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**Fall 2006, Intermediate Macroeconomics, section 1**

## **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 9:15 and can leave early, if you wish.

1. [25%] The following table describes the prices and economic activity in some country. Specifically, it gives the prices and quantities produced for three goods in three years, as well as the number of items purchases by the government.

- (a) Using year 2 as the base year, compute the real production in this economy for all three years, and do the same for real government expenses. Use the space on right for your calculations, put the results in the table further below.

Year		Pencils	Paper	Staples
1	Prices	\$1	\$2	\$3
	Production	12	15	8
	Govt. Exp.	6	8	6
2	Prices	\$2	\$3	\$4
	Production	15	12	12
	Govt. Exp.	5	5	7
3	Prices	\$3	\$4	\$5
	Production	10	13	10
	Govt. Exp.	7	15	8

Results:

Year	Real Prod.	Real Govt. Exp.
1		
2		
3		

- (b) From the information you have obtained above, what can you say about the cyclical behavior of government expenses?

2. [30%] The following tables show some information about two firms, a household and a government. Note that some numbers may be missing but can be concluded.

Diamond Miner				Jeweler				Household				Government	
Sales	200	110	Taxes	Sales	400	50	Taxes	Wages	350	25	Taxes	Taxes	Expenses
		45	Wages				Wages	Profits			Cons.		
			Profits			165	Diamonds	Interest	10				
						10	Loan Interest						
							Profits						

- (a) Complete the missing numbers in the table.  
 (b) Show what GDP is according to the product approach. Show the details of your calculations.

- (c) Do the same for the income approach.

- (d) And again for the expenditure approach.

3. [10%] Here are some business cycle statistics for the country of San Sombrèro. 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		
		$x_{t-1}$	$x_t$	$x_{t+1}$
GDP	1.45	.83	1.00	.83
Employment	2.55	.39	.58	.75
Fixed investment	8.25	.54	.73	.62
Imports	4.55	.20	.25	.17

(a) What stylized facts do you see in this economy?

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

4. [35%] Circle the correct answer to each of the following questions. Remember that there can be several answers, or none:

(a) A increase in capital leads to:

- i. an increase in labor demand;
- ii. a decrease in labor demand;
- iii. an increase in labor supply;
- iv. a decrease in labor supply.

(b) Labor supply is increasing in the wage because:

- i. the substitution effect is larger than the income effect;
- ii. the income effect is larger than the substitution effect;
- iii. the production function is increasing;
- iv. the marginal product of labor is decreasing.

- (c) In the labor force, we include:
    - i. employed workers;
    - ii. unemployed people;
    - iii. people on social security;
    - iv. hospitalized people.
  - (d) The budget constraint of the household represents:
    - i. the combinations of consumption and leisure a household can buy given income;
    - ii. the wage profile that balances labor supply and labor demand;
    - iii. the combinations of consumption and leisure a household likes best;
    - iv. the combinations of consumption and leisure that are feasible in an economy.
  - (e) In equilibrium, we must have that:
    - i. the wage equals the marginal rate of substitution of the household;
    - ii. the wage equals the marginal productivity of labor;
    - iii. the marginal rate of substitution of the household equals the marginal productivity of labor;
    - iv. the substitution effect is larger than the income effect.
  - (f) When the firm maximizes profits:
    - i. profits are always zero;
    - ii. production is at its maximum;
    - iii. the slope of the production function is at its flattest;
    - iv. labor costs are minimized.
5. **[Bonus: 10%]** Imagine that the government introduces a tax on firms. What would happen to labor demand if this tax were (and explain)
- (a) a lump sum tax,
  - (b) a tax proportional to labor costs,
  - (c) a tax proportional to profits.