the risk-propensity index. This difference also is significant beyond the .001 level for infinite degrees of freedom.

This conclusion supports the hypothesis of Jaques that time span of discretion is a viable measure of level of work in role. It is indeed a better indicator of success than the risk measures studied here. The implications of such an occurrence, discussed earlier, seem to be supported. This finding, since it is so significant (beyond the 0.001 level), is deemed the major finding of the study.

Analysis of the Indices  
(See Appendix C)

The turn-away-from-risk index (TAFR) indicates the monetary point at which the individual begins to gain Subjective Expected Utility (SEU) in a decreasingly marginal sense as the amount at risk increases. This is the utility test discussed previously, and the TAFR point is that point in each individual's utility curve when the amount at risk becomes more important than the probabilities involved. The dividing point for this study is choice #4 in the questionnaire. The individual begins to choose alternatives exhibiting less inherent risk according to the rule of risk management, which states that an individual should not risk more than he or she can afford to lose. The results were as follows:

| <u>Employee</u> n = 111 |           | <u>Principal</u> n = 206 |           |
|-------------------------|-----------|--------------------------|-----------|
|                         | $\bar{x}$ |                          | $\bar{x}$ |
| Own Money               | 2.52      | Own Money                | 2.96      |
| Agency Money            | 2.26      | Agency Money             | 2.60      |

As expected, the principals turned away from risk at higher points than did the employees, indicating a higher utility for risk among the individuals in the principals sample.

When the results within each group are compared considering agency money versus own money, we find that both groups turned away from risk at higher points with their own money than with their agency's money. This seems to indicate that the individuals in the samples exhibit more utility for risk with their own money than with their agency's money. This difference is not significant at any powerful level, so no absolute conclusions can be made based on the data. However, this finding is supported by the data on variance preferences (questions #21 and #22) for the principals sample. The variance preferences data for the employee sample seem to indicate some contradiction to the TAFR data, since the variance preference measure for the employees indicates a preference for more variance when shifting from the personal role to the occupational role (2.58 to 2.64). But none of these figures is significant; therefore, no valid claim based on these data can be made to support an argument for discrediting the approaches used to calculate the variance preference measure or the TAFR measure. If the differences had proved to be statistically significant, there would be a basis for question; since significance does not exist,

any conclusion either way would be unsupported by these data.

Time-Span Index, Variable 45 (mean of questions #9-15). As with all the indices, the time-span measure showed a larger value for the principals than for the employees. The mean for the employees was 3.04, and for the principals it was 3.38. This implies that the perceived time span of discretion for principals is longer than that for employees.

Risk Index, Variables 46 and 48. Although the risk index differences are not significant, they do support the argument that the variance preference measure (questions #21 and #22) indicates valid results as far as utility for risk is concerned. The variance preference measure indicated a decrease in the utility for risk when moving from one's own money to the agency's money. The risk index did the same. Even though the data are not significant at any powerful level, the variance preference measure provides further validation of the risk index.

| <u>Employees</u> |      | <u>Principals</u> |      |
|------------------|------|-------------------|------|
| Own Money        | 2.85 | Own Money         | 3.13 |
| Agency Money     | 2.72 | Agency Money      | 2.89 |

This index supports the above findings that individuals are less prone to risk with the agency's money than with their own.

Probability Preference Index, Variables 47 and 49.  
Both groups seemed to prefer intermediate probability in



their choices involving risk. On the average, the principals were aligned more closely with the theory of probability preferences than were the employees, as was expected. In fact, the mean response was exactly 3.00 for choices involving agency money, which is the preference indicating the exact probability of 3/6 in the survey. Mean responses were slightly higher in choices involving individuals' own money, 3.16, but even this was closer to 3.00 than either of the two responses of the employees.

| <u>Employees</u> |      | <u>Principals</u> |      |
|------------------|------|-------------------|------|
| Own Money        | 2.82 | Own Money         | 3.16 |
| Agency Money     | 2.74 | Agency Money      | 3.00 |

#### Analysis of Questionnaire Response Data

The data on which these comments are based appear in Appendix C. These comments compare the data.

Question #1: Age. As might be expected, the mean age of the principals is older than that of the employees (45.2 years vs. 40 years). The standard deviation is larger for the employees, indicating more dispersion in that group. This is supported by calculated  $\bar{x}$  for each sample (0.25 and 0.31, respectively). Thus, the ages of the employees are more widely spread. This is reasonable since one would not expect a very young person to be a principal, but he or she may well be an employee. There is high correlation between age and personal risk (0.84) and occupational risk (0.82).

Question #2: Attained Level of Education. The largest percentage of employees (45.0) graduated from high school but did not attend college. The next two largest groups (27.0% and 21.6%) had some college experience or received a college degree. In the principal group, a majority (52.4%) had graduated from college and only 14.0% had not attended college at all. In fact, 7.3% of the principals had earned a graduate degree, compared with only 1.8% of the employees. It is reasonable to conclude that the principals are better educated than the employees.

Question #3: Sex. The greatest difference between employees and principals in the study is found here. In the employees group, the percentage of males is 27.0; in the principals groups, the percentage of males is 94.6. The existence of this difference, combined with its magnitude, is indicative of role prescriptions for males and females in this society. It is not the intent of this study to rationalize or villify this imbalance, which seems to be changing with respect to women. It generally is accepted that a difference exists between men and women in risk-taking behavior, with women being more conservative. This could account for detected differences in risk handling to some degree, since some bias will result from this imbalance in the composition of the groups. Because the employee group is composed primarily of women, the

sample should exhibit more risk aversion.

Question #4: Professional Designations Earned. The large majority of employees (83.8%) indicated they had not earned any professional designation at all. This is expected, because they were selected as being in a so-called terminal position and not likely to advance beyond their present position. There would be little motivation for such an employee to seek a professional designation. The surprising fact is that almost the same percentage of principals (80%) have not earned a professional designation either. In fact, only 6.3% of the sample had earned the CPCU designation. This is unexpected because of the close parallel between the knowledge gained by taking the CPCU course and the role of the agency principal in the independent insurance agency. It will be interesting to see if a detectable trend develops toward a higher percentage as the professionalism of the industry advances.

Question #5: Current Compensation from Occupation. The mean compensation level of the principals, including salary and fringe benefits (\$33,000), is about 2.5 times that of the employees (\$13,600). While it is to be expected that the principal would enjoy a higher level of compensation, the difference is rather dramatic. It should be noted that the majority of employees (84.7%) are in the \$20,000 to \$39,999 income bracket. No employees earn more than \$60,000, while nearly 10% of the principals do.

Question #6: Current Total Income. The response to this question indicates that 8.5% of the principals' total income is from sources other than employment. The figure for the employees is higher (11.7%), which could be due to the imbalance between the total compensation for the two groups. It appears that the employees go elsewhere to seek extra income to meet the demands of today's economy. It also indicates an inherent difference in the motivation or ability of employees and principals to make money outside their occupation. The measures of personal risk propensity give valuable information about this relationship, as the correlation between the income measures and the risk index are significantly high.

Question #7: Compensation Five Years Ago. There is a sharp difference in the percentage increase in the level of compensation from occupations between the two groups. The level of compensation for principals increased 61% over the past five-year period while that of employees increased only 27%. If we assume a rate of inflation of 10% per year, the employees lost 34% buying power (10% inflation for 5 years = 61% price increase with 27% increase in compensation:  $61\% - 27\% = 34\%$ ). The principals were able to match exactly the rate of inflation by salary increases (61% compensation increase - 61% inflation = 0.0% decrease). The following question explains what the employees did about the disparity between increases in

income from occupation and rate of inflation.

Question #8: Total Income Five Years Ago. The figures show that the rate of increase in total income for both groups was 40%. With the difference between the two groups in level of compensation, this indicates that employees were very successfully involved in supplementing their occupational role income. This has implications for the principals of the agencies employing these people. Their employees are underemployed, that is, they have excess capacity that they are willing and able to tap to maintain the life style to which they have become accustomed. Whether or not this capacity could be utilized within the occupational role is a question beyond the scope of this study.

Question #9: Length of Time in Current Position. As the age difference and reason suggest, the mean length of time in position was found to be higher for principals (11.25 years) than for employees (7.83 years). The greatest difference to be noted was in the under five-year groups to which 45.9% of employees and only 28.6% of principals belonged.

Question #10: Types of Decisions Faced in Employment. The data indicate that the principals were accustomed to making more high-level decisions in their role, tending to support the theory that ambiguity in role increases as one moves up the corporate ladder. It is interesting to note,

however, that there is a relatively high percentage of employees (25.2%) who face decisions involving all phases of agency operation. This seems to be inconsistent with their level of compensation in occupational role.

Not surprising is the indication that 76.2% of the principals are faced with these decisions involving all aspects of agency operation. A question that might be asked is, with what are the other 23.8% involved? It can be assumed that in large agencies there are subordinates who can handle those decisions of lesser ambiguity, enabling the principals to concern themselves with upper-level management decisions. But a total of 10.2% of the principals indicated that they faced only the decisions of lower ambiguity. A small group (1.5%) indicated that they made no decisions at all.

Of the employee group, the largest percentage (43.2) indicated that they faced day-to-day decisions; the third largest percentage (20.7) indicated that they were concerned chiefly with supervisory decisions.

Question #11: Planning Horizon. The mean magnitudes of the decisions made by the two groups were significantly different, the employees indicating a figure of \$25,280 and the principals indicating a figure of \$75,465. This is not unusual and would be expected. The implication is that because of this the employees would feel more comfortable handling small amounts of capital, and the principals would

be more comfortable handling larger amounts. This relationship is indicated in the risk-propensity measures.

Question #12: Frequency of Agency Evaluation by Means of Profit and Loss Statement or Balance Sheet.\* More than 68% of the principals indicated that they performed this action monthly. Owing to the distribution of the data, the indication is that the frequency of evaluation is between monthly and quarterly.

Question #13: Length of Time to Train a Subordinate to Perform the Duties of Your Position. As would be expected, the periods required for the two groups differed, with the principals indicating a longer period required (between 6 months and 1 year) and the employees indicating a shorter time (between 3 and 6 months).

Question #14: Principals--Anticipation of Market Trends; Employees--Anticipation of Effects of Performance.\*\*

The largest percentages in both groups indicated that the period they chose was one year. The mean for the employees fell between 3 and 6 months; for the principals the mean fell between 6 months and 1 year.

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\*This question is particular to the principals' questionnaire.

\*\*These questions, while not identical, were designed to measure approximately the same concept but in different spheres. Since market trends are largely affected by the collective individual performances of its component groups, it can be reasoned that the questions essentially are the same.

Question #15: Frequency of Review by Superior. The data indicated that the employee group preferred more frequent review than did the principals. On the average, the employees preferred to be evaluated on a 3-to-6-months basis, while the majority (69.9%) of principals are never evaluated. These figures indicate that there is considerable difference between the time spans of discretion of the two groups, the principals indicating a much longer time span than the employees. This is in line with the assumptions indicated by the literature.

Question #16: Employees--Preferred Frequency of Review. The data indicate that on the average the employees would prefer to be evaluated on a 3-to-6-months basis rather than monthly, suggesting that they perceive their level of work as being higher than their employers perceive it to be. As was explained in the preceding chapters, this could create dissatisfaction, which should be indicated in the questions concerning satisfaction.

