**HW #2**

Correlation is 0.2036. This is different from 1.2.



The table below includes the coefficients of regression, standard errors computed by the OLS, and standard errors calculated by bootstraps.



The table below shows the parameters calculated by probit model, logit model, and linear probability model. The descriptions below are interpretation of coefficients.

**Probit:**

* X1, X3: Ceteris paribus, an increase in these variables increases the likelihood of ydum = 1.
* X2: Ceteris paribus, an increase in X2 decreases the likelihood ydum = 1.
* Cons: When all the x’s are 0, the expected likelihood ydum = 1 is about 2.89.

**Logit:**

* X1, X3: Ceteris paribus, an increase in these variables increases the likelihood of ydum = 1.
* X2: Ceteris paribus, an increase in X2 decreases the likelihood ydum = 1.
* Cons: When all the x’s are 0, the expected likelihood ydum = 1 is about 5.21.

**Linear:**

* X1: Ceteris paribus, an increase in X1 increases the likelihood of ydum = 1 by 14.64%.
* X2: Ceteris paribus, an increase in X1 decreases the likelihood of ydum = 1 by 10.23%.
* X3: Ceteris paribus, an increase in X1 increases the likelihood of ydum = 1 by 2.60%.
* Cons: When all the x’s are 0, the expected likelihood of ydum = 1 is about .89.



The table below shows the marginal effects based on Probit and Logit models, as well as standard deviations using the delta method.



**HW #3**

**Exercise 2**

We propose a conditional logit for the model.

**Exercise 3**

We propose a multinomial logit for the model.

The table below shows estimated parameters in conditional, multinomial, and mixed logit models.



The descriptions below are the interpretation of coefficients.

**Conditional Logit:**

* Price: The likelihood of product being purchased decreases as the price increases.

**Multinomial Logit:**

* Income2: It is more likely for an individual to choose choice 1 than choice 2 if his or her income increases.
* Income3: It is more likely for an individual to choose choice 3 than choice 1 if his or her income increases.
* Income4: It is more likely for an individual to choose choice 4 than choice 1 if his or her income increases.
* Income5: It is more likely for an individual to choose choice 1 than choice 5 if his or her income increases.
* Income6: It is more likely for an individual to choose choice 6 than choice 1 if his or her income increases.
* Income7: It is more likely for an individual to choose choice 1 than choice 7 if his or her income increases.
* Income8: It is more likely for an individual to choose choice 8 than choice 1 if his or her income increases.
* Income9: It is more likely for an individual to choose choice 9 than choice 1 if his or her income increases.
* Income10: It is more likely for an individual to choose choice 10 than choice 1 if his or her income increases.

**Conclusion on IIA:**

Since the p-value is 1, we conclude that IIA holds.

**HW #4**

The table below shows estimated parameters from random effects model, between model, within model, and first-difference model.



**Comparisons of Coefficients for Education and Potexper:**

* Education: We observe that the coefficients of between, within, and first-time difference are all positive. Each model believes that a unit increase in education will increase wage (or log wage). The "within" model has the largest coefficient magnitude, while the "first-difference" model has the smallest coefficient magnitude.
* Potexper: Similar to education, we observe that the coefficients of between, within, and first-time difference are all positive. Each model believes that a unit increase in potential experience will increase wage (or log wage). The “first-difference” model has the largest coefficient magnitude, while the "between" model has the smallest coefficient magnitude.

The table below shows parameters estimated by 100 individual fixed effects model and fixed effects invariant variable model.







