

Econ 102
Finance and Unemployment
Due February 16

1. Be sure to read your copy of the Wall Street Journal every weekday, looking especially for items related to the material in this course. Find an article in this week's Wall Street Journal or other news source that is relevant to the topic of this homework assignment. Turn it in, or a copy of it, with your assignment, and write a brief summary of it (half a page to a page). Your summary should outline the main points of the article **and** explain why it is relevant to the homework topic, in this case "finance and unemployment."

2. It is January 1, 2010, and you have \$1,000,000 to place in either or both of two assets. The assets are called Alphabots and Betabots, and they promise to pay you the amounts listed in the table at the right on January 1 of each of the three years 2011, 2012, and 2013. Use a calculator or (better) a computer spreadsheet program like Excel, together with the handout on bond prices and interest rates, to answer the following questions.

	Alphabots	Betabots
2011	\$50.00	\$200.00
2012	\$50.00	\$200.00
2013	\$1050.00	\$727.13

- a. Which asset will pay you back the largest amount of money?
- b. If the interest rate is 7% per year, what are the present values of the two assets, and which is larger?
- c. If the interest rate is 3% per year and these assets are bonds, what will be their market prices, assuming that the market believes that both will pay what they promise?
- d. Suppose now that the interest rate is 5% per year and that the market prices of both assets are their present values.
 - i. If you use your entire \$1,000,000 to buy Alphabots, then hold what they pay you as cash, how much will you have at the end of January 1, 2013?
 - ii. If you use your entire \$1,000,000 to buy Betabots, then hold what they pay you as cash, how much will you have at the end of January 1, 2013?
 - iii. How would your answers to (i) and (ii) differ if you put what they paid you into a saving account earning 5%?

3. The table below gives some labor statistics for years 1995, 2000 and 2005. Use these data to answer the following questions.

Variable	1995	2000	2005
Population	26,000,000	27,000,000	28,000,000
Adult population	18,000,000	19,000,000	20,500,000
Adult population able to work	17,900,000	18,800,000	20,000,000
Adult population able and wanting to work	15,700,000	16,500,000	18,000,000
Number employed	14,000,000	14,500,000	15,000,000
Number unemployed	1,000,000	1,500,000	2,500,000

- (a) Define labor force. For each year find the labor force.
- (b) Define the term "discouraged workers". For each year find the number of discouraged workers.
- (c) Define the labor-force participation rate. Calculate it for each year.
- (d) Calculate the unemployment rate for each year.
- (e) Define natural rate of unemployment.
- (f) Suppose that unemployment in 1995 was at its natural rate. Define and calculate the cyclical unemployment in years 2000 and 2005.

4. The equilibrium rate of unemployment is the rate of unemployment at which the number of workers losing a job is equal to the number of workers finding a job, so that the unemployment rate stays constant over time. Suppose that the labor force, L , is constant, and consists of the number of employed workers, E , and the number of unemployed workers, U , as in the previous exercise. Suppose that each week a fraction s of the employed workers separate from their jobs (quit or are fired), while a fraction f of the unemployed workers find jobs. Then equilibrium requires that $sE = fU$. This can be rewritten as $s(L-U) = fU$, which can be rearranged to yield the unemployment rate, u :

$$u = U/L = s/(s+f)$$

That is, the equilibrium rate of unemployment depends positively on the rate of job separation and negatively on the rate of job finding.

- a) Suppose that the unemployment rate is constant over time at $u = 10\%$. Suppose also that, every week, 6 in every 1000 employed workers quit their job to look for another, and another 4 in every 1000 are fired. Then what percentage of the unemployed workers becomes re-employed each week?
- b) How long do these workers remain unemployed, on average? (To keep it simple, suppose that they are all the same, and that the unemployed who find jobs each week are those who have been unemployed the longest. Then unemployment is like a queue, and you can figure out how long it takes to get to the front of the line.)
- c) Suppose that Congress were to abolish unemployment compensation for workers. Suppose that this causes only half as many workers to quit their jobs as before, with no change in the rates that workers are fired or the unemployed find new jobs. What will be the new unemployment rate?
- d) How might you expect the abolition of unemployment compensation to also change the rates that employed workers are fired and the rates that unemployed workers find new jobs? How would these changes alter the effect on the equilibrium unemployment rate?
- e) In addition to the effects on the unemployment rate that you identified in parts (c) and (d), what are some of the other arguments for and against eliminating unemployment compensation?

5. According to the Bureau of Labor Statistics (BLS), the U.S. unemployment rate in 2005 (average for the year) was 5.1%, with a civilian labor force of 149.3 million. (See, for example, <ftp://ftp.bls.gov/pub/special.requests/lf/aat1.txt>) Use the data reported on the BLS web site (<http://stats.bls.gov/cps/home.htm#tables>) to answer the following questions:
- a) How much higher would the unemployment rate have been if it had included all those who were not in the labor force but who said that they did want a job? (See <ftp://ftp.bls.gov/pub/special.requests/lf/aat35.txt>)
 - b) How many of the workers classified as “employed” in 2005 were working part time (less than 35 hours per week) because they could only find part-time work or because of “slack work or business conditions”? How much larger would the unemployment rate have been if these workers had been classed as unemployed? (See <ftp://ftp.bls.gov/pub/special.requests/lf/aat20.txt>)
 - c) What fraction of the unemployed in 2005 were people who had just joined the labor force for the first time (“new entrants”)? What fraction were “reentrants,” and what does that mean? (I’ll let you find this one for yourself.)