Question #17: Satisfaction in Personal Life. There is very little difference in the means of the two groups in response to this question: (5.46 employees; 5.40 principals). If any difference is to be considered, one must conclude that the employees are somewhat more satisfied than the principals. There is some difference in the standard deviations of the two groups, with the principals exhibiting more dispersion than the employees. This can



be explained by the inherent difference in the effects of the roles on personal life. The employees as a group have exhibited more financial success, percentage wise, over the past five years, and individual differences could lend themselves to the variance in dispersion. It should be noted that while none of the employees indicated total dissatisfaction with their personal life, 3.9% of the principals indicated this feeling.

Question #18: Success in Occupation. There is some difference between the two groups in the means of the responses to this question (5.03 employees; 5.05 principals). But when considering the individual alternatives there are more employees (34.2%) than principals (8.7%) whose perception of their success falls in the first three categories. There were no employees who indicated they felt themselves to be Very Successful in response to this question, while 8.3% of the principals did.

Question #19: Employees; Question #20: Principals: Success in Personal Life. The employees indicated higher levels of success in personal life than did the principals, which can also be attributed to a comparison by the employees between their personal lives and their occupational lives. In personal issues, they are not faced with the restrictions of occupational life and, thus, are able to use more discretion. This could lead to a higher perception of success in personal life and might indicate

that there is too much structure in the average on-the-job setting, which related to the exercise of discretion in role.

In separately comparing the two groups regarding perceived success and satisfaction, the employees indicated they were more successful and more satisfied with their personal lives than with their occupational lives.

#### Employees

##### Success:

|              |      |
|--------------|------|
| Personal     | 5.28 |
| Occupational | 5.03 |

##### Satisfaction:

|              |      |
|--------------|------|
| Personal     | 5.46 |
| Occupational | 5.04 |

The principals indicated similar opinions, being more satisfied with and successful in their personal lives. Their highest perceived notion of success was with their agency.

#### Principals

##### Success:

|              |      |
|--------------|------|
| Personal     | 5.16 |
| Occupational | 5.06 |
| Agency       | 5.21 |

##### Satisfaction:

|              |      |
|--------------|------|
| Personal:    | 5.40 |
| Occupational | 5.13 |

Question #21: Variance Preference, Own Money. The principals, in accordance with the theory of variance preference and utility for risk, exhibited a preference for more variance with their own money than did the employees. The mean for employees was 2.58; for principals it was 3.13. The largest percentage of principals (35.4) chose the

alternative with \$100.00 as the amount at risk.

Question #22: Variance Preference, Agency's Money.

The principals again exhibited a preference for more variance than did the employees. The mean for employees was found to be 2.64; for principals it was 3.03. The largest percentage of principals also chose the alternative with \$1,000 at risk, but the largest percentage of employees chose the lowest amount possible, the alternative with \$1.00 at risk. The latter choice probably is due to the fact that the principals were now using agency money, as this is the only difference between the questions.

This apparent shift by several individuals in the sample was not substantial enough to offset the trend of the group as a whole. In shifting from their own money to agency money, the data indicate an increase in the utility for risk as evidenced by the shift to a preference for more variance on the average (from 2.58 to 2.65). This difference is not significant at the 0.05 level. Such was not the case with the principals, whose mean response for the question was 3.13 with their own money and 3.03 with agency money. Principals preferred less variance when using the agency's money than when using their own money, which seems to indicate a higher utility for risk with their own money. This difference is not significant and cannot be construed to support a claim that such a difference exists.

### Further Analysis of the Correlation Matrix

Aside from the data pertaining to the hypotheses tested in this study, there is much useful information to be gained from the correlation matrix that has been generated. The computer model used for data analysis enabled the relatively easy production of correlation coefficients for every variable with every other variable. In all, 2,352 coefficients were generated among the variables.

Many of these variables measure the same things, however, as demonstrated by the factor coefficients. Thus, analysis of the correlation matrix is accomplished easily by identifying those variables that are not essential to discussion. For instance, the time span of discretion measure (TSD) is calculated from questions #9-15. The risk index (RI) and the probability preference index (PI) are calculated from questions #23-42. Since the data in questions #9-15 and #23-42 are used elsewhere, it is not necessary to evaluate them in detail. Analysis of the matrix, however, should involve the variables concerned with age, education, compensation, satisfaction, success, and the indices for measuring risk (RI), probability preference (PI), variance preference (VAR), and the turn-away-from-risk point (TAFR). These correlation coefficients are given in Table 2; the entire correlation matrix is given in Appendix C.

Aside from the data in the correlation model that apply directly to the main hypotheses tested, there is much useful information presented concerning the relationships among the variables. From these additional data, several questions that might occur can be answered. Among them, for example, are questions relating to the relationship between age and time span of discretion or between age and success. It is important to note that all of the correlation coefficients discussed here are statistically significant because of the relatively large sample sizes. Consequently, this discussion must be assessed in terms of relative strength of the correlations rather than their statistical significance. Even so, the relationships are interesting.

To further analyze the correlation matrix (see Table 2), the correlation coefficients between age, education, compensation, and satisfaction and the indices calculated for the risk measures are examined. Age appears to be highly correlated with time span and success, while being less highly correlated with the risk indices, probability indices, and variance preference indices. The variable lowest correlated with age is the turn-away-from-risk point, which is to be expected because the TAFR measure should exhibit a tendency toward intermediate risk for the highly successful individuals.

The correlations with the education variable are very

similar to those with the age variable, with time span and success being highly correlated with education. The correlations between education and risk measure, probability preference measure, and variance measure are lower than with TSD and success. Again, the correlation between education and TAFR also is the lowest of the indices examined.

The compensation variables were highly correlated with the TSD and Success, as would be expected, but they are not as highly correlated with the risk measure as are the age and education variables. Compensation seems to be more highly correlated with the variance preference measure than with the risk measure. The TAFR measure was again the lowest correlated variable with the compensation variable.

The satisfaction measure seems to be highly correlated with TSD and Success, as would be expected, and the correlation between these variables is very high. An interesting observation is that the satisfaction in occupational roles is very highly correlated with the variance preference measure for occupational roles. This might lead to the conclusion that variance in terms of the Coombs and Pruitt model is a highly important factor in job-related satisfaction, thereby supporting their findings.

While no concrete conclusions that are statistically significant as to the strength of the correlations can be

drawn from this discussion, the data presented here do give additional information about the sample and the risk measures involved in the study. No major contradiction of any theory is evident from these data, but there is some support given to the pertinent theories.

### Summary of Results

There are two major observations and two major conclusions indicated by the results of the data analysis in this study.

#### Observation 1: Composition of the Sample Groupings.

The employee group was composed mostly of females and the principal group mostly of males. It is expected that this imbalance will begin to even out as women assume a more prominent place as business persons in society.

This has happened in many other industries, and there is no reason it should not happen in the insurance industry.

#### Observation 2: The Trend of Employees to Supplement Occupational Income.

The data suggest that in the past five years many persons employed in the agencies studied seek to supplement their level of compensation, which can lead to outside endeavors from which they have successfully earned needed extra income. In fact, the employees have been far more successful, percentage wise, in supplementing their income than have the principals, implying that there is extra capacity available to the agencies from their own

employees for which they could be rewarded while performing a service to the employing organization.

The fact that these employees feel they can seek additional compensation implies they are somewhat under-employed in their occupational role. This implication is supported by the data on occupational satisfaction among the employee group (Employee question #17:  $\bar{x} = 5.04$ ; Principal questions #17:  $\bar{x} = 5.13$ ).

Conclusion 1: Perception of Risk Seemingly Unvariable from Personal to Occupational Roles. The findings of this study indicated that the perception of risk does not vary greatly from personal roles to occupational roles. A difference in perception would lend itself to a difference in reaction to risk and to means of handling it, as indicated by the data obtained from the study. This was not detected at the 0.05 level.

Conclusion 2: The Better Indicator of Success in Organizational Coping. It was found, owing to the significantly higher correlation between time span and success, that the time-span index as described by the study is a better indicator of success in organizational coping than is the risk index, subject to possible problems due to non-response bias. There was no component of the risk index that was more closely correlated with success in either personal or occupational roles than the time-span measure.



### Footnotes

<sup>1</sup>For a detailed discussion of this technique, see Charles T. Clarke and Lawrence L. Schkade, Statistical Analysis for Administrative Decisions (Cincinnati, Ohio: Southwestern Publishing Co., 1974).

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APPENDIX A

COVER LETTER AND QUESTIONNAIRE

Cover Letter

Dear Agency Principal:

You are being asked to participate in a survey of risk as it relates to decision making for principals of the Independent Property-Liability Insurance Agencies in the State of Georgia.

Enclosed are two questionnaires complete with stamped, addressed envelopes for return. There is one questionnaire to be completed by you and one to be completed by an employee of your choice who has experience with your agency and has reached, for all practical purposes, a terminal position. Any employee who will not, in your estimation, advance significantly beyond his or her current position is suitable for purposes of this study.

Responses to this questionnaire will be kept confidential and no attempt will be made to identify the response of any one participant.

Please complete your questionnaire and select an employee as described above to complete the other. Then return them separately, as soon as possible, in their respective envelopes. If you wish, you will be informed of the major findings of this study.

Your cooperation will be greatly appreciated. If you have any questions, feel free to contact E. J. Leverett or me at this address.

Thank you.

Sincerely,

R. Martin Richards

E.J. Leverett or  
R. Martin Richards  
Department of Risk Management and Insurance  
College of Business  
University of Georgia  
Athens, GA 30602

Employee Questionnaire

Circle the number of your chosen response.

1. How old are you? (Circle one)
 

|                   |                      |
|-------------------|----------------------|
| 1. Under 30 years | 4. 50-59 years       |
| 2. 30-39 years    | 5. 60 years or older |
| 3. 40-49 years    |                      |
  
2. What is your attained level of education? (Circle one)
 

|                                       |                                 |
|---------------------------------------|---------------------------------|
| 1. Some high school                   | 4. Earned college degree        |
| 2. High school diploma but no college | 5. Studying for graduate degree |
| 3. Some college but no degree         | 6. Earned graduate degree       |
  
3. Are you male or female? (Circle one)
 

|         |           |
|---------|-----------|
| 1. Male | 2. Female |
|---------|-----------|
  
4. What professional designations have you earned?
 

|  |                                |
|--|--------------------------------|
| 1. None  | 4. Certified Public Accountant |
| 2. Chartered Life Underwriter                  | 5. Other (Please specify)      |
| 3. Chartered Property and Casualty Underwriter |                                |

---
  
5. What do you estimate your current compensation to be, including salary and fringe benefits such as automobile, expense account and insurance from your employment?
 

|                      |                      |
|----------------------|----------------------|
| 1. Under \$20,000    | 4. \$60,000-\$79,999 |
| 2. \$20,000-\$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or over |
  
6. What do you estimate your current total income from all sources to be, including investment income?
 

|                      |                      |
|----------------------|----------------------|
| 1. Under \$20,000    | 4. \$60,000-\$79,999 |
| 2. \$20,000-\$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or over |
  
7. What was your approximate compensation five years ago, including salary and fringe benefits such as automobile, expense account and insurance from your employment?
 

