Quiz on Matching Model of the Labor Market

Pascal Michaillat

Question 1

In the matching model, when we derive the labor supply, we assume that:

A) Inflows into unemployment equal outflows from unemployment.

B) Inflows into unemployment are larger than outflows from unemployment.

C) Inflows into unemployment are smaller than outflows from unemployment.

D) Inflows into unemployment equal inflows into the labor force.

E) Inflows into employment equal inflows into the labor force.

Question 2

Consider a matching model of the labor market with labor force of size H, a recruiting cost of $r > 0$ recruiters per vacancy, a job-separation rate $s > 0$, and a Cobb-Douglas matching function: $m = \omega \times U^{\eta} \times V^{1-\eta}$. We define the labor market tightness as $\theta = V/U$. Compute labor supply L^s.

A) $L^s(\theta) = \frac{f(\theta)}{s \times f(\theta)} \times H$ where $f(\theta) = \omega \times \theta^{1-\eta}$

B) $L^s(\theta) = \frac{f(\theta)}{s + f(\theta)} \times H$ where $f(\theta) = \omega \times \theta^{-\eta}$

C) $L^s(\theta) = \frac{f(\theta)}{s + f(\theta)} \times H$ where $f(\theta) = \omega \times \theta^{1-\eta}$

D) $L^s(\theta) = f(\theta) \times H$ where $f(\theta) = \omega \times \theta^{1-\eta}$

E) $L^s(\theta) = \frac{s}{s + f(\theta)} \times H$ where $f(\theta) = \omega \times \theta^{1-\eta}$

Question 3

The labor supply $L^s(\theta)$ from the previous question has the following properties:

A) It is increasing and concave in θ with $L^s(0) = 0$ and $L^s(\infty) = H$.

B) It is increasing and convex in θ with $L^s(0) = 0$ and $L^s(\infty) = H$.

C) It is decreasing and concave in θ with $L^s(0) = H$ and $L^s(\infty) = 0$.

D) It is decreasing and convex in θ with $L^s(0) = H$ and $L^s(\infty) = 0$.

E) It is increasing and concave in θ with $L^s(0) = 0$ and $L^s(\infty) = \infty$.

F) It is increasing and convex in θ with $L^s(0) = 0$ and $L^s(\infty) = \infty$.

Question 4

Why is the labor supply increasing in labor market tightness in the matching model?

A) A higher tightness makes it more expensive to hire producers.

B) A higher tightness makes it cheaper to hire producers.

C) A higher tightness makes it easier to fill vacancies.

D) A higher tightness makes it easier to find jobs.

E) A higher tightness reduces the job-separation rate.

F) None of the above.

Question 5

If the labor-force participation rate suddenly increases, what necessarily happens in the matching model?

A) The labor supply curve is not affected.

B) The matching function is more effective.

C) The matching functions is less effective.

D) The labor supply curve shifts inward.

E) The labor supply curve shifts outward.

F) None of the above.

Question 6

In the matching model, what would an increase in the job-separation rate do?

A) It would have no effect on the labor supply curve.

B) It would shift the labor supply curve inward.

C) It would shift the labor supply curve outward.

D) It would make the matching function more effective.

E) It would make the matching function less effective.

F) None of the above.

Question 7

Consider a matching model of unemployment with labor force of size H, a recruiting cost of $r > 0$ recruiters per vacancy, a job-separation rate $s > 0$, and a Cobb-Douglas matching function: $m = \sqrt{U} \times \sqrt{V}$. Define the labor market tightness as $\theta = V/U$. Using the assumption that labor-market flows are balanced, compute the recruiter-producer ratio $\tau = R/N$.

A) $\tau(\theta) = \frac{\sqrt{\theta}}{1 - r \times s \times \sqrt{\theta}}$

B) $\tau(\theta) = \frac{r \times s}{1 - r \times s \times \sqrt{\theta}}$

C) $\tau(\theta) = \frac{r \times s \times \sqrt{\theta}}{1 - r \times s \times \sqrt{\theta}}$

D) $\tau(\theta) = \frac{r + s}{r + s \times \sqrt{\theta}}$

E) $\tau(\theta) = \frac{r \times s \times \sqrt{\theta}}{r \times s \times \sqrt{\theta} - 1}$

F) None of the above

Question 8

The recruiter-producer ratio derived above has the following properties:

A) It is increasing in θ and positive on $\mathbb{R}_+$, with $\lim_{\theta \to \infty} \tau(\theta) = \infty$.

B) It is decreasing in θ and positive on $\mathbb{R}_+$, with $\lim_{\theta\to\infty}\tau(\theta) = 0$.

C) It is increasing in θ and positive on $[0, rs]$, with $\lim_{\theta\to rs}\tau(\theta) = \infty$.

D) It is increasing in θ and positive on $[0, 1/rs]$, with $\lim_{\theta\to 1/rs}\tau(\theta) = \infty$.

E) It is decreasing in θ and positive on $[0, rs]$, with $\lim_{\theta\to rs}\tau(\theta) = 0$.

F) None of the above.

Question 9

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?

A) $L^d(\theta) = (1 - rs\sqrt{\theta})^2 \times (a/w)^2$

B) $L^d(\theta) = \frac{(w/a)^2}{(1-rs\sqrt{\theta})^2}$

C) $L^d(\theta) = \frac{(a/w)^2}{1-rs\sqrt{\theta}}$

D) $L^d(\theta) = (1 - rs\sqrt{\theta}) \times (a/w)^2$

E) $L^d(\theta) = (1 - rs\sqrt{\theta}) \times (a/w)$

F) None of the above

Question 10

The labor demand curve derived in the previous question has the following properties:

A) It is decreasing in θ, with $L^d(0) = (a/w)^2$ and $L^d(1/(rs)^2) = 0$.

B) It is decreasing in θ, with $L^d(0) = \infty$ and $L^d(\infty) = 0$.

C) It is increasing in θ, with $L^d(0) = 0$ and $L^d(1/(rs)^2) = (a/w)^2$.

D) It is decreasing in θ, with $L^d(0) = (a/w)$ and $L^d(1/(rs)) = 0$.

E) None of the above.

Question 11

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

A) An inward shift of the labor supply curve

B) An outward shift of the labor supply curve

C) A downward shift of the labor demand curve

D) An upward shift of the labor demand curve

E) A downward rotation of the labor demand curve

F) An upward rotation of the labor demand curve

G) None of the above