

Problem Set 4

1.1 - Equilibrium

$$Q^D = Q^S$$

$$A - b_p = \bar{Z} + w_p$$

$$(35) - (0.5)p = (-10) + (1)p$$

$$45 = 1.5p$$

$$p = 30$$

$$(Q_0, p_0) = (20, 30)$$

1.2 - Supply Shock

$$(35) - (0.5)p = (-16) + (1)p$$

$$51 = (1.5)p$$

$$p = 34$$

$$(Q_1, p_1) = (18, 34)$$

1.3 - Demand Shock

$$(41) - (0.5)p = (-10) + (1)p$$

$$51 = (1.5)p$$

$$p = 34$$

$$(Q_2, p_2) = (18, 34)$$

1.4

$$b = \frac{Q_1 - Q_0}{p_1 - p_0} \Rightarrow \hat{b} = \frac{18 - 20}{34 - 30} = \boxed{-\frac{1}{2} = \hat{b}}$$

1.5

$$\hat{b} = \frac{18 - 20}{34 - 30} = \boxed{-\frac{1}{2} = \hat{b}}$$

1.6

While the answer in 1.5 calculates the demand shock, both give the same estimate, so it is hard to say that one is "right" and another is "wrong."