Principles of Macroeconomics

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Consider three countries: Jovenia (average age: 25), Mittelaltistan (average age: 45), and Decrepetia (average age: 75). Based on the lifecycle theory, which of these countries will probably have:

1. High savings rates?
2. High rates of borrowing?
3. High rates of dissaving? (That's spending your past savings.)

Who gets helped by a surprise inflation: people who owe money or people who lend money?

Much of the economic news we read about can be reinterpreted into our "$Mv = PY$" framework. Turn each of the following news headlines into a precise statement about M, v, P, or Y.

1. Deposits in U.S. banks fell in 2015.
2. American businesses are spending faster than ever.
3. Prices of most consumer goods rose 12% last year.
4. Workers produced 4% more output per hour last year.
5. Real GDP increased 32% in the last decade.
6. Interest rates fall: Consumers hold more cash.

Who gets hurt most in the following cases: banks, mortgage holders (i.e., homeowners), or neither?

$E\pi$	π	Who Gets Hurt?
4%	10%	
10%	4%	
−3%	0%	
3%	6%	
10%	10%	

The Costs of Inflation

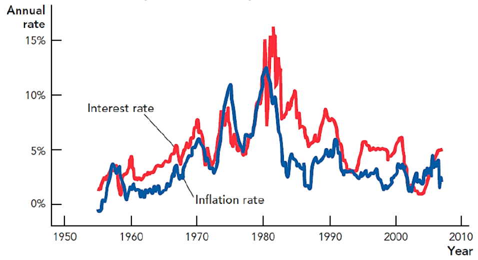
1. Inflation causes price confusion and money illusion.
   - Money Illusion: when people mistake changes in nominal prices for changes in real prices.
   - Inflation makes price signals more difficult to interpret. A consumer may not know if the price of a product is increasing...
     - Because of increased demand? or
     - As a result of all prices going up with inflation.
2. Inflation interacts with other taxes.
   - People pay taxes on illusory (nominal not real) capital gains.
   - Longer-run effect is to discourage investment in the first place.
3. Inflation is painful to stop.
   - Slowing down the money supply can create a recession.
4. Inflation redistributes wealth.

Inflation redistributes wealth among the public

- The lender is now losing money on the loan.
- The borrower gains.

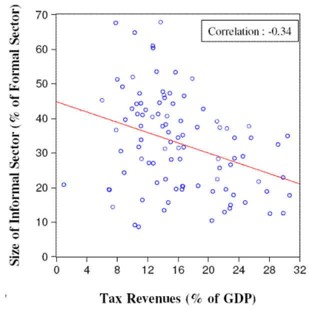
What happens if people expect inflation to go up?

- Lenders will increase nominal rates of interest.
- Fisher effect: the tendency for nominal interest rates to rise with expected inflation.
- The nominal rate of interest will be equal to expected inflation rate plus the equilibrium rate of return.



Inflation is a type of tax

- Inflation transfers wealth to the government that prints money to pay its bills.
- Monetizing the debt: when the government pays off its debts by printing money.
- Why don't they always inflate their debt away?
  - The Fisher effect: if banks know the government is doing this, they will simply raise interest rates.
  - Political cost: People who buy government bonds usually vote.



Workers and firms are affected by inflation

Wage agreements are often made several years in advance.

- Underestimating inflation
  wages are too low → supply of labor: too low.
- Overestimating inflation
  wages are too high → demand for labor: too low.
- Errors in estimating the rate of inflation
  a misallocation of resources → lower economic growth.

Expected and Unexpected Inflation

- Expected and unexpected inflations affect behavior differently
- **Expected inflation** is inflation people expect to occur
  - Rational expectations are the expectations that the economists' models predict
  - Adaptive expectations are expectations based in some way on the past
  - Extrapolative expectations are expectations that a trend will continue
- **Unexpected inflation** is inflation that surprises people
  - may redistribute income from lenders to borrowers
    - If lenders charge a nominal rate of 5% and expect inflation to be 2%, the expected real rate is 3%
    - If inflation is actually 4%, the real rate is only 1%
  - People who do not expect inflation and who are tied to fixed nominal contracts will likely lose in an inflationary period
- Expectations of inflation play an important role in any ongoing inflation
  - Inflationary expectations can accelerate large inflation

