

Inflations- und Wachstumsraten (Buch, S. 473 +492, Kapitel 23)

Mengen	$M_{CD}$	$M_{Pizza}$	Preise	$P_{CD}$	$P_{Pizza}$
1999	5	25	1999	15	5
2000	10	10	2000	10	7

- Nominal GDP 1999

$$P_{CD}^{99} M_{CD}^{99} + P_{Pizza}^{99} M_{Pizza}^{99} = 15 * 5 + 5 * 25 = 200$$

- Nominal GDP 2000

$$P_{CD}^{00} M_{CD}^{00} + P_{Pizza}^{00} M_{Pizza}^{00} = 10 * 10 + 7 * 10 = 170$$

- Nominal Wachstum

$$\left( \frac{170-200}{200} \right) 100 = -15\%$$

- Real GDP 1999

$$= \text{Nominal GDP 1999} = 200$$

- Real GDP 2000

$$P_{CD}^{99} M_{CD}^{00} + P_{Pizza}^{99} M_{Pizza}^{00} = 15 * 10 + 5 * 10 = 200$$

- Real Wachstum

$$\left( \frac{200-200}{200} \right) 100 = 0\%$$

- Deflator 1999

$$\frac{\text{Nominal GDP 1999}}{\text{Real GDP 1999}} 100 = \frac{\text{Nominal GDP 1999}}{\text{Nominal GDP 1999}} 100 = 100$$

- Deflator 2000

$$\frac{\text{Nominal GDP 2000}}{\text{Real GDP 2000}} 100 = \frac{170}{200} 100 = 85$$

- Inflation using deflator

$$\left( \frac{85-100}{100} \right) 100 = -15\%$$

- Inflation using deflator

$$\left(\frac{85-100}{100}\right) 100 = \pi$$

$$\left(\frac{85}{100} - 1\right) 100 = \pi$$

$$\frac{85}{100} = 1 + \frac{\pi}{100}$$

$$\ln \frac{85}{100} = \ln \left(1 + \frac{\pi}{100}\right)$$

$$\ln \frac{85}{100} \approx \frac{\pi}{100}$$

$$\ln \left( \frac{\frac{\text{Nominal GDP 2000}}{\text{Real GDP 2000}}}{\frac{\text{Nominal GDP 1999}}{\text{Real GDP 1999}}} \right) = \ln \left( \frac{\text{Nominal GDP 2000} \text{ Real GDP 1999}}{\text{Nominal GDP 1999} \text{ Real GDP 2000}} \right)$$

$$\ln \left( \frac{\text{Nominal GDP 2000}}{\text{Nominal GDP 1999}} \right) + \ln \left( \frac{\text{Real GDP 1999}}{\text{Real GDP 2000}} \right)$$

$$\ln \left( \frac{\text{Nominal GDP 2000}}{\text{Nominal GDP 1999}} \right) + \ln \left( \frac{1}{\frac{\text{Real GDP 2000}}{\text{Real GDP 1999}}} \right)$$

$$\ln \left( \frac{\text{Nominal GDP 2000}}{\text{Nominal GDP 1999}} \right) - \ln \left( \frac{\text{Real GDP 2000}}{\text{Real GDP 1999}} \right)$$

$$\text{Nominal Wachstum} - \text{Real Wachstum} = -15 - 0 = -15\%$$

- CPI 1999

$$\frac{P_{CD}^{99} M_{CD}^{99} + P_{Pizza}^{99} M_{Pizza}^{99}}{P_{CD}^{99} M_{CD}^{99} + P_{Pizza}^{99} M_{Pizza}^{99}} 100 = 100$$

- CPI 2000

$$\frac{P_{CD}^{00} M_{CD}^{99} + P_{Pizza}^{00} M_{Pizza}^{99}}{P_{CD}^{99} M_{CD}^{99} + P_{Pizza}^{99} M_{Pizza}^{99}} 100 = \frac{10 \cdot 5 + 7 \cdot 25}{200} 100 = \frac{225}{200} 100 = 112.5$$

- Inflation using CPI

$$\frac{112.5-100}{100} 100 = 12.5\%$$

- Comparison

Deflator versus CPI

$$\frac{P_{CD}^{00} M_{CD}^{00} + P_{Pizza}^{00} M_{Pizza}^{00}}{P_{CD}^{99} M_{CD}^{00} + P_{Pizza}^{99} M_{Pizza}^{00}} 100 \text{ versus } \frac{P_{CD}^{00} M_{CD}^{99} + P_{Pizza}^{00} M_{Pizza}^{99}}{P_{CD}^{99} M_{CD}^{99} + P_{Pizza}^{99} M_{Pizza}^{99}} 100$$

- Mengen!

CPI with 99 Mengen: Gewicht Pizza

Deflator with 00 Mengen: Gewicht CD