

1. From the definition of GDP we arrive at the following expression:

$$c + i + g + x - m = y = c + s + t$$

What are the important economic relationships that can be derived from this expression related to the definition of GDP and explain each carefully.

Ans.

We know that GDP is the \$ value of all goods and services produced domestically in a given period of time.

From this definition of GDP we arrived at the following expression:

$$c + i + g + x - m = y = c + s + t \text{ (assuming } R_f = 0 \text{)}$$

Where i , g , and x are injections into the flow of income and output and s , t , and m are leakages from this flow.

This may be interpreted as real output, y , must be matched by real aggregate expenditure, $c + i + g + x - m$, and

$$s = i + (g - t) + (x - m)$$

Saving, s , must be matched by the **uses of saving**, investment, government deficit, and net exports.

This relation points out an important condition that government deficits, $(g - t) > 0$, may “crowd out” private investment expenditure, i , since the amount of saving is fixed each year.

$$s - (g - t)$$

can be viewed as **domestic saving** and that

$$s - (g - t) = i + (x - m)$$

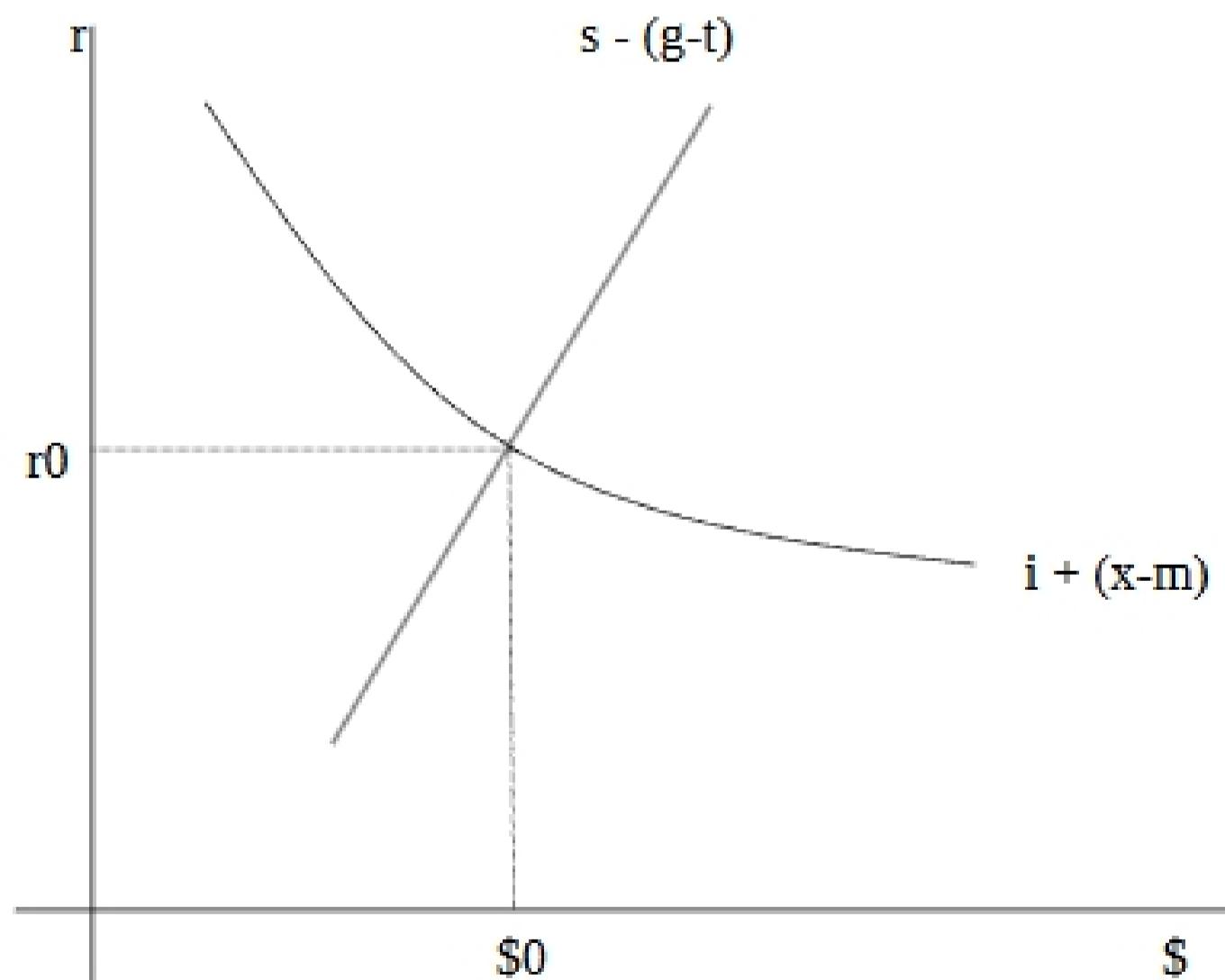


Figure above illustrates the real interest rate, r , is determined by the balance of domestic saving, $s - (g - t)$, and the demand for saving, $i + (x - m)$.
The final key relationship is defined as:

$$\begin{aligned} s - (g - t) - i &= x - m \\ s - (g - t) - i &= NCO \\ x - m &= NX \end{aligned} ,$$

Where NCO is **Net Capital Outflow** and NX is **Net Exports**.

This implies that a trade surplus requires a surplus of domestic saving over domestic investment. Having a trade deficit requires that domestic investment be greater than domestic saving.

2. Illustrate and explain how the following changes effect the equilibrium level of GDP:

- (i) a decrease in the marginal tax rate paid by households;
- (ii) a decrease in the value of the dollar (the exchange rate);
- (iii) a decrease in business expectations of future sales.

Ans.

i)

The Marginal Tax Rate (MTR) is defined as

$$MTR = t' = \frac{Dt}{Dy}$$

⇒ A decrease in Marginal Tax Rate paid by households will cause GDP equilibrium level of GDP to increase.