- If inflation is moderate and stable
  - Lenders and borrowers can forecast well.
  - Loans can be signed with rough certainty regarding the value of future payment.
- Unexpected inflation redistributes wealth throughout society in arbitrary ways

Unexpected inflation ($E\pi < \pi$)	Unexpected disinflation ($E\pi > \pi$)	Expected inflation = Actual inflation ($E\pi = \pi$)
Real rate less than equilibrium rate	Real rate greater than equilibrium rate	Real rate equal to equilibrium rate
Harms lenders Benefits borrowers	Benefits lenders Harms borrowers	No redistribution of wealth

- When inflation is high and volatile Unexpected inflation is difficult to avoid.
  - Long-term risk becomes high and loans may not be signed at all.
  - Financial intermediation breaks down.
  - Long-term contracting grinds to a halt.
  - Economic growth suffers.

Are there any benefits from moderate and stable inflation?

Unemployment ...

...as a Social Problem

- The Industrial Revolution changed the nature of work and introduced unemployment as a problem for society
- There was a shift to wage labor and to a division of responsibilities
- The Industrial Revolution created the possibility of cyclical unemployment and changed how families dealt with unemployment
- Early capitalism had an unemployment solution: the fear of hunger

...as Government's Problem

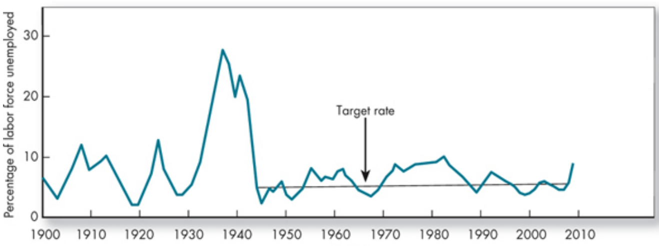
- As capitalism evolved, the fear of hunger was no longer an acceptable answer to unemployment
- In the Employment Act of 1946, the U.S. government took responsibility for unemployment; Germany introduced the unemployment insurance already in 1927

Whose Responsibility is Unemployment?

- Classical economists believe that individuals are responsible for their own jobs
  - If people really want a job, they will find one
- Keynesian economists tend to say that society owes people jobs commensurate with their training or past job experience
  - Jobs should be close enough to home so that people don't have to move

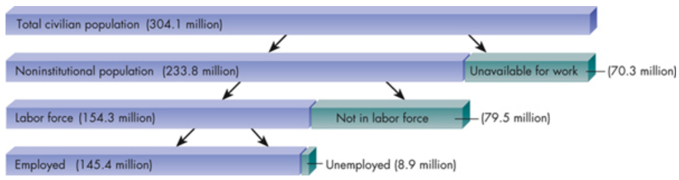
Target Rate of Unemployment

- The **target rate of unemployment** is the lowest sustainable rate of unemployment that policy makers believe is achievable under existing conditions
- The appropriate target rate of unemployment is debatable, but most economists place it around 5%
- The target rate of unemployment changes due to:
  - Inflation rates
  - Demographics
  - Social and institutional structures
  - Changing government institutions



Calculating the Unemployment Rate

- The labor force is those people in an economy who are willing and able to work
- The labor force excludes those incapable of working and those not looking for work



$$\text{Unemployment Rate} = \frac{\text{Number Unemployed} \times 100}{\text{Labor Force}}$$

How reliable / accurate is the unemployment rate?

Accuracy of the Unemployment Rate

- Does not include **discouraged workers**, people who do not look for a job because they feel they don't have a chance of finding one
- Does not take into account the **underemployed**, which are part-time workers who would prefer full-time work
- Does not measure the quality of jobs or how well people are matched to their jobs.
- Includes people who say they're unemployed, but voluntarily don't work
- The **labor force participation rate** and the **employment–population ratio** provide additional information

