THE CIRCLE OF CREDIT: A COMPREHENSIVE ANALYSIS OF COLLEGE STUDENTS' CREDIT CARD USAGE TO BOOST CREDIT SCORES.

by

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A THESIS

Presented to the Department of Business Administration
and the Robert D. Clark Honors College
in partial fulfillment of the requirements for the degree of
Bachelor of Science

May 2023

An Abstract of the Thesis of

Josephene Lehner for the degree of Bachelor of Science
in the Department of Business Administration to be taken June 2023

Title: The Circle of Credit: A Comprehensive Analysis of College Students' Credit Card Usage to Boost Credit Scores

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Primary Thesis Advisor

This thesis focuses on undergraduate students' knowledge and behaviors of credit and how this relates to credit card usage. This information assesses how college students approach credit management and credit scores. While this study focuses on a niche subject obtaining this information is vital in understanding how financial literacy plays a role in college students' lives. Furthermore, due to the relatively small scope of the project, results should be viewed through an experimental lens. The primary method of data collection is a Qualtrics survey. The survey was administered to undergraduate students in the Lundquist College of Business (LCB). I contacted several professors in the LCB and emailed them a link to the survey. The professors then chose to distribute the survey in the most appropriate and comfortable way. The survey was open for approximately two weeks. In those two weeks, a total of 73 responses were collected. The survey was anonymous; therefore, no identifiable information was collected from participants despite some primary demographic data. The results were exported to R studio, where the data was cleaned and analyzed. The results show both a positive and negative relationship between knowledge and behavior. Thus, the results were inconclusive and require further testing to establish a dominant correlation, if there is one.

Acknowledgments

I would like to thank my primary advisor, Maria Chaderina, for guiding me on this journey. This work would not be possible without you, and I am eternally grateful for your mentorship and advice throughout this process. I would also like to thank my CHC representative, Professor De Onís, and second reader Professor Nelson for bringing a fresh perspective to this thesis. In addition, I would like to thank the many professors at the Lundquist College of Business who helped distribute my survey to undergraduate students in the LCB. Data collection would not be possible without your unwavering support for my work and ability to help students pursue their passions. In addition, I would like to thank the DREAM lab and all mentors who helped me in the lab. Not only did you help me learn how to code you did so in a gracious way that was exciting and inspired me to learn more than what was required. Furthermore, I would like to thank my friends who offered unwavering support even when I faced great adversity. Lastly, I want to acknowledge my family, who sacrificed greatly to send me to the University of Oregon. This thesis represents your unwavering belief in my abilities and my passion for helping students succeed.

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Introduction

Integration of Credit and Financial Literacy

The financial literacy of college students is highly dependent on current knowledge and behaviors exhibited based on knowledge. For this research, I will examine students' credit card behaviors and credit knowledge to understand how this relates to students' credit scores and management. A credit card is attached to an account that banks manage. While debit cards are strictly reliant on the amount of money a person has, credit card accounts are where a consumer borrows from a lender, the bank. After applying for a credit card, it is up to the lender to decide whether a specific person can be a borrower. If the application is approved, the bank will set a credit limit and annual percentage rate for the account. A credit limit is a limit a person can borrow and spend. While APR refers to the Annual Percentage Rate and is more commonly referred to as a credit account interest rate, APR also includes other fees and points not addressed in the interest rate (McMillin). While all this information appears complicated, it is essential to understand how credit cards function. It's important to note that financial literacy is a skill that is built over time. With the increasing costs of housing, transportation, and higher education, learning these skills now is extremely important. Unlike in the 1990s or early 2000s, many institutions do not teach rudimentary financial knowledge. This knowledge is expected to be taught by parents or learned through induvial efforts. Thus, this thesis will be a tool to see how students today engage with credit. Therefore, the primary goal of this research is to analyze students' credit card activity and how knowledge informs these decisions. I will do this by referring to the model I created, The Circle of Credit.

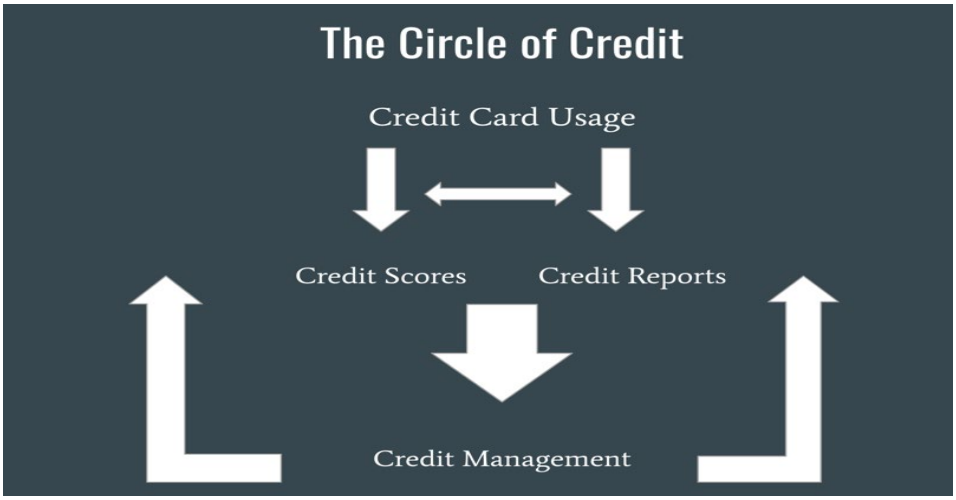

Figure 1: The Circle of Credit

This figure depicts the flow of information beginning with Credit Card Usage. The arrows indicate the flow of information and actions throughout the system. The cyclical model will continue repeating unless a credit card is canceled.

Figure 2: FICO 8 score Ranges

This figure depicts the score ranges of Credit. This is what lenders and borrowers deem an individual's credit score.

(McClanahan, "FICO 8 score Ranges")

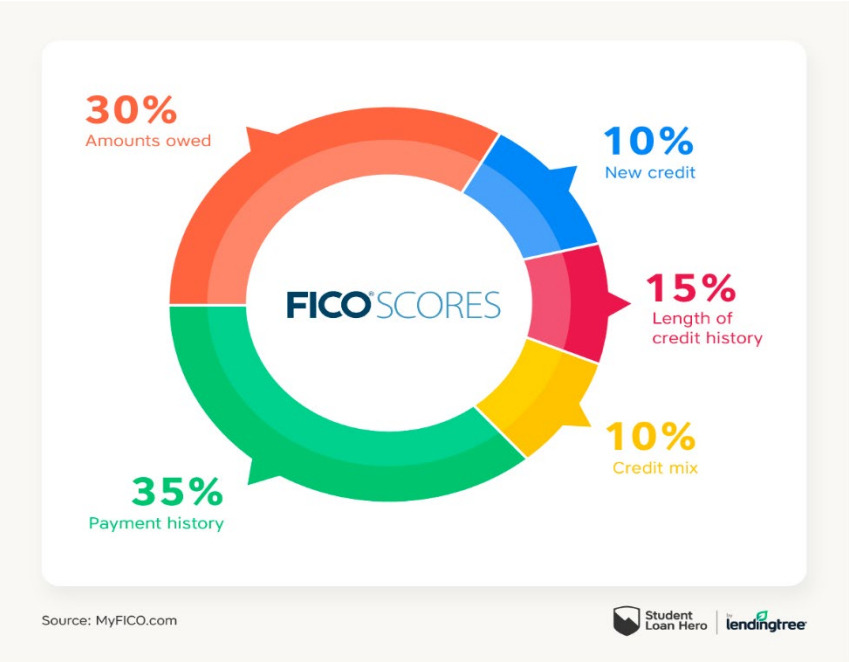

Figure 3: Credit Score Breakdown

This figure represents the inputs of determining an individual's credit score. Lenders will consider all five criteria when determining an individual's credit risk.