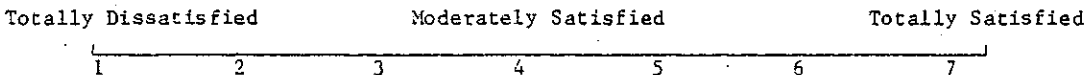
|                      |                      |
|----------------------|----------------------|
| 1. Under \$20,000    | 4. \$60,000-\$79,999 |
| 2. \$20,000-\$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or over |
  
8. What was your approximate total income from all sources five years ago, including investment income?
 

|                      |                      |
|----------------------|----------------------|
| 1. Under \$20,000    | 4. \$60,000-\$79,999 |
| 2. \$20,000-\$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or over |
  
9. How long have you held your current position?
 

|                  |                  |
|------------------|------------------|
| 1. Under 5 years | 4. 15-20 years   |
| 2. 5-10 years    | 5. 20-25 years   |
| 3. 10-15 years   | 6. over 25 years |

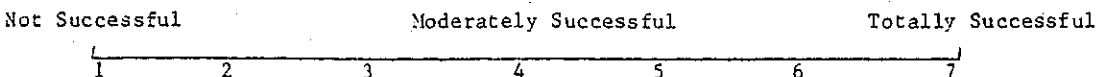
10. Which of the following best typifies the types of decisions you face in your employment?
- |                                      |   |
|--------------------------------------|---|
| 1. No decisions at all               | 4. Decisions of a financial nature                              |
| 2. Day-to-day routine decisions      | 5. Upper level management decisions (financial and supervisory) |
| 3. Decisions of a supervisory nature | 6. Decisions involving all the above                            |
11. What is the largest single decision in terms of capital outlays for the business (in dollars) that you are likely to make for the agency this year?
- |                       |                          |
|-----------------------|--------------------------|
| 1. Less than \$10,000 | 4. \$100,000-\$499,999   |
| 2. \$10,000-\$49,999  | 5. \$500,000-\$1,000,000 |
| 3. \$50,000-\$99,999  | 6. Over \$1,000,000      |
12. How often are you evaluated by your superior, in terms of the progress you are making in your overall performance?
- |            |                                |
|------------|--------------------------------|
| 1. Daily   | 4. Quarterly or Semi-annually  |
| 2. Weekly  | 5. Annually or even less often |
| 3. Monthly | 6. Never                       |
13. How long would it take you to train a subordinate to perform the duties of your position, assuming the employee to be potentially capable of performing these duties?
- |                      |                      |
|----------------------|----------------------|
| 1. One month or less | 4. One to two years  |
| 2. Three months      | 5. Two years or more |
| 3. Six months        |                      |
14. How far ahead do you try to anticipate the effects of your performance?
- |              |                     |
|--------------|---------------------|
| 1. One day   | 4. Three months     |
| 2. One week  | 5. Six months       |
| 3. One month | 6. One year or more |
15. How often would you prefer to have your performance evaluated by your superior?
- |            |                              |
|------------|------------------------------|
| 1. Daily   | 4. Every three to six months |
| 2. Weekly  | 5. Every year                |
| 3. Monthly | 6. I have no preference      |

USE THE FOLLOWING SCALE TO INDICATE YOUR RESPONSES TO QUESTIONS 16 and 17.



16. How satisfied are you with your personal life, excluding factors relating to your occupational life? 1 2 3 4 5 6 7
17. How satisfied are you with your occupational life, excluding factors relating to your personal life? 1 2 3 4 5 6 7

USE THE FOLLOWING SCALE TO INDICATE YOUR RESPONSES TO QUESTIONS 18 and 19.



18. How successful do you feel you have been in your occupation? 1 2 3 4 5 6 7
19. How successful do you feel you have been in your personal life? 1 2 3 4 5 6 7

GIVEN THE FOLLOWING ALTERNATIVES, SELECT THE ONE MOST ATTRACTIVE TO YOU, WITH YOUR OWN MONEY AT RISK AND WITH THE AGENCY'S MONEY AT RISK.

1. 50% chance of winning \$ 1.00 versus 50% chance of losing \$ 1.00
2. 50% chance of winning \$ 10.00 versus 50% chance of losing \$ 10.00
3. 50% chance of winning \$ 100.00 versus 50% chance of losing \$ 100.00
4. 50% chance of winning \$ 1000.00 versus 50% chance of losing \$ 1000.00
5. 50% chance of winning \$10,000.00 versus 50% chance of losing \$10,000.00

20. With my own money at risk, I would prefer alternative \_\_\_\_\_.

21. With the agency's money at risk, I would prefer alternative \_\_\_\_\_.

IN EACH OF THE FOLLOWING QUESTIONS, SELECT THE VENTURE THAT IS MOST ATTRACTIVE TO YOU WITH YOUR OWN MONEY AT RISK AND WITH THE AGENCY'S MONEY AT RISK.

22. For an investment of \$1.00 would you prefer:

1. 1/6 chance of winning \$6.00
2. 2/6 chance of winning \$3.00
3. 3/6 chance of winning \$2.00
4. 4/6 chance of winning \$1.50
5. 5/6 chance of winning \$1.20
6. 6/6 chance of winning \$1.00

A. With my own money at risk,  
I would prefer \_\_\_\_\_.

B. With the agency's money at risk,  
I would prefer \_\_\_\_\_.

23. For an investment of \$10.00 would you prefer:

1. 1/6 chance of winning \$60
2. 2/6 chance of winning \$30
3. 3/6 chance of winning \$20
4. 4/6 chance of winning \$15
5. 5/6 chance of winning \$12
6. 6/6 chance of winning \$10

A. With my own money at risk,  
I would prefer \_\_\_\_\_.

B. With the agency's money at risk,  
I would prefer \_\_\_\_\_.

24. For an investment of \$100 would you prefer:

1. 1/6 chance of winning \$600
2. 2/6 chance of winning \$300
3. 3/6 chance of winning \$200
4. 4/6 chance of winning \$150
5. 5/6 chance of winning \$120
6. 6/6 chance of winning \$100

A. With my own money at risk,  
I would prefer \_\_\_\_\_.

B. With the agency's money at risk,  
I would prefer \_\_\_\_\_.

25. For an investment of \$1000 would you prefer:

1. 1/6 chance of winning \$6000
2. 2/6 chance of winning \$3000
3. 3/6 chance of winning \$2000
4. 4/6 chance of winning \$1500
5. 5/6 chance of winning \$1200
6. 6/6 chance of winning \$1000

A. With my own money at risk,  
I would prefer \_\_\_\_\_.

B. With the agency's money at risk,  
I would prefer \_\_\_\_\_.

26. For an investment of \$10,000 would you prefer:

1. 1/6 chance of winning \$60,000
2. 2/6 chance of winning \$30,000
3. 3/6 chance of winning \$20,000
4. 4/6 chance of winning \$15,000
5. 5/6 chance of winning \$12,000
6. 6/6 chance of winning \$10,000

A. With my own money at risk,  
I would prefer \_\_\_\_\_.

B. With the agency's money at risk,  
I would prefer \_\_\_\_\_.

(End of Questionnaire - Thank you.)

Principal Questionnaire

Circle the number of your chosen response.

1. How old are you? (Circle one)
 

|                   |                     |
|-------------------|---------------------|
| 1. Under 30 years | 4. 50-59 years      |
| 2. 30-39 years    | 5. 60 years or over |
| 3. 40-49 years    |                     |
  
2. What is your attained level of education? (Circle one)
 

|                                       |                                 |
|---------------------------------------|---------------------------------|
| 1. Some high school                   | 4. Earned college degree        |
| 2. High school diploma but no college | 5. Studying for graduate degree |
| 3. Some college but no degree         | 6. Earned graduate degree       |
  
3. Are you male or female? (Circle one)
 

|         |           |
|---------|-----------|
| 1. Male | 2. Female |
|---------|-----------|
  
4. What professional designations have you earned?
 

|  |                                |
|--|--------------------------------|
| 1. None  | 4. Certified Public Accountant |
| 2. Chartered Life Underwriter                  | 5. Other (Please specify)      |
| 3. Chartered Property and Casualty Underwriter |                                |
  
5. What do you estimate your current compensation to be, including salary and fringe benefits such as automobile, expense account, and insurance from your employment?
 

|                      |                      |
|----------------------|----------------------|
| 1. Under \$20,000    | 4. \$60,000-\$79,999 |
| 2. \$20,000-\$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or over |
  
6. What do you estimate your current total income from all sources to be, including investment income?
 

|                      |                      |
|----------------------|----------------------|
| 1. Under \$20,000    | 4. \$60,000-\$79,999 |
| 2. \$20,000-\$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or over |
  
7. What was your approximate compensation five years ago, including salary and fringe benefits such as automobile, expense account and insurance from your employment?
 

|                      |                      |
|----------------------|----------------------|
| 1. Under \$20,000    | 4. \$60,000-\$79,999 |
| 2. \$20,000-\$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or over |
  
8. What was your approximate total income from all sources five years ago, including investment income?
 

|                      |                      |
|----------------------|----------------------|
| 1. Under \$20,000    | 4. \$60,000-\$79,999 |
| 2. \$20,000-\$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or over |
  
9. How long have you held your current position?
 

|                  |                  |
|------------------|------------------|
| 1. Under 5 years | 4. 15-20 years   |
| 2. 5-10 years    | 5. 20-25 years   |
| 3. 10-15 years   | 6. over 25 years |

10. Which of the following best typifies the types of decisions you face in your employment?
1. No decisions at all
  2. Day-to-day routine decisions
  3. Decisions of a supervisory nature
  4. Decisions of a financial nature
  5. Upper level management decisions (financial and supervisory)
  6. Decisions involving all the above
11. What is the largest single decision in terms of capital outlays for the business (in dollars) that you are likely to deal with this year?
1. Less than \$10,000
  2. \$10,000-\$49,999
  3. \$50,000-\$99,999
  4. \$100,000-\$499,999
  5. \$500,000-\$1,000,000
  6. Over \$1,000,000
12. How often, during a year, do you evaluate your agency's financial position by means of a balance sheet or a profit-and-loss statement?
1. Weekly
  2. Monthly
  3. Quarterly or Semi-annually
  4. Annually or even less often
  5. Never
13. How long would it take you to train a subordinate to perform the duties required of your position, assuming the employee to be potentially capable to perform these duties?
1. One month or less
  2. Three months
  3. Six months
  4. One to two years
  5. Two years or more
14. How far ahead do you try to anticipate market projections or trends?
1. One month
  2. Three months
  3. Six months
  4. One year
  5. More than one year
15. If you have a superior, or some person/group to whom you must answer, how often is your performance evaluated?
1. Weekly
  2. Monthly
  3. Quarterly
  4. Annually
  5. I have no superior or am never evaluated

Use the following scale to indicate your responses to the questions below:

Totally Dissatisfied                      Moderately Satisfied                      Totally Satisfied

1                      2                      3                      4                      5                      6                      7

16. How satisfied are you with your personal life, excluding those factors relating to your occupational life? 1 2 3 4 5 6 7
17. How satisfied are you with your occupational life, excluding those factors relating to your personal life? 1 2 3 4 5 6 7

Use the following scale to indicate your responses to the questions below:

Not Successful                      Moderately Successful                      Very Successful

1                      2                      3                      4                      5                      6                      7

18. How successful do you feel you have been in your occupation? 1 2 3 4 5 6 7
19. How successful do you feel your agency has been in its function as a business enterprise? 1 2 3 4 5 6 7

(Next Page)

20. How successful do you feel you have been in your personal life? 1 2 3 4 5 6 7

GIVEN THE FOLLOWING ALTERNATIVES, SELECT THE ONE MOST ATTRACTIVE TO YOU WITH YOUR OWN MONEY AT RISK AND WITH THE AGENCY'S MONEY AT RISK.