- **Potential output** is output that would be achieved at the target rates of unemployment and capacity utilization
- **Okun's rule of thumb** states that a 1% change in the unemployment rate will be associated with a 2% change in output in the opposite direction

$$+1\%\Delta\text{unemployment} \rightarrow -2\%\Delta\text{in output}$$

Unemployment

- The **unemployment rate** is the percentage of people who are willing and able to work but who are not working
- **Cyclical unemployment** is that which results from fluctuations in economic activity
- **Structural unemployment** is that caused by the institutional structure of an economy or by economic restructuring making some skills obsolete
- **Full employment** is an economic climate where nearly everyone who wants a job has one
- **Frictional unemployment** is unemployment caused by people entering the job market and people quitting a job just long enough to look for and find another job
- **Labor force participation rate** is the percentage of adults in the labor force

Frictional Unemployment

Short-term unemployment caused by difficulties of matching employee to employer

- Scarcity of information creates frictional unemployment.
- Matching people to jobs takes time
- Usually doesn't last very long.
- Is usually a significant fraction of total unemployment because
  - the economy is dynamic.
    "Creative Destruction"—Joseph Schumpeter.
    progress is about creating new jobs and destroying old jobs.
  - it takes time to adjust to innovation and the job creation/destruction that ensues

Structural Unemployment

Persistent, long-term unemployment caused by long-lasting shocks or permanent changes in the economy.

Causes: Large shocks that take a long time for the economy to restructure.

- Oil shocks
- New (information) technologies
- Globalization
- Restructuring jobs away from manufacturing and towards services

Long structural unemployment brings significant human costs.

- At some point unemployment can become chronic.
- The longer a worker is out of work, his or her skills atrophy.
- Managers are wary of hiring workers who have been unemployed for a long time.
  Who would you rather hire: a worker looking to switch jobs or a worker who has been unemployed for five years?

→ Unemployment can become a trap.

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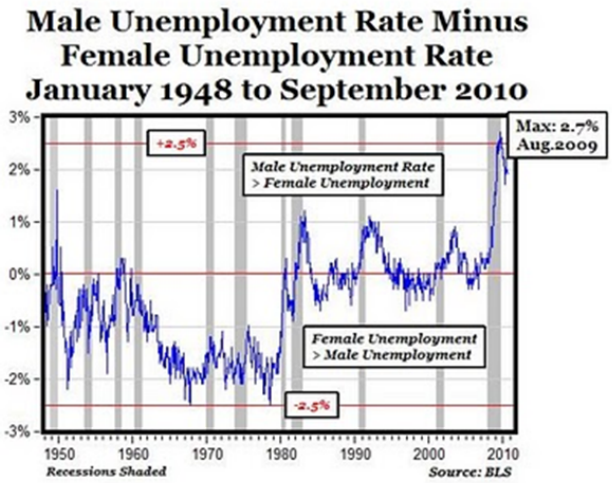

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Labor Regulations and Structural Unemployment

- In the U.S. unemployment historically increases with a shock, then declines. (1980-1984 was a shock period)
- In Europe unemployment has increased with shocks but has not declined.

Country	1980–1984	1985–1989	1990–1994	1995–1999	2000–2004	Fraction Unemployed for More Than One Year (2004)
France	7.3%	9.3%	9.6%	10.8%	8.4%	41.6%
Germany	5.9%	6.4%	6.7%	9.8%	8.8%	51.8%
Italy	8.8%	11.6%	10.9%	11.8%	9.3%	49.7%
Spain	15.9%	19.9%	19.6%	20.0%	11.7%	37.7%
United States	8.3%	6.2%	6.6%	4.9%	5.2%	12.7%

Source: OECD Statistics and OECD Employment Outlook, 2005

- Unemployment rates differ because of different labor regulations.
  1. Unemployment benefits: more generous in Europe.
  2. Unemployment benefits last longer in Europe.
  3. Minimum wages: higher in Europe
  4. Unions? Stronger in Europe.
- The higher the minimum wage is above the market wage, the