(Insler, “FICO Credit Score Breakdown”)

Understanding the Circle of Credit

The circle of credit has four main components: Credit Card Usage, Credit Scores, Credit Reports, and Credit management. Credit Card Usage refers to students' behaviors when purchasing items with their credit card(s) and how they pay off this balance. In Figure 1, you can see the flow of information in the Circle of Credit. Information and behaviors follow a cyclical pattern. Credit card usage will directly impact scores, reports, and management. In Figure 2, Credit scores are measured on a scale of 350 to 800 (McClanahan). Credit Reports are detailed reports of an individual's payment history, debt, and criminal record. Credit scores and reports are different; however, they can be used to assess an individual's credit risk (DeNicola). In

Figure 3, credit management refers to managing the inputs of credit scores: amounts owed, new credit, length of credit history, credit mix, and payment history (Insler). These four components feed into one another to create The Circle of Credit. The model serves as a basis for my research and pictures the flow of information from the point of purchase to credit management.

Purpose of Study and Research Questions

The project's essence is to increase college students' credit management skills by analyzing credit card behavior and credit knowledge. While this is a very niche subject, the overall encompassing idea falls under financial literacy. Therefore, throughout my research, I predict that students with less knowledge will exhibit poor decision-making. Therefore, their behaviors could be more erratic and detrimental to their credit scores and ability to manage credit properly. This is important because having a poor credit score and history can make it more challenging to buy a car, buy or lease a home, and even obtain a job (Kurt). Based on this theory, students with more knowledge exhibited through correct answers to knowledge-based questions will better manage their credit and engage in fiscally sound behavior. Based on this hypothesis, my research will address the following questions:

- What behaviors are students engaging in that impact their credit?
- Are students actively managing their credit?
- Does an increase or decrease in knowledge affect the management of credit cards? How does this affect scores and reports?
- Is there a correlation between students' credit knowledge and credit management behavior?
- How can these behaviors be addressed to better educate and inspire students to manage credit following graduation properly?

Literature Review

Preliminary Study

The preliminary study examined observed: “A sample of 1,354 students from a major southeastern university” in which researchers studied “whether or not more knowledgeable students differ in their overall credit card use behaviors when compared with less knowledgeable students” (Robb). Robb and his team of researchers sampled the entirety of the student population via an online survey. Robb incentivized students by entering those students who did participate in a raffle giveaway for a $150 gift card to the local mall. Furthermore, through multiple regression analysis, Robb and his team found that “greater personal financial knowledge is associated with more responsible credit card use behavior” (Robb). Throughout each regression, Robb’s team found evidence that increased knowledge resulted in less risky behavior and misuse. To be more specific, Robb and his team asked in the survey how students pay off their monthly credit card balances. This refers to making the minimum payment required, not paying off the card at all, or paying off the card in full. They found, “Students with high scores on the knowledge measure are less likely to report making only the minimum payment relative to students with mid-level scores” (Robb). This is important because only paying the minimum payment results in interest being charged. When interest is charged on a credit card, the borrower will pay more than they spent. For example, if a consumer were to buy a $400 purse and charge that payment to their credit card and then fail to make any payment at the end of the month, they would be charged additional interest on top of paying the $400 back to the bank. If the APR were 24%, the consumer would pay approximately 2% of monthly interest. This means the actual payment due would be $480. However, it must be noted that Robb’s study and this thesis do not recognize money's time value. The time value of money refers to the idea that the value of a

dollar today will always be more than tomorrow's value. While this pertains more to loans and mortgages, it does serve as a basis for financial literacy. Ultimately, Robb and his team found evidence that financial literacy will significantly impact college students' behavioral use and management of credit cards.

Secondary Study

The second study observed, “college students' use of credit at two points in time” (Hayhoe). This study wanted to see how credit usage changed over two years. Students were first invited to participate in an anonymous survey in the spring of 1997 and then were again asked to participate in a second survey, which was not anonymous, in the spring of 1999. While this thesis research does not have the luxury of examining students’ behaviors and knowledge at two different points in time, research that does this is crucial in understanding how knowledge and behavior may change as students grow older and enter the workforce. Before data collection, the researchers examined secondary information which they found, “College students have grown up in a credit card society and use this type of debt freely… A "community of debtors" creates an environment that reinforces one's beliefs and attitudes. When college students are trying to "fit in" with a group, joining a "community of debtors" can be an outcome” (Hayhoe). This is particularly interesting as it speaks to the psychology behind credit card use of college students. While debt is due to various circumstances, college students’ normalizing debt could be problematic. However, this does not consider the rising costs of collegiate education. In this study, I specifically ask how students build credit, with one of the options being loan repayments. I expect many students to be paying or getting ready to repay student loans. After comparing the results, Hayhoe and her team found a “Significant relationship…that students who had graduated were more likely to have lower affective credit scores” (Hayhoe). Affective credit

scores describe a person's attitude toward using credit. Hayhoe and her research team found that students who graduated were not as happy about using credit cards. In addition, they explained that this was most likely due to misuse of credit cards during their time in college, in which they would be facing those consequences now. This study aims to increase education so that students can enter the workforce without the constraints of poor credit and a negative view of credit card usage.

Methods

Overview of Survey

The survey consisted of four main blocks: Consent and major, behavioral questions, knowledge-based questions, and demographic questions (Appendix Qualtrics Survey). The survey was distributed through three channels. The primary method of distribution was through professors in the LCB. I contacted multiple professors and asked them to distribute my survey to students in their classes. Professors distributed the survey link by the means they found most appropriate. This included emailing students in the class a link to the survey, including the survey link on their Canvas page, or asking me to speak about the study at the beginning of class. The survey was distributed in four courses: MKTG 435, BA 325, FIN 316 (multiple sections), and OBA 335. In addition, the survey was added as an event in the LCB calendar. This increased awareness and participation. Furthermore, I developed an advertisement to be circulated on LCB display monitors (Figure 4). The ad was displayed for approximately one week. Much like the calendar, the advertisement increased awareness of the survey and invited students to participate in the research. The survey was open for approximately two weeks, Weeks 4 through 6. This allowed ample time to collect as many responses as possible while allowing enough time to begin data analysis. Once data analysis concluded, the raw data was exported to Excel. I examined the data in Excel to ensure proper formatting before uploading the data frame into R Studio. In the meantime, a survey codebook was developed (Appendix Survey Codebook). The codebook is a source I created to rename the variables and indicate which numerical variable corresponds to each outcome. R Studio is where the data was cleaned and analyzed. The clean data, also labeled “work data” in the R Script, shows the responses included in the data analysis.

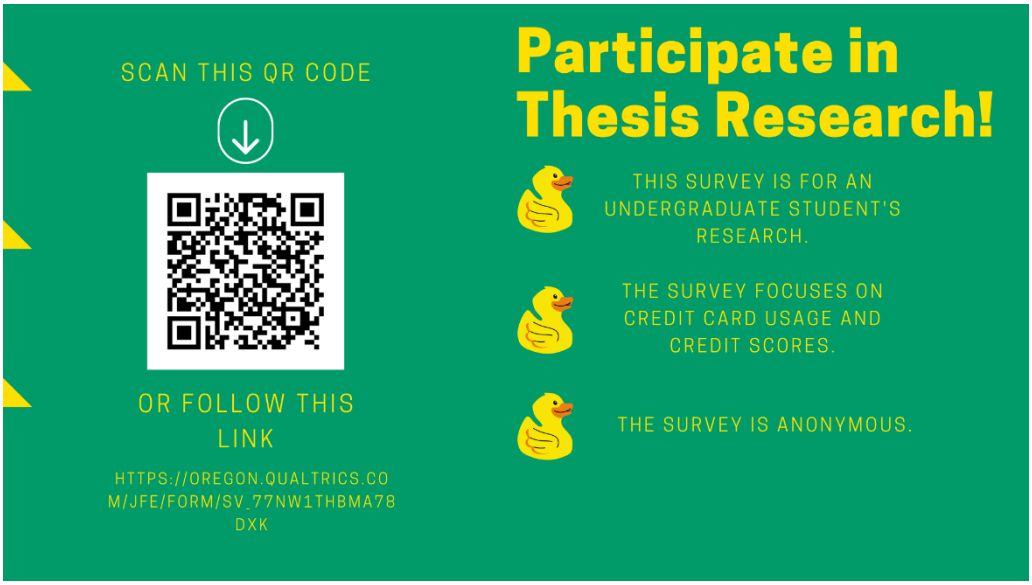

Figure 4: LCB Display Slide

This was the final display slide sent to the University of Oregon LCB.

