Announcements

Final Exam: Monday, Dec 16th, 6:30-8:30pm

- If have exam conflict, there is a makeup final on Thursday, December 19th, 10am-12pm

- Registration Deadline for the makeup
  - Monday December 9th at 4pm
  - email headgrader@gmail.com

- Review sessions (Hanson 1-104):
  - Wednesday December 11th, 4:00-5:30 pm
  - Wednesday December 11th, 6:30-8:00 pm

- Homework 10 due Tuesday
  - Remember grade is based on only top 9 homeworks, so doing this can only help your grade (and it is good practice for the final)

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Order of business

- Demand for factors of production (derived demand for labor)
- Real wages and productivity
- Differences in wages: compensating differentials
- Differences in wages: return to human capital

The 99% and the 1% Lecture
- Increase in the skill premium and skill-biased technical change
- The economics of superstars
- Henry Ford unskilled-biased technical change
- Impacts of increased trade and decline of unions.
- The 99% and the 1% (or 99.99 and .01%)
- International Comparison

Demand for Factors of Production (With a focus on labor)

So far:

- studied consumer demand (beer and pizza)
- firm supply

Now look at demand for factors of production

Derived demand (firms don't want labor for own sake, want it to make a profit) can be gotten by putting together the following:

- Technology of firm
- Output prices
- Input prices

First, let's look at technology of the firm.

Technology given by the Production function
- How output depends upon inputs.

For example, maybe for a lawn business, with the following inputs:
- 2 workers for full day (8 hours)
- 1 truck
- 2 lawn mowers
- 1 edger

Suppose with this combination of inputs, we get an output of 10 lawns mowed.

Add more inputs, have more output. (this should make intuitive sense!)

Suppose add another worker and can now mow 13 lawns (holding other inputs fixed).

Marginal Product of labor (MP) from 2 to 3 workers is

13 − 10 = 3 lawns.

How much labor should the firm hire?

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- Will depend upon the price of lawns.
  - Suppose price equal $40 per lawn.
  - Value of the marginal product equals P×MP = $40×3 = $120.
  - Should you hire the third worker?

Will also depend upon the wage.

If wage > $120 a day,
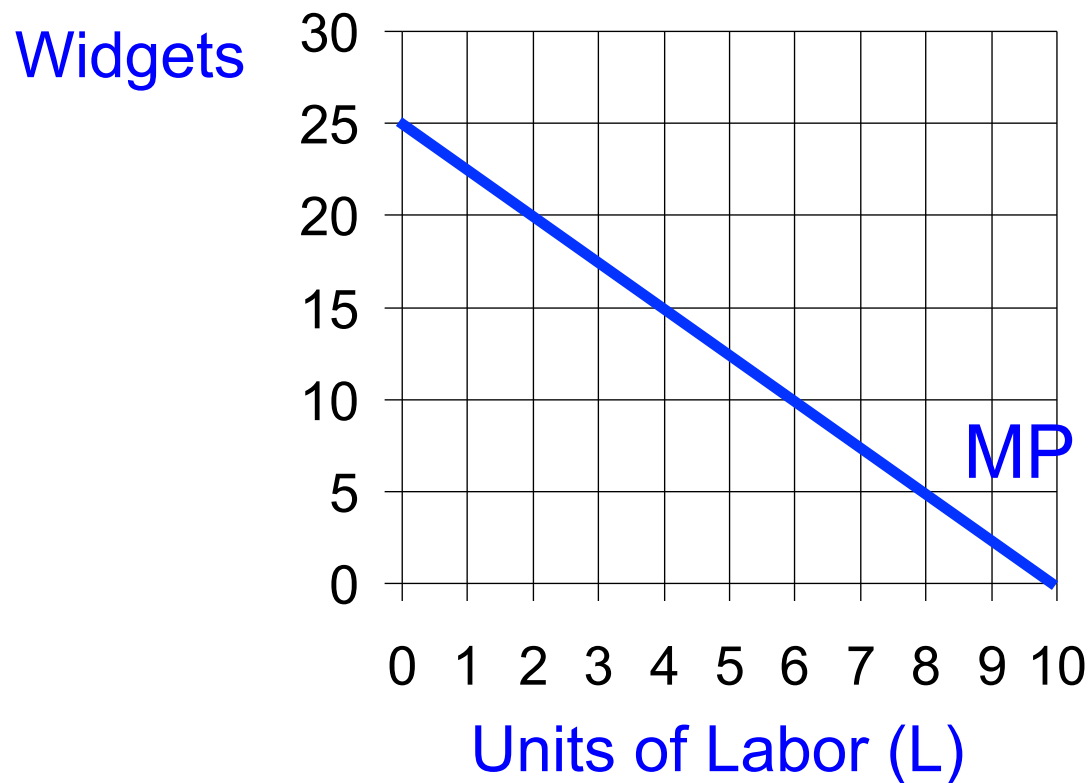- then wage > Value of MP