1. 50% chance of winning \$1.00 versus 50% chance of losing \$1.00
2. 50% chance of winning \$10.00 versus 50% chance of losing \$10.00
3. 50% chance of winning \$100.00 versus 50% chance of losing \$100.00
4. 50% chance of winning \$1000.00 versus 50% chance of losing \$1000.00
5. 50% chance of winning \$10000.00 versus 50% chance of losing \$10000.00

21. With my own money at risk, I would prefer \_\_\_\_\_.

22. With my agency's money at risk, I would prefer \_\_\_\_\_.

In each of the following questions, select the venture that is most attractive to you with your own money at risk and with your agency's money at risk.

23. For an investment of \$1.00 would you prefer:

1. 1/6 chance of winning \$6.00
2. 2/6 chance of winning \$3.00
3. 3/6 chance of winning \$2.00
4. 4/6 chance of winning \$1.50
5. 5/6 chance of winning \$1.20
6. 6/6 chance of winning \$1.00

- A. With my own money at risk, I would prefer \_\_\_\_\_.
- B. With my agency's money at risk, I would prefer \_\_\_\_\_.

24. For an investment of \$10.00 would you prefer:

1. 1/6 chance of winning \$60
2. 2/6 chance of winning \$30
3. 3/6 chance of winning \$20
4. 4/6 chance of winning \$15
5. 5/6 chance of winning \$12
6. 6/6 chance of winning \$10

- A. With my own money at risk, I would prefer \_\_\_\_\_.
- B. With my agency's money at risk, I would prefer \_\_\_\_\_.

25. For an investment of \$100 would you prefer:

1. 1/6 chance of winning \$600
2. 2/6 chance of winning \$300
3. 3/6 chance of winning \$200
4. 4/6 chance of winning \$150
5. 5/6 chance of winning \$120
6. 6/6 chance of winning \$100

- A. With my own money at risk, I would prefer \_\_\_\_\_.
- B. With my agency's money at risk, I would prefer \_\_\_\_\_.

26. For an investment of \$1000 would you prefer:

1. 1/6 chance of winning \$6000
2. 2/6 chance of winning \$3000
3. 3/6 chance of winning \$2000
4. 4/6 chance of winning \$1500
5. 5/6 chance of winning \$1200
6. 6/6 chance of winning \$1000

- A. With my own money at risk, I would prefer \_\_\_\_\_.
- B. With my agency's money at risk, I would prefer \_\_\_\_\_.

27. For an investment of \$10,000 would you prefer:

1. 1/6 chance of winning \$60,000
2. 2/6 chance of winning \$30,000
3. 3/6 chance of winning \$20,000
4. 4/6 chance of winning \$15,000
5. 5/6 chance of winning \$12,000
6. 6/6 chance of winning \$10,000

- A. With my own money at risk, I would prefer \_\_\_\_\_.
- B. With my agency's money at risk, I would prefer \_\_\_\_\_.

(End of Questionnaire. Thank You)

## APPENDIX B

### ANALYSIS OF THE QUESTIONS:

#### BOTH QUESTIONNAIRES

There are certain aspects about the questions that may not be apparent from a cursory examination of the questionnaire and should be explained. To do this, a brief description of the questions not covered previously is included here.

Question #1: Age. Five groups ranging from under 30 years to over 60 years. Range of each intermediate group is 10 years.

Question #2: Level of Education. Six groups ranging from no high school diploma to graduate degree.

--It should be noted that there is a required high school diploma for licensing as an agent in the State of Georgia and the first response was included for the benefit of the employees to be examined.

Question #3: Sex. Male or female.

Question #4: Professional Designation.

--It is felt that the two most probable designations would be CLU or CPCU, although the CPA designation was included as a choice and the "other" choice was included as well.



Question #5: Current Compensation. Six choices ranging from under \$20,000 to \$100,000 or over.

--The intent here is to determine the level of compensation from the employment situation including fringe benefits. This is to be distinguished from the current total income estimate in the next question.

Question #6: Current Total Income. Six choices ranging from under \$20,000 to \$100,000 or over.

--This figure includes not only the compensation from the employment situation, but also the income from all other sources including those outside the employment situation.

Question #7: Compensation Five Years Ago. Six choices ranging from under \$20,000 to \$100,000 or over.

--This figure is the same concept as in question five but for a period in time five years ago. It is believed that a comparison between this figure and the one given in question five will give an indication of any trend that might be present.

Question #8: Total Income Five Years Ago. Six choices ranging from under \$20,000 to \$100,000 or over.

--This is the same concept as in question #6 but for a period in time five years ago. This also is an indicator of a trend in income.

Question #9: Length of Time in Current Position. Six choices ranging from under five years to more than twenty-five years.

Question #10: Type of Decisions Faced in Employment.

Six choices ranging from no decisions at all to all types of decisions, including upper-level management decisions.

Question #11: Planning Horizon. Six choices ranging from less than \$10,000 to over \$1,000,000.

--This question will indicate the size of the agency in the principals' case and give an indication of the amounts of money an individual is accustomed to handling.

Question #12. Previously discussed.

Question #13. Length of Time Required to Train

Another to Perform Duties of Role. Five choices ranging from one month or less to two years or more.

Question #14. Previously discussed.

Question #15: Previously discussed.\*

Question #16: Satisfaction in Personal Life. Seven choices ranging from totally dissatisfied to totally satisfied.

--As in questions #17, #18, and #19, there were seven choices provided since sufficient discrimination among answers was sought, but it also was desirable not to present too many choices. Seven is the subjective decision of the author and his dissertation chairman.

---

\*Questions #9-15, when averaged, will be used as the time-span index since they all are related to that concept. Each question will be examined on its own, and the time-span index also will be examined in the analysis of results.

Question #17: Satisfaction in Occupational Life.

Seven choices ranging from totally dissatisfied to totally satisfied.

Question #18: Success in Occupational Life. Seven choices ranging from not successful to very successful.

Question #19: Principal: Success of Agency.\*\*  
Seven choices ranging from not successful to very successful.

Question #19: Employee: Success in Personal Life.  
Seven choices ranging from not successful to very successful.

Question #20: Principal: Success in Personal Life.  
Seven choices ranging from not successful to very successful.

At this point, the questionnaires differ as far as numerical sequence is concerned. The addition of the question of success of the agency in the principal questionnaire caused there to be one more question than in the employee questionnaire. The remaining questions are identical, but there is a difference in numbering.

Question #20: Employee; #21 Principal: Variance Preferences, Own Money. Five choices ranging from \$1.00 to \$10,000. Probability constant at .50.

--Since there is the indication that individuals might

---

\*\*The question of success of the agency was asked only of principals. It is possible that the success of the agency of which a subject is principal might be directly related to that subject's satisfaction and success indicators, since he or she is so closely attuned to the agency for which he or she is responsible.

vary as to their risk propensity when their own money is involved and when the agency's money is involved, there will be two questions for each subject making this distinction.

Question #21 Employee; #22 Principal: Variance Preferences, Agency Money. Five choices ranging from \$1.00 to \$10,000. Probability constant at .50.

--Second question this time involving agency's money as explained in the note above.

Question #22 Employee; #23 Principal: Probability Preferences. Six choices of equal expected values but different probabilities and payoffs.

--There are A and B parts to the rest of the questions to allow for choices when the individual's own money is involved and when the agency's money is involved to indicate any difference as explained above.

Questions #23-26 Employee; #24-27 Principal: Probability Preferences. These questions are similar to questions #22 Employee and #23 Principal, the only difference being that the magnitude of the outcomes is different. The expected values of the questions are as follows:

|                             |                  |             |
|-----------------------------|------------------|-------------|
| #22 Employee; #23 Principal | Expected Value = | \$1.00      |
| #23 Employee; #24 Principal | Expected Value = | \$10.00     |
| #24 Employee; #25 Principal | Expected Value = | \$100.00    |
| #25 Employee; #26 Principal | Expected Value = | \$1,000.00  |
| #26 Employee; #27 Principal | Expected Value = | \$10,000.00 |

APPENDIX C

QUESTIONNAIRE RESPONSE DATA

Statistical Description of the Samples

Principals (n=206)

QUESTION: How old are you?

|        |          |       |       |       |            |  |  |
|--------|----------|-------|-------|-------|------------|--|--|
| Ranges | under 30 | 30-39 | 40-49 | 50-59 | 60 or over |  |  |
| %      | 8.3      | 21.4  | 36.9  | 22.3  | 11.2       |  |  |

$\bar{X} = 45.2$  years

$\sigma = 11.1$  years

$\frac{\sigma}{\bar{X}} = 0.25$

QUESTION: #2 What is your attained level of education

|        |                  |                     |              |                |               |                 |  |
|--------|------------------|---------------------|--------------|----------------|---------------|-----------------|--|
| Ranges | some high school | h.s. but no college | some college | college degree | graduate work | graduate degree |  |
| %      | 2.4              | 11.6                | 24.3         | 52.4           | 1.9           | 7.3             |  |

$\bar{X} = 3.61$

$\sigma = 1.06$

$\frac{\sigma}{\bar{X}} = 0.29$

QUESTION: #3 Are you male or female?

|        |      |        |  |  |  |  |
|--------|------|--------|--|--|--|--|
| Ranges | male | female |  |  |  |  |
| %      | 94.6 | 5.4    |  |  |  |  |

$\bar{X} = \text{N.A.}$

$\sigma = \text{N.A.}$

$\frac{\sigma}{\bar{X}} = \text{N.A.}$

QUESTION: #4 What professional designations have you earned?

|        |      |       |         |       |       |  |
|--------|------|-------|---------|-------|-------|--|
| Ranges | None | C L U | C P C U | C P A | Other |  |
| %      | 80.1 | 1.9   | 6.3     | 0.5   | 10.7  |  |

$\bar{X} = \text{N.A.}$

$\sigma = \text{N.A.}$

$\frac{\sigma}{\bar{X}} = \text{N.A.}$

QUESTION: #5 What do you estimate your current compensation to be, including salary and fringe benefits such as automobile, expense account, and insurance, from your employment?

|        |                |                 |                 |                 |                 |                 |  |
|--------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|
| Ranges | under \$20,000 | 20,000 - 39,999 | 40,000 - 59,999 | 60,000 - 79,999 | 80,000 - 99,999 | 100,000 or over |  |
| %      | 25.2           | 47.1            | 18.0            | 7.3             | 1.9             | .5              |  |

$$\bar{X} = 33,020$$

$$\sigma = 19,800$$

$$\frac{\sigma}{\bar{X}} = 0.60$$

QUESTION: #6 What do you estimate your current total income from all sources to be, including investment income?

|        |                |                 |                 |                 |                 |                 |  |
|--------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|
| Ranges | under \$20,000 | 20,000 - 39,999 | 40,000 - 59,999 | 60,000 - 79,999 | 80,000 - 99,999 | 100,000 or over |  |
| %      | 17.0           | 42.2            | 24.3            | 8.7             | 3.4             | 4.4             |  |

$$\bar{X} = 36,100$$

$$\sigma = 24,600$$

$$\frac{\sigma}{\bar{X}} = 0.66$$

QUESTION: #7 What was your approximate compensation five years ago, including salary and fringe benefits such as automobile, expense account, and insurance from your employment?

