

## **Exercise 6: Macroeconomic Indicators**

### **Problem 1** (*Gross Domestic Product*)

Consider an economy with only three producers: a farmer, a miller, and a baker. In 2025, only the following production and expenditure activities take place.

- The farmer purchases grain seeds for 100,000 Euros from abroad and sows them. She sells her grain harvest for 300,000 Euros to the miller.
- The miller uses the grain to produce flour. He sells one part of his flour production for 300,000 Euros to the baker, another part for 200,000 Euros to domestic consumers, and the rest for 100,000 Euros abroad.
- The baker purchases further ingredients for 100,000 Euros from abroad which she uses together with the flour to produce bread. She sells a part of her bread production for 500,000 Euros to domestic consumers and the rest for 300,000 Euros abroad.

Determine nominal GDP and net exports of the economy in 2025.

**Problems 2-4 (Price Level)**

Consider a closed economy that produces only three goods; fish, potatoes, and tea. In each period, the entire output is consumed.

Base Period: 2023

	Output of fish (in kg)	Price of fish (per kg)	Output of potatoes (in kg)	Price of potatoes (per kg)	Output of tea (in kg)	Price of tea (per kg)
2023	15,000	16	80,000	2	5,000	30
2024	15,000	17.5	80,000	2.5	5,000	45
2025	20,000	20	83,000	2.5	300	120

**Problem 2**

In 2024, the

- (A) GDP-Deflator is 0.75.
- (B) GDP-Deflator is 1.25.
- (C) CPI is 1.3.
- (D) CPI is 2.0.

**Problem 3**

In 2025, the

- (A) GDP-Deflator is 0.75.
- (B) GDP-Deflator is 1.25.
- (C) CPI is 1.3.
- (D) CPI is 2.0.

**Problem 4**

Between 2024 and 2025, the inflation rate based on the

- (A) GDP-Deflator is  $-0.02$ .
- (B) GDP-Deflator is 0.04.
- (C) CPI is 0.
- (D) CPI is 0.06.

**Problems 5-6** (*Employment*)

Consider an economy with an adult population of  $N = 70$  million people, of which  $U = 2.1$  million are unemployed.

**Problem 5**

If the labor force participation rate is  $e = 0.5$ , the number of employed people is

- (A)  $E = 32.9$  million.
- (B)  $E = 33.4$  million.
- (C)  $E = 33.9$  million.
- (D)  $E = 34.4$  million.

**Problem 6**

If the unemployment rate is  $u = 0.05$ , the labor force participation rate is

- (A)  $e = 0.4$ .
- (B)  $e = 0.5$ .
- (C)  $e = 0.6$ .
- (D)  $e = 0.7$ .