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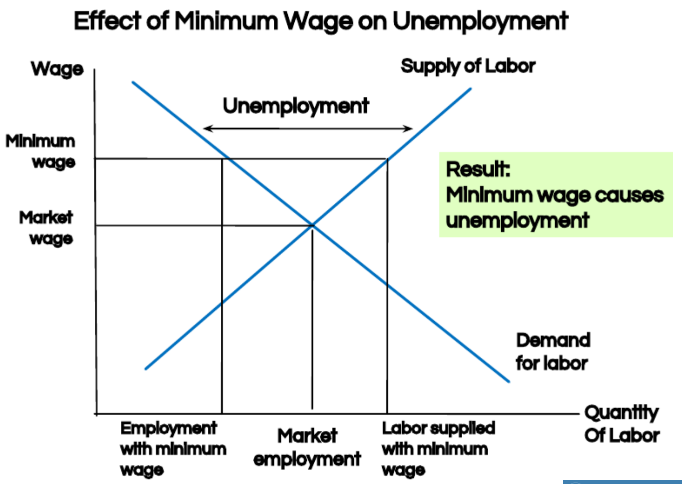
Effect of Minimum Wage on Unemployment



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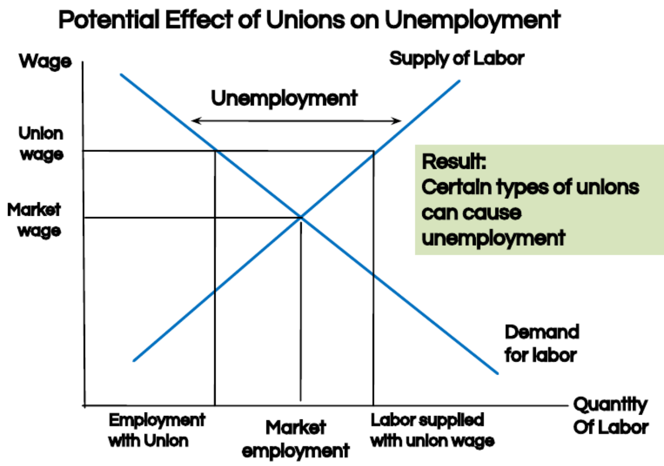
Potential Effect of Unions on Unemployment



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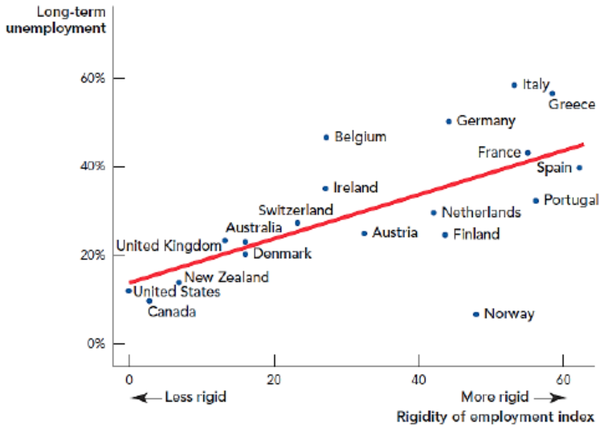
Employment Protection Laws

World Bank "rigidity of employment index" the higher the index, the greater the hiring and firing costs



Labor Regulations

In summary, European labor regulations:

- create valuable insurance for workers with a full- time job.
- make labor markets less flexible and dynamic.
- increase the duration of unemployment.
- increase unemployment rates among young, minority, or otherwise "riskier" workers.

Europe has begun to change its labor laws to reduce Structural Unemployment

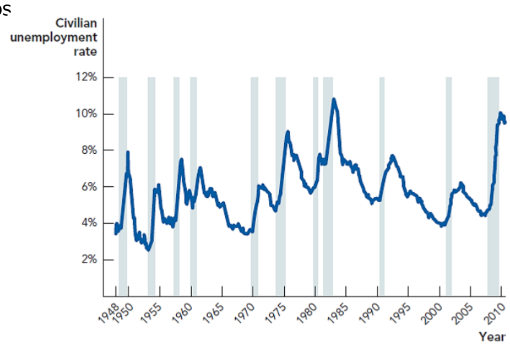
- Reducing unemployment benefits
- Adopting Active labor market policies: work tests, job search assistance and job retraining programs focus on getting unemployed workers back to work.
- Allowing exceptions to collective bargaining agreements.

