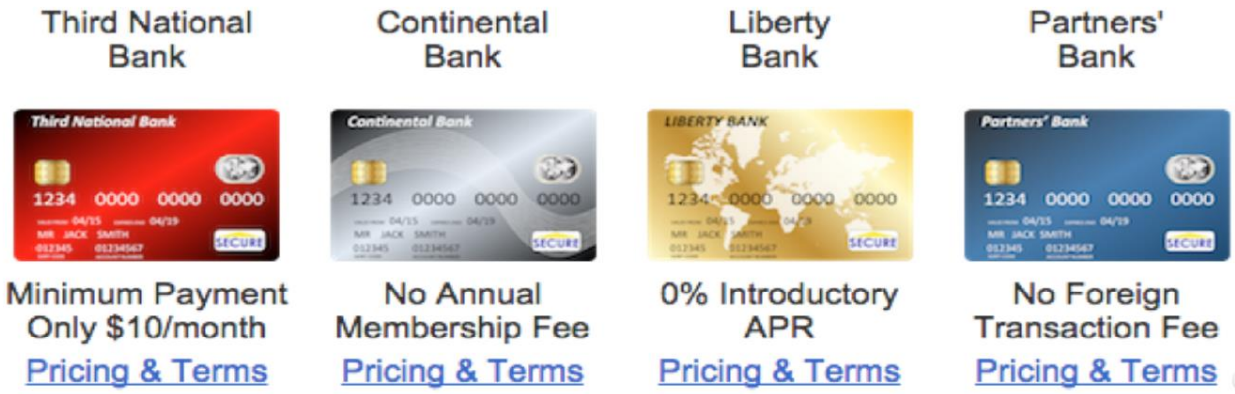
Assignment 1 Topic: People's Ability to Choose

We replicate parts of an academic journal article "Millennial-Style Learning: Search Intensity, Decision Making, and Information Sharing," abbreviated Carlin et al. (2017)(https://doi.org/10.1287/mnsc.2016.2689). They study people's ability to choose the best credit card (dominant card) among four credit card offers.

In an online experiment, 1,603 respondents from Amazon's Mechanical Turk (https://www.mturk.com/mturk/welcome) watched a short video and chose among four credit card offers below from four different issuers. Each one is accompanied by a description from that card's issuer.



- One of the four is the dominant card: it is clearly the best choice of the four offered

Details of the Four Credit Card Offers

(Terms that are worse than the dominant card are highlighted in red)

	Activation fee	APR changes	APR level	Credit limit
Dominant card	$60	Fixed	13.99%	$700
High activation fee card	$110	Fixed	13.99%	$700
APR can change card	$60	Can change	13.99%	$700
High APR & variable limit card	$60	Fixed	14.99%	Variable

Two things vary randomly across the 1,603 respondents: the video and taglines.

- 1. There are two video versions: "baseline" and "implemental." The baseline video is a humorous cartoon explaining what to watch when choosing a credit card. The implemental video adds a recap of the key takeaways to the baseline video.
- 2. The graphic above shows superfluous taglines. For example, "No Annual Membership Fee" is superfluous (misleading) because none of the four cards have an annual membership fee. Hence, the taglines are not helpful and likely trick some people into thinking a card is special. Other respondents have the same choice but with no taglines.

Each of the 1,603 respondents are randomly assigned to one of the four cells in Table A.1.

Table A.1: Summary of Experimental Design: Number of Respondents Receiving Each Treatment

	No Taglines	Superfluous Taglines	Total
Baseline Video	**407**	**394**	801
Implemental Video	**397**	**405**	802
Total	804	799	1,603

Questions:

1. Which kind of data are these? Verify that these are cross-sectional data with 1,603 observations and 68 variables. The unit of observation is a person (respondent). There is one identifier variable (resp_id).

2. Complete this table for the variable age.

Descriptive Statistics for Age

Mean	
S.D.	
Median	
Minimum	
Maximum	
Obs.	

Select Percentiles for Age

5th	
10th	
25th	
50th	
75th	
90th	
95th	

3. Identify the outlier and repeat the previous part, excluding the outlier.

4. Tabulate age. Using your results, fill in the blanks with the appropriate number of observations: Of the 1,603 respondents, ____ did not answer the question about age, _____are under 21 years old, ____are 24 years old (the mode), _____are over 30, and _____are 65 years old or older. (Again, use the original age variable as these summary values are not sensitive to outliers.)

5. Draw a histogram of age excluding the outlier. Describe the shape of the histogram.

6. Draw a histogram of the natural log of age, excluding the outlier. Describe the shape of the histogram.

7. Review the first column of results in Table 6. Replicate the first four rows of the "Chosen (%)" column. Also, report the exact percentages.

Table 6. Summary Statistics of Choice and Attention (Quartiles of Time Spent Viewing Pricing and Terms and Number of Views of Pricing and Terms)
Carlin et al. (2017), p. 10.

