Handout 4

diese Woche: 2. Theorie des Konsumenten (cont'd)
2.3. Slutsky Gleichung
2.4. Wohlfahrtsmessung
naiv, Konsumentenrente, Äquivalente + Kompensatorische Variation.
2.5. Kauf und Verkauf
Anfangsausstattung, Slutsky Equation, Anwendung auf Arbeitsangebot sowie intertemporalen Konsum
3. Aggregation - des Angebotes und der Nachfrage

zu lesen: Intermediate Varian, Kap. 8, 14, 9, 10

Übungsaufgaben:

1. Find the demand functions which subject to the budget constraint $I = p_1x_1 + p_2x_2$ (+ p_3x_3) maximize the following utility functions:

   a) $U(x_1, x_2, x_3) = x_1^{\alpha} x_2^{\beta} x_3^{\gamma}$ where $\alpha + \beta + \gamma = 1$
   b) $U(x_1, x_2) = \min(x_1, x_2)$ c) $U(x_1, x_2) = x_1 + x_2$

   For each one also find the indirect utility function and the expenditure function. Note that you might need to be a bit creative to solve b) and c).

2. Let $U(x, y) = x - 1/y$. Derive the cross-price elasticity of both (Marshallian) demands. Can you say whether they are substitutes or complements?

3. Derive the own price Slutzky equation. Sign each term for a normal good, a Giffen good, and an inferior good which is not a Giffen good. Repeat this exercise for a commodity in net supply.

4. Oblomow raises the price of a Caipirinha from 3 to 5 Euro. Depict graphically the naive measure of welfare change, the change in consumer surplus, as well as the equivalent and compensating variations. Also express these measures mathematically. What changes if instead we consider a price decrease?

5. A student with initial wealth zero has income $ 5,000 this year, but expects to have income $ 23,100 next year. The student can borrow or lend at the interest rate of 10 % per year. For unspecified reasons, the student intends to have zero wealth at the end of next year.
   c) Draw the student's budget constraint involving consumption this year and next year as the two goods.
   d) In the same diagram, draw the new budget constraint if the interest rate falls to 5 % per year. At what point do the two budget constraints intersect?
   e) Suppose the student happens to borrow $ 5,000 in the first year when the interest rate is 10 % per year. Show how to represent this choice by adding a suitable indifference curve to your diagram.
   f) Use your diagram to represent the income and substitution effects of the decrease in the rate of interest to 5 % per year. Is it possible that the lower interest rate could lead the student to borrow less?