|        |                |                 |                 |                 |                 |                 |  |
|--------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|
| Ranges | under \$20,000 | 20,000 - 39,999 | 40,000 - 59,999 | 60,000 - 79,999 | 80,000 - 99,999 | 100,000 or over |  |
| %      | 60.2           | 28.6            | 8.7             | 2.4             | 0               | 0               |  |

$$\bar{X} = 20,510$$

$$\sigma = 15,400$$

$$\frac{\sigma}{\bar{X}} = 0.75$$

QUESTION: #8 What was your approximate total income from all sources five years ago, including investment income?

|        |                |                 |                 |                 |                 |                 |  |
|--------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|
| Ranges | under \$20,000 | 20,000 - 39,999 | 40,000 - 59,999 | 60,000 - 79,999 | 80,000 - 99,999 | 100,000 or over |  |
| %      | 50.5           | 30.6            | 10.7            | 6.8             | 0.9             | 0.5             |  |

$$\bar{X} = 25,700$$

$$\sigma = 20,200$$

$$\frac{\sigma}{\bar{X}} = 0.79$$

QUESTION: #9 How long have you held your current position?

|        |               |            |             |             |             |               |  |
|--------|---------------|------------|-------------|-------------|-------------|---------------|--|
| Ranges | under 5 years | 5-10 years | 10-15 years | 15-20 years | 20-25 years | over 25 years |  |
| %      | 28.6          | 25.2       | 15.5        | 12.1        | 9.2         | 9.2           |  |

$\bar{X} = 11.26$                        $\sigma = 8.2 \text{ years}$                        $\frac{\sigma}{\bar{X}} = 0.73$

QUESTION: #10 Which of the following best typifies the types of decisions you face in your employment?

|        |              |            |             |           |                  |              |  |
|--------|--------------|------------|-------------|-----------|------------------|--------------|--|
| Ranges | No decisions | day-to-day | supervisory | financial | upper level mgmt | all of above |  |
| %      | 1.5          | 5.3        | 1.5         | 1.9       | 13.6             | 76.2         |  |

$\bar{X} = 5.48$                        $\sigma = 1.21$                        $\frac{\sigma}{\bar{X}} = 0.22$

QUESTION: #11 What is the largest single decision in terms of capital outlays for the business (in dollars) that you are likely to deal with this year?

|        |                    |                 |                 |                   |                     |                |  |
|--------|--------------------|-----------------|-----------------|-------------------|---------------------|----------------|--|
| Ranges | less than \$10,000 | 10,000 - 49,999 | 50,000 - 99,999 | 100,000 - 499,999 | 500,000 - 1,000,000 | over 1,000,000 |  |
| %      | 40.3               | 33.0            | 13.6            | 10.7              | 1.5                 | 1.0            |  |

$\bar{X} = 75,465$                        $\sigma = \text{N.A.}$                        $\frac{\sigma}{\bar{X}} = \text{N.A.}$

QUESTION: #12 How often during a year do you evaluate your agency's financial position by means of a balance sheet or profit-and-loss statement?

|        |        |         |                          |          |       |  |  |
|--------|--------|---------|--------------------------|----------|-------|--|--|
| Ranges | weekly | monthly | quarterly or semi-annual | annually | never |  |  |
| %      | 2.9    | 68.4    | 12.1                     | 13.6     | 2.9   |  |  |

$\bar{X} = 2.45$                        $\sigma = 0.88$                        $\frac{\sigma}{\bar{X}} = 0.36$

QUESTION: # 13 How long would it take you to train a subordinate to perform the duties required of your position, assuming the employee to be potentially capable to perform these duties?

|        |                   |              |            |             |                   |  |  |
|--------|-------------------|--------------|------------|-------------|-------------------|--|--|
| Ranges | less than a month | three months | six months | 1 - 2 years | more than 2 years |  |  |
| %      | 2.4               | 13.6         | 17.5       | 40.8        | 25.7              |  |  |

$$\bar{X} = 3.73$$

$$\sigma = 1.08$$

$$\frac{\sigma}{\bar{X}} = 0.24$$

QUESTION: #14 How far ahead do you try to anticipate market projections or trends?

|        |           |              |            |          |               |  |  |
|--------|-----------|--------------|------------|----------|---------------|--|--|
| Ranges | one month | three months | six months | one year | over one year |  |  |
| %      | 8.7       | 16.0         | 29.1       | 33.0     | 13.1          |  |  |

$$\bar{X} = 3.25$$

$$\sigma = 1.17$$

$$\frac{\sigma}{\bar{X}} = 0.36$$

QUESTION: #15 If you have a superior, or some person/group to whom you must answer, how often is your performance evaluated?

|        |        |         |           |          |       |  |  |
|--------|--------|---------|-----------|----------|-------|--|--|
| Ranges | weekly | monthly | quarterly | annually | never |  |  |
| %      | 5.3    | 7.8     | 5.3       | 11.7     | 69.9  |  |  |

$$\bar{X} = 4.31$$

$$\sigma = 1.26$$

$$\frac{\sigma}{\bar{X}} = 0.29$$

QUESTION: #16 How satisfied are you with your personal life, excluding those factors relating to your occupational life?

|        |                      |     |     |                      |      |                   |      |
|--------|----------------------|-----|-----|----------------------|------|-------------------|------|
|        | Totally Dissatisfied |     |     | Moderately Satisfied |      | Totally Satisfied |      |
| Ranges | 1                    | 2   | 3   | 4                    | 5    | 6                 | 7    |
| %      | 3.9                  | 0.5 | 5.8 | 14.6                 | 18.9 | 28.6              | 27.7 |

$$\bar{X} = 5.4$$

$$\sigma = 1.53$$

$$\frac{\sigma}{\bar{X}} = 0.28$$



QUESTION: #17 How satisfied are you with your occupational life, excluding those factors relating to your personal life?

|        | Totally Dissatisfied |     | Moderately Satisfied |      |      | Totally Satisfied |      |
|--------|----------------------|-----|----------------------|------|------|-------------------|------|
| Ranges | 1                    | 2   | 3                    | 4    | 5    | 6                 | 7    |
| %      | 2.4                  | 2.4 | 8.7                  | 19.4 | 20.9 | 25.2              | 20.9 |

$$\bar{X} = 5.13$$

$$\sigma = 1.51$$

$$\frac{\sigma}{\bar{X}} = 0.29$$

QUESTION: #18 How successful do you feel you have been in your occupation?

| Ranges | 1   | 2  | 3   | 4    | 5    | 6    | 7   |
|--------|-----|----|-----|------|------|------|-----|
| %      | 2.4 | .5 | 5.8 | 15.0 | 39.8 | 28.2 | 8.3 |

$$\bar{X} = 5.05$$

$$\sigma = 1.23$$

$$\frac{\sigma}{\bar{X}} = 0.24$$

QUESTION: #19 How successful do you feel your agency has been in its function as a business enterprise?

| Ranges | 1   | 2   | 3   | 4    | 5    | 6    | 7    |
|--------|-----|-----|-----|------|------|------|------|
| %      | 1.9 | 1.9 | 3.4 | 15.0 | 31.6 | 25.6 | 11.2 |

$$\bar{X} = 5.21$$

$$\sigma = 1.25$$

$$\frac{\sigma}{\bar{X}} = 0.24$$

QUESTION: #20 How successful do you feel you have been in your personal life?

| Ranges | 1   | 2   | 3   | 4    | 5    | 6    | 7    |
|--------|-----|-----|-----|------|------|------|------|
| %      | 2.4 | 1.0 | 6.3 | 14.1 | 33.0 | 29.1 | 14.1 |

$$\bar{X} = 5.16$$

$$\sigma = 1.36$$

$$\frac{\sigma}{\bar{X}} = 0.26$$

QUESTION: #21 With my own money at risk, I would prefer:

|        |      |     |      |      |      |  |  |
|--------|------|-----|------|------|------|--|--|
| Ranges | 1    | 2   | 3    | 4    | 5    |  |  |
| %      | 21.4 | 4.4 | 25.7 | 35.4 | 13.1 |  |  |

$$\bar{X} = 3.13$$

$$\sigma = 1.37$$

$$\frac{\sigma}{\bar{X}} = 0.44$$

QUESTION: #22 With my agency's money at risk, I would prefer:

|        |      |     |      |      |      |  |  |
|--------|------|-----|------|------|------|--|--|
| Ranges | 1    | 2   | 3    | 4    | 5    |  |  |
| %      | 27.7 | 2.9 | 20.4 | 34.5 | 14.6 |  |  |

$$\bar{X} = 3.03$$

$$\sigma = 1.47$$

$$\frac{\sigma}{\bar{X}} = 0.49$$

## Employees (n=111)

QUESTION: How old are you?

|        |              |       |       |       |         |  |  |
|--------|--------------|-------|-------|-------|---------|--|--|
| Ranges | under thirty | 30-39 | 40-49 | 50-59 | over 60 |  |  |
| %      | 28.8         | 22.5  | 25.2  | 18.0  | 5.4     |  |  |

$\bar{X} = 40$

$\sigma = 12.3$

$\frac{\sigma}{\bar{X}} = 0.31$

QUESTION: #2 What is your attained level of education?

|        |                  |                     |              |                |               |                 |  |
|--------|------------------|---------------------|--------------|----------------|---------------|-----------------|--|
| Ranges | some high school | H.S. but no college | some college | college degree | graduate work | graduate degree |  |
| %      | 2.7              | 45.0                | 27.0         | 21.6           | 1.8           | 1.8             |  |

$\bar{X} = 2.80$

$\sigma = 0.99$

$\frac{\sigma}{\bar{X}} = 0.35$

QUESTION: #3 Are you male or female?

|        |      |        |  |  |  |  |  |
|--------|------|--------|--|--|--|--|--|
| Ranges | male | female |  |  |  |  |  |
| %      | 27.0 | 73.0   |  |  |  |  |  |

$\bar{X} = \text{N.A.}$

$\sigma = \text{N.A.}$

$\frac{\sigma}{\bar{X}} = \text{N.A.}$

QUESTION: #4 What professional designations have you earned?

|        |      |       |         |       |       |  |  |
|--------|------|-------|---------|-------|-------|--|--|
| Ranges | None | C L U | C P C U | C P A | Other |  |  |
| %      | 87.8 | 0.0   | 2.7     | 0     | 13.5  |  |  |

$\bar{X} = \text{N.A.}$

$\sigma = \text{N.A.}$

$\frac{\sigma}{\bar{X}} = \text{N.A.}$

QUESTION: #5 What do you estimate your current compensation to be, including salary and fringe benefits such as automobile, expense account, and insurance from your employment?

| Ranges | under \$20,000 | \$20,000 - 39,999 | \$40,000 - 59,999 | \$60,000 - 79,999 | \$80,000 - 99,999 | 100,000 or over |  |
|--------|----------------|-------------------|-------------------|-------------------|-------------------|-----------------|--|
| %      | 84.7           | 12.6              | 2.7               | 0                 | 0                 | 0               |  |

$$\bar{X} = 13,600$$

$$\sigma = 9,000$$

$$\frac{\sigma}{\bar{X}} = 0.66$$

QUESTION: #6 What do you estimate your current total income from all sources to be, including investment income?

| Ranges | under \$20,000 | \$20,000 - 39,999 | \$40,000 - 59,999 | \$60,000 - 79,999 | \$80,000 - 99,999 | 100,000 or over |  |
|--------|----------------|-------------------|-------------------|-------------------|-------------------|-----------------|--|
| %      | 78.4           | 16.2              | 5.4               | 0                 | 0                 | 0               |  |

$$\bar{X} = 15,400$$

$$\sigma = 11,200$$

$$\frac{\sigma}{\bar{X}} = 0.73$$

QUESTION: #7 What was your approximate compensation five years ago, including salary and fringe benefits such as automobile, expense account, and insurance from your employment?

