Econ 741, M. Brown

Problem Set 2

due November 30, 2007 (mailbox, email, in lecture, etc. by midnight)

1. Higher Education Finance

You will find a data set (ps2data.asc) posted on the class web page. These data are drawn from the Health and Retirement Study (HRS), and using these data you will estimate the relationships between children's educational attainment and parent and sibling characteristics.

You have data on work-aged adults in 2000, at which time the members of the sample are of a broad range of ages, but all are out of school. The columns of data in ps2data.asc are as follows:

Col 1: family identifier

Col 2: individual identifier (note that each agent in these data has at least one sibling in the data)

Col 3: individual's years of schooling

Col 4: parent's income in 2000

Col 5: parent's net worth in 2000

Col 6: indicator = 1 if male

Col 7: age

Col 8: indicator = 1 if stepchild of either parent

Col 9: indicator = 1 if oldest sibling

Col 10: indicator = 1 if youngest sibling

(a) The dimensions of the data are 34,193 rows by 10 columns. Read the data into the mathematical/statistical package of your choice and use the software to output descriptive statistics (mean, median, standard deviation, min and max) on each of the variables.

(b) Using both an OLS and an ordered logit specification, regress the individual's educational attainment on her or his parent's income and net worth, and other characteristics. Use higher order terms for the regressors where you determine this to be appropriate, and note why you think this is appropriate.

What relationship between family income and educational attainment do you estimate? Based on your own observation and Cameron & Heckman 1998, do you interpret this

relationship to be causal? What important feature(s) of the family income-schooling relationship is this specification missing? How might you correct this?

(c) In the interest of both practice and entertainment (and not because it is justified by any particular economic model we've discussed), estimate the relationship between children's demographic characteristics and educational attainment, using years of schooling as the dependent variable and controlling for a family-specific fixed effect. Next estimate the same relationship using a fixed effect logit and the discrete educational outcome of your choice.

Important note: This is not a request to estimate a choice among schooling levels based on the characteristics of the schooling choices. Instead we are interested in the probability that an observed student chooses one discrete schooling outcome or another as a function of the student's characteristics. The fixed effect is intended to represent an unobserved family characteristic.

Under what assumptions is the fixed effect logit estimator of the relevant coefficient vector unbiased and consistent? Are these assumptions reasonable? What relationships do you observe between children's demographic characteristics and educational attainment within families?

2. Social Insurance & Saving

Consider Hubbard, Skinner and Zeldes's 2 period social insurance model with uncertainty. Assume utility

$$U(C_t) = \ln C_t.$$

(Note that this $U(C_t)$ meets HSZ's requirement that the utility be homothetic.) Maintain the assumption that $r = \delta = 0$.

(a) Using GAUSS, calculate and graph each of the three consumption equilibria described in the appendix as E_1 increases from 1 to 5 in increments of .5. Assume that the 'bad' realization $E_{2b} = 0$ occurs with probability .5, and that the 'good' realization $E_{2g} = 2$ occurs with probability .5. Further, assume that the government guarantees a consumption floor of .5.

(b) In which equilibrium in (a) does the borrowing constraint bind (when is $\mu_1 > 0$)?

(c) What condition on C_1 and C_2 holds at each of points *d*, *e* and *f* in HSZ appendix figure A1? Calculate and graph the marginal utility of consumption in period 1 at each of the equilibrium consumption values in part (a). Based on these values, the conditions on points *d*, *e* and *f*, and Figure A1, we infer that an increase in E_1 affects the values to the individual of points *d*, *e* and *f* in what way? According to HSZ, what can we conclude from this about the relative behavior of households with higher and lower initial resources?

3. Motives for Inter Vivos Transfers

Altonji, Hayashi and Kotlikoff (1997) state that the evidence on parent-child inter vivos transfers in PSID extended families indicates that transfers are not motivated by conventionally modeled economic altruism. McGarry (2003) argues that under imperfect information on children's earnings streams, parental transfers may not be as responsive to children's incomes as the model in Altonji et al. predicts, and this can reconcile the behavior observed in the PSID with conventional altruism. Villanueva (2001) suggests instead that parents may be aware of the disincentive effect of future compensatory transfers on children's earnings, and may therefore design transfer mechanisms unlike those predicted by the Altonji et al. model that encourage working. He describes the manners in which this brings theory into line with the Altonji et al. results.

(a) Describe the major empirical findings that lead Altonji et al. to reject the altruism hypothesis.

(b) Devise your own alternative theory of inter vivos transfers that is consistent with the results you list in (a). Explain, formally or informally, the manners in which it is consistent with the results in (a). Feel free to borrow elements of McGarry and Villanueva's explanations, as described above. [Note: These working papers may be hard to come by. You should be able to complete the exercise without them.]