

**Problem Set 1**

1. Consider the following structural model:

$$Y = \bar{Y} \quad (1)$$

$$Y = C + G \quad (2)$$

$$C = \beta(1 - \tau)Y - \alpha r \quad (3)$$

$$G = \tau Y \quad (4)$$

$$M = P + \eta Y - \gamma r \quad (5)$$

where  $\beta$ ,  $\alpha$ ,  $\eta$ , and  $\gamma$  are parameters.

- Describe all equations using an economic terminology.
- What is the standard division of exogenous and endogenous variables? Why? Assume that the government sets the tax rate to ensure that budget is balanced.
- Find the reduced-form for all endogenous variables.
- What are the effects of an increase in  $G$  on  $Y$ ? What about an increase in  $M$ ?
- How are the effects found in d) affected by the marginal propensity to consume  $\beta$ ?

2. Consider the following structural model:

$$P = \bar{P} \quad (1)$$

$$Y = C + G \quad (2)$$

$$C = \beta(1 - \tau)Y - \alpha r \quad (3)$$

$$G = \tau Y \quad (4)$$

$$M = P + \eta Y - \gamma r \quad (5)$$

where  $\beta$ ,  $\alpha$ ,  $\eta$ , and  $\gamma$  are parameters.

- Describe all equations using an economic terminology.
- What is the standard division of exogenous and endogenous variables? Why? Assume that the government sets the tax rate to ensure that budget is balanced.
- Find the reduced-form for all endogenous variables.
- Are fiscal and monetary policies neutral?
- What are the effects of a reduction in  $\bar{P}$  on all endogenous variables?