ASSIGNMENT #2
Due Thursday October 12
(at the beginning of the class)

Show all your calculations for credit.

1. Goods Market Model

Suppose we have the following economy described by:

\[ C = 1,500 + 0.9Y_D \]
\[ Y_D = Y - T \]
\[ I = 1,000 \]
\[ G = 2,000 \]
\[ T = 1,500 \]
\[ Z = C + I + G \]

where \( C \) is consumption, \( Y_D \) is disposable income, \( Y \) is output (income), \( T \) is tax, \( I \) is autonomous investment, \( G \) is government spending, and \( Z \) is aggregate spending (demand).

a. Flat tax model

i. Show the private saving relation (letters and coefficients)

ii. What is the equation for the investment/savings equilibrium condition?

iii. Use the investment/savings equilibrium condition to calculate equilibrium income?

\[ Y = \quad \]
iv. What is the value of the government spending multiplier \( m_g \)?

\[ m_g = \] 

v. What is the equation for the budget surplus BS?

\[ \text{______________} \]

vi. Calculate the value of the budget surplus BS (specify the sign).

BS = ______

\[ \text{b. Progressive tax model} \]

The government now switches from a flat tax to a progressive tax system

\[ T' = T + tY \quad \text{with} \quad T = -100 \text{ and } t = 0.1 \]

i. Use the \( Y = C + I + G \) equilibrium condition to calculate equilibrium income \( Y' \)?

\[ Y' = \] 

ii. What is the value of the new government spending multiplier \( m_g' \)?

\[ m_g' = \] 

Is it \( \text{the same} \) \quad or \quad \text{smaller} \quad \text{or} \quad \text{larger} \]

as/than the multiplier in the flat tax model?
iii. Calculate the level of tax $T'$

$$T' = \underline{\text{ }}$$

iv. Calculate the budget surplus $BS'$ (specify the sign).

$$BS' = \underline{\text{ }}$$

c. Compare the two taxation systems.

Let’s assume that, in either case, government spending increases by 100.

i. Calculate the resulting change on output:

Flat tax model: \( \Delta Y = \underline{\text{ }} \) (specify the sign)

Progressive tax model: \( \Delta Y = \underline{\text{ }} \) (specify the sign)

ii. Calculate the resulting change (if any) in the budget surplus:

Flat tax model: \( \Delta BS = \underline{\text{ }} \) (specify the sign)

Progressive tax model: \( \Delta BS = \underline{\text{ }} \) (specify the sign)

Problem 2 – The financial markets.

Assume that money demand is given by the following equation:

\[ M^d = PY(.45-2i) \]

Where the price level \( P = 5 \)
Wealth \( W = 10,000 \)
Income \( Y = 5,000 \)
and \( i \) is the interest rate

The bonds supply \( B^* = 3,500 \)
1. Calculate the money supply?

\[ M_s = \text{__________} \]

2. Calculate the interest rate that will result in equilibrium in the money market.

\[ i = \text{_______}\% \]

3. What is the equation for the bond demand \( B^d \) (letters and coefficients)?

\[ B^d = \text{__________} \]

4. Use the interest rate calculated in 2. to calculate the value of the bonds demand (show your calculation).

\[ B^d = \text{__________} \]

5. Is the bonds market in equilibrium? yes or no

support your answer