

Summer 2020 – Individual Homework – (15%)

ECON252 – Macroeconomics-

Name	ID
Fahad Madouh	38993



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Problem 1: (20 points)

- a) Explain the difference between calculation of inflation through CPI and through the GDP deflator.

Hint: think about which type of goods are considered for calculating inflation in each case.

Calculation of inflation through CPI considers only the prices of services and goods purchased by consumers while GDP deflator calculation of inflation puts into consideration the prices of all services and goods produced. The GDP calculation of inflation method includes only domestically produced goods while CPI inflation calculation method includes even the imported goods.



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Problem 2: (20 points)

	2018	2019
Consumption	1200	1240
Personal transfer	80	100
Investment	250	300
Investment in real estate	60	70
Government purchases	200	210
Export	180	190
Import	160	180
GDP	1470	1760

- a. Calculate GDP for 2018 and 2019.

GDP = consumption + Investment + government purchases + (export - import)

$$\text{GDP (2018)} = 1200 + 250 + 200 + (180 - 160)$$

$$= 1470$$

$$\text{GDP (2019)} = 1240 + 300 + 210 + (190 - 180)$$

$$= 1760$$

- b. Calculate the GDP growth rate.

Growth in GDP = GDP 2019 – GDP 2018

$$= 1760 - 1470$$

$$= 290$$

The growth rate = Growth in GDP / GDP 2018 * 100%

$$= (290 / 1470) * 100\%$$

$$= 19.7\%$$



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Problem 3: (30 points)

Working age population	219222
Employment	140302
Unemployment	19730
Unemployment rate	9%
Labor force	160032
Labor force participation rate	64%
Employment population ratio	64%

Fill in the blanks

Problem 4: (30 points)

	2010 (base year)		2017	2018
Product	Quantity	Price	Price	Price
Haircuts	1000	2	2.5	3
Burger	5000	3.5	4	3.5
Tablets	1500	225	250	210

Consider a small economy producing only three goods. Use the information in the following table to calculate the inflation rate for 2018, as measured by the CPI.

a. Calculate CPI in 2017 and 2018

$$\begin{aligned}\text{CPI in 2017 (haircuts)} &= \text{cost of haircut in 2017} / \text{cost of haircut in 2010} * 100\% \\ &= (2.5 * 1000) / (2 * 1000) * 100\% \\ &= 125\end{aligned}$$

$$\begin{aligned}\text{CPI in 2017 (Burger)} &= \text{cost of burger basket in 2017} / \text{cost of burger basket in 2010} * 100\% \\ &= (4 * 5000) / (3.5 * 5000) * 100\% \\ &= 114.3\end{aligned}$$

$$\begin{aligned}\text{CPI in 2017 (tablets)} &= \text{cost of tablets basket in 2017} / \text{cost of tablets basket in 2010} * 100\% \\ &= (250 * 1500) / (225 * 1500) * 100\% \\ &= 111.1\end{aligned}$$

$$\begin{aligned}\text{CPI in 2018 (haircuts)} &= \text{cost of haircut in 2018} / \text{cost of haircut in 2010} * 100\% \\ &= (3 * 1000) / (2 * 1000) * 100\% \\ &= 150\end{aligned}$$

$$\begin{aligned}\text{CPI in 2018 (Burger)} &= \text{cost of burger basket in 2018} / \text{cost of burger basket in 2010} * 100\% \\ &= (3.5 * 5000) / (3.5 * 5000) * 100\% \\ &= 100\end{aligned}$$

$$\begin{aligned}\text{CPI in 2018 (tablets)} &= \text{cost of tablets basket in 2018} / \text{cost of tablets basket in 2010} * 100\% \\ &= (210 * 1500) / (225 * 1500) * 100\% \\ &= 93.3\end{aligned}$$

b. Calculate inflation and explain results

$$\text{Inflation rate in 2018 (haircuts)} = (150 - 125) / 125 * 100\% = 20\%$$

The price of haircuts increased by 20% in year 2018 from 2017.

$$\text{Inflation rate in 2018 (burger)} = (100 - 114.3) / 114.3 * 100\% = -12.5\%$$

The price of burger decreased by 12.5% in year 2018 from 2017

$$\text{Inflation rate in 2018 (tablets)} = (93.3 - 111.1) / 111.1 * 100\% = -16\%$$

The price of tablets decreased by 16% in the year 2018 from 2017