

# Quiz 4 Corrections

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## 1 Question 1b.

### 1.1 Pooling Equilibrium:

The only pooling equilibria that can form is when nobody buys any insurance, or insurance is offered at such a low price that everyone purchases insurance. For any other pricing strategy by the firm, some consumers will decide not to buy the insurance, and this will devolve into a semi-separating equilibrium.

#### 1.1.1 No Insurance is bought

If no insurance is bought, the profit is zero.

#### 1.1.2 Everyone buys insurance

This requires that every person is willing to buy insurance at the price of  $p'$ , this means that  $h(p') = 0$ , as for any price below that, the firm would have an incentive to raise prices. Therefore profit is given by:

$$p - L\mathbb{E}[\pi] = p - L \int_0^1 \pi dF(\pi)$$

### 1.2 Semi-separating Equilibrium:

In a semi-separating equilibrium, the consumers separate themselves by either purchasing insurance, indicating that their type is above some threshold, or they do not purchase insurance. This means that the insurance company only pays out, and receives premiums from those they are purchasing insurance, and their profit is given by:

$$p - L\mathbb{E}[\pi_i | \pi_i \geq h(p')] = p - \frac{L \int_{h(p')}^1 \pi dF(\pi)}{1 - F(p')}$$

## 2 Question 4

### 2.1 Part a

For the L type to not seek tenure, we must require that his payoff is lower from the behavior seeking tenure than from his payoff for planning to attend Boondocks. Therefore we require that  $2000 - 60N \leq 500$ . This leads to  $60N \geq 1500$  and  $N \geq 25$ , thus we must have N be at least 25 in order to prevent the L type from seeking tenure.

### 2.2 Part b

For H to still be willing to participate, we need his utility from attempting to obtain tenure to be higher than working at Boondocks, so we require that:  $2000 - 30N \leq 500$ , this reduces to  $1500 \leq 30N$ , and  $N \geq 50$ . 50 is therefore the highest number of publication that can be required to still have H types willing to participate.