WRITTEN PRELIMINARY Ph.D. EXAMINATION

Department of Applied Economics

January 2007

Consumer Behavior and Household Economics

Instructions

• Identify yourself by your code letter, not your name, on each question.

• Start each question’s answer at the top of a new page.

• You are to answer a total of FOUR questions.

• You must answer Question #1.

• Answer THREE of the remaining FIVE questions (question #2 - 6).

• You have four hours to complete the examination.
Question 1. ALL STUDENTS MUST ANSWER THIS QUESTION.

This problem modifies a simple static model of consumer demand by adding “Veblen effects”, in which individuals’ utility depends not on their consumption but on the difference between their consumption and the consumption of some richer group. Utility also depends on leisure, which is defined as 1 – h (h is the proportion of hours in a day that are devoted to work, so it ranges from 0 to 1, where 1 is working 24 hours per day). Thus the utility function takes the form:

\[ u = u(wh - vc^*, 1-h) \]

where \( w \) is the wage rate, so \( wh \) is household expenditure on consumption, \( c^* \) is the consumption level of the richer group, and \( v \) (which is \( \geq 0 \)) measures the impact of “social status concerns” (the larger \( v \) is, the more people are concerned with how their consumption compares to that of the richer group). You can think of \( wh \) as “actual consumption” and think of \( wh - vc^* \) as “effective consumption”.

a) Assume that the utility function has a concave shape with respect to the first variable, \( wh - vc^* \), and a concave shape with respect to the second variable, \( h \). What is the effect of an increase in \( c^* \) (the consumption level of the richer group) on the utility of a person with the above utility function? What is the effect of such an increase on the marginal utility of consumption for a person with that utility function? Assume that \( v > 0 \).

b) Suppose that the utility function takes a Cobb-Douglas form, so that

\[ u = (wh - vc^*)^\alpha (1-h)^{1-\alpha} \]

and \( 0 < \alpha < 1 \). Solve for the optimal value of \( h \). What happens to \( h \) when \( c^* \) increases?

c) Assume that the utility of the rich group is constant. For the population with the above utility function (assume Cobb-Douglas form), do you recommend that the government launch a “public information campaign” that will “weaken” Veblen effects in the sense that it will reduce the value of the parameter \( v \)? Answer this question by using your answer to b) to derive an indirect utility function in which utility depends only on \( \alpha, w, v \) and \( c^* \). Also, compare your answer to what one would observe in terms of total output in society (total consumption). (Assume that the wage rate is fixed, and that \( wh - vc^* > 0 \).)

d) Finally, a somewhat harder problem. Do not assume that the utility function takes a Cobb-Douglas form. Can you unambiguously determine the sign of the effect on \( h \) of an increase in \( c^* \)? You may assume that leisure and effective consumption are complements in the utility function (that is, an increase in either one increases the marginal utility of the other). Hint: you will need to use total differentiation.
ANSWER ANY THREE (3) OF THE REMAINING QUESTIONS (#2-6).

Question 2.

a. What is the difference between a health production and a health demand function?

b. Outline the theoretical foundation used for health production functions and that health demand functions are derived from.

c. Assume you are working with cross-sectional data with observations for individuals. Nutrient intake (food consumption) is an example of an explanatory factor in a health production function that should be considered endogenous. What do we mean by endogenous and why exactly is nutrient intake endogenous? What econometric problem does an endogenous explanatory variable present? What econometric technique can be used to address the problem posed by an endogenous explanatory variable? Why might a given data set prevent you from using the standard econometric technique for addressing an endogenous explanatory variable?

d. Genetic endowment (the genes you inherit from your parents) is obviously an important determinant of an individual’s health, but is normally unobservable (cannot be observed). How could the availability of panel data with multiple observations for the same individuals at different times help you address the fact that genetic endowment is unobservable, but affects health. Discuss the specific econometric technique you could use with panel data that addresses the issue posed by genetic endowment.
**Question 3.**

a. Distinguish between hyperbolic and quasi-hyperbolic discount factors mathematically and graphically. Explain why they are important in the study of consumer behavior.

b. How can these discount factors be used to explain the difference in savings rates in the U.S.A. (close to 0%) and China (close to 23%)?

c. How might these be employed to explain the high rates of consumer debt in the U.S.A.?

d. How would behavior be expected to change if the time to pay off credit cards were shortened to 2 months or the credit card company would cancel your account? And, why would this differ from the behavior change if the credit card company announced that paying your credit off in 2 months will give you a 10% discount on credit charges you incur for the rest of the calendar year?

**Question 4.**

a) Human capital theory is often used to explain differences in earnings across individuals. Describe the basic framework of human capital theory, including a standard earnings equation. What variables would you include in earnings equation, and what are the expected signs of the coefficients? Explain. Does the standard model do a “good” job of explaining differences in earnings across individuals? Discuss.

b) Consider a model in which there are two types of human capital, general skills and firm-specific skills, which are acquired through on-the-job training. Describe the costs and benefits of investing in human capital through on-the-job training for both the worker and the firm.

c) In the Becker model of competitive labor markets, does the worker or the firm pay for general training? Explain why. Describe at least one alternative model or hypothesis which could explain why some firms would pay for general training for workers.

d) Recent expansions of the human capital model include non-cognitive skills. What are non-cognitive skills and how does their inclusion in Heckman’s human capital model differ from a model with (fixed) unobserved ability?
**Question 5.**

The following are assumptions of neoclassic economic theory about consumer behavior.

**List of Assumptions**
- Monotonicity
- Full information
- Concavity
- Symmetry
- Transitivity

For each one of the listed assumptions,

a. Describe what each assumption means for consumer’s rational decisions.

b. Identify apparent behavioral anomalies that have been noted in recent research that suggest consumers may not behave rationally as defined in neoclassical theory.

c. How might an economic model focused on a specific issue of your choice be adopted to accommodate the anomaly?

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**Question 6.**

The predictions of behavioral models in economics often differ from the predictions of the standard neoclassical model of a labor market. For each part (a-c) below, describe the key assumptions and predictions of the standard neoclassical model and then describe a behavioral economics model that would lead to different predictions. Be sure to identify the key assumptions that lead to the differing predictions. Describe the behavioral model in detail.

a) An increase in the minimum wage that employers are required to pay.

b) Persistence of discrimination by employers against a particular group of workers such as minorities.

c) An (exogenous) decrease in product demand and resulting decline in product price (due to a recession for example).