

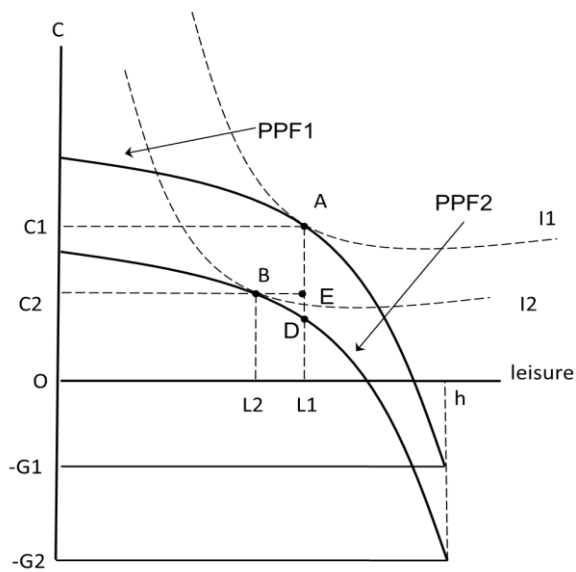
**EE312 Macroeconomic Theory**  
**Semester 1/2013**  
**Homework I**

**Question:** Suppose the government increases its spending on consumption goods. Use the Closed-Economy, One-Period Macroeconomic Model to determine the effects of the spending increase on aggregate output, consumption, employment and the real wage.

- Explain the chain of effects among variables correctly.
- Describe your analysis in words and use diagrams as needed.

**Submission date:** Friday 20 September 2013, 13:00hr.

**Answer**



The initial competitive equilibrium is at point A where the firm's PPF1 touches the consumer's highest indifference curve I1. At A, the firm maximizes profit and the consumer maximizes utility at the real wage rate equal to the slope of the PPF and I1. The optimum consumption bundle for the consumer is consumption goods equal to  $c_1$  and leisure equal to  $L_1$ . So the consumer's working time (and

labor supply) is  $h - L_1$ .

The government increases spending ( $G$ ), causing taxes to increase ( $G = T$ ). Non-wage income ( $\pi - T$ ) and the disposable income decrease. This is a negative income effect. The consumer reduces both consumption goods ( $C$ ) and leisure ( $L$ ) as they are normal goods. Less leisure is equivalent to an increase in working time ( $h - L$ ). The consumer supplies more labor service ( $N^s$ ). The real wage ( $w$ ) drops to induce more labor demand ( $N^d$ ) by the firm. Employment increases. More labor input in production results in larger total output ( $Y$ ).

The increase in government spending and taxes causes the PPF1 to shift down to PPF2 as  $G = T$  increases from  $G_1$  to  $G_2$ . The competitive equilibrium moves from point A to point B at a lower indifference curve  $I_2$ . The optimum amount of consumption goods drops from  $C_1$  to  $C_2$  while leisure decreases from  $L_1$  to  $L_2$ . The consumer's working time increases from  $h - L_1$  to  $h - L_2$ . The real wage decreases because the slope of the PPF2 and  $I_2$  at point B is less steep than at point A. The drop in consumption (the distance  $C_1C_2=AE$ ) is smaller than the increase in government spending (the distance  $G_2G_1=AD$ ).

In conclusion, an increase in government spending results in larger total output, lower consumption, higher employment and a lower real wage. The increase in government spending partially crowds out consumption because higher taxes reduce disposable income. The consumer works more at a lower real wage and receives less consumption goods. Consumer welfare and utility are lower.