

Quiz on Matching Function

Pascal Michailat

Question 1

Which of these matching functions does not have constant returns to scale?

- A) $m(U, V) = a \times U + b \times V$
- B) $m(U, V) = U^a \times V^{1-a}$
- C) $m(U, V) = [b \times U^a + (1 - b) \times V^a]^{1/a}$
- D) $m(U, V) = U \times V$
- E) $m(U, V) = \sqrt{U} \times \sqrt{V}$

Question 2

A Cobb-Douglas matching function gives the flow of new worker-firm matches created when they are U unemployment workers and V vacancies: $m = \omega \times U^\eta \times V^{1-\eta}$. We define the labor market tightness as $\theta = V/U$. What is the expression for the rate q at which a vacancy is filled?

- A) $q(\theta) = \omega \times \theta^\eta$
- B) $q(\theta) = \omega \times \theta^{1-\eta}$
- C) $q(\theta) = \omega \times \theta^{-\eta}$
- D) $q(\theta) = \omega \times \eta^\theta$
- E) $q(\theta) = \theta^{-\eta}$

Question 3

A Cobb-Douglas matching function gives the flow of new worker-firm matches created when they are U unemployment workers and V vacancies: $m = \omega \times U^\eta \times V^{1-\eta}$. What is the expression for the rate f at which a worker finds a job?

- A) $f(\theta) = \omega \times \theta^\eta$
- B) $f(\theta) = \omega \times \theta^{1-\eta}$
- C) $f(\theta) = \omega \times \theta^{-\eta}$
- D) $f(\theta) = \omega \times \eta^\theta$
- E) $f(\theta) = \omega \times \theta^{1+\eta}$

Question 4

What is a realistic specification for the matching function?

- A) $m(U, V) = \omega \times U^{0.2} \times V^{0.8}$
- B) $m(U, V) = \omega \times U^{0.5} \times V^{0.5}$
- C) $m(U, V) = \omega \times U^{0.5} \times V^{0.8}$
- D) $m(U, V) = \omega \times U^{0.3} \times V^{0.4}$
- E) $m(U, V) = 0.5 \times U + 0.5 \times V$

Question 5

For any matching function, what is a key relationship between the job-finding rate f , vacancy-filling rate q , and labor market tightness θ ?

- A) $f + q = \theta$
- B) $f \times q = \theta$
- C) $f/q = \theta$
- D) $f - q = \theta$
- E) $q/f = \theta$

Question 6

We define labor-market tightness as $\theta = V/U$. What is the rate at which unemployed workers find a job when the matching function is $m(U, V) = (U^{-\gamma} + V^{-\gamma})^{-\frac{1}{\gamma}}$ with $\gamma > 0$?

- A) $f(\theta) = (1 + \theta^\gamma)^{-\frac{1}{\gamma}}$
- B) $f(\theta) = (1 + \theta^{-\gamma})^\gamma$
- C) $f(\theta) = (1 + \theta^{-\gamma})^{-\frac{1}{\gamma}}$
- D) $f(\theta) = (1 + \theta^\gamma)^\gamma$
- E) $f(\theta) = (1 - \theta^\gamma)^{-\frac{1}{\gamma}}$
- F) None of the above

Question 7

We define labor-market tightness as $\theta = V/U$. What is the rate at which vacancies are filled when the matching function is $m(U, V) = (U^{-\gamma} + V^{-\gamma})^{-\frac{1}{\gamma}}$ with $\gamma > 0$?

- A) $q(\theta) = (1 + \theta^{-\gamma})^{-\frac{1}{\gamma}}$
- B) $q(\theta) = (1 + \theta^{\gamma})^{\gamma}$
- C) $q(\theta) = (1 + \theta^{\gamma})^{-\frac{1}{\gamma}}$
- D) $q(\theta) = (1 + \theta^{-\gamma})^{\gamma}$
- E) $q(\theta) = (1 - \theta^{-\gamma})^{-\frac{1}{\gamma}}$
- F) None of the above

Question 8

Consider the matching function $m(U, V) = (U^{-\gamma} + V^{-\gamma})^{-\frac{1}{\gamma}}$ with $\gamma > 0$. How do the job-finding rate $f(\theta)$ and vacancy-filling rate $q(\theta)$ behave at the limit?

- A) $f(0) = 0, q(0) = 0, \lim_{\theta \rightarrow \infty} f(\theta) = 1, \lim_{\theta \rightarrow \infty} q(\theta) = 1.$
- B) $f(0) = 1, q(0) = 1, \lim_{\theta \rightarrow \infty} f(\theta) = 0, \lim_{\theta \rightarrow \infty} q(\theta) = 0.$
- C) $f(0) = 0, q(0) = 1, \lim_{\theta \rightarrow \infty} f(\theta) = 1, \lim_{\theta \rightarrow \infty} q(\theta) = 0.$
- D) $f(0) = 1, q(0) = 0, \lim_{\theta \rightarrow \infty} f(\theta) = 0, \lim_{\theta \rightarrow \infty} q(\theta) = 1.$
- E) $f(0) = 0, q(0) = \infty, \lim_{\theta \rightarrow \infty} f(\theta) = \infty, \lim_{\theta \rightarrow \infty} q(\theta) = 0.$
- F) $f(0) = \infty, q(0) = 0, \lim_{\theta \rightarrow \infty} f(\theta) = 0, \lim_{\theta \rightarrow \infty} q(\theta) = \infty.$

Question 9

Consider a matching function $m(U, V)$ that has constant returns to scale and is increasing in U and V . What is the most you can say about the job-finding and vacancy-filling rates?

- A) The rates are functions of labor-market tightness.
- B) Both rates are increasing in tightness.

- C) Both rates are decreasing in tightness.
- D) The job-finding rate is decreasing in tightness and the vacancy-filling rate is increasing in tightness.
- E) The job-finding rate is increasing in tightness and the vacancy-filling rate is decreasing in tightness.
- F) The matching function is too general to say anything.