

EC3010 – MACROECONOMIC ANALYSIS

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Tutorial Questions – Capital Utilization and Unemployment

Reading: Barro, Chapter 9.

1. Explain how the quantity of capital services depends on the stock of capital, K , and the capital utilization rate, k . Why is the rate of return on capital given by $(R/P) \cdot k - \delta(k)$?
2. How does k change when the real rental price, R/P , rises? What about when the depreciation rate, $\delta(k)$, rises for each value of k ?
3. What is the definition of the rate of unemployment, u ? Since it does not include persons who are “out of the labor force”, does it underestimate the true unemployment rate? Can you think of reasons why the reported numbers may overestimate the true unemployment rate?
4. The labor force is weakly procyclical. What pattern would you predict on theoretical grounds? [Hint: Think first about people’s incentives to leave the labor force – i.e. stop looking for a job – during a recession. Are there also incentives for people to enter the labor force during a recession?]
5. Suppose that a job seeker receives a real wage offer, w/P , that exceeds his or her effective real income while unemployed, ω . Why might the person reject the offer?
6. Once a job seeker and a firm find a job match, why might they choose subsequently to end the match? List some influences on the job separation rate.
7. Discuss the effects on the job-finding rate and the expected duration of unemployment from the following:
 - a. an increase in unemployment insurance benefits;
 - b. an increase in the allowable duration of unemployment insurance benefits;
 - c. a technological change, such as the internet, that improves the matching of workers and jobs.
8. Suppose that economic fluctuations are caused by shocks to the technological level,
A. What do you predict for the cyclical behavior of job vacancies? How then

would fluctuations in vacancies relate to fluctuations in the unemployment rate? How does your answer relate to the Beveridge curve?

9. What is the natural rate of unemployment, u^n ? Why might the unemployment rate, u , differ from u^n ? Can u^n change over time?
10. Suppose that the labor force is fixed at 100 people, of whom 92 initially have jobs and 8 are unemployed. Assume that the job-separation rate is 2% per month and the job-finding rate is 40% per month. Trace out the time paths for employment and unemployment. What is the natural unemployment rate?