Sampling Procedures

Out of the 73 students sampled, eight responses were dropped due to incompleteness, or they indicated their major was outside the LCB. In addition, students who did not consent to the survey were immediately sent to the end of the survey, and their responses were not collected. To sample correctly, the thesis followed the guidance of the central limit theorem, which "states that the distribution of sample means approximates a normal distribution as the sample size gets larger, regardless of the population's distribution" (Ganti). Therefore, it is widely accepted that enough responses would be roughly thirty for a sample larger than one thousand. In addition, smaller samples should equate to 10% of the sample size to be statistically significant (Ganti). According to the University of Oregon, there are approximately 3,482 undergraduate students in the Lundquist College of Business ("About the Lundquist College of Business"). Therefore, considering the relatively large sample size, 65 responses appear sufficient.

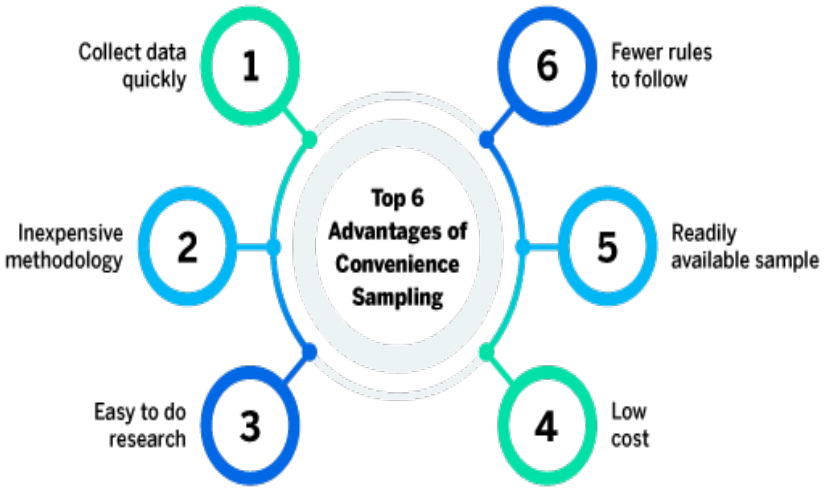

Figure 5: Advantages of Convenience Sampling

("Convenience")

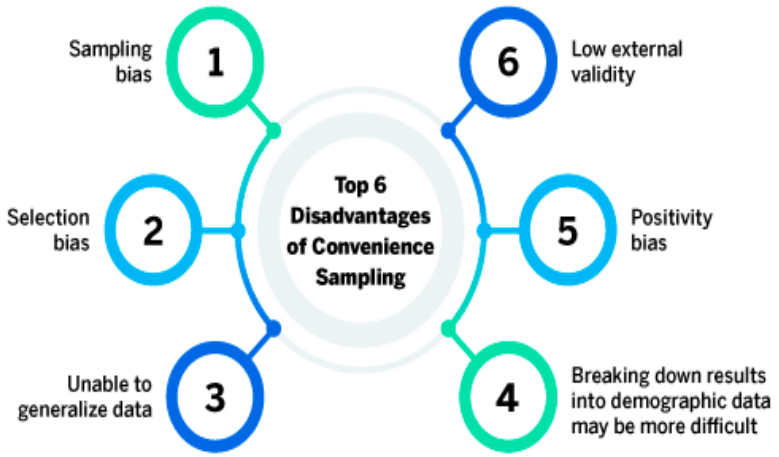

Figure 6: Disadvantages of Convenience Sampling

("Convenience")

Convenience Sampling

Advantages

To execute data collection, I chose to utilize convenience sampling. While I would have preferred random sampling, the time and money needed to be increased to sample the entire undergraduate student population at the University of Oregon ("Convenience"). However, I could gather data quickly (approximately two weeks), and I had increased access to the sample. Furthermore, this led to an increase in survey respondents and improved response quality. While I may have achieved more responses if I had sampled the entire undergraduate population, these samples could have been of less quality. In addition, I had no outside funding. Therefore, sampling the undergraduate students in the LCB, where I am also a student and have built connections, was the best option for this study. As I will explain further, sampling LCB students came with unique disadvantages and advantages. I assumed students in the LCB had at least some knowledge about credit, given the LCB's curriculum. However, based on personal experience, I was also aware that the LCB's core curriculum classes focused on business practices at a firm or global level. Therefore, I assumed sampling the LCB's students could be a fair indicator of credit knowledge and behavior.

Disadvantages

While convenience sampling increased my ability to reach the preferred sample population, it will inherently decrease my study's external validity ("Convenience"). This means the research should be viewed through an experimental lens and will require further testing to deny or accept the results presented. In addition, this research does not indicate how all undergraduate students interact with credit but rather a small snapshot of how some undergraduate students are impacted by credit. Furthermore, the results could be influenced by

the student's business backgrounds. While credit affects all students regardless of major, business students could be more informed than others. This is because credit is a financial principle and, thus, a business discipline. Throughout the sampling process, I tried to remain as neutral as possible. However, given my connections and concentration in Marketing, I found that the sample overrepresented MKTG concentrations as opposed to the remaining concentrations. In addition, given my age and the scope of coursework, there was no representation of “lower classman” students in the LCB.

Results

Summary Statistics

Demographics

Data analysis begins with summary statistics. Summary statistics is a way to understand the data better and identify the most critical questions for regression analysis. To better understand the results, refer to the survey codebook (Appendix Survey Codebook). According to Table 1, the average monthly expenses were $1,234.39, with the highest being $3,017. In addition, out of the students sampled, 39 identified as male, while 23 identified as female (Table 2). Considering the LCB has a higher ratio of men to women, the results appear indicative of this. This means 62% of the sample was male, and 48% was female. The ages of respondents ranged from 19 to 42, with most students in their early twenties (Table 3). Given the sample size and target sample, the age dispersion is congruent with the average age of undergraduate students. The results listed in Table 1 include only undergraduate students in the LCB; thus, the variable listed as "ST11" is not included in Table 1. In addition, the consent variable "CT5" was not included. Only students who consented to the survey were included in the data analysis. Out of the sampled respondents, the mean age was 21.52. This would indicate that most students following the "traditional" collegiate path would be juniors and seniors. Table 5 includes a list of all the majors included in the survey. While the list appears repetitive, the code had to include abbreviations and misspellings of the word "business" to include all business students. In addition, those students who noted their first major as finance, accounting, marketing, and sports business were all included in the analysis. This is because there are two undergraduate majors in the LCB, Accounting, and Business Administration, while those listed above are considered

concentrations that business students can pursue. Table 4 lists the concentrations of participants and the number of students in each concentration. Out of the students sampled, 50% indicated their concentration as MKTG. While this number appears high, considering the project's scope and coursework within MKTG classes, this aligns with previous predictions.

Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
STC24	56	2.161	1.437	1	5
AC14	65	2.923	1.136	1	5
CC3	65	1.138	0.348	1	2
CH4	56	1.071	0.260	1	2
PC6	56	1.464	1.008	1	4
RC29	56	3.946	1.656	1	5
AA25	52	18.404	1.839	12	22
CD18	56	3.679	1.223	1	5
CO20	56	2.339	1.225	1	6
PP30	55	2.527	0.940	1	5
DC24	64	1.000	0.000	1	1
DO29	64	2.344	1.711	1	6
PI10	62	1.484	0.844	1	3
FL19	62	1.081	0.375	1	3
HB28	62	1.129	0.424	1	3
FO26	62	5.065	0.973	1	6
AC25	62	1.339	0.477	1	2
HCP27	62	1.371	0.487	1	2
IC21	61	2.279	1.097	1	5
G19	57	1.544	0.537	1	3
AME28	57	1,234.386	612.554	500	3,017
BC16_1	53	1.000	0.000	1	1
BC16_2	14	1.000	0.000	1	1
BC16_3	2	1.000	0.000	1	1
BC16_4	15	1.000	0.000	1	1

Table 1: Summary Statistics of all Numeric Variables

This table shows the number of samples, mean, standard deviation, minimum, and maximum values for all numeric variables within the survey, excluding a few, such as consent and age.

