LIR 832 Final Project—Compensation System Change

Project Overview

The purpose of the Final Project is to demonstrate mastery in statistical analysis (both conceptually and computationally) and research design. Groups will be given a research scenario as well as an associated dataset. The assignment involves critiquing the research design, conducting a series of statistical analyses, interpreting these analyses graphically, and providing practical recommendations based on analytical results. The Final Project will consist of a written research report (7-10 pages of text plus graphics). The report and presentation are expected to be professional summaries much like realistic executive reports that would be given in an organization.

Research Report

The written research report should consist of the following sections:

- Executive summary
- Summary of purpose & research question for the project
- Description of research design and critique (i.e. strengths, weaknesses, limitations).
- Results: hypotheses, statistical results, graphics.
- Discussion: interpretation of results and business recommendations.
- Future recommendations/improvements?

Research Scenario

Your team has been assigned a compensation project by the Senior Vice President of HR here at ACME & Co. The project involves auditing and changing the compensation system at several new locations obtained in a recent acquisition. The newly acquired locations have previously been embroiled in problems including high turnover and low performance among employees, and your team has been charged with helping to resolve these issues. Past HR research has indicated that money is a powerful motivator, and thus your team has decided to implement a partial pay-for-performance compensation system in order to reduce turnover intentions and increase performance.
In order to draw some conclusions as to whether the compensation system will be effective for ACME & Co., you decide to pilot the new compensation system at two of the newly acquired locations. The two sites were chosen by the VP of HR because they are among the most problematic of the new acquisitions. The sites are both smaller in size relative to the majority of the other sites, and are both located on the West Coast.

To get baseline measures of turnover intentions and performance (these are the variables of interest), you consult previous HR records collected under the old ownership one year prior to the acquisition. The turnover intentions data were collected by self-report surveys, and performance ratings were composites of supervisor and co-worker ratings of job performance. A second wave of data is collected one year after the acquisition, again measuring turnover intentions and performance in similar manners. These are the variables that the VP of HR specifically asked you to measure; the VP asked that you measure only these variables for the pilot test. The VP of HR also requested that you measure these variables at the test site only.

1. What are the strengths and weaknesses associated with this type of research design?
   a. What would you have done differently or in addition to what was done here in terms of research design?

2. What additional data would you have collected keeping in mind that your organization has limited resources?

3. What are the some of the threats to validity associated with this type of design?

4. Are the appropriate data sources being used to collect the data of interest? Why or why not?

5. How well do you think your results will generalize to the population of interest?

For your presentation, be able to interpret your findings (below) in light of these considerations. Keep in mind that while you know what really good research is, you have been given certain restrictions by the VP of HR.

Using the dataset provided, conduct the appropriate hypothesis tests using MS Excel or Minitab and include the output in your report. Be able to carefully interpret this output in terms of the results of the hypothesis tests, and be able to explain the implications of these tests. Be sure to include graphical information about mean differences as well as potential interaction effects in your report, and perhaps in your oral presentation. **For the z and t-tests, but sure to include measures of effect size (i.e. Cohen’s d or r²).

Descriptive Statistics

Using Minitab, create descriptive statistics in graphical form that summarize where the employees at the two business units stand on the variables of interest. For your
presentation, be able to explain these graphics in terms of a) central tendency and b) variability. Do this for both Time 1 (baseline) and Time 2 (post intervention). Use these statistics to highlight change (or lack thereof) in your variables of interest.

Probability and Hypothesis Testing

If the employees from your organization as a whole (all sites) were measured on their turnover intentions and had a mean score of 3.75 with a standard deviation of 1.00, conduct a hypothesis (alpha .05) test to evaluate whether or not the employees sampled have the same intent to turnover (use measure from Time 1). Construct a 95% confidence interval to buttress your hypothesis test and interpret. Based on this information, how appropriate is it that you generalize your pilot results to the entire population, i.e. the rest of the acquired units? Repeat this test, this time assuming that the turnover intentions among the sample units is greater than the broader population.

You want to determine if there has been a change in i) turnover intentions and ii) performance over time in your sample as to be able to generalize to the broader population (i.e. the rest of the acquisition). Form the appropriate null and alternative hypotheses for each of the hypothesis tests with an alpha of .05. While you hope that both measures “more positive” from baseline to post-intervention, conduct two-tailed hypothesis tests along with 95% confidence intervals. For each test, be sure to talk about your level of confidence with your hypothesis tests, i.e. explain your confidence intervals, as well as the probability that you have committed an error (Type I).

The VP of HR has also asked that you compare male employees versus female employees at Time 1. The VP supposes that male employees have been systematically rated higher than female employees, and also (perhaps as a result) have lower turnover intentions. Use an alpha of .05 for these tests.

You would also like to determine whether an employee’s career stage (early, mid, late) is related to turnover intentions at Time 2. The VP also asks you to investigate whether race is a factor in turnover intentions, specifically whether racial minorities and majorities have different turnover intentions at time 2. The VP expects that employees who are later in their careers, and also those that are racial majorities, will have lower turnover intentions than those who are earlier in their careers and are racial minorities. Moreover, the VP predicts that these variables will interact such that those employees who are later in their careers and who are racial majorities will have the highest levels of turnover intentions at Time 2. Again, form the appropriate null and alternative hypotheses, and test these hypotheses with alphas set at .05.

Correlation & Regression

The VP of HR is also interested in whether or not i) conscientiousness (a personality variable), ii) organizational tenure (7-levels) and iii) agreeableness (a personality variable) and iv) Compensation (9-levels) are related to job performance and
turnover intentions at Time 2. You obtain these measures from archival employee records. The VP expects that conscientiousness, tenure, agreeableness and career stage will be positively related to job performance and turnover intentions at Time 2.

Using the dataset provided, use Minitab to test these predictions both at a bivariate level (i.e. using correlation analysis), as well as the multivariate level (i.e. multiple regression). Before doing so, form the appropriate null and alternative hypotheses. Include relevant output in your report and interpret. For the regression analysis, be sure to include full information about your model, i.e. $R^2$, interpretations of coefficients including hypotheses tests, as well as potential problems with your model, such as omitted variables. Explain the results and their implications.