

ECON 202
MACROECONOMIC THEORY
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Midterm Exam

1. (15 Points) Calculate the GDP of **KingLand**, a fictitious economy whose numbers are listed below. Do so using all three methods (value added approach, income approach, and expenditure approach). Please do indicate your calculations clearly.

KingLand, year 2010
Farmer King, (private firm)

Corn Sold to Govt	\$30
Corn Sold to Singapore	\$25
Corn Sold to KingFoodCo, Inc	\$20
Payment to workers	\$40
Tax on profit	\$15

Corn Inventory

Beginning of Year	\$0
End of Year	\$5

Govt

Taxes	\$50
Payment to workers	\$15
Purchase of Corn	\$30
Purchase of Corn Flakes	\$20
Unemployment benefits Paid	\$15

KingFoodCo, Inc

Sold Corn Flakes to Consumers	\$100
Sold Corn Flakes to Govt	\$20
Bought corn from Farmer King	\$20
Bought salt from Egypt	\$10
Payment to workers	\$20
Tax on Profit	\$15

Corn Flakes Inventory

Beginning of Year	\$10
End of Year	\$15

Households

Taxes on wage income	\$10
Unemployment benefits	\$15
Corn Flakes purchased	\$100

2. (10 Points) Suppose that the following equations describe the a simple Keynesian macroeconomy.

$$C = 55 + 0.9(Y - T); \quad T = -50 + (0.1)Y; \quad I = 2500 + 0.055 \cdot Y; \quad G = 200 + (0.035)Y$$

Find the **multiplier** and **equilibrium GDP** values of this economy.

3. (15 Points) Turkish government has been experiencing fiscal deficit for years. Suggest a policy mix in the IS-LM setup to achieve a decrease in fiscal deficit while keeping interest rate i constant. **Discuss** in detail possible macroeconomic implications of this policy mix on aggregate expenditure and its components? **Do not forget to support your answer by a figure.**

4. (20 Points) Consider the following IS-LM model:

$$C = 400 + 0.75YD; T = 400 + 0.1 \cdot Y; I = 300 - 1500i; G = 600; P = 0.5$$

$$M^d = 3 \cdot Y - 12000 \cdot i \text{ (real money demand); } M^s = 3000 \text{ (nominal money supply).}$$

If you solve this model, you find that **IS** equation is $i = \frac{1000}{1500} - \frac{0.325}{1500}Y$ and

$$i = \frac{3}{12000}Y - \frac{6000}{12000}$$
 is **LM** equation. And equilibrium values are $Y^* = 2500$ and

$$i^* = 0.125 \text{ (=12.5%).}$$

- (a) Suppose now that government spending decreased by 100 (from 600 to 500). What is the government spending multiplier?
- (b) Suppose that the Central Bank targets a fixed interest rate. How should CB adjust the money supply (nominal) to keep the interest rate fixed in response to a decrease in government spending by 100 in (a)? **Calculate.**

5. (15 Points) Turkish economy is an oil-dependent one. Suppose that recently TPAO (Turkish National Oil Co.) discovered rich oil resources in the Black Sea. The price of oil is expected to decrease at least by half in a year. Explore the macroeconomic effects of this discovery on Turkish economy, using the AD-AS setup. Do not forget to **discuss** and **show** the effects of this change on the position of AD, AS, IS, and LM curves and on output, the interest rate, and the price level in the short run and medium run. Assume that the economy was at the natural level of output before the discovery.

6. (15 Points) Consider the following AD-AS model:

$C = 1 + 0.5YD$; $T = 2$; $I = 1 - 10i$; $G = 2$; $P = (1/5) \cdot Y$ (medium run AS) and $Y^* = 5$

$M^d = 300 - 1000 \cdot i$ (real money demand); $M^s = 300$ (nominal money supply)

- (a) Derive the AD equation (5 Points).
- (b) Find the medium run and long run equilibrium Y , P and i values. (5 Points)
- (c) Illustrate medium and long run values in respective graphs. (5 Points)

7. (10 Points) Suppose that the firm's markup over costs is 5%, and the wage-setting equation is $W = P(1 - u + z)$, where u is the unemployment rate and z is the catch-all variable that stands for all other variables that may affect the wage setting equation.

- (a) What is the real wage as determined by the price-setting equation?
- (b) What is the natural rate of unemployment if $z = 0.02$?
- (c) Suppose that z increases to $z = 0.03$. How does the real wage and natural rate of unemployment change? **Support your answer by a figure.**