Gender	# of Students
1	39
2	23

Table 2: Respondent's Gender

Ages	# of Students
19	2
20	16
21	19
22	14
23	3
25	2
42	1

Table 3: Frequency Distribution of Respondents' Ages

Concentration	# of Students
1	28
2	9
3	8
4	4
5	7

Table 4: Respondents' LCB Concentration

Table 4 shows the number of students who indicated their concentration as one of the seven listed. Two were not included Pre-Business and Non-Applicable.

Major	# of Students
accounting	1
Accounting	8
B.S. Business	1
ba	1
BA	1
business	1
Business	11
Business Adm.	1
Business Admin	3
business administration	2
Business administration	3
Business Administration	27
Business Admnistration	1
Finance	2
Marketing	1
Sports Business	1
TOTAL	65

Table 5: Respondents' Major

Knowledge-Based Questions

Credit Rating	# of Student
1	1
2	1
4	11
5	27
6	22

Table 6: FO26 Frequency Table

This table shows the number of students who chose a credit score correlating to the numeric numbers. The correct answer is option number 5, with a credit rating of 800 to 850.

Personal Interest rates are influenced by credit scores (T/F/NS)	# of Students
1	46
2	2
3	14

Table 7: PI10 Frequency Table

This table shows the number of students who answered T/F/NS to question PI10. The correct answer was 1.

# of days until payment is reflected	# of students
1	9
2	14
3	28
4	2
5	2

Table 8: PP30 Frequency Table

This table describes the # of days it would take a purchase to reflect on an individual credit card statement. The correct answer was number 3.

Respondents were asked knowledge-based questions to evaluate their credit scores and credit card knowledge. This can provide insight into what students already know and if they apply it positively or detrimentally. Most knowledge questions were asked in the latter half of the survey before collecting demographic information. Students were instructed to answer the questions to the "best of their ability." However, students were not aware there was a correct answer. In some questions, such as FO26 that asked students what the highest credit rating falls between, options 1 and 6 were both incorrect and not valid credit ratings. This was meant to ensure students were not choosing the highest or lowest numbers based on logic but choosing the correct answers based on current knowledge. Students were also given the option on some of the knowledge-based questions to answer, "Not sure," "Maybe," or "Neither True nor False." These questions aim to establish baseline data and not pressure students into choosing the "correct" answer. Thus, students were allowed to select one of the options above.

To be specific, Table 6 shows the students (27) who chose the correct option. This question is interesting because a large majority of students (22) chose the dummy variable meant to test if students knew what the highest credit rating falls between or if they would select the highest subset of numbers. Nearly 35% of the surveyed participants indicated that the highest credit rating falls between 851 and 900. However, as described in the introduction, a FICO credit rating exceeding 850 does not exist. This signals a gap in students in knowledge. FICO credit scores are one of the most straightforward ways consumers can analyze their credit risk. This could also indicate that students are unaware of FICO or the impact of credit scores if they cannot identify the highest credit rating.

Furthermore, the variable "PI10" asked students to answer true, false, or not sure to the following statement: Personal Interest rates are influenced by credit scores. Unlike the variable FO26, over 75% of the participants answered this question correctly. This could be due to increased knowledge of interest rates, interactions with student loans, or even car payments. While only two students answered false, 14 students responded not sure. While it appears that many students understand the relationship between interest and credit, 25% percent of students either chose incorrectly or are unsure. Like the previous question, this signals apparent gaps in knowledge and room for educational growth. Furthermore, respondents were asked when a purchase, if bought today, would reflect on their credit card statement. The correct answer was number three, within three business days. Again, 50% of students answered correctly, and 50% answered incorrectly. This rudimentary knowledge is vital to understand. This helps students pay off their credit cards on time and pay the correct amount. While this is not an overall assessment of the knowledge variables tested in the study, the data shows that LCB students lack credit knowledge.

Behavior-Based Questions

Pay off Monthly Balance	# of Students
1	45
2	2
3	3
4	6

Table 9: PC6 Frequency Table

This table describes how students pay off their monthly balance. See the survey codebook to understand the numerical values.

Building Credit	# of Students
1	10
2	5
3	39
4	2
5	9

Table 10: AC14 Frequency Table

This table describes how students are actively building credit or if they are building credit at all.

Roll Over Balance	# of Students
1	11
2	3
3	2
4	2
5	38

Table 11: RC29 Frequency Table

This table describes how many students roll over their monthly credit card balance or if they roll over their balance at all.

The first table on this page, Table 9, shows how students pay off their credit card's monthly balance. It's important to note that only students with a credit card were asked this

question (Appendix Qualtrics Survey). Most students (45) pay off their monthly balance in full. In addition, three students do not make any payments. This seems extremely promising and indicates that students are practicing positive credit behaviors. Students were also allowed to select “Other” and provide text to support this option. Out of the five respondents who chose this option, some of the responses included, “I assume my parents take care of it”, “Pay it off as soon as it shows up”, and “More than the minimum, but less than the full amount.” The assumption that parents will pay an individual's credit card balance is inherently risky. Considering the students sampled were all upper-classmen, graduation is nearing. Under the assumption that students will begin to support themselves following graduation, learning how to pay off your credit balance now is vitally important. In addition, some students like the one above are paying more than the minimum but less than the total amount. This could indicate that students are overextending themselves. Students should always pay off their credit balance in full every month to increase their credit score and show potential lenders they are trustworthy individuals who will pay their car payments or mortgage every month.

Furthermore, Table 10 details if students are actively building credit or building credit at all. Most students (39) are building credit on their own, while five are building credit through their parents, and nine are building credit on their own and through their parents. In addition, ten students signaled they were not building credit at all, while two were unsure if they were building credit. These numbers seem promising. Many sampled students are building credit on their own or with their parents. While neither should be preferred over the other, they have advantages and disadvantages depending on an induvial situation; simply building credit is a good indicator that students are critically thinking about credit.

While I decided not to include a table for variable BC16, this question determines the methods through which students are actively building credit. Of the 53 responses collected, 29 students, nearly 55%, are building credit through credit card usage. Students also indicated they were building credit through a combination of credit card usage and student loans or credit card usage and rent and utility payments. Few students indicated they were building credit through car payments. This appears understandable given that most undergraduate students live near campus and take public transportation, walk, or rely on their high school car. However, it's important to note that most students rely solely on credit card usage to build credit. Given the lack of knowledge, this could be risky for students, especially if they do not pay the total amount due monthly.

Moreover, Table 11 describes how often a student rolls over their monthly balance or if they ever do so. This is congruent with how students pay off their monthly balance. Out of the students sampled, 38 never rolled over their monthly balance. This indicates that they pay off their monthly balance in full every month. On the other hand, 11 students roll over their monthly balance every month. This shows that these students are never paying their entire monthly balance. This appears to be congruent with PC6. This also signals that students are engaging in risky behavior. Rolling over your monthly credit balance will incur high-interest costs and cost the consumer thousands of dollars in debt. While it's sometimes okay to roll over your credit card balance, every month is simply misusing credit and will result in a low credit score and reflect poorly on one's credit report. In addition, banks will likely decrease an individual's credit limit or increase an individual's APR. Both can detrimentally affect an individual's well-being and could have financial ramifications as well. While many students engage in positive credit

behaviors, a significant portion engage in risky behavior. The regression analysis will focus on establishing a correlation between knowledge and credit, if there is one.

