Problem Set #1

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Problem 1 Classify a model from a journal (5 points)
Part (a). Here, I select an equation from Professor Yu XIE's (Princeton University) article, Assortative mating without assortative preference.

Part (b). Full Citation: Xie Y (2015) Assortative mating without assortative preference. *Proc Natl Acad Sci USA*112:5974-5978.

Part (c). Mathematical Model:

$$U_{ij}^m = \alpha_0 + \alpha_1 X_j^f$$

Part (d). The **exogenous variable** is X_j^f the mate desirability, a unidimensional attribute of potential marriage partners. The **endogenous variable** is U_{ij}^m the utility from marrying him/her independently. According to Prof. Xie, the contribution of the desirability of a potential partner to the overall utility for the decision maker does not depend on the attributes of the decision maker.

Part (e). The model is **static**(no time-depended variables), **linear**, and **deterministic**(no random variables).

Part (f). I think this model is missing a feature of age, because a potential partner's age could play an important role in choosing a partner.

Problem 2 Make your own model. (5 points)
Part (a).

$$Y_i = \beta_0 + \beta_1 partner_i + \beta_2 age_i + \beta_3 education_i + \beta_4 income_i$$

Part (b).
Y_i is the dependent endogenous variable where when $Y_i = 1$, people get married, and when $Y_i = 0$, people do not get married. The exogenous variables includes $\beta_1 partner_i$ whether one has a partner, $\beta_2 age_i$ age, $\beta_3 education_i$ level of education, and $\beta_4 income_i$ income.

Part (c). The model is a complete date generating process. The data required can be probably found in census; otherwise I can conduct some survey online to get the data.

Part (d). Here, I include four key factors-of course. While there must be other factors, but these are considered to be the most important one: whether one has a partner, the age of the person, and his/her income. First, in most cultures today, marriage presumes that one has a partner; thus, having a partner as a factor is included. Second, age is another major factor, as people before and in their 20s are less likely to get married than those who are in 30s or 40s. Third, level of education is also a major factor; the more educated a person is, to certain extent, the older he/she is going to be married. Last, income is also affecting the decision of marriage for raising kids and perhaps paying for mortgage requires enough income.

Part (e). Those are the most important and relevant factors. Other factors, say, religions and race, could play a role, but they would not be as decisive as the ones listed above; therefore, they are omitted.

Part (f). To test this model in real life we could conduct survey online. We could ask if they are in a relationship, age, education, and income, along with other questions as distracting questions. Then we could run a regression to observe if these factors are significant.