Economics 203   Matthias Doepke
Macroeconomics II   Spring 2000

Problem Set 1

Unemployment Insurance

Question 1:
Consider the problem of a worker who has just been fired and is looking for a new job. The worker receives
unemployment benefits $b = 2$ every period, and the discount factor is $\beta = .9$. With 50 percent probability,
in any period the worker will receive a low wage offer $w_{low} = 3$. With 50 percent probability, the worker
receives a higher offer w_{high}. Assuming that the worker will not be fired again in the future, at what value
for w_{high} will the worker be just indifferent between accepting the low offer and rejecting it?

Minimum wages and substitution

Question 2:
Consider the problem of a factory which uses skilled and unskilled labor l_S and l_U. The production function
is:

$$f(l_S, l_U) = (l_S)^{.8}(l_U)^{.2}.$$

There are 50 skilled and 50 unskilled workers who want to work at the factory. Given labor supply, what
are the equilibrium wages for skilled and unskilled workers?

Question 3:
Now the government sets the minimum wage to .3. The factory will now hire less unskilled workers. How
many unskilled workers will be hired, and what are going to be the new wages for skilled and unskilled
workers?

Unemployment Rates by Age, Race, and Gender

In most countries unemployment rates vary considerably over different groups in the population. In the fol-
lowing questions you will gather some information about unemployment of different groups in the United
States. As you may know, overall unemployment is at historically low levels in the U.S., but now you are
going to find out whether this is equally true for different groups. All the relevant data is available on the
web page of the Bureau of Labor Statistics. The URL is `http://www.bls.gov/`, and there is a link from
the course home page.

Question 4:
Report the current unemployment rate (February 2000) in the United States for the following groups:

- White males 20 and over

- White females 20 and over

- Whites 16 to 19

- Black males 20 and over

- Black females 20 and over

- Blacks 16 to 19

- Hispanics

The data you need is available from the BLS. I recommend the following course of action: Go to the home page of the BLS. Click on "Data," then "Selective Access," then "Access to Historical Data for the 'A' Tables of the Employment Situation Release," then "Employment status of the civilian population by race, sex, age and Hispanic origin." This should take you to a fill-out form. Select the unemployment rates you are interested in, and click on "Retrieve data." Are there large differences within the group-specific unemployment rates you find?

Question 5:
In class and in parts of this problem set we examined the influence of different policies (minimum wages, hiring and firing restrictions, unionization) on the labor market. Can you think of any policies that could help explain the differences that you found in question 4? What other factors might contribute to the results?