Regressions Analysis

The univariate analysis established student behaviors and knowledge as separate entities. Through this analysis, we found that students need to improve in both behavior and knowledge. While some questions highlighted students' knowledge, most questions found variations in credit knowledge amongst respondents. Likewise, some students are participating in positive credit behavior; however, many are participating in detrimental behavior. The purpose of regression analysis is to find out if there is a correlation between knowledge and behavior. More so if knowledge is a predictor of behavior. In the tables below, the predictor or independent variable is positioned on the right side of the glm or lm model. The dependent variables, located on the left side of the glm or lm model, is the variable tested. We are trying to establish a correlation between knowledge (independent variable) and behavior (dependent variable).

Hypotheses

For the regression models listed below, the hypotheses tested will be as follows:

- Is there a correlation between students who know their credit score and those who have seen their credit report? A positive correlation could indicate that having more knowledge of one's credit leads to more fiscally sound behavior (such as checking one's report).
- Is there a correlation between students who know the highest FICO credit rating and how they pay off their monthly balance? A positive correlation could suggest students know the relationship between credit scores and credit card payments.

Therefore, paying a credit card's total monthly amount will typically positively impact one's credit score.

- Is there a correlation between whether students know their credit score and how often they roll over their credit balance? A positive correlation could indicate that students with more knowledge (who know their credit score) are less likely to roll over their monthly balance frequently. This correlation could depict students' understanding of the relationship between credit scores, interest, and credit card usage.
- Is there a correlation between if a student knows when a payment will be reflected on their credit card statement and how likely they are to roll over their monthly balance? A positive correlation would indicate that a student is aware of when a credit card purchase would reflect on their statement (1-3 business days), and this is less likely to roll over their balance. This would indicate that students have rudimentary knowledge regarding credit card usage and can use this knowledge positively.

Results

```
Call:
lm(formula = HCP27 ~ AC25, data = workdata)

Residuals:
     Min       1Q   Median       3Q      Max
-0.95122  0.00000  0.04878  0.04878  0.04878

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) -9.024e-16  3.886e-02    0.00        1
AC25         9.512e-01  4.778e-02   19.91   <2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.1781 on 60 degrees of freedom
  (3 observations deleted due to missingness)
Multiple R-squared:  0.8685,  Adjusted R-squared:  0.8663
F-statistic: 396.3 on 1 and 60 DF,  p-value: < 2.2e-16
```

Table 12: Regression Model 1

This model attempts to explain the correlation between if a student knows their credit score and if this makes it more likely to have seen their credit report.

```
Call:
glm(formula = PC6_recode ~ HB28, data = workdata)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.8542   0.1458   0.1458   0.1458   0.4000

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   0.6000     0.1678   3.576 0.000775 ***
HB28          0.2542     0.1763   1.442 0.155538
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for gaussian family taken to be 0.140768)

    Null deviance: 7.4717  on 52  degrees of freedom
Residual deviance: 7.1792  on 51  degrees of freedom
  (12 observations deleted due to missingness)
AIC: 50.455

Number of Fisher Scoring iterations: 2
```

Table 13: Regression Model 2

This model explains the correlation between if a student knows a higher credit score is better and how this relates to their monthly balance being paid off.

```
Call:
glm(formula = RC29_recode ~ AC25, data = workdata)

Deviance Residuals:
     Min        1Q    Median        3Q       Max
-0.91667  -0.60976   0.08333   0.39024   0.39024

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   0.9167     0.1321   6.941 6.74e-09 ***
AC25         -0.3069     0.1501  -2.044   0.0461 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for gaussian family taken to be 0.2092699)

    Null deviance: 11.547  on 52  degrees of freedom
Residual deviance: 10.673  on 51  degrees of freedom
  (12 observations deleted due to missingness)
AIC: 71.47

Number of Fisher Scoring iterations: 2
```

Table 14: Regression Model 3

This table explains the correlation between whether students know their credit scores and how often they roll over their credit card balance.

```
Call:
glm(formula = RC29_recode ~ PP30, data = workdata)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.7104  -0.6280   0.2896   0.3308   0.3720

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.58689    0.18294   3.208  0.00227 **
PP30         0.04116    0.06792   0.606  0.54711
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for gaussian family taken to be 0.2200874)

    Null deviance: 11.745  on 54  degrees of freedom
Residual deviance: 11.665  on 53  degrees of freedom
  (10 observations deleted due to missingness)
AIC: 76.791

Number of Fisher Scoring iterations: 2
```

Table 15: Regression Model 4

This table explains the correlation between knowing when a purchased product will reflect on a credit statement and how likely an induvial is to roll over their credit balance.

In Regression Model 1, I am testing whether a student who knows their credit score is likelier to have seen their report. From the table, we can see there is a positive correlation between the two variables. Students who know their credit scores are more likely to have seen their credit reports. More specifically, for every unit increase in AC25, there is a 9.512 increase in HCP27. This suggests that students who know their credit score, a knowledge-based question, are more likely to have seen their credit report. In addition, the p-value is less than 0.05, which means the data is statistically significant. This means the results are likely, not random, and have a statistical association. Ultimately, knowing your credit score and seeing your report will likely lend to more positive interactions with credit.

In Regression Model 2, the model indicates how students who know higher credit scores are better are more likely to pay off their credit balance in full. I recoded the variable PC6 to acknowledge students who pay off their monthly credit balance in full as "Positive" and all other options, such as paying off the minimum balance, as "Negative." I then recoded HB28 as a binary variable. The model shows that a student who currently answers HB28 is slightly more inclined to pay their entire credit balance every month. However, the p-value is greater than 0.05, which shows that while a positive correlation does exist, it's unlikely that this is attributed to the model and could be due to chance. Nonetheless, a positive correlation is promising and does show a relationship between knowledge and behavior; however, further analysis and testing would need to be completed to ensure this is not due to chance.

In Regression Model 3, I am testing whether a student who knows their credit score is less likely to roll over the credit card balance frequently. Ironically, I found that students who know their credit score are more likely to roll over their credit balance frequently. This

demonstrates an inverse relationship between knowledge and behavior. According to this model, as AC25 increase by a unit, RC29_recode decreases by .3069 unit. This relationship is statistically significant as the p-value is less than 0.05. This appears troubling and indicates that the relationship between knowledge and behavior is not impactful or that students need to learn how that knowledge can be applied to make informed decisions.

In Regression Model 4, I am testing whether a student who knows when a purchase will reflect on their credit statement is less likely to roll over their monthly credit card balance. Per the model, there is a positive correlation. However, the correlation is small. Essentially for every unit increase in PP30, RC29_recode increases by only .04116 units. Likewise, the p-value of .54711 is greater than 0.05, indicating the relationship is not statistically significant. I recoded PP30 to indicate that students who answered "Within 3 Business Days" would equate to the numeric value of 1, and all other incorrect options would be defined as 0(Appendix R Script). Similarly to model 2, this model does show a positive correlation; however, the results cannot be viewed through a definitive lens as they are not statistically significant.

Conclusion

Discussion of Results

The univariate results showed that students lacked credit knowledge and engaged in some "risky" behavior. However, the inverse is also true. Some students were highly knowledgeable and appeared to be engaging in positive credit-building behavior. Based on the results, I would suggest half the students are knowledgeable, and around 75% engage in fiscally sound behavior. The regression analysis focused on finding correlations between knowledge and behavior variables. I hypothesized that students with more knowledge would engage in more positive behaviors. While a few of my findings suggested this (Regression Model 1), some of my findings rejected this (Regression Model 3). In addition, the regression results shown in the thesis are only a few of the regressions tested. However, I found that almost all the regressions tested followed the same pattern showing a positive correlation, a positive correlation that was not statically significant, or an inverse(negative) correlation. This means that my hypothesis must be rejected as my data does not overarchingly conclude that students with more credit knowledge will behave more positively. Regression Model 3 suggested that students with more knowledge would behave in more detrimental ways. This is an interesting finding, as I initially believed the opposite was true. This is most likely attributed to the fact that students with more knowledge cannot apply this knowledge in practice. Moving forward, it would be wise to test the application of knowledge by challenging students' critical thinking. If I were to rerun this study, I would focus on knowledge and behavior; however, I would test more of students' critical thinking and understanding of credit through hypothetical situations.

