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Quiz 4: Labor Demand and Wages

Question A

Consider a matching model of unemployment with labor force H, a recruiting cost of $r > 0$ recruiters per vacancy, a job-separation rate $s > 0$, a Cobb-Douglas matching function $m = \sqrt{U} \times \sqrt{V}$, a fixed wage w, and a production function $y = 2 \times a \times \sqrt{N}$, where a governs labor productivity and N denotes the number of producers in the firm. Define labor market tightness as $\theta = V/U$. What is the labor demand?

1. $L^d(\theta) = (1 - rs\sqrt{\theta})^2 \times (a/w)^2$
2. $L^d(\theta) = \frac{(w/a)^2}{(1-rs\sqrt{\theta})^2}$
3. $L^d(\theta) = \frac{(a/w)^2}{1-rs\sqrt{\theta}}$
4. $L^d(\theta) = (1 - rs\sqrt{\theta}) \times (a/w)^2$
5. $L^d(\theta) = (1 - rs\sqrt{\theta}) \times (a/w)$
6. None of the above

Question B

The labor-demand curve derived in Question B has the following properties:

1. It is decreasing in θ, with $L^d(0) = (a/w)^2$ and $L^d(1/(rs)^2) = 0$.
2. It is decreasing in θ, with $L^d(0) = \infty$ and $L^d(\infty) = 0$.
3. It is increasing in θ, with $L^d(0) = 0$ and $L^d(1/(rs)^2) = (a/w)^2$.
4. It is decreasing in θ, with $L^d(0) = (a/w)$ and $L^d(1/(rs)) = 0$.
5. None of the above.

Question C

Consider a matching model with a fixed wage. An increase in the wage leads to

1. An inward shift of the labor-supply curve.
2. An outward shift of the labor-supply curve.
3. A downward shift of the labor-demand curve.
4. An upward shift of the labor-demand curve.
5. A downward rotation of the labor-demand curve.
6. An upward rotation of the labor-demand curve.
7. None of the above.

Question D

In the United States, which correlation do we observe over the business cycle?

1. Unemployment level and labor market tightness are positively correlated.
2. Employment level and labor market tightness are positively correlated.
3. Unemployment level and vacancies are positively correlated.
4. Unemployment level and employment level are positively correlated.
5. Unemployment level and labor force participation are positively correlated.
6. None of the above.

Question E

In the matching model with fixed wage, which type of shocks can generate the correlation described in Question D?

1. Shocks to labor productivity.
2. Shocks to the size of the labor force.
3. Shocks to the disutility from unemployment.
4. Shocks to monetary policy.
5. No shocks can generate such correlation.