Exercise session #1 - Macroeconomic aggregates

Problem 1 - Components of expenditure

Place each of the transactions in one of the four components of expenditure: C, I, G, NX.

- Skoda sells car to the police department.

- Skoda sells car to taxi company.

- Skoda sells car to German company.

- Skoda sells car to Jan Novak.

- Skoda builds car to be sold next year (e.g. low demand due to crisis.)

Problem 2 - Price indexes I

Economy produces and consumes only bread and cars. In year 2000, cars cost $50,000 each, bread costs $2 a loaf, and economy produces 100 cars and 500,000 loaves of bread. In year 2010, cars cost $60,000 each, bread costs $20 a loaf, and economy produces 120 cars and 400,000 loaves of bread.

- Using the year 2000 as the base year, compute the following statistics for each year: nominal GDP, real GDP, the implicit price deflator for GDP, and a fixed-weight price index such as the CPI.

- How much have prices risen between year 2000 and year 2010? Compare the answers given by the Laspeyres and Paasche price indices. Explain the difference.

- Suppose you are writing a bill to index Social Security payments and pensions. That is, your bill will adjust these benefits to offset changes in the cost of living. Will you use the GDP deflator or the CPI? Why?

Problem 3 - Price indexes II

Marek consumes only apples. In year 2008, red apples cost $1 each, green apples cost $2 each, and Marek buys 10 red apples. In year 2009, red apples cost $2 each, green apples cost $1 each, and Marek buys 10 green apples.

- Compute a CPI for apples, assuming the year 2008 is the base year in which the consumer basket is fixed. What does it imply about the change in costs of living and why?

- Compute Marek's nominal spending on apples in each year - how does it change?

- Compute Marek's real spending on apples in each year, assuming year 2008 is the base year.

- Compute the price deflator, defined as nominal spending over real spending. What does it imply about the change in costs of living and why?

- Suppose that Marek is equally happy eating red or green apples. How much has the true cost of living increased for Marek. What does it imply about Laspeyres and Paasche price indexes?

Questions to the Lecture 1

1. What is the difference between exogenous and endogenous variables?

2. Define Gross Domestic Product (production method).

3. How do you account for increase and decrease in inventories in the GDP accounting?

4. What types of output are not included in GDP?

5. What is the difference between real and nominal GDP, which one is better measure of the economy's production and why?

6. Write down defining equation for GDP deflator, provide example of calculation.

7. Give an example of durable goods.

8. Is the purchase of a stock on the stock exchange counted in the GDP?

9. Why there is a need for the seasonal adjustment of GDP?

10. How do you define Gross National Product

11. How do you define disposable personal income?

12. Write down the definition (formula) of CPI.

13. State 3 basic differences between CPI and GDP deflator.

14. Why does CPI overstate inflation?

15. Why does GDP deflator understate inflation?

16. Who is considered to be unemployed (according to Czech Statistical office)?

17. How do we define unemployment rate?

18. How do we define labor force participation rate?

19. Explain Okun's Law.