Recommendations

Based on the scope of the study and lack of external validity, I recommend that students who feel uneducated in personal finance, specifically credit management seek help from the University of Oregon's financial wellness center. In addition, students may use this thesis as a reference tool to better understand credit and the effects of credit on consumers' longevity. It is essential to comprehend that while credit is necessary, a credit score does not define an individual's ability to buy a car or home. If you are a student with poor credit, rest assured that you have time to mitigate the effects. However, repairing credit is neither a linear process nor a speedy one. Credit and the many factors that influence credit take time to improve. Hopefully, as a college student, you have the time to prepare before baccalaureate graduation. In addition, I advise LCB students, and all students struggling with credit management, to conduct their secondary research. Many of the sources used in this thesis explain critical concepts that will help students properly manage their spending and repair credit damage. While this study is small, I hope to increase students' awareness of credit. Awareness is the first step to education. Making these concepts more "mainstream" is critical to help students understand the importance of credit in their life. If anything, students, faculty, and staff should use this study as a starting point to build further data and research. This study aims to engage credit in a digestible and appealing way to undergraduate students. I recommend that students, faculty, and staff in all majors speak about personal finance as a relatable and exciting topic. Despite an individual's major, credit will affect your life as a consumer. That said, I implore students to analyze their personal use of credit, adjust where needed, and consult professionals when taking the next big step in their life.

Appendix

Qualtrics Survey

Q1 The purpose of this survey is to record and analyze students' use of credit cards and how this affects their credit scores. The information obtained in this survey will be strictly used for educational and research purposes. Participation in the survey is completely voluntary. Your name will remain anonymous and private. Please answer questions to the best of your ability. The survey will take less than 10 minutes. If you have any questions, feel free to reach out to Josie Lehner at jlehner@uoregon.edu. Thank you again!

Q5 If you are over the age of 18 and consent to this survey, please click YES below.

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If If you over the age of 18 and consent to this survey please click YES below. = No

Q11 Are you currently enrolled in a university?

- ○ Yes, I am an undergraduate student in the Lundquist College of Business (1)
- ○ Yes, I am an undergraduate student at UO outside of the LCB (2)
- ○ Yes, I am a graduate or Ph.D. student at UO (5)
- ○ Yes, I am an undergraduate or graduate student at a different University (3)
- ○ No, I am not attending university at the moment (4)

Skip To: End of Survey If Are you currently enrolled in a university? = No, I am not attending university at the moment

---

Q12 What is your first major?

_____

Display This Question:

If Are you currently enrolled in a university? = Yes, I am an undergraduate student in the Lundquist College of Business

Q24 What is your concentration in the LCB?

- Marketing (1)
- Finance (2)
- OBA (3)
- Entrepreneurship (4)
- Sports Business (5)
- Not Applicable (6)
- Pre-Business (7)

Q14 Are you actively building credit?

- No (1)
- Yes, I am building credit through my parents i.e. authorized user on a parent's credit card (2)
- Yes, I am building credit on my own through various methods i.e., using a personal credit card (3)
- I'm not sure (4)
- Yes, I am building credit through my parents and on my own (5)

Skip To: End of Block If Are you actively building credit? = No

Skip To: End of Block If Are you actively building credit? = I'm not sure

Q16 Through what methods are you actively building credit? You may select multiple answers from the list below and specify in the other box.

- ☐ Credit Card (1)
- ☐ Student Loans (2)
- ☐ Car payments (3)
- ☐ Rent and Utility payments (4)
- ☐ Other (5) _____
- ☐ I am not building credit (6)

Q3 Do you currently have a credit card?

- ○ Yes (1)
- ○ No (2)

Skip To: End of Block If Do you currently have a credit card? = No

Q4 How many credit cards do you have?

- ○ 1-2 (1)
- ○ 3-4 (2)
- ○ 4-5 (3)
- ○ 6+ (4)

Q6 How do you pay off your monthly credit card balance?

- ○ Pay off the monthly balance in full (1)
- ○ Pay the minimum monthly payment (2)
- ○ Do not make any monthly payments i.e. no part of your monthly income goes towards paying off credit card debt (3)
- ○ Other (4) _____

Q29 How often do you roll over your credit card balance? i.e. leave a balance on your credit card at the end of cycle.

- ○ Every Month (1)
- ○ Every other Month (2)
- ○ Twice a year (3)
- ○ Once a year (4)
- ○ Never (5)

Q25 At what age did you open your first credit card account? (This includes when your parents first added you as an authorized user on their account)

_____

Q18 Using a credit card is a part of my daily life and routine.

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

Q20 How often do you use your credit card?

- Very Frequently (1)
- Frequently (2)
- Occasionally (3)
- Rarely (4)
- Very Rarely (5)
- Never (6)

Q30 If you purchase a product on your credit card today when do expect to see the payment reflected on your credit statement?

- Immediately (1)
- By the end of the day (2)
- Within 3 Business Days (3)
- Within 10 Business Days (4)
- Within several weeks (5)

Q24 Do you own a debit card?

- Yes (1)
- No (2)

Skip To: End of Block If Do you own a debit card? = No

Q29 How often do you use your debit card?

- Very Frequently (1)
- Frequently (2)
- Occasionally (3)
- Rarely (4)
- Very Rarely (5)
- Never (6)

Q31 Please answer the following questions to the best of your ability:

Q10 Personal interest rates are influenced by credit scores.

- True (1)
- False (2)
- Not sure (3)

Q19 Credit Scores are one of the ways banks and credit unions determine whether a candidate is fit for a loan.

- True (1)
- False (2)
- Not sure (3)

Q28 In terms of credit scores, the higher the score the better.

- True (1)
- Neither true nor false (2)
- False (3)

Q26 According to FICO, a user with the highest credit rating falls between

- 250-299 (1)
- 300-579 (2)
- 670-739 (3)
- 740-799 (4)
- 800-850 (5)
- 851-900 (6)

Q25 Are you aware of your credit score?

- Yes (1)
- No (2)

Q27 Have you ever seen your Credit Report?

- Yes (1)
- No (2)

Q21 Are you interested in learning how building credit will affect your life following graduation?

- ○ Very interested (1)
- ○ Somewhat Interested (2)
- ○ Neutral (3)
- ○ Somewhat disinterested (4)
- ○ Very disinterested (5)

Q8 What is your current age?

_____

Q9 What gender do you identify as?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

Q28 What are your average monthly expenses?

	500 1250 2000 2750 3500 4250 5000
Please slide the scale to the approximate monthly average in dollars. ()	

Q22 Thank you for taking the time to participate in this survey. Your responses are greatly valued and vital to my work.