Good idea or bad idea (to hire the person)?

If wage < $120 day,
- then wage < Value of MP,
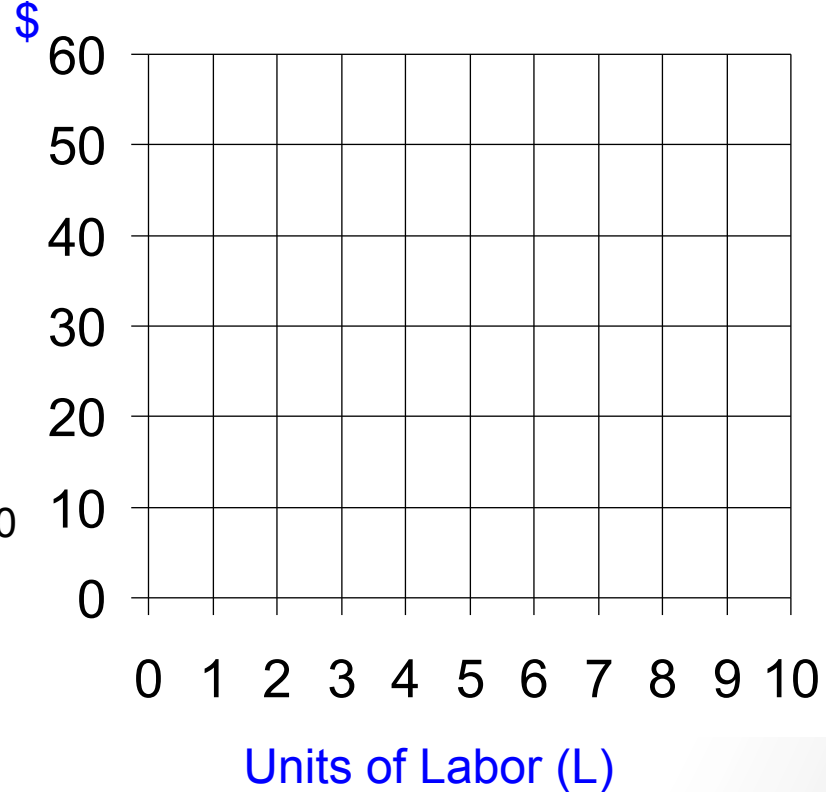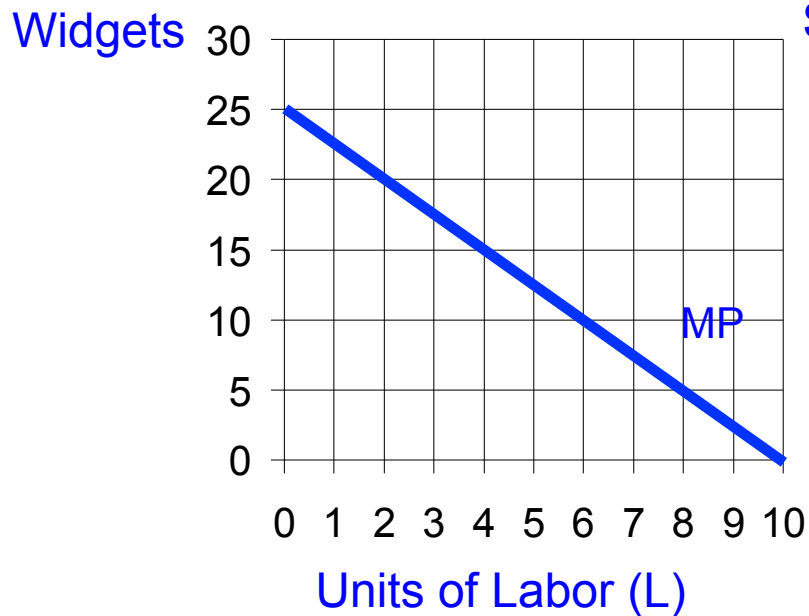
Good idea or bad idea?

