Universitat de Barcelona
Academic year 2011-2012, Fall Semester
Macroeconomics - Group A8
Professor: Lorenzo Burlon

List 1
Introduction. What macroeconomics is about.

1. Decide whether the following statements are true of false. Justify briefly your decision.

   (a) We can say that macroeconomics consists of two parts. On the one hand, the observation and description of reality, which pertains to the collection and analysis of macroeconomic data. On the other hand, the interpretation of reality, which refers to the formulation of macroeconomic theories. In the descriptive part, on top of the national accounts we use price indexes, wages, and statistics referring to the labor market, among other things. The theories propose hypotheses in order to interpret reality and construct models in order to explain the macroeconomic problems that an economy may face.

   (b) In good economic periods the unemployment is low and the wages tend to be high, while in recessions both the unemployment and the wages are high.

   (c) The theory of business cycles is devoted to the study of the short and medium term. Instead, the theory of economic growth is devoted to the study of the long term, that is, it aims at explaining the GDP trend over various decades.

   (d) The variables in macroeconomic models can be either endogenous or exogenous, depending on the model considered. In other words, a variable can be exogenous in one model and endogenous in another model.

   (e) The macroeconomic and microeconomic theories constitute economic theory as a whole. Moreover, they are completely independent and do not any relation among them.

2. Suppose that the market of bread is competitive, that is, buyers and sellers cannot affect the determination of the price. There exists only one type of bread and flour is the only input used in its production. Develop analytically this market according to the model of supply and demand.

Variables:

- quantity of bread demanded (Q^D);
- quantity of bread supplied (Q^S);
- price of bread (P);
- aggregate income of the economy (Y);
- price of flour, that is, the price of an input used in production (P^F).

(a) Determine the general functional form of demand and supply of bread.

(b) Identify which variables are exogenous and which are endogenous in the model.

(c) Represent graphically the demand curve and the supply curve.

(d) Determine the equilibrium price and the equilibrium quantity of bread.

(e) What happens to the equilibrium price and quantity if the price of flour falls?

(f) What happens if, on top of the decrease in the price of flour, there is also an increase in the aggregate income?

3. Suppose that the economy produces only 3 goods (A, B, and C). We have data on the quantities produced and the price of these goods for 3 consecutive periods.

Period	P^A	Q^A	P^B	Q^B	P^C	Q^C
0	15	120	8	80	20	200
1	18	150	9	100	22	250
2	21	130	10	100	25	220
3	19	140	10	110	21	240

(a) Compute the nominal GDP in period 0, 1, 2, and 3.

(b) Setting period 0 as the base period, compute the real GDP for the 4 periods.

(c) Compute the growth rate of nominal and real GDP between periods 0 and 1, 1 and 2, 2 and 3, and between periods 0 and 3.

(d) Interpret the previous results. How did the production of this economy evolve over the periods we took into account?

4. Consider an economy that produces and consumes bread and cars. The table beloz reports the data for 2 different years.

Variable	2000	2010
Price of a car	50000	60000
Price of a baguette	10	20
Number of cars	100	120
Number of baguettes	500000	400000

(a) Compute the follwing indicators for each year using 2000 as the base year: the nominal GDP, the real GDP, the GDP deflator, and the CPI.

(b) How much did the prices increase between 2000 and 2010? Compare your answers for the GDP deflator and for the CPI. Explain the difference.

(c) Suppose that you are a member of the parliament who is designing a law to peg the pensions to inflation. In other words, your project is to adjust the pension payment in order to reflect the change in the cost of living. Would you use the GDP deflator or the CPI? Why?

5. Gregory only consumes apples. In year 1, the red apples cost 1 euro each and the green apples cost 2 euros each. Gregory buys 10 red apples. In year 2, the red apples cost 2 euros each and the green apples cost 1 euro each. gregory buys 10 green apples.

(a) Compute the consumer price index (CPI) of the apples for each year. Suppose that the base year for the basket of goods is year 1. How does the index vary between year 1 and year 2?

(b) Compute the nominal GDP in apples. How does it change from year 1 to year 2?

(c) Compute the real GDP using year 1 as the base year for the prices. How does it evolve from year 1 to year 2?

(d) Compute the GDP deflator for each year. How does it change from year 1 to year 2?

(e) Suppose that Gregory is indifferent between red and green apples. How much did the cost of living increase for him? Compare the answer to this question with the answer to the previous questions. What does this example tell us about the reliability of the changes in the CPI as a measure of inflation?