Aryan Sharma

1.Stargazer Output of 2 Models:

Comparison of OLS Models

Dependent variable:

rating

	(1)	(2)
income	0.124***	0.098***
	(0.047)	(0.034)
limit	0.063***	0.064***
	(0.001)	(0.001)
cards	4.597***	4.711***
	(0.391)	(0.376)
age	0.013	
	(0.030)	
education	-0.235	
	(0.164)	
genderMale	-0.220	
	(1.020)	
studentYes	-2.007	
	(2.805)	
marriedYes	2.382**	2.122**
	(1.058)	(1.044)
ethnicityCaucasian	-0.310	
	(1.255)	
ethnicityHispanic	-2.006	
	(1.449)	
balance	0.012**	0.008***
	(0.005)	(0.003)
Constant	32.229***	27.107***
	(4.168)	(2.187)

Observations	400	400
R2	0.996	0.996
Adjusted R2	0.996	0.996
Residual Std. Error	10.147 (df = 388)	10.140 (df = 394)
F Statistic	8,398.666*** (df = 11; 388)	18,501.950*** (df = 5; 394)
Note:	*p<0.1; **p<0.05; ***p<0.01	

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2. Variable Table

Variable	Include	Effect	Rationale
Intercept	Yes	+	Represents the baseline credit score when all other predictors are zero.
Income	Yes	+	For every unit increase in income, the credit score is expected to increase by 0.1239 units.
Limit	Yes	+	For every unit increase in credit limit, the credit score is expected to increase by 0.0632 units.
Cards	Yes	+	For every additional credit card, the credit score is expected to increase by 4.5967 units.
Age	No	()	Age does not have a statistically significant effect on the credit score.
Education	No	()	Education level does not have a statistically significant effect on the credit score.
Gender (Male)	No	()	Gender does not have a statistically significant effect on the credit score.
Student (Yes)	No	()	Student status does not have a statistically significant effect on the credit score.
Married (Yes)	Yes	+	Being married is associated with an increase in credit score by 2.3823 units.
Ethnicity (Caucasian)	No	()	Ethnicity (Caucasian) does not have a statistically significant effect on the credit score.
Ethnicity (Hispanic)	No	()	Ethnicity (Hispanic) does not have a statistically significant effect on the credit score.
Balance	Yes	+	For every unit increase in balance, the credit score is expected to increase by 0.012 units.

3. Answer to the following questions

- **What variables predict credit scores and by how much?**
  Model 1 includes the following predictors and their respective coefficients:
  Income: The coefficient is 0.124 with a standard error of 0.047. This means that for every unit increase in income, the credit score is predicted to increase by approximately 0.124 units.
  Limit: The coefficient is 0.063 with a standard error of 0.001. This suggests that for every unit increase in the credit limit, the credit score is predicted to increase by approximately 0.063 units.
  Cards: The coefficient is 4.597 with a standard error of 0.391. This implies that for every additional credit card held, the credit score is predicted to increase by approximately 4.597 units.
  Married: The coefficient is 2.382 with a standard error of 1.058. Being married is associated with an increase in the credit score by approximately 2.382 units.
  Balance: The coefficient is 0.012 with a standard error of 0.005. This suggests that for every unit increase in the balance, the credit score is predicted to increase by approximately 0.012 units.

Model 2 is a simplified version of Model 1 and includes fewer predictors. It only includes income, limit, cards, married, and balance. The other predictors such as gender, education, ethnicity are not included in the model 2 as the p value of these indicators are larger than 0.05. The coefficients for these predictors are like those in Model 1 but may vary slightly due to the different model specifications.

- **Is there a racial or gender bias on credit score? If so, by how much?**
Based on model 1 where ethnicity and gender are included. Gender (Male): The coefficient is -0.220 with a standard error of 1.020. This suggests that being male is associated with a decrease in the credit score by approximately 0.220 units, although this coefficient is not statistically significant ($p > 0.1$).
Ethnicity (Caucasian): The coefficient is -0.310 with a standard error of 1.255. This suggests that being Caucasian is associated with a decrease in the credit score by approximately 0.310 units, but again, this coefficient is not statistically significant ($p > 0.1$).