| Ranges | under \$20,000 | 20,000 - 39,999 | 40,000 - 59,999 | 60,000 - 79,999 | 80,000 - 99,999 | 100,000 or over |  |
|--------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|
| %      | 96.4           | 3.6             | 0               | 0               | 0               | 0               |  |

$$\bar{X} = 10,720$$

$$\sigma = 3800$$

$$\frac{\sigma}{\bar{X}} = 0.35$$

QUESTION: #8 What was your approximate total income from all sources five years ago, including investment income?

| Ranges | under 20,000 | 20,000 - 39,999 | 40,000 - 59,999 | 60,000 - 79,999 | 80,000 - 99,999 | 100,000 or over |  |
|--------|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|
| %      | 93.7         | 5.4             | 0               | 0               | 0               | 0               |  |

$$\bar{X} = 10,990$$

$$\sigma = 10,400$$

$$\frac{\sigma}{\bar{X}} = 0.95$$

QUESTION: #9 How long have you held your current position?

| Ranges | under five years | 5-10 years | 10-15 years | 15-20 years | 20-25 years | over 25 years |  |
|--------|------------------|------------|-------------|-------------|-------------|---------------|--|
| %      | 45.9             | 27.9       | 11.7        | 5.4         | 6.3         | 2.7           |  |

$$\bar{X} = 7.83$$

$$\sigma = 6.5$$

$$\frac{\sigma}{\bar{X}} = 0.83$$

QUESTION: # 10 Which of the following best typifies the types of decisions you face in your employment?

| Ranges | none | day-to-day | supervisory | financial nature | upper level mgmt | all of the above |  |
|--------|------|------------|-------------|------------------|------------------|------------------|--|
| %      | 2.7  | 43.2       | 20.7        | 3.6              | 4.5              | 25.2             |  |

$$\bar{X} = 3.39$$

$$\sigma = 1.70$$

$$\frac{\sigma}{\bar{X}} = 0.50$$

QUESTION: # 11 What is the largest single decision in terms of capital outlay for the business (in dollars) that you are likely to make for the agency this year?

| Ranges | under \$10,000 | 10,000 - 49,999 | 50,000 - 99,999 | 100,000 - 499,999 | 500,000 - 1,000,000 | over 1,000,000 |  |
|--------|----------------|-----------------|-----------------|-------------------|---------------------|----------------|--|
| %      | 80.2           | 14.4            | 1.8             | 2.7               | 1.0                 | 0              |  |

$$\bar{X} = 25,280$$

$$\sigma = \text{N.A.}$$

$$\frac{\sigma}{\bar{X}} = \text{N.A.}$$

QUESTION: # 12 How often are you evaluated by your superior, in terms of the progress you are making in your overall performance?

| Ranges | daily | weekly | monthly | quarterly/semi-ann. | annually | never |  |
|--------|-------|--------|---------|---------------------|----------|-------|--|
| %      | 26.1  | 1.8    | 14.4    | 18.0                | 21.6     | 18.0  |  |

$$\bar{X} = 3.60$$

$$\sigma = 1.86$$

$$\frac{\sigma}{\bar{X}} = 0.52$$

QUESTION: # 13 How long would it take you to train a subordinate to perform the duties of your position, assuming the employee to be potentially capable of performing these duties?

|        |               |              |            |             |              |  |  |
|--------|---------------|--------------|------------|-------------|--------------|--|--|
| Ranges | under 1 month | three months | six months | 1 - 2 years | over 2 years |  |  |
| %      | 15.3          | 28.8         | 24.3       | 19.8        | 11.7         |  |  |

$\bar{X} = 2.84$

$\sigma = 1.25$

$\frac{\sigma}{\bar{X}} = 0.44$

QUESTION: # 14 How far ahead do you try to anticipate the effects of your performance?

|        |     |      |       |          |          |        |  |
|--------|-----|------|-------|----------|----------|--------|--|
| Ranges | day | week | month | 3 months | 6 months | 1 year |  |
| %      | 3.6 | 9.0  | 27.9  | 16.2     | 12.6     | 30.6   |  |

$\bar{X} = 4.17$

$\sigma = 1.52$

$\frac{\sigma}{\bar{X}} = 0.26$

QUESTION: # 15 How often would you prefer to have your performance evaluated by your superior?

|        |       |        |         |            |        |               |  |
|--------|-------|--------|---------|------------|--------|---------------|--|
| Ranges | daily | weekly | monthly | 2-6 months | yearly | no preference |  |
| %      | 10.8  | 4.5    | 18.9    | 23.4       | 7.2    | 35.1          |  |

$\bar{X} = 4.17$

$\sigma = 1.68$

$\frac{\sigma}{\bar{X}} = 0.40$

QUESTION: # 16 How satisfied are you with your personal life, excluding factors relating to your occupational life?

|        |                      |     |                      |      |      |                   |      |
|--------|----------------------|-----|----------------------|------|------|-------------------|------|
|        | Totally Dissatisfied |     | Moderately Satisfied |      |      | Totally Satisfied |      |
| Ranges | 1                    | 2   | 3                    | 4    | 5    | 6                 | 7    |
| %      | 0                    | 1.0 | 6.3                  | 13.5 | 27.0 | 29.7              | 22.5 |

$\bar{X} = 5.46$

$\sigma = 1.2$

$\frac{\sigma}{\bar{X}} = 0.22$

QUESTION: # 17 How satisfied are you with your occupational life, excluding factors relating to your personal life?

|        |     |     |     |      |      |      |      |
|--------|-----|-----|-----|------|------|------|------|
| Ranges | 1   | 2   | 3   | 4    | 5    | 6    | 7    |
| %      | 1.0 | 1.8 | 9.0 | 21.6 | 28.8 | 23.4 | 14.4 |

$$\bar{X} = 5.04$$

$$\sigma = 1.31$$

$$\frac{\sigma}{\bar{X}} = 0.26$$

QUESTION: # 18 How successful do you feel you have been in your occupation?

|        |      |     |      |      |     |      |   |
|--------|------|-----|------|------|-----|------|---|
| Ranges | 1    | 2   | 3    | 4    | 5   | 6    | 7 |
| %      | 10.8 | 4.5 | 18.9 | 23.4 | 7.2 | 35.1 | 0 |

$$\bar{X} = 5.03$$

$$\sigma = 1.05$$

$$\frac{\sigma}{\bar{X}} = 0.21$$

QUESTION: # 19 How successful do you feel you have been in your personal life?

|        |   |     |     |      |      |      |      |
|--------|---|-----|-----|------|------|------|------|
| Ranges | 1 | 2   | 3   | 4    | 5    | 6    | 7    |
| %      | 0 | 1.0 | 6.3 | 13.5 | 27.0 | 29.7 | 22.5 |

$$\bar{X} = 5.28$$

$$\sigma = 1.10$$

$$\frac{\sigma}{\bar{X}} = 0.21$$

QUESTION: # 20 is blank. Question # 21 reads: With the agency's money at risk, I would prefer the alternative:

|        |      |      |      |      |     |  |  |
|--------|------|------|------|------|-----|--|--|
| Ranges | 1    | 2    | 3    | 4    | 5   |  |  |
| %      | 27.0 | 18.0 | 32.4 | 15.3 | 7.2 |  |  |

$$\bar{X} = 2.58$$

$$\sigma = 1.24$$

$$\frac{\sigma}{\bar{X}} = 0.48$$

QUESTION: # 22 For an investment of \$1.00, would you prefer?

|        |      |      |      |      |      |  |  |
|--------|------|------|------|------|------|--|--|
| Ranges | 1    | 2    | 3    | 4    | 5    |  |  |
| %      | 34.2 | 10.8 | 22.5 | 20.7 | 11.7 |  |  |

$$\bar{X} = 2.64$$

$$\sigma = 1.43$$

$$\frac{\sigma}{\bar{X}} = 0.54$$



Statistical Description of the Indices  
(Mean, Standard Deviation, and  
Coefficient of Variation)

Principals

|   | <u><math>\bar{x}</math></u> | <u>        </u> | <u><math>\bar{x}</math></u> |
|---|-----------------------------|-----------------|-----------------------------|
| Turn Away from Risk Point,<br>Personal        | 2.96                        | 2.35            | 0.79                        |
| Turn Away from Risk Point,<br>Occupational    | 2.60                        | 2.37            | 0.91                        |
| Time Span Index                               | 3.38                        | 0.58            | 0.17                        |
| Risk Index, Own Money                         | 3.13                        | 1.54            | 0.49                        |
| Risk Index, Agency Money                      | 2.89                        | 1.56            | 0.54                        |
| Probability Preference Index,<br>Own Money    | 3.16                        | 1.77            | 0.56                        |
| Probability Preference Index,<br>Agency Money | 3.00                        | 1.76            | 0.59                        |

Employees

|  |      |      |      |
|--|------|------|------|
| Turn Away from Risk Point,<br>Personal     | 2.52 | 2.30 | 0.91 |
| Turn Away from Risk Point,<br>Occupational | 2.26 | 2.30 | 1.02 |
| Time Span Index                            | 3.04 | 0.75 | 0.25 |
| Risk Index, Own Money                      | 2.85 | 1.51 | 0.53 |
| Risk Index, Agency Money                   | 2.72 | 1.61 | 0.59 |
| Probability Index, Own Money               | 2.82 | 1.70 | 0.35 |
| Probability Index, Agency Money            | 2.74 | 1.76 | 0.64 |

Description of Variables by Number

## Principals

Number and Variable

- 1 Age
- 2 Education
- 3 Sex
- 4 Professional Designation
- 5 Current Compensation
- 6 Current Total Income
- 7 Past Compensation
- 8 Past Total Income
- 9 Time in Current Position
- 10 Type of Decisions
- 11 Planning Horizon
- 12 Frequency of Agency Evaluation
- 13 Training Time for Subordinate
- 14 Anticipation of Market Trends
- 15 Frequency of Evaluation
- 16 Satisfaction, Personal
- 17 Satisfaction, Occupational
- 18 Success, Occupational
- 19 Success, Agency
- 20 Success, Personal
- 21 Variance Preference, Own Money
- 22 Variance Preference, Agency Money
- 23 Risk Measure, Own Money: \$1.00
- 24 Risk Measure, Own Money: \$10.00
- 25 Risk Measure, Own Money: \$100.00
- 26 Risk Measure, Own Money: \$1,000.00
- 27 Risk Measure, Own Money: \$10,000.00
- 28 Probability Measure, Own Money: \$1.00
- 29 Probability Measure, Own Money: \$10.00
- 30 Probability Measure, Own Money: \$100.00
- 31 Probability Measure, Own Money: \$1,000.00
- 32 Probability Measure, Own Money: \$10,000.00
- 33 Risk Measure, Agency Money: \$1.00
- 34 Risk Measure, Agency Money: \$10.00
- 35 Risk Measure, Agency Money: \$100.00
- 36 Risk Measure, Agency Money: \$1,000.00
- 37 Risk Measure, Agency Money: \$10,000.00
- 38 Probability Measure, Agency Money: \$1.00
- 39 Probability Measure, Agency Money: \$10.00
- 40 Probability Measure, Agency Money: \$100.00
- 41 Probability Measure, Agency Money: \$1,000.00
- 42 Probability Measure, Agency Money: \$10,000.00
- 43 Turn Away from Risk Point, Personal
- 44 Turn Away from Risk Point, Occupational
- 45 Time Span Index (average of #9-15)
- 46 Risk Index, Own Money
- 47 Probability Index, Own Money
- 48 Risk Index, Agency Money
- 49 Probability Index, Agency Money