	Chosen (%)	Time (s) (25th %ile)	Time (s) (50th %ile)	Time (s) (75th %ile)	Views (25th %ile)	Views (50th %ile)	Views (75th %ile)
Dominant card	48.9	1.00	17.00	33.65	1	2	5
High fee card	10.0	1.40	11.90	22.10	1	2	3
Unfixed APR card	24.8	2.20	14.50	28.55	1	2	4
High APR card	16.3	1.50	12.20	23.20	1	2	3.5
First card	26.2	2.70	18.90	26.63	1	2	4
Second card	25.0	2.40	14.30	18.58	1	2	5
Third card	24.8	0.95	11.10	15.94	1	2	4
Fourth card	24.0	0.00	12.00	16.72	0	1	3
0% intro APR	27.3	0.00	10.70	23.30	0	1	3
Minimum payment	17.9	0.00	9.40	22.50	0	1	3
No membership fee	42.4	0.00	12.00	27.40	0	1	3.5
No foreign transaction fee	12.4	0.00	7.40	22.20	0	1	3

Notes. The top four rows show results based on the structure of pricing and terms. The second set of four rows show results based on card position (from left to right). The third set of four rows show results based on the superfluous tagline, among those in the superfluous tagline condition. %ile, percentile.

8. What fraction of the 1,603 respondents chose the dominant card? What fraction of the 1,603 respondents already have a credit card?

9. Replicate the cross-tabulation below between the variables chosedom (=1 if chose the dominant card, =0 otherwise) and male (=1 if male, =0 otherwise). True/False/Explain: “In this experiment, 403 of the males chose the best credit card, while fewer females, only 380, chose the best credit card. Hence, in this specific experiment and data, the males are slightly better at selecting among credit card offers compared to the females.” Make sure to fully support your answer. Answer with 1 – 3 sentences.

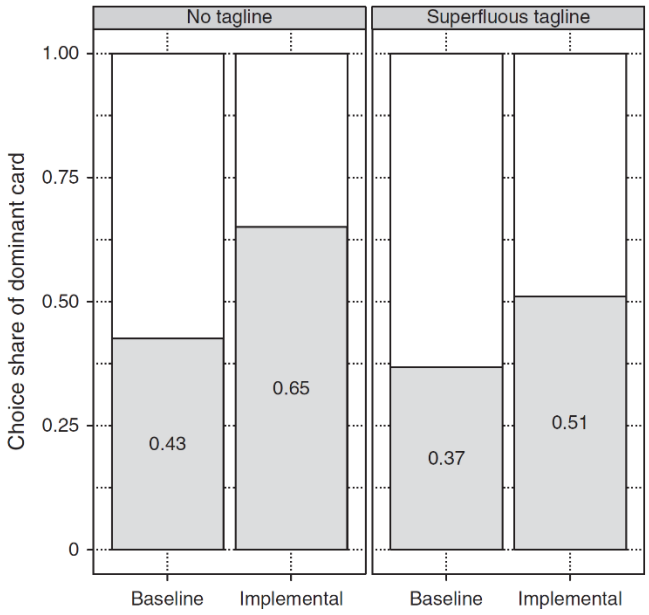
chosedom	male 0	male 1	Total
0	373	447	820
1	380	403	783
Total	753	850	1,603

10. Do higher income respondents make better choices among the credit card offers? To answer, report the percent choosing the dominant card by income level. Which describes the results: "higher income respondents tend to make better choices," "lower income respondents tend to make better choices," or "income levels and choices seem unrelated"?

11. Replicate Table A.1 “summarizing the experimental design”. This is a cross tabulation: it tells the frequency of each possible pair of values for two variables.

12. Figure 6 shows key results. Replicate it. Also, find the exact height of each grey bar.

Figure 6. Choice Proportion of the Dominant Card in Each of the Four Experimental Treatments
Carlin et al. (2017), p.13.



13. In Figure 6, what does the difference between 0.65 and 0.51 mean? Offer an interpretation. Answer with 2 sentences.

14. Do the results in Figure 6 vary by sex? Fill in the blanks with the percent (rounded to the nearest first decimal place). Among female respondents ___percent chose the dominant card. Among male respondents ___percent chose the dominant card. Among female respondents that saw the implemental video and no superfluous taglines ___percent chose the dominant card. Among male respondents that saw the implemental video and no superfluous taglines ___percent chose the dominant card. Among female respondents that saw the baseline video and superfluous taglines

___percent chose the dominant card. Among male respondents that saw the baseline video and superfluous taglines ___percent chose the dominant card.

15. Using your cross-tabulation, fill in the blanks with the appropriate percent (rounded to the nearest first decimal place). ___percent of respondents quite strongly disagreed (2 or lower) with both the easiness and confidence questions. Among those respondents that quite strongly disagreed (2 or lower) with the easiness question, ___percent quite strongly disagreed (2 or lower) with the confidence question. Among those respondents that quite strongly disagreed (2 or lower) with the confidence question, ___percent quite strongly disagreed (2 or lower) with the easiness question. Among those respondents that were neutral (4) on the confidence question, ___percent agreed (5 or higher) with the easiness question.

16. Can you SRS the 1000 participants from the dataset without replacement and test if your results are generally close to what you have in the previous questions?

Group Work

Add this declaration to your file:

We, ---------- (mention your names), declare that the attached assignment is our own work in accordance with the GBC Academic Policy. We have not copied any part of this assignment, manually or electronically, from any other source, including web sites, unless specified as references. We have not distributed our work to other students.

Specify what each member has done towards the completion of this work:

	Name	Task(s)
1		
2		
3		
4		