Employee Retention at D&Y

Demand for systems analysts in the consulting industry is very strong. Graduates with experience in the consulting business and those who have extensive computer knowledge are getting great offers from consulting companies. Once these people are hired, they frequently switch from one company to another as competing companies lure them away with even better offers. One consulting company, D&Y, has collected data on a sample of system analysts they hired with an undergraduate degree several years ago. The data are in the attached Minitab file.

StartSal: Employee’s starting salary at D&Y.

OnRoadPct: Percentage of time employee has spent on the road with clients.

StateU: Whether the employees graduated from the State University.

CISDegree: Whether the employee majored in computer Information Systems or a similar program.

Stayed3Yrs: Whether the employee stayed at least 3 years.

Tenure: Tenure of employee at D&Y (months) if he or she moved before 3 years.

**Problems: (Please provide all MiniTab work with solutions)**

1. Although starting salaries are in a fairly narrow band, D&Y wonders whether they have anything to do with retention.

**a.** Find the 95% confidence interval for the mean starting salary of all employees who stay at least 3 years with D&Y.

**b.** Do the same for those who leave before 3 years.

**c.**. Management believes that, on average, those employees that left before 3 years might be getting paid less than those that stayed beyond 3 years. Although there might be a point estimate difference, is there enough evidence in this data to support this theory? Perform a hypothesis test at the 10% level of significance.

**d.** Among all employees whose starting salary is below the median ($37,750), find a 95% confidence interval for the proportion who stay with D&Y for at least 3 years.

**e.** Find a 95% confidence interval for the proportion who stay with D&Y for at least 3 years but this time with starting salaries above the median.

**f.** Find a 95% confidence interval for the difference between these proportions. From this interval, can we conclude that there is a significant difference in the proportions at the 5% level of significance?

2. D&Y wonders whether the percentage of time on the road might influence who stays and who leaves.

**a.** Find the 95% confidence interval for the percentage of time employees stay on the road for those that stay at least 3 years with D&Y.

**b.** Find the 95% confidence interval for the percentage of time employees stay on the road for those that leave before 3 years.

**c.** Can we conclude that there is a statistical difference between the mean percentages of time on the road of those that stayed at least 3 years and those that did not? Test at the 10% level of significance.

**d.** Among all employees who travel less than the median (54%), find the 95% confidence interval for the proportion who stay with D&Y for at least 3 years.

**e.** Do the same for the employees that travel more than the median who have stayed beyond 3 years.

f. Then find the 95% confidence interval for the difference between proportions. From this confidence interval, can we conclude that there is a significant difference in the proportions?

**NOTE:**

For every confidence interval that you calculate, **give your interpretation of the confidence interval.** Also, for every hypothesis test that you perform, **clearly state the null and alternative hypotheses, and interpret your findings**. You can use the p-value approach or the critical value approach. Obviously, the p-value approach is the easiest given the alpha levels that are specified.

**Do all of the analysis in MINITAB.** You will have to sort the data numerous times based on different variables.