Price Theory I: Problem Set 6 Question 2

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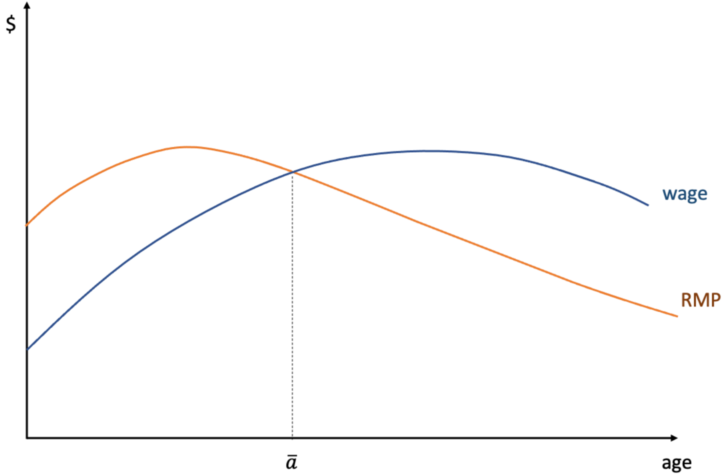
The Question

"*True, False, or Uncertain*: Because worker productivity declines as workers enter old age, a law that mandates retirement can enhance efficiency. [your grade is based on how well you justify your answer]"

How to Approach the Question

- The question contains two statements:
  - Premise/assumption: "worker productivity declines as workers enter old age"
  - Statement: "a law that mandates retirement can enhance efficiency"
- You can attack both the premise and the statement.
  - Is it true that worker productivity declines with age?
  - Suppose this is true, does mandatory retirement necessarily enhance efficiency?
    - What is efficiency? (e.g., Pareto efficiency/productive efficiency...)
    - If firms pay wages equal to worker productivity, then no need to terminate old workers.
    - Firms pay older workers wages above their productivity. Why?
  - Are there other considerations?

Suggested Answer



Suggested Answer

False.

- Premise: not necessarily true that worker productivity declines as worker enter old age.
    - There is significant heterogeneity across workers and professions. E.g., Some individuals or individuals in some professions may continue to be productive when old.
- Suppose that the assumption holds. For productive efficiency (as an example):
    - When specific human capital is required on the job, employers would want to retain workers for a period after they acquire firm-specific human capital through on-the-job training.
        - Workers are paid less than their productivity when young, and more than their productivity when old $\longrightarrow$ seniority rents (see Chapter 9)
        - Mandatory retirement blocks this mechanism, resulting in less specific human capital investment/accumulation.
    - Privately-negotiated contracts or early retirement incentives screen out low-productivity individuals from high-productivity ones $\longrightarrow$ improvement upon mandated retirement age.

Final Exam

- Date and time: Friday, December 10th, 7:30 AM - 9:30 AM.
- Exam format:
  - Closed book. T/F/U questions.
  - Tests your understanding of economic concepts and intuition.
  - No need to write down model. Use words and graphs to explain.
  - Not about "true" or "false" per se, your grade depends on how well you justify your answer.
- How to prepare for the exam?
  - Practice T/F/U questions.
  - Go through *Chicago Price Theory* or your lecture notes.
  - Watch Murphy's YouTube videos.

Sample Questions

"**2019 Final Q5.** One way to help alleviate overcharges by monopolists would be to fine monopolists that charge too much (in comparison with their costs)."

Sample Questions

- My Answer (7.75/10):
  - Uncertain.
  - Consider competitive equilibrium where firms produce at $P = MC$. Monopolists produces at $MR = MC$ and sets a higher price than competitive equilibrium and lower output.
  - Assume a policy works as follows: whenever a monopolist charges a price above its MC, a fine F is imposed (i.e., a fixed fine regardless of $P - MC$). Firm's problem becomes:

$$\max P(Q)Q - C(Q) - F \quad \text{if} \quad P > MC \tag{1}$$
$$\max P(Q)Q - C(Q) \quad \text{if} \quad P \leq MC \tag{2}$$

    - ★ FOC to (1): $\frac{\partial P(Q)}{\partial Q} Q + P - MC = 0$ is the same as the monopolist FOC without the fine.
    - ★ Solution to (2) is the competitive equilibrium.

Sample Questions

- Whether monopolist will choose to produce at competitive equilibrium or $MR = MC$ depends on whether F would reduce the profits at optimum to below zero.
  - ★ Suppose F is very large, then the policy would force monopolist to produce at $P = MC$.
  - ★ If F is not sufficiently large, monopolist would rather pay the fine and produce at the same level as pre-policy, resulting in a deadweight loss.
- If instead, monopolist is fined the amount of monopolist profits, then they may produce at competitive price. But significant monitoring costs are involved.

- This is what I wrote on my exam.
- Grade distribution: mean 5.48, max 7.75, min 4

Sample Questions

"**2019 Final Q8.** More labor-intensive firms have more wage-elastic labor demand."

Sample Questions

- My Answer (8/10):
  - False.
  - Consider a firm that only uses labor. For simplicity, assume labor is homogeneous. For this firm, capital would not substitute well for labor.
    - An example of a firm like this is producer of hand-crafted small objects, for which craftsmanship is key.
  - Now, if labor wage rate increases, because the firm has little substitution options outside labor, its demand for labor will be relatively intensive.
  - We can perhaps generalize this finding somewhat: when a firm is labor-itensive, it would well be the case that it has little options for substitutes, which will cause its demand for labor less elastic than firms that can easily substitute capital for labor.
- This is what I wrote on my exam. Better answer would formalize the intuition (pp.132).
- Grade distribution: mean 5.87, max 9, min 2