CORRELATION MATRIX ABOUT THE CRIGIN

| variable | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1        | 1.00000 |         |         |         |         |         |         |         |         |         |
| 2        | 0.85621 | 1.00000 |         |         |         |         |         |         |         |         |
| 3        | 0.54947 | 0.73928 | 1.00000 |         |         |         |         |         |         |         |
| 4        | 0.88159 | 0.87873 | 0.86269 | 1.00000 |         |         |         |         |         |         |
| 5        | 0.91179 | 0.93317 | 0.95339 | 0.92159 | 1.00000 |         |         |         |         |         |
| 6        | 0.94564 | 0.95507 | 0.97527 | 0.95121 | 0.93766 | 1.00000 |         |         |         |         |
| 7        | 0.97102 | 0.97792 | 0.99444 | 0.97103 | 0.95710 | 0.93380 | 1.00000 |         |         |         |
| 8        | 0.99115 | 0.99398 | 0.99944 | 0.99119 | 0.97103 | 0.95380 | 0.93772 | 1.00000 |         |         |
| 9        | 0.99225 | 0.99398 | 0.99944 | 0.99119 | 0.97103 | 0.95380 | 0.93772 | 0.92159 | 1.00000 |         |
| 10       | 0.99225 | 0.99398 | 0.99944 | 0.99119 | 0.97103 | 0.95380 | 0.93772 | 0.92159 | 0.90000 | 1.00000 |

| variable | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1        | 1.00000 |         |         |         |         |         |         |         |         |         |
| 2        | 0.85621 | 1.00000 |         |         |         |         |         |         |         |         |
| 3        | 0.54947 | 0.73928 | 1.00000 |         |         |         |         |         |         |         |
| 4        | 0.88159 | 0.87873 | 0.86269 | 1.00000 |         |         |         |         |         |         |
| 5        | 0.91179 | 0.93317 | 0.95339 | 0.92159 | 1.00000 |         |         |         |         |         |
| 6        | 0.94564 | 0.95507 | 0.97527 | 0.95121 | 0.93766 | 1.00000 |         |         |         |         |
| 7        | 0.97102 | 0.97792 | 0.99444 | 0.97103 | 0.95710 | 0.93380 | 1.00000 |         |         |         |
| 8        | 0.99115 | 0.99398 | 0.99944 | 0.99119 | 0.97103 | 0.95380 | 0.93772 | 1.00000 |         |         |
| 9        | 0.99225 | 0.99398 | 0.99944 | 0.99119 | 0.97103 | 0.95380 | 0.93772 | 0.92159 | 1.00000 |         |
| 10       | 0.99225 | 0.99398 | 0.99944 | 0.99119 | 0.97103 | 0.95380 | 0.93772 | 0.92159 | 0.90000 | 1.00000 |





## Employees

Number and Variable

- 1 Age
- 2 Education
- 3 Sex
- 4 Professional Designation
- 5 Current Compensation
- 6 Current Total Income
- 7 Past Compensation
- 8 Past Total Income
- 9 Time in Current Position
- 10 Type of Decisions
- 11 Planning Horizon
- 12 Frequency of Evaluation by Superior
- 13 Training Time for Subordinate
- 14 Anticipation of Effects of Performance
- 15 Preferred Frequency of Evaluation
- 16 Satisfaction, Personal
- 17 Satisfaction, Occupational
- 18 Success, Occupational
- 19 Success, Personal
- 20 Blank
- 21 Variance Preference, Own Money
- 22 Variance Preference, Agency Money
- 23 Risk Measure, Own Money: \$1.00
- 24 Risk Measure, Own Money: \$10.00
- 25 Risk Measure, Own Money: \$100.00
- 26 Risk Measure, Own Money: \$1,000.00
- 27 Risk Measure, Own Money: \$10,000.00
- 28 Probability Measure, Own Money: \$1.00
- 29 Probability Measure, Own Money: \$10.00
- 30 Probability Measure, Own Money: \$100.00
- 31 Probability Measure, Own Money: \$1,000.00
- 32 Probability Measure, Own Money: \$10,000.00
- 33 Risk Measure, Agency Money: \$1.00
- 34 Risk Measure, Agency Money: \$10.00
- 35 Risk Measure, Agency Money: \$100.00
- 36 Risk Measure, Agency Money: \$1,000.00
- 37 Risk Measure, Agency Money: \$10,000.00
- 38 Probability Measure, Agency Money: \$1.00
- 39 Probability Measure, Agency Money: \$10.00
- 40 Probability Measure, Agency Money: \$100.00
- 41 Probability Measure, Agency Money: \$1,000.00
- 42 Probability Measure, Agency Money: \$10,000.00
- 43 Turn Away from Risk Point, Personal
- 44 Turn Away from Risk Point, Occupational
- 45 Time Span Index (average of #9-15)
- 46 Risk Index, Own Money
- 47 Probability Index, Own Money
- 48 Risk Index, Agency Money
- 49 Probability Index, Agency Money

CORRELATION MATRIX ABOUT THE CRIGIN

| variable | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1        | 1.00000 |         |         |         |         |         |         |         |         |         |
| 2        | 0.67754 | 1.00000 |         |         |         |         |         |         |         |         |
| 3        | 0.52728 | 0.73100 | 1.00000 |         |         |         |         |         |         |         |
| 4        | 0.54569 | 0.55691 | 0.55760 | 1.00000 |         |         |         |         |         |         |
| 5        | 0.55919 | 0.55919 | 0.55919 | 0.55919 | 1.00000 |         |         |         |         |         |
| 6        | 0.57031 | 0.57031 | 0.57031 | 0.57031 | 0.57031 | 1.00000 |         |         |         |         |
| 7        | 0.58143 | 0.58143 | 0.58143 | 0.58143 | 0.58143 | 0.58143 | 1.00000 |         |         |         |
| 8        | 0.59255 | 0.59255 | 0.59255 | 0.59255 | 0.59255 | 0.59255 | 0.59255 | 1.00000 |         |         |
| 9        | 0.60367 | 0.60367 | 0.60367 | 0.60367 | 0.60367 | 0.60367 | 0.60367 | 0.60367 | 1.00000 |         |
| 10       | 0.61479 | 0.61479 | 0.61479 | 0.61479 | 0.61479 | 0.61479 | 0.61479 | 0.61479 | 0.61479 | 1.00000 |

1.00000  
0.96314  
1.00000

1.00000  
0.97179  
0.95504

1.00000  
0.92387  
0.90279

1.00000  
0.88248  
0.86195

1.00000  
0.84109  
0.82056

1.00000  
0.79970  
0.77917

1.00000  
0.75831  
0.73778

1.00000  
0.71692  
0.69639

variable

| variable | 19      | 20      | 21      | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 19       | 0.65887 | 0.85276 | 0.90475 | 0.91619 | 0.90153 | 0.98433 | 0.95225 | 0.97418 | 1.00000 | 0.00000 | 0.00000 | 0.00000 |
| 20       | 0.61068 | 0.81068 | 0.86165 | 0.87563 | 0.84773 | 0.92477 | 0.88166 | 0.89688 | 0.83588 | 0.82188 | 0.84074 | 0.87927 |
| 21       | 0.75999 | 0.80931 | 0.82660 | 0.83558 | 0.82444 | 0.89448 | 0.83115 | 0.87516 | 0.80576 | 0.80688 | 0.87171 | 0.87072 |
| 22       | 0.77472 | 0.78432 | 0.77443 | 0.78154 | 0.79625 | 0.81541 | 0.81695 | 0.82123 | 0.81452 | 0.81698 | 0.82127 | 0.82170 |
| 23       | 0.72374 | 0.73281 | 0.74039 | 0.74338 | 0.75072 | 0.75471 | 0.75925 | 0.76324 | 0.76724 | 0.77123 | 0.77522 | 0.77921 |
| 24       | 0.71493 | 0.72395 | 0.73100 | 0.73400 | 0.74100 | 0.74500 | 0.74900 | 0.75300 | 0.75700 | 0.76100 | 0.76500 | 0.76900 |
| 25       | 0.70512 | 0.71412 | 0.72112 | 0.72412 | 0.73112 | 0.73512 | 0.73912 | 0.74312 | 0.74712 | 0.75112 | 0.75512 | 0.75912 |
| 26       | 0.69531 | 0.70431 | 0.71131 | 0.71431 | 0.72131 | 0.72531 | 0.72931 | 0.73331 | 0.73731 | 0.74131 | 0.74531 | 0.74931 |
| 27       | 0.68550 | 0.69450 | 0.70150 | 0.70450 | 0.71150 | 0.71550 | 0.71950 | 0.72350 | 0.72750 | 0.73150 | 0.73550 | 0.73950 |
| 28       | 0.67569 | 0.68469 | 0.69169 | 0.69469 | 0.70169 | 0.70569 | 0.70969 | 0.71369 | 0.71769 | 0.72169 | 0.72569 | 0.72969 |
| 29       | 0.66588 | 0.67488 | 0.68188 | 0.68488 | 0.69188 | 0.69588 | 0.69988 | 0.70388 | 0.70788 | 0.71188 | 0.71588 | 0.71988 |
| 30       | 0.65607 | 0.66507 | 0.67207 | 0.67507 | 0.68207 | 0.68607 | 0.69007 | 0.69407 | 0.69807 | 0.70207 | 0.70607 | 0.71007 |
| 31       | 0.64626 | 0.65526 | 0.66226 | 0.66526 | 0.67226 | 0.67626 | 0.68026 | 0.68426 | 0.68826 | 0.69226 | 0.69626 | 0.70026 |
| 32       | 0.63645 | 0.64545 | 0.65245 | 0.65545 | 0.66245 | 0.66645 | 0.67045 | 0.67445 | 0.67845 | 0.68245 | 0.68645 | 0.69045 |
| 33       | 0.62664 | 0.63564 | 0.64264 | 0.64564 | 0.65264 | 0.65664 | 0.66064 | 0.66464 | 0.66864 | 0.67264 | 0.67664 | 0.68064 |
| 34       | 0.61683 | 0.62583 | 0.63283 | 0.63583 | 0.64283 | 0.64683 | 0.65083 | 0.65483 | 0.65883 | 0.66283 | 0.66683 | 0.67083 |
| 35       | 0.60702 | 0.61602 | 0.62302 | 0.62602 | 0.63302 | 0.63702 | 0.64102 | 0.64502 | 0.64902 | 0.65302 | 0.65702 | 0.66102 |
| 36       | 0.59721 | 0.60621 | 0.61321 | 0.61621 | 0.62321 | 0.62721 | 0.63121 | 0.63521 | 0.63921 | 0.64321 | 0.64721 | 0.65121 |
| 37       | 0.58740 | 0.59640 | 0.60340 | 0.60640 | 0.61340 | 0.61740 | 0.62140 | 0.62540 | 0.62940 | 0.63340 | 0.63740 | 0.64140 |
| 38       | 0.57759 | 0.58659 | 0.59359 | 0.59659 | 0.60359 | 0.60759 | 0.61159 | 0.61559 | 0.61959 | 0.62359 | 0.62759 | 0.63159 |
| 39       | 0.56778 | 0.57678 | 0.58378 | 0.58678 | 0.59378 | 0.59778 | 0.60178 | 0.60578 | 0.60978 | 0.61378 | 0.61778 | 0.62178 |
| 40       | 0.55797 | 0.56697 | 0.57397 | 0.57697 | 0.58397 | 0.58797 | 0.59197 | 0.59597 | 0.59997 | 0.60397 | 0.60797 | 0.61197 |
| 41       | 0.54816 | 0.55716 | 0.56416 | 0.56716 | 0.57416 | 0.57816 | 0.58216 | 0.58616 | 0.59016 | 0.59416 | 0.59816 | 0.60216 |
| 42       | 0.53835 | 0.54735 | 0.55435 | 0.55735 | 0.56435 | 0.56835 | 0.57235 | 0.57635 | 0.58035 | 0.58435 | 0.58835 | 0.59235 |
| 43       | 0.52854 | 0.53754 | 0.54454 | 0.54754 | 0.55454 | 0.55854 | 0.56254 | 0.56654 | 0.57054 | 0.57454 | 0.57854 | 0.58254 |
| 44       | 0.51873 | 0.52773 | 0.53473 | 0.53773 | 0.54473 | 0.54873 | 0.55273 | 0.55673 | 0.56073 | 0.56473 | 0.56873 | 0.57273 |
| 45       | 0.50892 | 0.51792 | 0.52492 | 0.52792 | 0.53492 | 0.53892 | 0.54292 | 0.54692 | 0.55092 | 0.55492 | 0.55892 | 0.56292 |
| 46       | 0.49911 | 0.50811 | 0.51511 | 0.51811 | 0.52511 | 0.52911 | 0.53311 | 0.53711 | 0.54111 | 0.54511 | 0.54911 | 0.55311 |
| 47       | 0.48930 | 0.49830 | 0.50530 | 0.50830 | 0.51530 | 0.51930 | 0.52330 | 0.52730 | 0.53130 | 0.53530 | 0.53930 | 0.54330 |
| 48       | 0.47949 | 0.48849 | 0.49549 | 0.49849 | 0.50549 | 0.50949 | 0.51349 | 0.51749 | 0.52149 | 0.52549 | 0.52949 | 0.53349 |
| 49       | 0.46968 | 0.47868 | 0.48568 | 0.48868 | 0.49568 | 0.49968 | 0.50368 | 0.50768 | 0.51168 | 0.51568 | 0.51968 | 0.52368 |