General Rule: pick labor where <u>wage = Value of MP</u>

Going back to Econland: Suppose marginal product of labor for S1 looks like (holding capital fixed):

Note: We have diminishing marginal product, MP is downward sloping.

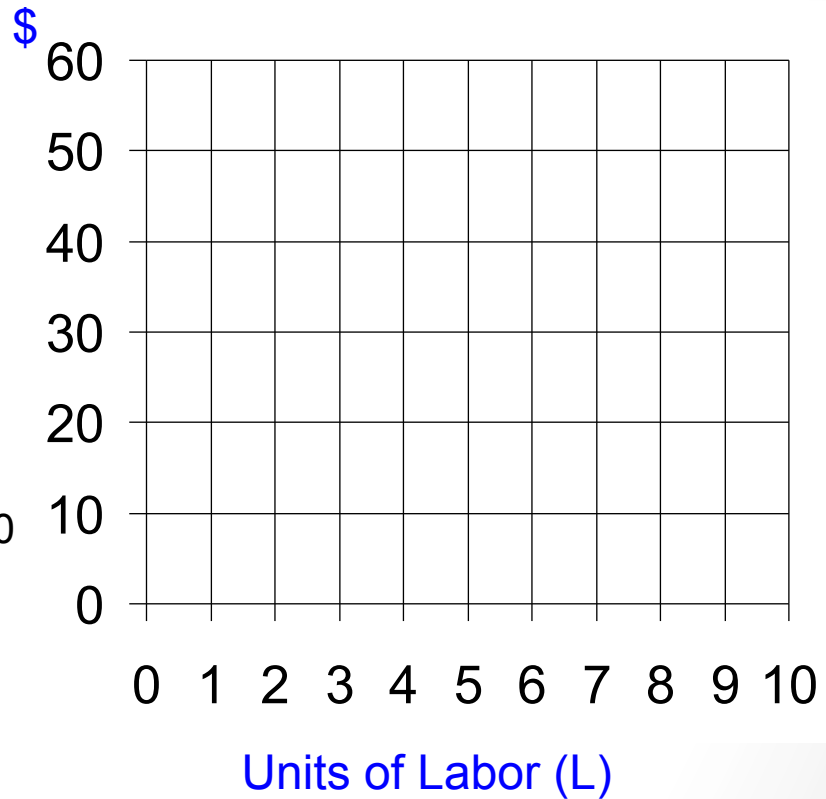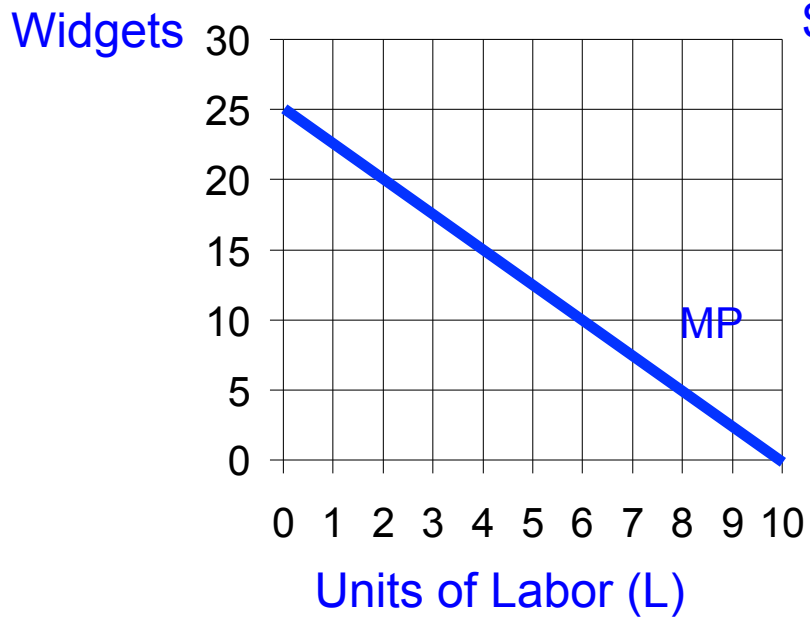Suppose Widget Price is $2. What is S1's derived demand for labor? (What is the Value of the MP?)

