

UNEMPLOYMENT

THE FACTS

General (Graph)

- ▶ The US rate of unemployment has varied between 1% and 25% over the past 100 years

UNEMPLOYMENT

THE FACTS

General (Graph)

- ▶ The US rate of unemployment has varied between 1% and 25% over the past 100 years
- ▶ High rates of unemployment coincide with recessions

UNEMPLOYMENT

THE FACTS

General (Graph)

- ▶ The US rate of unemployment has varied between 1% and 25% over the past 100 years
- ▶ High rates of unemployment coincide with recessions
- ▶ Low rates of unemployment coincide with booms

UNEMPLOYMENT

THE FACTS

General (Graph)

- ▶ The US rate of unemployment has varied between 1% and 25% over the past 100 years
- ▶ High rates of unemployment coincide with recessions
- ▶ Low rates of unemployment coincide with booms
- ▶ Since WWII the nature of unemployment variation looks different

Breakdown of the Unemployment Figures

- ▶ By Education

Breakdown of the Unemployment Figures

- ▶ By Education
- ▶ By Demographic groups

Breakdown of the Unemployment Figures

- ▶ By Education
- ▶ By Demographic groups
- ▶ By entry into unemployment

Breakdown of the Unemployment Figures

- ▶ By Education
- ▶ By Demographic groups
- ▶ By entry into unemployment
- ▶ By duration of unemployment

BASIC CONCEPTS

Breakdown of unemployment

- ▶ **Frictional:** comes from the sorting of individuals across jobs because it takes time for workers to find employers and vice-versa. More unemployment can mean better sorting.

BASIC CONCEPTS

Breakdown of unemployment

- ▶ **Frictional:** comes from the sorting of individuals across jobs because it takes time for workers to find employers and vice-versa. More unemployment can mean better sorting.
- ▶ **Seasonal:** comes from some jobs being seasonal - fruit picking, teaching.

BASIC CONCEPTS

Breakdown of unemployment

- ▶ **Frictional:** comes from the sorting of individuals across jobs because it takes time for workers to find employers and vice-versa. More unemployment can mean better sorting.
- ▶ **Seasonal:** comes from some jobs being seasonal - fruit picking, teaching.
- ▶ **Structural:**

BASIC CONCEPTS

Breakdown of unemployment

- ▶ **Frictional:** comes from the sorting of individuals across jobs because it takes time for workers to find employers and vice-versa. More unemployment can mean better sorting.
- ▶ **Seasonal:** comes from some jobs being seasonal - fruit picking, teaching.
- ▶ **Structural:**
 - ▶ mismatch, by industry

BASIC CONCEPTS

Breakdown of unemployment

- ▶ **Frictional:** comes from the sorting of individuals across jobs because it takes time for workers to find employers and vice-versa. More unemployment can mean better sorting.
- ▶ **Seasonal:** comes from some jobs being seasonal - fruit picking, teaching.
- ▶ **Structural:**
 - ▶ mismatch, by industry
 - ▶ mismatch by location

BASIC CONCEPTS

Breakdown of unemployment

- ▶ **Frictional:** comes from the sorting of individuals across jobs because it takes time for workers to find employers and vice-versa. More unemployment can mean better sorting.
- ▶ **Seasonal:** comes from some jobs being seasonal - fruit picking, teaching.
- ▶ **Structural:**
 - ▶ mismatch, by industry
 - ▶ mismatch by location
 - ▶ excess supply of labor due to distortionary labor market institutions

BASIC CONCEPTS

Breakdown of unemployment

- ▶ **Frictional:** comes from the sorting of individuals across jobs because it takes time for workers to find employers and vice-versa. More unemployment can mean better sorting.
- ▶ **Seasonal:** comes from some jobs being seasonal - fruit picking, teaching.
- ▶ **Structural:**
 - ▶ mismatch, by industry
 - ▶ mismatch by location
 - ▶ excess supply of labor due to distortionary labor market institutions
- ▶ **Alternative breakdown:** *voluntary versus involuntary* unemployment.

