

University of Connecticut  
College of Arts and Sciences  
Department of Economics  
Christian Zimmermann

**Fall 2004, Intermediate Macroeconomics, section 3**

## **ECON 219 Mid-term exam I**

**Name:**

**General recommendations:**

- Read questions thoroughly and answer each.
- Work individually.
- There are four pages.
- No documentation, cell phones, pagers, calculators and bathroom breaks.
- You have until 10:45 and can leave early, if you wish.

1. [10%] Here are some economic data gleaned from a toothbrush factory: toothbrush sales 1000\$, cost of packaging 300\$, cost of raw material 150\$, wages 250\$, taxes 50\$, interest on loans 50\$.

(a) What is the contribution to GDP of this factory according to the production approach?

(b) And according to the income approach?

2. [30%] Here are some business cycle statistics for Molvanía (a nice travel destination, by the way). All data has been seasonally adjusted, then logarithms were taken, then cyclical components were obtained with the HP-filter.

Variable	SD%	Correl. of GNP with		
		$x_{t-1}$	$x_t$	$x_{t+1}$
GNP	2.32	.77	1.00	.77
Consumption	2.90	.45	.65	.58
Fixed investmt	9.45	.65	.88	.67
Employment	1.02	.32	.44	.55
CPI	1.05	-.30	-.39	-.28
GDP defl.	1.55	-.45	-.55	-.39

- (a) What is the difference between the GDP deflator and the CPI in terms of the goods they cover?

- (b) Explain how we can determine whether a variable leads or lags the cycle?

- (c) What stylized facts do you see about the Molvanian business cycle?

- (d) Compared to the US stylized facts, what strikes you as being different?

3. [40%] Circle the correct answer to each of the following questions. Remember that there can be several answers:
- (a) A recession is essentially:
    - i. at least two consecutive quarters of negative GDP growth;
    - ii. at least two consecutive quarters of GDP growth below normal;
    - iii. determined by the press;
    - iv. determined by correlation.
  - (b) An increase in taxes  $T$  leads to:
    - i. a higher labor demand;
    - ii. a lower labor demand;
    - iii. a higher labor supply;
    - iv. a lower labor supply.
  - (c) A price index can be computed by:
    - i. dividing a nominal variable by its real counterpart;
    - ii. dividing a real variable by its nominal counterpart;
    - iii. computing the value of a basket of goods holding prices constant;
    - iv. computing the value of a basket of goods holding quantities constant.
  - (d) Consumption is
    - i. countercyclical;
    - ii. procyclical;
    - iii. very volatile;
    - iv. very smooth.
  - (e) When the wage increases, the substitution effect in the household's choices leads to:
    - i. a decrease in consumption demand;
    - ii. an increase in consumption demand;
    - iii. a decrease in leisure demand;
    - iv. an increase in leisure demand.
  - (f) The role of the HP-filter is to:
    - i. remove price effects from the data;
    - ii. remove long-term trends from the data;
    - iii. remove autocorrelation from the data;
    - iv. express all data in %.

4. **[20%]** Assume the government issues new regulation that requires firms to pollute less by using special filters.

(a) Within the model we discussed in class, what variable(s) could capture the impact of this regulation? In which direction?

(b) Graph the impact of this regulation on the firm's problem.

5. **[Bonus: 10%]** With the model we have put together so far in class, what can we say about unemployment?