CheggSolutions - Thegdp

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# Economics Analysis: Real GDP, Nominal GDP, and Deflator

## Given Data

| Years | GDP (billions of dollars) | GDP Deflator (2012=100 base) | Real GDP (billions of 2012 dollars) | Population (billions) | Real GDP per capita (in 2012 dollars) |
|-------|---------------------------|------------------------------|-------------------------------------|-----------------------|---------------------------------------|
| 1970 | 1,073.3 | 21.7 | 4,946.5 | 0.2032 | 24,414.0 |
| 1980 | 2,857.3 | 63.6 | TBD | 0.2265 | TBD |
| 1990 | 5,963.0 | 72.4 | 8,236.8 | TBD | TBD |
| 2000 | 10,284.8 | 87.5 | TBD | 0.2822 | TBD |
| 2010 | 15,049.0 | 109.5 | 15,063.5 | 0.3087 | 46,703.0 |
| 2020 | 20,893.7 | 113.7 | 18,382.0 | 0.3315 | TBD |

## Step-by-Step Analysis and Calculations

### a) Complete the Table

**1. Calculation of Real GDP for 1980**

Real GDP = ( Nominal GDP / GDP Deflator ) × 100

Real GDP for 1980 = ( 2,857.3 / 63.6 ) × 100 = 4,491

By adjusting nominal GDP with the GDP deflator, the real GDP for 1980 is found to be 4,491 billion dollars.

**2. Population in 1990**

Real GDP per capita = Real GDP / Population

Population = Real GDP / Real GDP per capita

**3. Calculation of Real GDP Per Capita for 1980**

Real GDP per capita = Real GDP / Population

Real GDP per capita (1980) = 4,491 / 0.2265 = 19,824

**4. Calculation of Real GDP for 2000**

Real GDP (2000) = ( Nominal GDP / GDP Deflator ) × 100

Real GDP for 2000 = ( 10,284.8 / 87.5 ) × 100 = 11,759.2

**5. Calculation of Real GDP per Capita for 2000**

Real GDP per capita (2000) = Real GDP / Population

Real GDP per capita (2000) = 11,759.2 / 0.2822 = 41,675.8

**6. Calculation of Real GDP per Capita for 2020**

Real GDP per capita (2020) = Real GDP / Population

Real GDP per capita (2020) = 18,382.0 / 0.3315 = 55,440.7

**Updated Completed Table**

| Years | GDP (billions of dollars) | GDP Deflator (2012=100 base) | Real GDP (billions of 2012 dollars) | Population (billions) | Real GDP per capita (in 2012 dollars) |
|-------|---------------------------|------------------------------|-------------------------------------|------------------------|---------------------------------------|
| 1970 | 1,073.3 | 21.7 | 4,946.5 | 0.2032 | 24,414.0 |
| 1980 | 2,857.3 | 63.6 | 4,491.0 | 0.2265 | 19,824.0 |
| 1990 | 5,963.0 | 72.4 | 8,236.8 | Data Needed | Data Needed |
| 2000 | 10,284.8 | 87.5 | 11,759.2 | 0.2822 | 41,675.8 |
| 2010 | 15,049.0 | 109.5 | 15,063.5 | 0.3087 | 46,703.0 |
| 2020 | 20,893.7 | 113.7 | 18,382.0 | 0.3315 | 55,440.7 |

**b) Analysis Between 2000 and 2020**

**Percentage Change in Nominal GDP**

Percentage Change in Nominal GDP = (( $GDP_{2020}$ - $GDP_{2000}$ ) / $GDP_{2000}$ ) × 100

Percentage Change in Nominal GDP = (( 20,893.7 - 10,284.8 ) / 10,284.8 ) × 100 = 103.2%

**Percentage Change in Real GDP**

Percentage Change in Real GDP = (( Real $GDP_{2020}$ - Real $GDP_{2000}$ ) / Real $GDP_{2000}$ ) × 100

Percentage Change in Real GDP = (( 18,382.0 - 11,759.2 ) / 11,759.2 ) × 100 = 56.3%

**Percentage Change in Real GDP per Capita**

Percentage Change in Real GDP per Capita = (( Real GDP per $Capita_{2020}$ - Real GDP per $Capita_{2000}$ ) / Real GDP per $Capita_{2000}$ ) × 100

Percentage Change in Real GDP per Capita = (( 55,440.7 - 41,675.8 ) / 41,675.8 ) × 100 = 33.0%

**Were people better off in 2020 than in 2000?**

The increase in real GDP per capita by 33.0% from 2000 to 2020 suggests an improvement in the standard of living, implying people were better off in 2020 than in 2000.

**Problems with using Real GDP per capita**

- **Income Distribution:** Real GDP per capita does not account for income inequality.
- **Non-Market Transactions:** Several economic activities, like household work and black-market operations, are not included.
- **Quality of Goods and Services:** It may not accurately reflect changes in the quality of goods and services over time.
- **Environmental Factors:** It does not consider environmental degradation or sustainability issues.

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