

Lecture 6: Economic Growth I: Labor

I. OVERVIEW

- In our last class, we talked about why economic growth was potentially the most important subject that an economist could study and how very small changes in sustained rates of growth can lead to large changes in living standards of individuals in all countries of the world.
- We broke down our study of growth into growth that comes from having more inputs (labor and capital) and growth that comes from making better use of inputs (technology). In today's class, we take a look at economic growth driven by increases in labor.

II. UNEMPLOYMENT AND EMPLOYMENT

Unemployment

- The labor force is essentially the number of people, 16 years of age or older, who are either working or looking for work. In order to be counted as unemployed, a worker has to be in the labor force looking for a job but unable to find one.
- So people working at home are not counted as employed nor are they counted as a part of the labor force. In the U.S. in 2000, the working age population was 213 million (out of a population of 275 million). Of this 200 million there were 139 million employed and 6 million unemployed with 67 million not in the labor force. (students, home workers, etc.).
- The unemployment rate is the fraction of the labor force that is unemployed. In the United States, using the above information we can calculate the unemployment rate in 2000 to be $6/(139+6)=4.14\%$
- When output is at potential output, the unemployment rate is said to be at the **natural rate of unemployment**. The difference between the unemployment rate and the natural rate of unemployment is called the **cyclical rate of unemployment**.
- There is a negative relationship between output and unemployment. When output goes above potential output, the unemployment rate goes below the natural rate of unemployment. Conversely, when output goes below potential output, the unemployment rate goes above the natural rate of unemployment
- In other words, when the economy is booming there will be negative cyclical unemployment. Conversely, when the economy is in a recession there will be positive cyclical unemployment.

The Labor Force and Growth

- Clearly, the more people who work, the more output can be produced. So one may argue that the relationship between economic growth and labor is simple: increase the number of workers as much as possible. In fact one can argue that the optimal plan to increase economic growth should be to increase the size of the labor force and/or reduce unemployment to zero. This may not work for two reasons.
- First as a society, we may choose to restrict the size of the labor force. In the U.S. children under 16 are restricted from full participation in the labor force. This may be because we are morally opposed to having children work or because we have concluded that it's better to allow them to develop their skills and acquire an education that makes them more productive workers in the long run.

- Similarly, as a society, we have made choices to have Social Security that allows the elderly to enjoy their retired years without having to look for another job.
- However, other countries have artificial restrictions that have less enlightened policies against the employment of women; removing these restrictions can help these countries gain from having more workers producing output.
- Second, the natural rate of unemployment may not be zero. There may be reasons why an economy can have some unemployment even when the economy is at potential output. However, countries that have a low natural rate of unemployment can benefit because a larger fraction of the workforce is working on average.

III. A SIMPLE MODEL OF THE NATURAL RATE OF UNEMPLOYMENT.

- So the next task for us is to think about what determines the natural rate of unemployment. Economists attribute the increase in the natural rate of unemployment to two factors: frictional unemployment and structural unemployment.
- Frictional unemployment is essentially the result of labor market transitions. People leaving jobs to look for other jobs. Most frictional unemployment is short-lived: lasting till the person moves to a new location or makes the right contacts or goes through a few interviews.
- Sometimes workers are forced to switch from one industry to another, or they enter the labor market without the necessary set of skills. This type of unemployment, resulting from fundamental “structural” problems in the suitability of workers for the available jobs, is known as structural unemployment.
- A simple mathematical model can help provide us lessons about the natural rate of unemployment.
- Let L be the size of the labor force, U be the number of unemployed workers, and E be the number of employed workers. So $L = U + E$. The unemployment rate (u) of an economy, u is the ratio of unemployed workers to the labor force, $u = \frac{U}{L}$
- We can find an expression for the natural rate of unemployment u^n by doing the following. Define
 s = job-losing rate (the number of people losing their job/number of employed workers)
 f = job-finding rate (the number of unemployed who find jobs / the number of unemployed).
- Then
 The total number of people who find jobs in a period = fU
 The total number of people who lose jobs in a period = $s(L-U)$.
- We can think of the natural rate of unemployment as the rate of unemployment that prevails when the economy is neither in a boom (when u is falling) nor in a recession (when u is rising).
- If the number of unemployed workers doesn't change over time, then the number of workers losing jobs must equal the number of workers finding jobs. So we get $fU = s(L-U)$ or $(s+f)U=sL$. The natural rate of unemployment can be expressed as $u^n = \frac{s}{f + s}$
- We can see that in general the natural rate of unemployment is not zero: people will always be losing jobs for some reason ($s>0$): some firms succeed while others fail, new goods are invented that put old goods out of business, new countries enter into the production of goods causing industries in other countries to fail etc.

- The natural rate is high when the job losing rate, s , is high and when the job finding rate, f , is low. So countries can have different natural rates of unemployment.
- For example, European countries, which have low job-finding rates, excessive regulations, expensive taxes etc., will have high natural rates, while Japan, which has low job-losing rates, the “lifetime employee relationship” has a low natural rate.
- So possible ways for an economy to reduce its natural rate of unemployment are to increase the job finding rate and reduce the job losing rate. How can this be done?

1. Lower minimum wages: Helps reduce the job losing rate. While this may seem puzzling if we think about it from a worker’s point of view it may make sense if we think about it from the firm’s point of view. During times of hardship, a firm may not have to let workers go if they can pay them a little bit less.

- This does not mean that the minimum wage is good or bad. As a society, we may be entitled to set a wage that is adequate for taking care of basic needs and set up a safety net for those who are unable to find jobs at that wage.

2. Better information: set up job finding centers that allow workers to find potential matches, quickly and efficiently. Helps increase the job-finding rate.

3. Better training of workers: can help in both reducing the job losing rate and in increasing the job finding rate.

4. Remove disincentives to work: excessive unemployment benefits, strong labor market regulations, although improving the quality of life of the employed can bring about high unemployment through reductions in the job finding rate because of shortfalls in both labor supply and labor demand.

5. Reductions in payroll taxes: Social Security is paid partly by the employer and partly by the employee. As the population grows older and the outflows have exceeded the inflows, the tax rate will rise putting more strain on the ability of firms to hire workers. This will reduce the job finding rate and raise the level of the natural rate of unemployment over time.