Widgets

MP

Units of Labor (L)
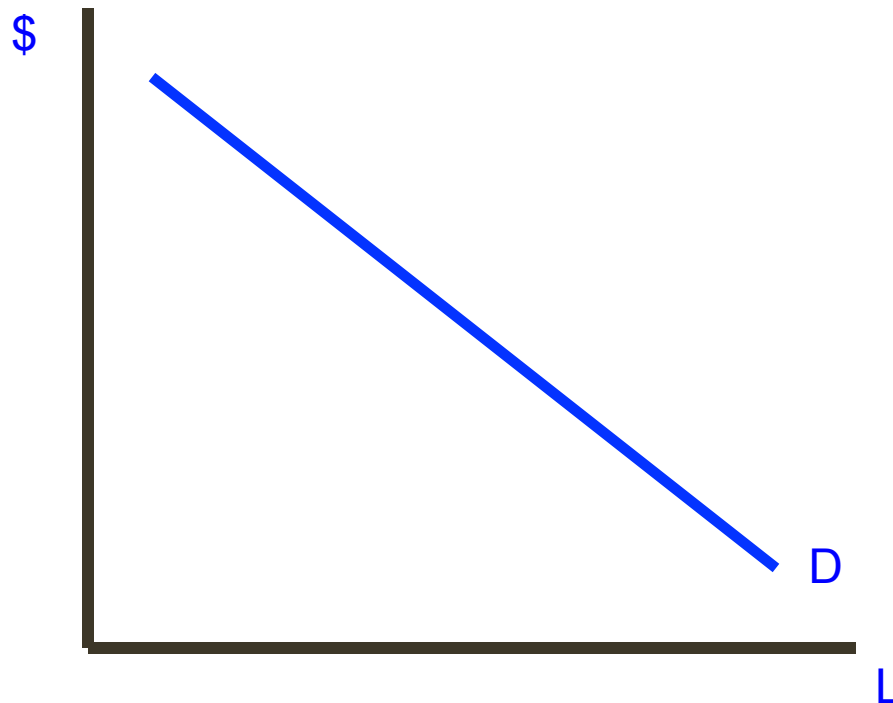
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Units of Labor (L)

$

L

What happens when wage changes?

Movement_____

What happens when output price changes?_____

- (Let's go back and see what happens if P=$4 for S1)

Widgets

30
25
20
15
10
5
0

0 1 2 3 4 5 6 7 8 9 10

Units of Labor (L)

MP

$

60
50
40
30
20
10
0

0 1 2 3 4 5 6 7 8 9 10

Units of Labor (L)

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Add in labor supply to obtain equilibrium wage and quantity of labor

What is labor supply determined by?

Comment about condition:

- wage = value of marginal product of labor

Important: this condition assumes perfect competition in output markets and input markets.

- Firm takes output price and wage as given.
- If can set wage, of course set wage below value of marginal product of labor!
  - Would want to consider marginal cost of labor (which wouldn't equal wage, if firm can set wage)
  - Firm acts in a way similar to a monopolist
- But if wage and price fixed, pick labor so condition holds.

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US trends: Average real wage

US trends: Average Wages

What has happened to <u>Average Real Wages</u> over time in the United States? (Real Wages means wages adjusted for inflation.)

- Before looking at the table, let's define average Labor Productivity as Total Output in a year divided by Total Hours Worked

- Now look at the growth in average wages and the growth in average labor productivity

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Table 2 in Chapter 18
Productivity and Wage Growth

Time Period	Growth Rate of Labor Productivity	Growth Rate of Real Wages
1959-2009	2.1%	**1.9**
1959-1973	2.8	**2.8**
1973-1995	1.4	**1.2**
1995-2009	**2.6**	**2.3**

Clear pattern here that wage growth is associated with productivity growth.

What is the source of labor productivity growth?

Main source: technological change.

That is what is going on with average wages. Next, let's discuss differences in wages across workers.

