

Course: Soc 225.3, Spring 2020
Assignment 4: Module 9 (15/70)
Due date: June 18, 2020

Suppose that you have the monthly income of ten individuals, 5 women and 5 men. Please answer the following questions according to the table below.

Gender (X)	Income (Y)
F	3300
F	2600
F	5700
F	5000
F	3600
M	4900
M	5100
M	6000
M	6800
M	7000

Table A4-1

Source: Eva Xiaoling Li, U of S, module author.

1. Please calculate the total sum of squares. Please show the procedures of the calculation.
2. Please calculate (1) the improved sum of squares due to X (between sum of squares) and (2) the remaining sum of squares not due to X (within sum of squares). Please show the procedures of the calculation.
3. Set up a null hypothesis to test whether there is a relationship between gender and income.
4. Please calculate the F-ratio based on Q1 and Q2. Please show the procedures of the calculation.
5. Check whether F value is significant at the level of 0.05 with the specified degree of freedom using the table of F values in Appendix D at the end of the textbook.
6. Decide to accept or reject the null hypothesis based on the result of Q5, and explain why?
7. Calculate the percent variation of Y that is explained by X, and the percent variation of Y that is unexplained by X. Please show the procedures of the calculation.
8. Please keep two places after the decimal in reporting results of calculation.