Assignment 4

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I pledge my honor that I have abided by the Stevens Honor System.

3.3)

Real growth 22-23 = $\frac{(19269-18965)}{18965} \approx \%1.6$

Per capita real GDP 22 = $\frac{\$18965 \text{ bil.}}{338.2 \text{ mil}} \approx \$56,076.30$ per capita

Per capita real GDP 2023 = $\frac{\$19269 \text{ bil}}{340.5 \text{ mil}} \approx \$56,590.31$ per capita

Real GDP rate of change = $\frac{\$19269 - \$18965}{2023-2022} = \$304 \text{ billion/year}$

Real GDP per capita R.O.C = $\frac{\$56590.31 - \$56076.30}{2023-2022}$

$= \$514.01/\text{year}$

3.6)

a)

Nom. GDP in 2018 = $\Sigma(Q \cdot P)$

$= (300 \cdot 1.15) + (750 \cdot 4) + (180 \cdot 15) + (450 \cdot 2.5) + (85 \cdot 30) + (85 \cdot 5)$

$= \$10,145$

b) Real GDP with 2016 as base year

	2016	2017	2018
Real GDP	$6517	$6699.50	$7322.50
Growth rate from previous year	—	%2.8	%9.3

3.6c) Real GDP with 2017 as base year

	2016	2017	2018
Real GDP (2017 base)	$7790	$8017.50	$8767.50
Growth rate since last year	–	%2.92	%9.35

3.7)

Quarter	% GDP deflator	% increase in Price Level
2013q1	110.58	10.58
2013q2	111.25	11.25
2013q3	111.63	11.63
2013q4	112.19	12.19
2014q1	112.75	12.75
2014q2	113.03	13.03
2014q3	113.61	13.61
2014q4	114.27	14.27

$$\text{GDP Deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} * 100\%$$

% increase in PL = (GDP Deflator − 100%)

2.3)

Year	Bundle Price	CPI (2016 Base)
2016	$550	100
2017	$575	104.55
2018	$562.50	102.27

$Bundle_{2016} = 50(2) + 125(3) + 100(0.75) = \$550$

$Bundle_{2017} = 50(1.50) + 125(3) + 100(1.25) = \$575$

$Bundle_{2018} = 50(2) + 125(2.50) + 100(1.50) = \$562.50$

$CPI_{2016} = \frac{550}{550} \times 100 = 100$

$CPI_{2017} = \frac{575}{550} \times 100 = 104.55$

$CPI_{2018} = \frac{562.5}{550} \times 100 = 102.27$

% Change in CPI 2016-2017 $= \frac{104.55 - 100}{100} \times 100 = \%4.55$

% Change in CPI 2017-2018 $= \frac{102.27 - 104.55}{104.55} \times 100 = -\%2.18$

No, the CPI fell between 2017 and 2018 so there was no inflation.