Problem Set 1

MACS 3000, Dr. Evans

Yuqian Gong

Problem 1

(a) The paper I found is called "And their Children after Them? The Effect of College on Educational Reproduction" from Number 2 issue of 2016 American journal of sociology. This paper studies educational reproduction, which is specifically about how college graduation increases a person's probability of having one or more children who also graduate from college.

(b) Lawrence M., Breen R. (2016). And their children after them? The effect of college on educational reproduction. *American Journal of Sociology* , 122, 532–572.

(c) $E(Z0^A) = \alpha_0 + \alpha_1 A$ (1) $E\left(Z2^A\right) = \gamma_0 + \gamma_1 A$ (2) $E\left(C^{A,Z0,Z2}\right) = \beta_0 + \beta_1 A + \beta_2 Z0 + \beta_3 Z2$ (3)

In the equations above, A is a binary variable for the respondent's education, where coded 1 if he or she receive a four-year college degree and 0 otherwise.

The variable Z0 represents a respondent's marriage status. The variable Z0 represents not getting married. Z1 represents marrying a non-college-educated spouse and Z2 represents marrying a college-educated spouse.

The variable C indicates whether or not the respondent had any biological children (coded 1 if he or she has at least one biological child and 0 otherwise).

Equations (1), (2) and (3) allow us to estimate the direct causal effects of A, Z0, and Z2 on C and the indirect effect of A and C.

$E\left(Y^{A,Z0,Z2}\right) = \delta_1 C1 + \delta_2 C2 + \delta_3 C3 + \delta_4 C4 + \delta_5 C5 + \delta_6 A + \delta_7 Z0 + \delta_8 Z2$ (4)

In the equation (4) above, the variable Y is the proportion of biological children ages 25 years or older who have a college degree of a respondent and CN is the variable of having a specific number of children and the effects of A, Z0, Z2 on having that number of children can be estimated by expand C to a variable of sixe categories revised from equation (3).

(d) **Exogenous variable** : CN(having a specific number of children), A(a binary variable for the respondent's education, whether he or she receives a four-year college degree or not), Z0(a binary variable represents whether getting married or not), Z2(a binary variable represents whether marrying a college-educated spouse or not)

Endogenous variable : Y(the proportion of biological children ages 25 years or older who have a college degree)

(e) This model is static because it is not time-dependent. It is linear because it is linear in parameters. It is deterministic because the output is fully determined by the parameter values and the initial conditions.

(f) I think the respondent's income is also important factor that affects the proportion of his or her biological children ages 25 years or older who have a college degree. It affects the endogenous variable in this model directly; or it affects indirectly through its effects on CN, the number of children he or she has, or Z0 and Z2, whether he or she gets married and the education status of his or her spouse.

Problem 2

(a) $M = \beta_0 + \beta_1 age + \beta_2 age^2 + \beta_3 income + \beta_4 male + \gamma_1 straight + \gamma_2 bisexual + \gamma_3 homosexual + \delta_1 education_yr + \delta_2 parentmarri + \delta_4 health$

The variable age is the age of a person. Income is the income of a person each year. The variable male indicates that this person self-identifies as male if it is 1 and as female if it is 0. The sexual orientation of a person has four categories, including straight, bisexual, homosexual and others. The dummy variables straight, bisexual and homosexual are included in this model, and a person's sexual orientation falls in the category others if all the three variables are 0. Education_yr indicates how many years a person has received education. Parentmarri is 1 if a person's parents are married and 0 if his or her parents are divorced. Health is a variable with a scale from 1 to 5, where 5 indicates a person identifies himself or herself as in a very good health condition and 1 indicates a very bad health condition.

In this linear model, the endogenous variable is M, the probability indicating how likely you choose to get married rated between 0 and 1.

(d) In thi model, I think a person's age, gender, his or her sexual orientation, his or her educational level will be the key factors that affect his or her decision to get married.

It is easy to roughly describe the probability one gets married when he or she gets older. Very young people are unlikely to get married either because it is prohibited by the laws or they spend most of their time in study or work. However, as people gets older than a certain, they become less likely to get married probably due to the difficulties of finding a suitable partner or their decreasing fertility abilities. Therefore in this model I construct a non-linear relation between age and M. Gender may also play a role here because convetionally women tend to marry older men while men tend to marry younger women of women of similary age(assume they are all heterosexual). So as age increases, probabilty the options of potential partners become fewer for women. Besides, a person's

sexual orientation is a major factor. Compared to straight people, homosexual or bisexual people may experience many obstacles to come out with their friends and families. There are still countries in the world that don't support same-sex marriage. All these facts would affect sexual minorities' marriage decision. The research results by Lawrence and Breen in the above paper shows that one's decision to get married (Lawrence, Breen)

(e) In addition to the factors mentioned above, I think a person's income, health as well as his or her parents' marriage status may have influence on one's marriage decision.

There have been many previous studies about the relations between income taxes and marriage decisions. Also, a person in a poor health condition or with low fertility capabilty may tend not to get married. A person's parents' marriage could play a role too. Researchers such as Matthijs Kalmijn are instered in finding the differential influences of divorced parents and married parents in intergenerational reproduction (Kalmign). I think divorced and married parents have different influences in shaping their children's understandings of marriage.

(f) One efficient way to do preliminary tests to validate my factors is to ask as many different types of people as possible and collect their background information as well as their current decisions on getting married. If for instance, controlling other factors, the distribution of marriage decisions among people with higher income doesn't differ a lot from those among people with lower income, then probably income doesn't play a significant role in our model. Digital platforms such as Amazon Mturk makes it plausible for me to collect many responses from various poeple with low cost.

References

[1] Lawrence M., Breen R. (2016). And their children after them? The effect of college on educational reproduction. *American Journal of Sociology* , 122, 532–572.

[2] Kalmijn Matthijs. (2015). Family Disruption and Intergenerational Reproduction: Comparing the Influences of Married Parents, Divorced Parents, and Stepparents. *Demography*, 52, 811-833