**HW 2**

Exercise 2

The correlation is limited from -1 to 1, so only thing we can tell is that there is a strong positive correlation between these two variables, which match the fact that the coef on X1 is positive.



Exercise 3&4&5

The coefficient varies largely across these three methods, but the sign on the coefficients are the same, and all X3 coefs are not significant. For Probit and logit, without calculating the marginal effect, we can only interpret the sign. Higher X2 can decrease the probability of ydum = 1, which means higher X2 is likely to generate Y below mean. Higher X1 and X3 can increase the probability of ydum = 1, which means that higher X1 and X3 is likely to generate Y above mean. This match the sign in the data generating process. For linear probability model, X1: one unit increase in X1 likely to increase the likelihood of ydum = 1 by 1.9%; X2: one unit increase in X2 likely to decrease the likelihood of ydum = 1 by 3%; X3: one unit increase in X3 likely to increase the likelihood of ydum = 1 by 4.6%.

**HW3**

Exercise 1









Exercise 2&3&4



Conditional logit Interpretation: The signs on the intercepts indicating that, holding other variables constant, people’s general preference (+:prefer; -: not prefer) over that choice compared to the reference choice, which is PPk\_Stk. The negative sign on the price coefficient indicating that as the price of one choice increases, the individual is less likely to buy that choice (Holding other variables constant).

Multinomial Interpretation: (Holding other variables constant) The signs on the income indicating that, holding other variables constant, people’s preference when they have more income (+:more prefer; -: less prefer) over that choice compared to the reference group.

Clogit margin: Each unit increase in price of an alternative decrease the probability of selecting that alternative and increases the probability of the other alternatives, by certain percent.

Mlogit margin: Each unit increase in the income increases/decreases (as the sign) the probability of selecting alternative j by certain percent.

Exercise 5

we reject the null hypotheses fail to reject and state that IIA is hold.

**HW 4**

Exercise 1



Unbalanced panel

Exercise 2&3



Coefficients are close for with-in and random effect, not so close for others

Exercise 4



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