

Advanced Microeconomics

(EC992-8-AU)

2011/2012

Problem Set 2

1. Exercise 10.B.2 in Mas-Colell, Whinston and Green (MWG).
 2. Exercise 13.B.2 in MWG.
 3. Exercise 13.B.3 in MWG.
 4. Exercise 13.B.5 in MWG.
 5. Exercise 13.B.9 in MWG.
 6. Exercise 13.C.4 in MWG.
 7. Exercise 13.C.5 in MWG.
 8. Exercise 13.D.2 in MWG.
9. A worker knows her talent $\theta \in \{\theta_L, \theta_H\}$, where $\theta_H > \theta_L > 0$. The employer does not know the talent of the worker but believes that $\lambda = \Pr(\theta = \theta_H) \in (0, 1)$. In the first stage the worker decides a level of education $e > 0$. The employer observes the level of education chosen by the worker and offers the worker a wage which equals the worker's expected productivity. Finally, the worker accepts or rejects the offer.
- If a worker of type θ receives education e , his productivity is $\theta(1+e)$. The cost of obtaining education level e for a type θ worker is given by the twice continuously differentiable function $c(e, \theta)$, with $c(0, \theta) = 0$, $c_e(e, \theta) > 0$, $c_{ee}(0, \theta) > 0$, $c_\theta(e, \theta) < 0$ for all $e > 0$ and $c_{e\theta}(e, \theta) < 0$, where subscripts denote partial derivatives. The utility of a type θ worker who chooses education level e , receives wage w and accepts the offer is $u(w, e | \theta) = w - c(e, \theta)$. It is also assumed that a worker of talent θ can earn $r(\theta)$ by working home and that $r(\theta_L) = r(\theta_H) = 0$.
- (a) Identify the pooling perfect bayesian equilibrium and illustrate it graphically.
 - (b) Identify the separating bayesian equilibria and illustrate them graphically.
 - (c) Suppose now there is perfect information.
 - i. Find the competitive equilibrium.
 - ii. Relate the separating and pooling bayesian equilibria to the perfect information competitive outcome.