

Problem Set EARN – Temporal Comparison

1) Suppose that the residents of Vegopolis spend all of their income on cauliflower, broccoli, and carrots. In 2001 they buy 100 heads of cauliflower for 200€, 50 bunches of broccoli for 75€, and 500 carrots for 50€. In 2002 they buy 75 heads of cauliflower for 225€, 80 bunches of broccoli for 120€, and 500 carrots for 100€. If the base year is 2001, what is the CPI in both years? What is the inflation rate in 2002?

2) Consider the following table:

Year	Nominal GDP	GDP Deflator (Base year 2000)
2005	7 662	110
2006	8 111	112

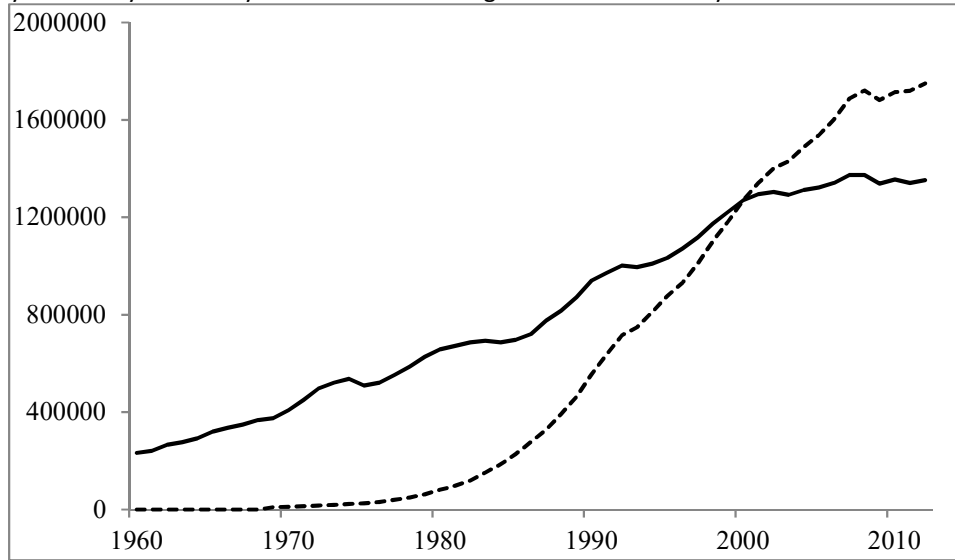
- i) What was the growth rate of nominal GDP between 2005 and 2006?
- ii) What was the growth rate of the GDP deflator between 2005 and 2006?
- iii) What was the real GDP in 2005 and 2006 measured in 2000 prices?
- iv) What was the growth rate of real GDP between 2005 and 2006?
- v) Was the growth rate of nominal GDP higher or lower than the growth rate of real GDP? Explain.
- vi) If prices rise, one effect is that people’s revenue from selling goods increases. The growth of real GDP ignores this particular gain, however. Why, then, do economists prefer real GDP as a measure of economic well-being?

3) Assume Springfield is a closed economy that only produces two types of goods, Krusty burgers and doughnuts. Below are some data regarding the price and the quantity of Krusty burgers and doughnuts produced or consumed.

Year	Price per burger [€]	Quantity of burgers	Price of doughnuts [€]	Quantity of doughnuts
2001	1	100	2	50
2002	1	200	2	100
2003	2	200	4	100

Assume that the basket used to estimate inflation in Springfield is defined as: 2 Krusty burgers and 1 doughnut. Use 2001 as the base year. Calculate the inflation rate in 2002 and 2003.

- 4) The following figure shows the nominal and real GDP for Portugal in billions of euros. Identify both time series. How could you identify the base year used in calculating the real GDP? Justify.



- 5) You are a Secretary of State for the Ministry of Labour and you are currently negotiating changes in the wages of the public sector. Below is some data regarding the price and the quantity for the most important consumption items. Use 2009 as the base year for your calculations.

Year	Price of electricity [€/kWh]	Quantity of Electricity [kWh]	Price of Water [€/m ³]	Quantity of Water [m ³]
2009	1	50	2	100
2010	0.7	100	3	200
2011	0.5	100	4	200

- a) The government needs information on the inflation rate to negotiate potential increases in wages and you decide to compute the Consumer Price Index (CPI) using a basket composed of 200 kWh and 100 m³. What is the CPI in each year? What is the inflation rate in 2010 and 2011? What is your recommendation for a wage change and why?
- b) The public servants are enraged with you and your minister stating that you did not take into account the changes in quality-of-life over the years, and urge you to recalculate your estimates of inflation rate with a more adequate basket. Choose a better basket and recalculate the inflation rate in 2010 and 2011 taking into account the public servants' demands and worries. What is the inflation rate in 2010 and 2011? What is now your recommendation for a wage change and why?