Survey Codebook

Variable Name	Description	Response Options
CT5	Information and Consent	1= Yes, 2=No
ST11	Are you a currently enrolled in College?	1= Undergrad Student in LCB, 2= Undergrad Student not in LCB 5= Graduate/PHD Student at UO 3=Undergrad/Grad at Different University 4= Not attending University
MJ12	What is your major?	ENTER TEXT
STC24	What is your concentration in LCB?	1=Marketing 2=Finance 3=OBA 4= Entrepreneurship 5=Sports Business 6= NA 7=Pre-Business
AC14	Are you actively bulding credit?	1=No 2= Yes through parents 3=Yes on their own 4=Not sure 5=Yes on their own and with parents
BC16*	Through what methods are you actively building credit?	1=CC 2=Student Loans 3= Car Payments 4= Rent and Utility 5= Other (TEXT) 6= Not Building Credit
CC3	Do you currently have a credit card?	1= Yes 2=No
CH4	How many credit card's do you have?	1= 1-2 2=3-3 3=4-5 4=6+
PC6	How do you pay off your monthly credit card balance?	1= Pay off in full 2=Pay the minimum 3= Do not make any payments 4= Other (TEXT)
RC29	How often do you roll over your credit card balance?	1= Every Month 2= Every other month 3= Twice a year 4= Once a year 5= Never
AA25	At what age did you open your first credit card account?	ENTER VALID NUMBER
CD18	Using a credit card is a part of my daily life and routine.	1= Strongly Disagree 2= Somewhat Disagree 3= Neither agree nor disagree 4= Somewhat agree 5= Strongly Agree
CO20	How often do you use your credit card?	1= Very Frequently 2= Frequently 3= Occasionally 4= Rarely 5= Very Rarely 6= Never
PP30	If you purchase a product on your credit card when should it reflect on your statement?	1= Immediately 2= End of Day 3= Within 3 Business Days 4= Within 10 Business Days 5= Within several weeks
DC24	Do you own a debit card?	1= Yes 2=No
DO29	How often do you use your debit card?	1= Very Frequently 2= Frequently 3= Occasionally 4= Rarely 5= Very Rarely 6= Never
PI10	Personal interest rates are influenced by credit scores	1= True 2= False 3= Not sure
FL19	Credit scores are one of the ways banks/credit unions determine whether a candidate is fit for	1= True 2= False 3= Not sure
HB28	In terms of credit scores, the higher the score the better.	1=True 2= Neither true nor false 3= False
FO26	According to FICO, a user with the highest credit rating falls between?	1= 250-299 2=300-579 3=670-739 4=740-799 5=800-850 6=851-900
AC25	Are you aware of your credit score?	1=Yes 2=No
HCP27	Have you ever seen your credit report?	1=Yes 2=No
IC21	Are you interested in learning how building credit will affect your life after graduation?	1= Very interested 2= Somewhat interested 3= Neutral 4= Somewhat disinterested 5= Very disinterested
CAG8	What is your current age?	ENTER VALID NUMBER
GI9	What gender do you indetify as?	1=Male 2=Female 3=Non-binary/Third Gender 4=Prefer not to say
AME28	What are your average monthly expenses?	SLIDE SCALE TO NUMERICAL VALUE IN US DOLLARS

R Script

```
#Removing duplicate name row
survey1 <- CC_Final_Excel[-1,]

#Removing unnecessary columns
survey1 <- survey1[,c(-1,-2,-3,-4,-5,-6,-7,-9,-10)]

#Renaming Columns
colnames(survey1)[2] <- "CT5"
colnames(survey1)[3] <- "ST11"
colnames(survey1)[4] <- "MJ12"
colnames(survey1)[5] <- "STC24"
colnames(survey1)[6] <- "AC14"
colnames(survey1)[7] <- "BC16"
colnames(survey1)[8] <- "BC16_TEXT"
colnames(survey1)[9] <- "CC3"
colnames(survey1)[10] <- "CH4"
colnames(survey1)[11] <- "PC6"
colnames(survey1)[12] <- "PC6_TEXT"
colnames(survey1)[13] <- "RC29"
colnames(survey1)[14] <- "AA25"
colnames(survey1)[15] <- "CD18"
colnames(survey1)[16] <- "CO20"
colnames(survey1)[17] <- "PP30"
colnames(survey1)[18] <- "DC24"
colnames(survey1)[19] <- "DO29"
colnames(survey1)[20] <- "PI10"
colnames(survey1)[21] <- "FL19"
colnames(survey1)[22] <- "HB28"
colnames(survey1)[23] <- "FO26"
colnames(survey1)[24] <- "AC25"
colnames(survey1)[25] <- "HCP27"
colnames(survey1)[26] <- "IC21"
colnames(survey1)[27] <- "CAG8"
colnames(survey1)[28] <- "G19"
colnames(survey1)[29] <- "AME28"

view(survey1)



# splitting a column with multiple answers into multiple variables.
subset_temp2<-survey1[,c("ResponseId")]
subset_temp3<- cbind(subset_temp2, BC16_1=NA,BC16_2=NA,BC16_3=NA,BC16_4=NA)


subset_temp<-survey1[,c("ResponseId","BC16")]
```

```
subset_temp<-subset_temp %>%
 separate_rows(BC16,sep=",")

#subset_temp2<-reshape(subset_temp,idvar="ResponseId", timevar="Q16", direction="wide")

#subset_temp['Q16_1']<-subset_temp$Q16

subset_temp <- na.omit(subset_temp)


for (row in 1:nrow(subset_temp)) {

 id<-subset_temp[row, "ResponseId"]

 if(subset_temp[row, "BC16"] == 1) {
  subset_temp3[subset_temp3$ResponseId==id[[1]], "BC16_1"]<-1
 }

 if(subset_temp[row, "BC16"] == 2) {
  subset_temp3[subset_temp3$ResponseId==id[[1]], "BC16_2"]<-1
 }

 if(subset_temp[row, "BC16"] == 3) {
  subset_temp3[subset_temp3$ResponseId==id[[1]], "BC16_3"]<-1
 }

 if(subset_temp[row, "BC16"] == 4) {
  subset_temp3[subset_temp3$ResponseId==id[[1]], "BC16_4"]<-1
 }

 #subset_temp3[subset_temp3$ResponseId==id, "Q16_2"]<-1

 #df[df$gender == 'M',]
 #  subset_temp3[ResponceId=id, "Q16_1"]<=1
}


workdata<- merge(survey1,subset_temp3,by="ResponseId")




#Dropping incomplete responses or response outside BA major
temp<-as.list(unique(workdata$MJ12))
Relevant_majors<-temp[-c(7,9,16, 17,21)]

workdata<-filter(workdata,MJ12 %in% Relevant_majors )
View(workdata)
```

```
#Changing Character Variable to Numeric
workdata$AME28 <- as.numeric(as.character(workdata$AME28))
class(workdata$AME28)

workdata$G19 <- as.numeric(as.character(workdata$G19))
class(workdata$G19)

workdata$IC21 <- as.numeric(as.character(workdata$IC21))
class(workdata$IC21)

workdata$HCP27 <- as.numeric(as.character(workdata$HCP27))
class(workdata$HCP27)

workdata$AC25 <- as.numeric(as.character(workdata$AC25))
class(workdata$AC25)

workdata$FO26 <- as.numeric(as.character(workdata$FO26))
class(workdata$FO26)

workdata$HB28 <- as.numeric(as.character(workdata$HB28))
class(workdata$HB28)

workdata$FL19 <- as.numeric(as.character(workdata$FL19))
class(workdata$FL19)

workdata$PI10 <- as.numeric(as.character(workdata$PI10))
class(workdata$PI10)

workdata$DO29 <- as.numeric(as.character(workdata$DO29))
class(workdata$DO29)

workdata$DC24 <- as.numeric(as.character(workdata$DC24))
class(workdata$DC24)

workdata$PP30 <- as.numeric(as.character(workdata$PP30))
class(workdata$PP30)

workdata$CO20 <- as.numeric(as.character(workdata$CO20))
class(workdata$CO20)

workdata$CD18 <- as.numeric(as.character(workdata$CD18))
class(workdata$CD18)

workdata$AA25 <- as.numeric(as.character(workdata$AA25))
class(workdata$AA25)
```

```
workdata$RC29 <- as.numeric(as.character(workdata$RC29))
class(workdata$RC29)

workdata$PC6 <- as.numeric(as.character(workdata$PC6))
class(workdata$PC6)

workdata$CH4 <- as.numeric(as.character(workdata$CH4))
class(workdata$CH4)

workdata$CC3 <- as.numeric(as.character(workdata$CC3))
class(workdata$CC3)

workdata$AC14 <- as.numeric(as.character(workdata$AC14))
class(workdata$AC14)

workdata$STC24 <- as.numeric(as.character(workdata$STC24))
class(workdata$STC24)

workdata$CAG8 <- as.numeric(as.character(workdata$CAG8))
class(workdata$CAG8)

#Summary Statistics
summary(workdata)
summary(workdata$CAG8)


table(workdata$G19)
table(workdata$HCP27)
table(workdata$AC25)
table(workdata$HB28)
table(workdata$CC3)
table(workdata$STC24)
table(workdata$Q16)
table(workdata$AC14)
table(workdata$CH4)
table(workdata$CO20)
table(workdata$CAG8)
table(workdata$MJ12)
table(workdata$STC24)
table(workdata$FO26)
table(workdata$PI10)
table(workdata$FL19)
table(workdata$HB28)
table(workdata$AC25)
table(workdata$PP30)
table(workdata$AC14)
table(workdata$PC6)
table(workdata$PC6_TEXT)
```

```
table(workdata$RC29)
table(workdata$BC16)

#Renaming Frequency Tables
tt<-table(workdata$G19)
hh<-table(workdata$HCP27)
cc<- table(workdata$CAG8)
cl<- table(workdata$STC24)
vv<- table(workdata$MJ12)
dd<- table(workdata$STC24)
aa<- table(workdata$FO26)
bb<- table(workdata$PI10)
jj<- table(workdata$FL19)
pp<- table(workdata$PP30)
ee<- table(workdata$AC14)
ll<-table(workdata$PC6)
le<- table(workdata$PC6_TEXT)
rc<- table(workdata$RC29)


#Exporting Frequency Tables to TXT
write.table(tt, file = "bush_south.xlsx", sep = ",", quote = FALSE, row.names = F)
write.table(hh, file = "bush_south.txt1", sep = ",", quote = FALSE, row.names = F)
write.table(cc, file = "bush_south.txt2", sep = ",", quote = FALSE, row.names = F)
write.table(vv, file = "bush_south.txt4", sep = ",", quote = FALSE, row.names = F)
write.table(dd, file = "bush_south.txt5", sep = ",", quote = FALSE, row.names = F)
write.table(aa, file = "bush_south.txt6", sep = ",", quote = FALSE, row.names = F)
write.table(bb, file = "bush_south.txt7", sep = ",", quote = FALSE, row.names = F)
write.table(jj, file = "bush_south.txt8", sep = ",", quote = FALSE, row.names = F)
write.table(pp, file = "bush_south.txt9", sep = ",", quote = FALSE, row.names = F)
write.table(ee, file = "bush_south.txt10", sep = ",", quote = FALSE, row.names = F)
write.table(ll, file = "bush_south.txt11", sep = ",", quote = FALSE, row.names = F)
write.table(le, file = "bush_south.txt12", sep = ",", quote = FALSE, row.names = F)
write.table(rc, file = "bush_south.txt13", sep = ",", quote = FALSE, row.names = F)

# Export summary table
stargazer(workdata, type="text", title="Summary Statistics", out="Table.txt")



#Exporting Workdata
class(workdata)
write_csv(workdata,"workdata.csv")
```

```
#Changing 2 to O in AC25 and HCP27 for binomial regression
workdata <- workdata %>% mutate(AC25=recode(AC25, `2`=0L, `1`=1L))
workdata <- workdata %>% mutate(HCP27=recode(HCP27, `2`=0L, `1`=1L))

#Model 1 Regression Analysis
model1<-lm(HCP27~AC25, data=workdata)
summary(model1)
summary_text <- capture.output(summary(model1))
sink("model1_summary.txt")
cat(summary_text, sep = "\n")
sink()
write.table(summary(model1), "model_summary.txt", sep="\t", quote=FALSE)

#Model 2 Regression Analysis
workdata <- workdata %>% mutate(RC29_recode = recode(RC29, `5` = 1, .default = 0))
model2 <- glm(RC29_recode ~ AC25, data = workdata)
summary(model2)
summary_text <- capture.output(summary(model2))
sink("model2_summary.txt")
cat(summary_text, sep = "\n")
sink()
write.table(summary(model2), "model_summary.txt", sep="\t", quote=FALSE)

#Model 3 Regression
workdata <- workdata %>%mutate(PC6_recode = recode(PC6, `1` = 1, `2` = 0, `3` = 0, `4` = 0))
workdata <- workdata %>%mutate(HB28=recode(HB28, `3`=0L, `2`=0L, `1`=1L))
model3 <- glm(PC6_recode ~ HB28, data = workdata)
summary(model3)
summary_text <- capture.output(summary(model3))
sink("model3_summary.txt")
cat(summary_text, sep = "\n")
sink()
write.table(summary(model3), "model_summary.txt", sep="\t", quote=FALSE)

#Additional Regression Testing
workdata <- workdata %>% mutate(PP30=recode(PP30, `1`=0L, `2`=0L, `3`=1L, `4`=0L, `5`=0L))
workdata <- workdata %>% mutate(AC14_recode = recode(AC14, `1` = 0, `2` = 1, `3` = 1, `4` = 0, `5` = 1))
workdata <- workdata %>% mutate(CH4_recode = recode(CH4, `1` = 1, `2` = 1, `3` = 0, `4` = 0))
model4<- glm(RC29_recode ~ PP30, data=workdata)
summary(model4)
summary_text <- capture.output(summary(model4))
sink("model4_summary.txt")
cat(summary_text, sep = "\n")
sink()
write.table(summary(model4), "model_summary.txt", sep="\t", quote=FALSE)
```

```
## scatter of AC25 & HCP27
workdata <- workdata %>% mutate(NoiseX=rnorm(nrow(workdata),0,0.03))
workdata <- workdata %>% mutate(NoiseY=rnorm(nrow(workdata),0,0.03))

workdata <- workdata %>% mutate(AC25_toPlot=AC25+NoiseX)
workdata <- workdata %>% mutate(HCP27_toPlot=HCP27+NoiseY)
plot(workdata$AC25, workdata$HCP27)
plot(workdata$AC25_toPlot, workdata$HCP27_toPlot)

# trying another method <- this one is better.
ggplot(data = workdata, aes(x = AC25, y = HCP27)) +
  stat_sum(aes(size = factor(..n..)), geom = "point") +
  scale_size_discrete(range = c(1, 10))
```

