EC50161 Financial Econometrics I

Dummy Dependent Variable Models Computer Exercise (Murray 2006, Chapter 19)

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As shown in a study by Mulligan and Sala-i-Martin, in the Survey of Consumer Finances 59% of U.S. households report holding no interest-beraing financial assets, apart from employer-held pensions and IRAs. The questions is: Why don't more people hold financial assets? The authors argue that getting into the market for interest-bearing assets requires some fixed transactions cost – learning about the market and keeping track of the investment – that deter people with smaller assets from making the move out of cash or current accounts. The foregone interest income is less than the transaction costs fro these individuals. On balance, individuals hold interes-bearing assets if the net benefits from holding the assets is positive. The variable Z in this example is the net benefit to the household from holding interest-bearing assets.

The foregone interest from not holding assets is the product of the interest rate and the level of assets. Thus, the probability that a household owns interestbearing assets should depend on the level of the household's assets and on the interest rat. The authors suggest further that the learning costs may be lower fro people withy retirement fund assets, such as IRAs and pensions held with their employers, because exposure to such retirement investments might bring added general understanding of interest-bearing assets.

The data set *financials.wf1* contains the Survey of Consumer Finance data analyzed by Mulligan and Sala-i-Martin. The data are from a single year, so we have no variation in interest rates with which to estimate the effect of interest rate on whether individuals hold interest-bearing financial assets. The variable *havrasst* is one if the individual has non-retirement fund interest-bearing asset and is zero otherwise. The variables *pension* and *iras* are dummy variables indicating the individual has a pension or an IRA. The variable *dist* is the distance from the individual's home to the nearest financial institution. The variable lnfinast is the natural logarithm of financial assets held by an individual.

Questions

- 1. Use a linear probability model to estimate the probability of an individual holding a non-retirement fund interest-bearing asset. Include *lnfinast*, *pension*, *iras*, and *dist* variables in the model. Interpret the coefficients. Does the distance from the individual's home to the nearest financial institution have any effect? Why or why not?
- 2. Now estimate the probability of holding an interest-bearing asset using logit model.
- 3. How likely is an individual with \$1,000 in assets to hold interest-bearing assets, if he or she has no retirrement accounts? How much does this probability change if the individual has a pension? Compare your predictions made on the basis of the linear probability model and the logit model.
- 4. Now re-estimate the probability using the probit model and repeat the previous part.
- 5. How does this probability change when the assets of an invidual change from \$1,000 to \$2,000? \$3,000? \$10,000? Compare the predictions of all three models.
- 6. Summarize your conclusions.