

1) Consider a "closed economy" in which

$$Y = C + I + G$$

$$C = a + b(Y - T)$$

$$I = c - dr$$

$$G = \bar{G}$$

$$T = tY \text{ where } 0 < t < 1$$

Notice that this economy is a little different from the one we described in class. Here, taxes net of transfers T is not an exogenous variable. T is instead a fraction of real GDP, such as $\frac{1}{10}$ or $\frac{1}{5}$, denoted t .

a) Using algebra, derive the equation that gives the natural rate of interest \bar{r} as a function of \bar{G} , \bar{Y} etc.

b) Using algebra, derive the equation that gives national savings S when output is equal to the natural rate of output \bar{Y} .
(We called this \bar{S} .)

2) Continue to consider the economy from part 1). On the "loanable funds" graphs below, draw what happens to the natural rate of interest in response to the events listed. Hint: use your answer from 1b)!

a) Exogenous government purchases \bar{G} decreases from a higher value \bar{G}_1 to a lower value \bar{G}_2 .

b) The "tax rate" t decreases from a higher value t_1 to a lower value t_2 .

c) The constant in the consumption function a increases from a higher value a_1 to a lower value a_2 .