Bibliography

"About the Lundquist College of Business." About | Lundquist College of Business, https://business.uoregon.edu/about.

"Convenience Sampling Method: How and When to Use It?" Qualtrics, 1 Nov. 2022, https://www.qualtrics.com/experience-management/research/convenience-sampling/.

DeNicola, Louis. "Credit Score vs. Credit Report: What's the Difference?" Experian, Experian, 12 Sept. 2022, https://www.experian.com/blogs/ask-experian/credit-score-vs-credit-report-whats-the-diff erence/.

Ganti, Akhilesh. "Central Limit Theorem (CLT): Definition and Key Characteristics." Investopedia, Investopedia, 8 Oct. 2022, https://www.investopedia.com/terms/c/central_limit_theorem.asp.

Hayhoe, Celia Ray. "Comparison of Affective Credit Attitude Scores and Credit use of College Students at Two Points in Time." Journal of Family and Consumer Sciences 94.1 (2002): 71-7. ProQuest. Web. 11 Nov. 2022

Insler, Shannon. "FICO Credit Score Breakdown." How Credit Scores Work, 25 Mar. 2020, https://studentloanhero.com/featured/how-do-credit-scores-work/. Accessed 14 Nov. 2022.

Kurt, Daniel. "The Side Effects of Bad Credit." Investopedia, Investopedia, 13 July 2022, https://www.investopedia.com/the-side-effects-of-bad-credit 4769783#:~:text=A%20poor%20credit%20history%20can,you%20in%20a%20job%20h unt.

McClanahan, Aja. "FICO 8 Score Ranges." Credit Karma, 20 Oct. 2022, https://www.creditkarma.com/advice/i/experian-fico-score. Accessed 14 Nov. 2022.

McMillin, David. "APR vs. Interest Rate: What's the Difference?" Bankrate, 10 Aug. 2022, https://www.bankrate.com/mortgages/apr-and-interest-rate/.

Robb, C.A. Financial Knowledge and Credit Card Behavior of College Students. J Fam Econ Iss 32, 690–698 (2011). https://doi-org.libproxy.uoregon.edu/10.1007/s10834-011-9259-y.