EMPLOYMENT FLOWS AND STEADY-STATE UNEMPLOYMENT

- ▶ Suppose probability of loosing a job on any day is l

EMPLOYMENT FLOWS AND STEADY-STATE UNEMPLOYMENT

- ▶ Suppose probability of losing a job on any day is l
- ▶ probability of finding a job for unemployed is h

EMPLOYMENT FLOWS AND STEADY-STATE UNEMPLOYMENT

- ▶ Suppose probability of losing a job on any day is l
- ▶ probability of finding a job for unemployed is h
- ▶ In steady state flow into and out of unemployment are equal

$$lE = hU$$

EMPLOYMENT FLOWS AND STEADY-STATE UNEMPLOYMENT

- ▶ Suppose probability of losing a job on any day is l
- ▶ probability of finding a job for unemployed is h
- ▶ In steady state flow into and out of unemployment are equal

$$lE = hU$$

- ▶ As labor force (LF) equals $E + U$,

$$\text{steady-state unemployment rate} = \frac{U}{LF} = \frac{l}{l+h}$$

EMPLOYMENT FLOWS AND STEADY-STATE UNEMPLOYMENT

- ▶ Suppose probability of losing a job on any day is l
- ▶ probability of finding a job for unemployed is h
- ▶ In steady state flow into and out of unemployment are equal

$$lE = hU$$

- ▶ As labor force (LF) equals $E + U$,

$$\text{steady-state unemployment rate} = \frac{U}{LF} = \frac{l}{l + h}$$

- ▶ Also called the *Natural rate of unemployment*

JOB SEARCH

- ▶ Where do the flows come from?

JOB SEARCH

- ▶ Where do the flows come from?
- ▶ Unemployed workers apply for jobs

JOB SEARCH

- ▶ Where do the flows come from?
- ▶ Unemployed workers apply for jobs
- ▶ Every so often they get an offer

JOB SEARCH

- ▶ Where do the flows come from?
- ▶ Unemployed workers apply for jobs
- ▶ Every so often they get an offer
- ▶ The wage they get offered can be in some range (or distribution)

JOB SEARCH

- ▶ Where do the flows come from?
- ▶ Unemployed workers apply for jobs
- ▶ Every so often they get an offer
- ▶ The wage they get offered can be in some range (or distribution)
- ▶ Depending on that range and the likelihood of getting higher offers they will stop looking and take a job as long as it pays as much as their asking wage, \tilde{w} .

JOB SEARCH

- ▶ Where do the flows come from?
- ▶ Unemployed workers apply for jobs
- ▶ Every so often they get an offer
- ▶ The wage they get offered can be in some range (or distribution)
- ▶ Depending on that range and the likelihood of getting higher offers they will stop looking and take a job as long as it pays as much as their asking wage, \tilde{w} .
- ▶ They will decide their asking wage at the beginning of their job search.

JOB SEARCH

- ▶ Where do the flows come from?
- ▶ Unemployed workers apply for jobs
- ▶ Every so often they get an offer
- ▶ The wage they get offered can be in some range (or distribution)
- ▶ Depending on that range and the likelihood of getting higher offers they will stop looking and take a job as long as it pays as much as their asking wage, \tilde{w} .
- ▶ They will decide their asking wage at the beginning of their job search.
- ▶ As long as nothing about the market changes they will have no reason to change the asking wage as they search.

Benefit (or revenue) from higher asking wage

- ▶ Clearly the higher the asking wage the higher will be the worker's income when she eventually takes a job.

Benefit (or revenue) from higher asking wage

- ▶ Clearly the higher the asking wage the higher will be the worker's income when she eventually takes a job.
- ▶ Raising the asking wage \$1 does not make her a dollar better off because she does not, as yet, have a job

Benefit (or revenue) from higher asking wage

- ▶ Clearly the higher the asking wage the higher will be the worker's income when she eventually takes a job.
- ▶ Raising the asking wage \$1 does not make her a dollar better off because she does not, as yet, have a job
- ▶ The unemployed worker will have to search longer for the higher paid job.

Benefit (or revenue) from higher asking wage

- ▶ Clearly the higher the asking wage the higher will be the worker's income when she eventually takes a job.
- ▶ Raising the asking wage \$1 does not make her a dollar better off because she does not, as yet, have a job
- ▶ The unemployed worker will have to search longer for the higher paid job.
- ▶ Every further dollar she raises her asking wage finding a job becomes relatively more difficult

Benefit (or revenue) from higher asking wage

- ▶ Clearly the higher the asking wage the higher will be the worker's income when she eventually takes a job.
- ▶ Raising the asking wage \$1 does not make her a dollar better off because she does not, as yet, have a job
- ▶ The unemployed worker will have to search longer for the higher paid job.
- ▶ Every further dollar she raises her asking wage finding a job becomes relatively more difficult
- ▶ The change in the benefit (or revenue) associated with each additional dollar (MR) is decreasing as the asking wage rises

Cost of higher asking wage

- ▶ Making applications is costly in terms of direct expenses (paper, stamps) and time.