Inequality: Differences in wages across workers

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First factor: Compensating for wage differentials

These guys probably get a little extra


Another example?   Nighr Shifts

2nd factor: Human Capital

Skill Premium: Pay difference between skilled and unskilled labor (In table, this is the % extra for college grads)

	1980	2008
Men		
High school	45	**43**
College	65	**82**
Skill premium	44%	**88%**
Women		
High school	27	**32**
College	37	**54**
Skill Premium	**35%**	**71%**

Table 1 in Chapter 19
(annual wages: $1,000 at 2008 prices)

Supply and demand for skilled and unskilled workers
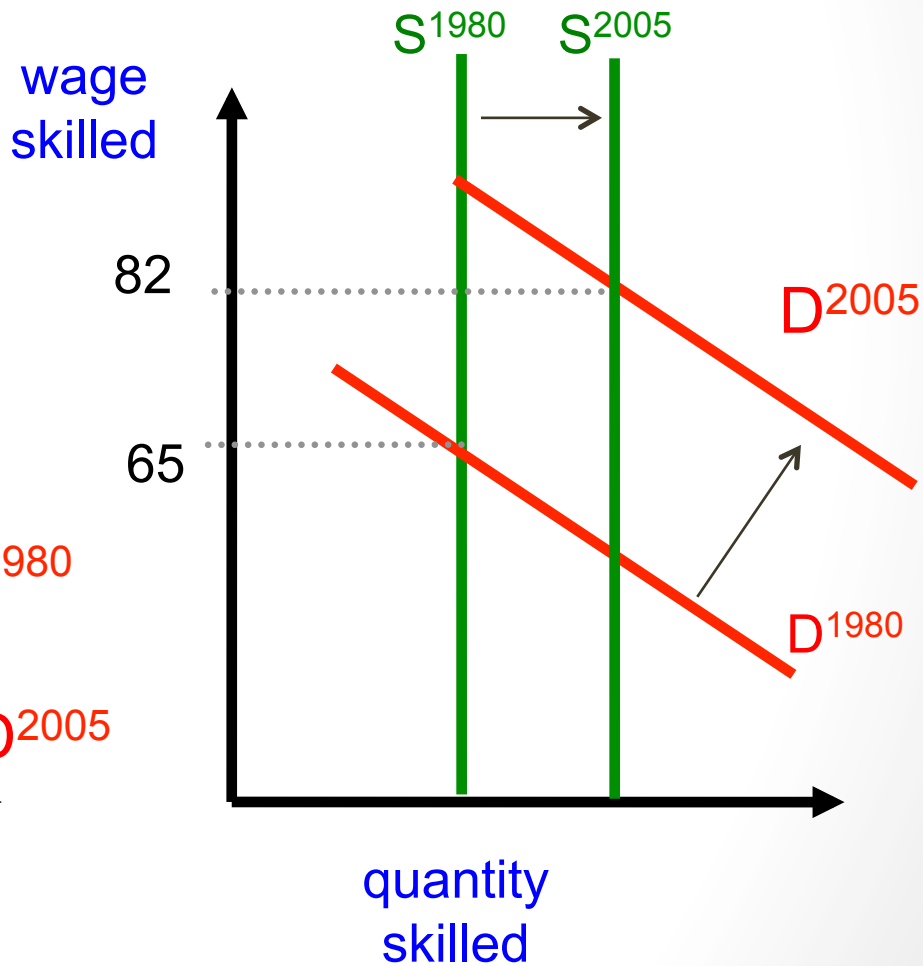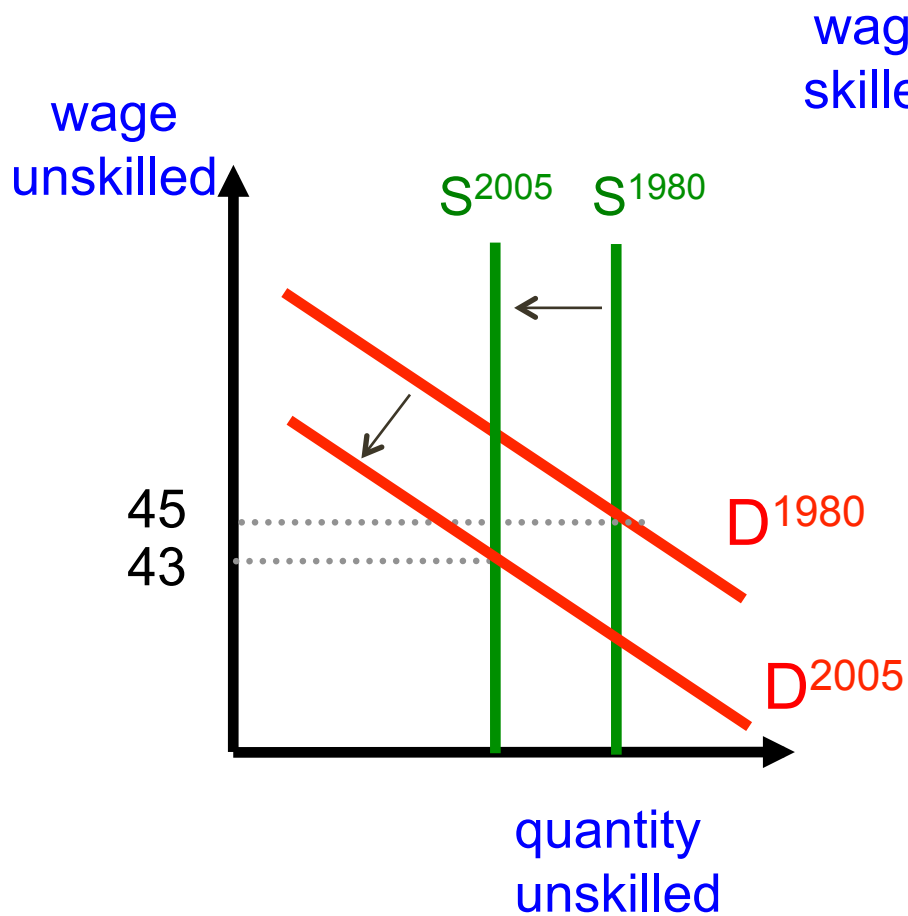
Possible ways that demand for skill has gone up relative to demand for unskilled labor.