| variable | 32      | 33      | 34      | 35      | 36      | 37      | 38      | 39      | 40      |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1        | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |
| 2        | 0.95472 | 0.96911 | 0.94142 | 0.95953 | 0.97325 | 0.97501 | 0.97006 | 0.96823 | 0.95732 |
| 3        | 0.87773 | 0.93028 | 0.81748 | 0.89856 | 0.87931 | 0.77522 | 0.82457 | 0.82292 | 0.83363 |
| 4        | 0.92518 | 0.93028 | 0.79744 | 0.89856 | 0.87931 | 0.80665 | 0.81421 | 0.81302 | 0.80245 |
| 5        | 0.84545 | 0.87931 | 0.85734 | 0.87931 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 |
| 6        | 0.82524 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 |
| 7        | 0.82524 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 |
| 8        | 0.75278 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 |
| 9        | 0.95520 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 |
| 0        | 0.85577 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 | 0.85734 |

|   | 42      | 43      | 44      | 45      | 46      | 47      | 48      | 49      |  |
|---|---------|---------|---------|---------|---------|---------|---------|---------|--|
| 1 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |  |
| 2 | 0.97951 | 0.95913 | 0.94443 | 0.95976 | 0.97400 | 0.97400 | 0.97400 | 0.97400 |  |
| 3 | 0.94032 | 0.95913 | 0.94443 | 0.95976 | 0.97400 | 0.97400 | 0.97400 | 0.97400 |  |
| 4 | 0.97520 | 0.95913 | 0.94443 | 0.95976 | 0.97400 | 0.97400 | 0.97400 | 0.97400 |  |
| 5 | 0.83694 | 0.95913 | 0.94443 | 0.95976 | 0.97400 | 0.97400 | 0.97400 | 0.97400 |  |
| 6 | 0.85696 | 0.95913 | 0.94443 | 0.95976 | 0.97400 | 0.97400 | 0.97400 | 0.97400 |  |
| 7 | 0.94207 | 0.95913 | 0.94443 | 0.95976 | 0.97400 | 0.97400 | 0.97400 | 0.97400 |  |
| 8 | 1.00000 | 0.85517 | 0.84478 | 0.85065 | 0.88333 | 0.94547 | 0.89157 | 1.00000 |  |

## APPENDIX D

### TEST FOR SIGNIFICANCE OF CORRELATION COEFFICIENTS USING FISHER Z'-TRANSFORMATION

Principals: Personal Roles

1.  $H1_{s-a}$       TSI      .96014  
                    RI      .86475

$$z'_1 = 1/2 \log \frac{1 + r_1}{1 - r_1} = 1/2 \log \frac{1.96014}{.04} = 1/2 \log (49.0) = 1.946$$

$$z'_2 = 1/2 \log \frac{1 + r_2}{1 - r_2} = 1/2 \log \frac{1.86475}{.14} = 1/2 \log 13.32 = 1.295$$

$$d = z'_1 - z'_2 = 1.946 - 1.295 = .65$$

$$\sigma_d = \frac{1}{203} + \frac{1}{108} = .0049 + .0093 = .119$$

$$t = \frac{.65}{.119} = .547$$

Principals: Occupational Roles

2.  $H1_{s-b}$       TSI      .96927  
                    RI      .85966

$$z'_1 = 1/2 \log \frac{1 + r_1}{1 - r_1} = 1/2 \log \frac{1.96927}{0.3073} = 1/2 \log (64.08) = 2.08$$

$$z'_2 = 1/2 \log \frac{1.85966}{.14034} = 1/2 \log (13.25) = 1.290$$

$$d = 2.08 - 1.29 = .79$$

$$\sigma_d = \frac{1}{203} + \frac{1}{108} = .119 \qquad t = \frac{.79}{.119} = 6.64$$

## Employees: Personal Roles

$$1. H1_{s-a} \quad \begin{array}{l} \text{TSI vs. Success} = .96020 \\ \text{RI} = .86847 \end{array}$$

$$\begin{aligned} z'_1 &= 1/2 \log \frac{1+r_1}{1-r_1} = 1/2 \log \frac{1.96020}{.04} \\ &= 1/2 \log (49.005) \\ &= 1.946 \end{aligned}$$

$$z'_2 = 1/2 \log \frac{1+r_1}{1-r_1} = 1/2 \log \frac{1.86847}{.13}$$

$$d = z'_1 - z'_2 = 1.946 - 1.327 = .62$$

$$\sigma_d = \frac{1}{203} + \frac{1}{108} = .0649 + .0093 = .119$$

$$t = \frac{.62}{.119} = 5.20$$

## Employees: Occupational Roles

$$2. H1_{s-b} \quad \begin{array}{l} \text{TSI} = .95834 \\ \text{RI} = .83583 \end{array}$$

$$z'_1 = 1/2 \log \frac{1+r_1}{1-r_1} = 1/2 \log \frac{1.95834}{.04} = 1.93$$

$$z'_2 = 1/2 \log \frac{1+r_2}{1-r_2} = 1/2 \log \frac{1.83583}{.16} = 1.21$$

$$d = z'_1 - z'_2 = 1.53 - 1.21 = .72$$

$$\sigma_d = \frac{1}{203} + \frac{1}{108} = .119$$

$$t = \frac{.72}{.119} = 6.05$$

With  $t$  values for principals in personal and occupational roles of 5.47 and 6.64, respectively, and for employees of 5.20 and 6.05, and checking for infinite degrees of freedom, the differences between the correlation coefficients for both groups in personal and occupational roles are significant beyond the .001 level ( $t = 3.291$  for a two-tailed test at .001 level of significance).

APPENDIX E

TESTS OF SIGNIFICANCE

Test of Significance of Correlation Coefficients  
of Risk Indices and Probability Indices

Principals

Own Money

Agency Money

Risk Index vs. Probability Index

Risk Index vs. Probability Index

$$r = .89270$$

$$r = .89954$$

Formula:

$$t = r \sqrt{\frac{n-2}{1-r^2}}$$

Own Money

$$t = .89270 \sqrt{\frac{206 - 2}{1 - .79691}}$$

$$= .89270 \sqrt{\frac{204}{.2031}}$$

$$= .89270 (31.69)$$

$$t = 28.29$$

Agency Money:

$$t = .89954 \sqrt{\frac{206 - 2}{1 - .80917}}$$

$$= .89954 \sqrt{\frac{204}{.19083}}$$

$$= .89954 (32.70)$$

$$t = 29.41$$

Own MoneyAgency Money

Risk Index vs. Probability Index

Risk Index vs. Probability Index

.90740

.89157

## Formula

Own Money:

$$\begin{aligned}
 t &= .90740 \sqrt{\frac{111 - 2}{1 - .82337}} \\
 &= .90740 \sqrt{\frac{109}{.17663}} \\
 &= .90740 (24.84) \\
 t &= 22.54
 \end{aligned}$$

Agency Money:

$$\begin{aligned}
 t &= .89157 \sqrt{\frac{111 - 2}{1 - .79490}} \\
 &= .89157 \sqrt{\frac{109}{.20510}} \\
 &= .89157 (23.05) \\
 t &= 20.55
 \end{aligned}$$

T Test for Significant Difference in the Means  
of the Perceived Risk Levels for Personal  
and Occupational Roles

Formulas:  $t = \frac{\bar{x}_1 - \bar{x}_2}{\sigma_{\bar{x}_1 - \bar{x}_2}}$  where  $\sigma_{\bar{x}_1 - \bar{x}_2} = \frac{n_1 \sigma_1^2 + n_2 \sigma_2^2}{n_1 + n_2} \cdot \frac{1}{n_1 n_2}$

| Principals | <u>Personal</u>    | <u>Occupational</u> |
|------------|--------------------|---------------------|
|            | $n_1 = 206$        | $n_2 = 206$         |
|            | $\bar{x}_1 = 3.13$ | $\bar{x}_2 = 2.89$  |
|            | $\sigma_1 = 1.54$  | $\sigma_2 = 1.56$   |

$$\sigma_{\bar{x}_1 - \bar{x}_2} = \frac{206 (1.54)^2 + 206 (1.56)^2}{206 + 206 - 2} \cdot \frac{1}{(206)^2} = .155$$

$$t = \frac{3.13 - 2.89}{.155} = \frac{.24}{.155} = 1.55$$

| Employees | <u>Personal</u>    | <u>Occupational</u> |
|-----------|--------------------|---------------------|
|           | $n_1 = 111$        | $n_2 = 111$         |
|           | $\bar{x}_1 = 2.85$ | $\bar{x}_2 = 2.72$  |
|           | $\sigma_1 = 1.51$  | $\sigma_2 = 1.61$   |

$$\sigma_{\bar{x}_1 - \bar{x}_2} = \frac{111 (1.51)^2 + 111 (1.61)^2}{111 + 111 - 2} \cdot \frac{1}{(111)^2} = .217$$

$$t = \frac{2.85 - 2.72}{.217} = \frac{.13}{.217} = 0.599$$