Cost of higher asking wage

- ▶ Making applications is costly in terms of direct expenses (paper, stamps) and time.
- ▶ As the unemployed worker raises her asking wage the number of applications she has to make will also rise.

Cost of higher asking wage

- ▶ Making applications is costly in terms of direct expenses (paper, stamps) and time.
- ▶ As the unemployed worker raises her asking wage the number of applications she has to make will also rise.
- ▶ At first the increased number of applications is small but the more she asks for, so the costs rise more quickly.

Cost of higher asking wage

- ▶ Making applications is costly in terms of direct expenses (paper, stamps) and time.
- ▶ As the unemployed worker raises her asking wage the number of applications she has to make will also rise.
- ▶ At first the increased number of applications is small but the more she asks for, so the costs rise more quickly.
- ▶ The marginal cost (MC) of increasing the wage is increasing

▶ **Determination of the asking wage**

▶ **Determination of the asking wage**

- ▶ The searching worker sets the marginal cost equal to the marginal revenue from search.

▶ **Determination of the asking wage**

- ▶ The searching worker sets the marginal cost equal to the marginal revenue from search.
- ▶ She sets her asking wage before she starts to search and stops searching whenever she gets an offer of employment at the asking wage or higher.

▶ **Determination of the asking wage**

- ▶ The searching worker sets the marginal cost equal to the marginal revenue from search.
- ▶ She sets her asking wage before she starts to search and stops searching whenever she gets an offer of employment at the asking wage or higher.

▶ **Shifting the curves**

▶ Determination of the asking wage

- ▶ The searching worker sets the marginal cost equal to the marginal revenue from search.
- ▶ She sets her asking wage before she starts to search and stops searching whenever she gets an offer of employment at the asking wage or higher.

▶ Shifting the curves

- ▶ Because it lowers the opportunity cost of employment, the Unemployment Insurance (UI) benefits an unemployed worker receives reduces the marginal cost of searching to a worker. – The MC curve shifts right and increases \tilde{w} .

▶ Determination of the asking wage

- ▶ The searching worker sets the marginal cost equal to the marginal revenue from search.
- ▶ She sets her asking wage before she starts to search and stops searching whenever she gets an offer of employment at the asking wage or higher.

▶ Shifting the curves

- ▶ Because it lowers the opportunity cost of employment, the Unemployment Insurance (UI) benefits an unemployed worker receives reduces the marginal cost of searching to a worker. – The MC curve shifts right and increases \tilde{w} .
- ▶ increased offer arrival? (the internet?)

▶ Determination of the asking wage

- ▶ The searching worker sets the marginal cost equal to the marginal revenue from search.
- ▶ She sets her asking wage before she starts to search and stops searching whenever she gets an offer of employment at the asking wage or higher.

▶ Shifting the curves

- ▶ Because it lowers the opportunity cost of employment, the Unemployment Insurance (UI) benefits an unemployed worker receives reduces the marginal cost of searching to a worker. – The MC curve shifts right and increases \tilde{w} .
- ▶ increased offer arrival? (the internet?)
- ▶ increased lay-off rate?

▶ Determination of the asking wage

- ▶ The searching worker sets the marginal cost equal to the marginal revenue from search.
- ▶ She sets her asking wage before she starts to search and stops searching whenever she gets an offer of employment at the asking wage or higher.

▶ Shifting the curves

- ▶ Because it lowers the opportunity cost of employment, the Unemployment Insurance (UI) benefits an unemployed worker receives reduces the marginal cost of searching to a worker. – The MC curve shifts right and increases \tilde{w} .
 - ▶ increased offer arrival? (the internet?)
 - ▶ increased lay-off rate?
- ▶ **Note:** The search model is usually viewed as a model of frictional unemployment but the model can be extended to incorporate structural unemployment due to mismatch

EFFICIENCY WAGES

- ▶ This is a theory of how the equilibrium wage could be above the market clearing level

EFFICIENCY WAGES

- ▶ This is a theory of how the equilibrium wage could be above the market clearing level
- ▶ All the previous models have implicitly assumed that the firm can see how much the worker produces.

