P   Discovery Project

Understanding Credit Scores

There are many factors that determine one's eligibility to obtain credit. Several factors are considered such as education level and credit scores. An individual's credit score is a good predictor of one's ability to manage their finances and pay their debts responsibly. See Credit Score: Definition, Factors, & Improving It (investopedia.com) for more information on understanding credit scores. Credit scores are used to determine your eligibility for credit cards, car loans, and even for some types of insurance. Often when an individual has a lower credit score, they will have higher interest rates and lower borrowing capacity for loans and credit cards.

Suppose you are working in the marketing department for a large credit card company. Your company is launching a new credit card and will be mailing information to prospective customers. You are examining information from your current customers and are interested in understanding the differences in credit scores among groups of customers. You are looking at factors such as marital status, how many credit cards are used by the customer, and whether they rent or own their home.

Using the Credit Card Data file, answer the following questions to better understand your current customer base. The data set includes credit scores and data on nine (9) predictor (159 data points).

Data

This data set can be found on stat.hawkeslearning.com under **Discovering Business Statistics, Second Edition > Data Sets > Credit Card Data**.

1. Download the data file and open it in Microsoft Excel.

2. Determine the mean, mode, median, maximum, minimum, standard deviation, and the coefficient of variation of the following variables: age, total credit limit, total balance, credit score, annual household income, and number of children and briefly discuss the results. (Hint: these values can be quickly calculated using the Data Analysis Add-in: Descriptive Statistics in Excel).

3. Fully summarize the qualitative variables (i.e., What percent of the sample has a college degree) and briefly discuss your findings. (Hint: These values can be quickly determined using the Data Analysis Add-in: Histogram in Excel).

4. Determine if there is a difference in credit scores for those that are single (marital status = 0) versus those that are married (marital status = 1) using the appropriate hypothesis test. Use a significance level of 0.05.

5. Is there a higher proportion of customers that own (housing = 1) their home as opposed to renting (housing = 0)? Conduct the appropriate hypothesis test using a significance level of 0.10.

6. Determine if there is a difference greater than $2,000 in the total balance on all credit cards between those that have children versus those that do not have any children using the appropriate hypothesis test. Use a significance level of 0.01.

7. Is there a difference in the proportion of customers that have some college (education level = 2) or a college degree (education level = 3) versus those that have a high school diploma (education level = 1)? Conduct the appropriate hypothesis test using a significance level of 0.05.

8. Determine if customers under 40 have a fewer number of credit cards issued versus those customers 40 or older using the appropriate hypothesis test. Use the 0.10 significance level.

9. Is there a difference in household income based on being married (marital status = 1) or separated/divorced (marital status = 2)? Conduct the appropriate hypothesis test using a significance level of 0.05.

10. Determine whether the variances of the total credit limit differ by housing status (own = 1/rent = 0). Conduct the appropriate hypothesis test using the 0.01 significance level.

11. Briefly summarize your findings from this data set to your manager.