ECO370 Masters Sample questions

Mid-Term #1

1) Jimmy’s utility function over consumption, $C$ (in dollars) and leisure, $L$ (in hours) is given by $U(C, L) = C \times L$. The slope of his indifference curves is consequently $-\frac{C}{L}$. He has an income of $V = $400 per week without working. Assume he has a total of $T = 100$ hours per week of non-sleeping time.

(i) How many hours does he work at $10$ per hour? What is his total income?
(ii) How many hours does he work at $12$ per hour? What is his total income?
(iii) Use your answers from (i) and (ii) to calculate his elasticity of labor supply. Interpret your result.
(iv) Suppose now that he discovers "sleep aids". He finds that they provide him with a deeper sleep so that needs 10 hours less sleep per week than he used to need (i.e. $T$ increases to 110). If the sleep aids cost $100$ per week, how would this affect his hours of work at $10$ per hour? Are the sleep aids worthwhile? Explain.

2) In New York State the combined State and Federal Child Tax Credit provides $1333$ per child to parents.

(a) Compared to a situation where there is no tax credit, how should this affect the labor supply of someone with 2 kids? Draw a diagram to illustrate your answer and explain.

(b) Actually, for every dollar over $110,000$ a couple earns, their Child Tax Credit is reduced by about 10 cents. Compared to the case in which everyone receives the full Tax credit, how should this affect the labor supply of someone with 2 kids whose spouse (partner) earns around $100,000$? Draw a diagram to illustrate your answer.

3) (a) Describe a model which can be used to address the issue of why lower income households tend to have more children than higher income households.

(b) Some European countries consider this phenomenon to be a social problem and have tried to address the imbalance through policy. The policy in Sweden is to allow mothers (or fathers) to take a year off work at full pay (provided by the government) when they have a child. Use the model you described to assess the impact of such a policy. What are the predicted effects on: (i) General fertility (ii) The fertility of high income parents relative to that of low-income parents?