EFFICIENCY WAGES

- ▶ This is a theory of how the equilibrium wage could be above the market clearing level
- ▶ All the previous models have implicitly assumed that the firm can see how much the worker produces.
- ▶ In that case, a worker who does not produce as expected will not be paid.

EFFICIENCY WAGES

- ▶ This is a theory of how the equilibrium wage could be above the market clearing level
- ▶ All the previous models have implicitly assumed that the firm can see how much the worker produces.
- ▶ In that case, a worker who does not produce as expected will not be paid.
- ▶ The competitive equilibrium wage occurs at the intersection of the demand and (for simplicity the vertical) supply curve

▶ **Costly monitoring**

▶ **Costly monitoring**

- ▶ Suppose it's expensive for the firm to observe a worker's effort level

▶ **Costly monitoring**

- ▶ Suppose it's expensive for the firm to observe a worker's effort level
- ▶ If he can get another job instantaneously, why should the worker exert any effort?

▶ Costly monitoring

- ▶ Suppose it's expensive for the firm to observe a worker's effort level
- ▶ If he can get another job instantaneously, why should the worker exert any effort?
- ▶ If there is unemployment, a small chance of getting caught shirking gives the workers reason to work

▶ **Costly monitoring**

- ▶ Suppose it's expensive for the firm to observe a worker's effort level
- ▶ If he can get another job instantaneously, why should the worker exert any effort?
- ▶ If there is unemployment, a small chance of getting caught shirking gives the workers reason to work

▶ **The no-shirking condition**

▶ **Costly monitoring**

- ▶ Suppose it's expensive for the firm to observe a worker's effort level
- ▶ If he can get another job instantaneously, why should the worker exert any effort?
- ▶ If there is unemployment, a small chance of getting caught shirking gives the workers reason to work

▶ **The no-shirking condition**

- ▶ If the unemployment level is high firms need only offer a low wage to stop shirking

▶ **Costly monitoring**

- ▶ Suppose it's expensive for the firm to observe a worker's effort level
- ▶ If he can get another job instantaneously, why should the worker exert any effort?
- ▶ If there is unemployment, a small chance of getting caught shirking gives the workers reason to work

▶ **The no-shirking condition**

- ▶ If the unemployment level is high firms need only offer a low wage to stop shirking
- ▶ If the unemployment is low firms need to offer high wages so that the penalty associated with shirking is sufficiently severe to make them work.

▶ **Costly monitoring**

- ▶ Suppose it's expensive for the firm to observe a worker's effort level
- ▶ If he can get another job instantaneously, why should the worker exert any effort?
- ▶ If there is unemployment, a small chance of getting caught shirking gives the workers reason to work

▶ **The no-shirking condition**

- ▶ If the unemployment level is high firms need only offer a low wage to stop shirking
- ▶ If the unemployment is low firms need to offer high wages so that the penalty associated with shirking is sufficiently severe to make them work.
- ▶ This trade-off generates the No-Shirking curve (NS)

▶ **The efficiency wage equilibrium**

▶ **The efficiency wage equilibrium**

- ▶ The equilibrium wage is one that is on the labor demand curve and makes the workers just indifferent between shirking and working

▶ **The efficiency wage equilibrium**

- ▶ The equilibrium wage is one that is on the labor demand curve and makes the workers just indifferent between shirking and working
- ▶ The equilibrium wage is above the competitive market wage

▶ **The efficiency wage equilibrium**

- ▶ The equilibrium wage is one that is on the labor demand curve and makes the workers just indifferent between shirking and working
- ▶ The equilibrium wage is above the competitive market wage

▶ **Shifts to the NS curve**

▶ **The efficiency wage equilibrium**

- ▶ The equilibrium wage is one that is on the labor demand curve and makes the workers just indifferent between shirking and working
- ▶ The equilibrium wage is above the competitive market wage

▶ **Shifts to the NS curve**

- ▶ Unemployment insurance payments diminish the penalty from getting caught shirking - the NS curve shifts up