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Fall 2010, Intermediate Macroeconomics, section 4

ECON 2202 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. **[20%]** The following table shows some data from two firms, a household and a government. Note that some numbers may be missing but can be concluded from the others.

	Shepherd		
Sales	200	25	Taxes
			Wages
			Loan Interest
			Profits
	200		

	Mitten factory		
Sales	400	80	Taxes
		100	Wages
		50	Wool
			Profits

	Household		
Wages	350		Taxes
Profits			Wool
Interest	10		Mittens

	Government		
Taxes	200	200	Wages

(a) Fill the missing numbers in the table above.

(b) Show what GDP is according to the product approach. Show the details of your calculations.

(c) Do the same for the expenditure approach.

2. **[30%]** Suppose there is an increase in taxes in our simple model economy.

   (a) What is the consequence for labor supply? Why?

   (b) What is the consequence for labor demand? Why?

   (c) Thus, what happens to the equilibrium wage and employment? Explain.

   (d) What does this imply in terms of output and consumption? Why?

   (e) From what you found above, would changes in taxes as modeled be a good explanation for the business cycle fluctuations we observe in the United States? Why?

3. **[15%]** Suppose we just invented a new production process that economizes on resources.
   (a) What does this means in terms of the production function?

   (b) How is the production possibilities frontier affected? Make a graph.

   (c) Keeping labor unchanged, would the marginal rate of transformation change? How? Why? What does this imply for the real wage?

   (d) And in equilibrium, does labor change? How?

4. **[35%]** Circle the correct answer(s) to each of the following questions. Remember that there can be several answers or none:
   (a) Which of the following factors of production do we consider?
      i. money;
      ii. loans;
      iii. machinery;
      iv. workers.

(b) Suppose we want to compute the price index in 2010 for base year 2000. Which formual is correct?

   i. $\sum(p_{2000} \;\; q_{2000})$;
   ii. $\sum(p_{2010} \;\; q_{2000})$;
   iii. $\sum(p_{2000} \;\; q_{2010})$;
   iv. $\sum(p_{2010} \;\; q_{2010})$;

(c) When the wage increases:

   i. firms want to hire more workers;
   ii. firms want to hire fewer workers;
   iii. firms make more profits;
   iv. firms make less profits.

(d) The purpose of using the Hodrick-Prescott (HP) filter is to:

   i. identify seasonal fluctuations;
   ii. identify the impact of prices;
   iii. identify trends;
   iv. identify comovements;

(e) If capital increases,

   i. the marginal productivity of capital increases;
   ii. the marginal productivity of capital decreases;
   iii. the marginal productivity of labor increases;
   iv. the marginal productivity of labor decreases;

(f) In recent history, investment has been

   i. procyclical;
   ii. acyclical;
   iii. countercyclical;
   iv. very volatile;

(g) Total factor productivity includes

   i. equipment;
   ii. technology;
   iii. weather;
   iv. regulation.

5. **[Bonus: 10%]**

   What is the unemployment rate in our model of the business cycle? Why? How does it respond to changes in taxes?