Cyclical Unemployment

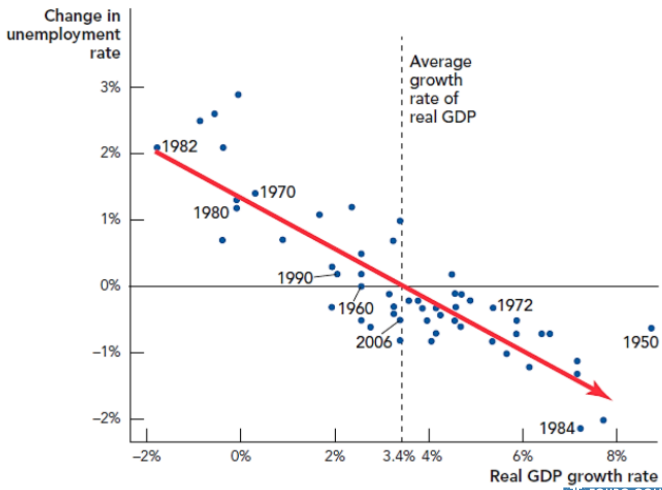
Unemployment correlated with the business cycle

Lower growth is usually correlated with higher unemployment for two reasons

1. When GDP falls, firms lay off workers.
2. Idle labor and capital → economic growth is not being maximized → decreases ability of the economy to create more jobs



Faster growth in Real GDP decreases unemployment

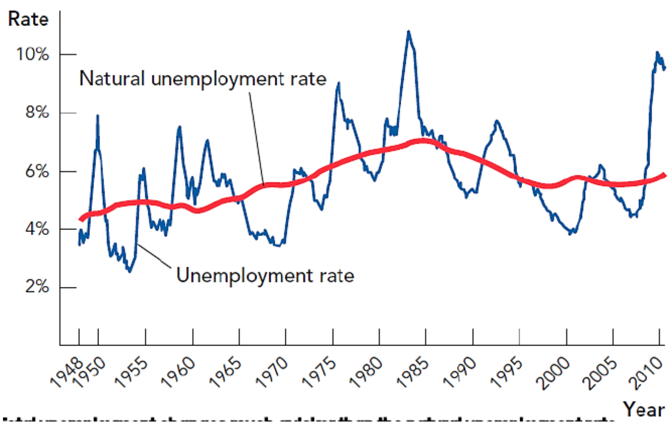


What causes cyclical unemployment?

Non "Keynesians":
Caused by real shocks that require a reallocation of resources.
Cyclical unemployment is just another example of frictional and structural unemployment.

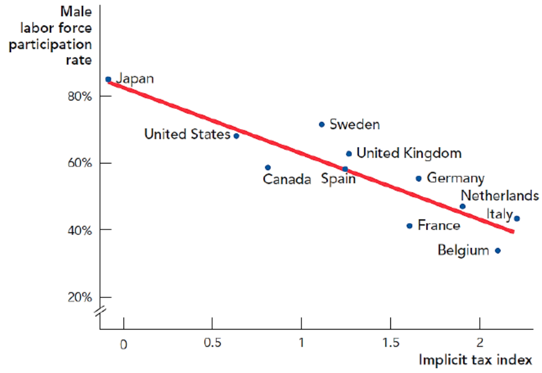
"Keynesians":
Caused by deficiencies in aggregate demand.
For now: consider it a mismatch between the aggregate level of wages and the level of prices.

The Natural Unemployment Rate: Structural plus frictional unemployment



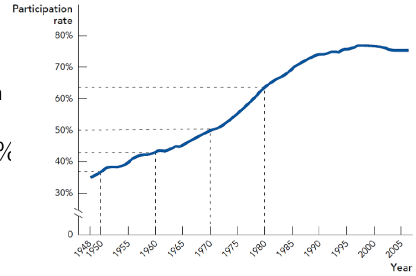
What determines the labor force participation rate?

- Lifecycle Effects and Demographics
- Differences in Incentives
  - Taxes and Benefits
    - Taxes discourage work and benefits encourage non-work.
    - Many countries penalize workers who work past the normal early retirement age.



Incentives and the rise in female labor force participation

1948 – 2008: number of women aged 25-54 in the paid labor force increased from 35% to 75% in the US.



What caused this?

- Cultural factors
- Rise of feminism
- Growing acceptance of equality
- Move from a manufacturing to a service economy.
- The "Pill" lowered the
  - cost of earning a professional degree.
  - uncertainty about the consequences of sex.

  and increased the incentive of women to invest in a long-term education.