Will go through a list of factors

- All of these matter, but we won't settle anything today about the relative importance of the different factors.

- Take another economics class to learn more!

Factors that explain skilled and unskilled demand shifts

1. Skill biased technological Change

Factor 1: Skill-Biased Technical Change

- New innovations are complements for skilled labor, but substitute for unskilled labor. Impact on demand?

wage
unskilled

wage
skilled

quantity unskilled

quantity skilled
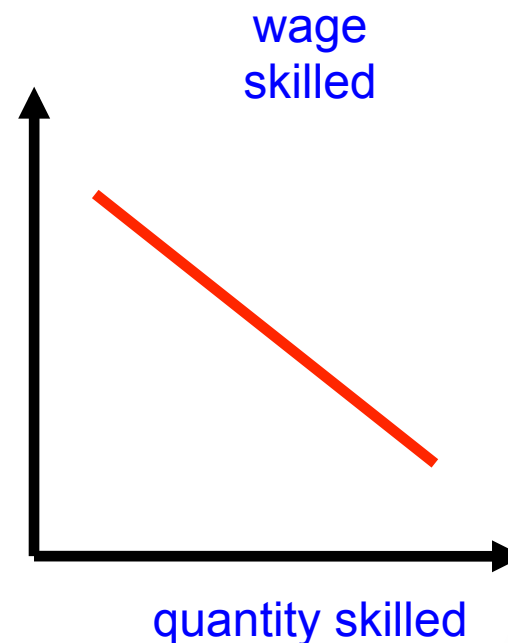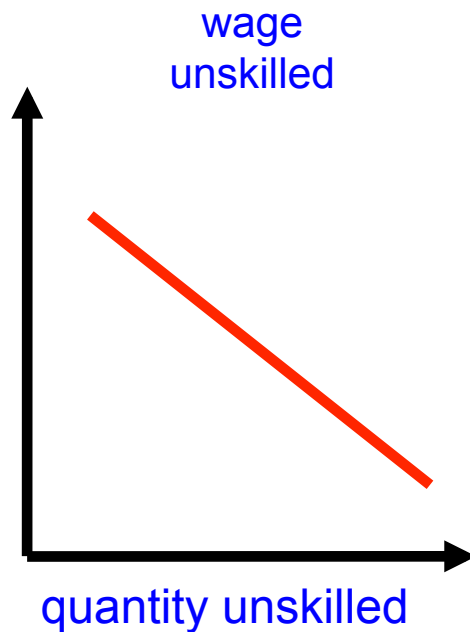
To understand skill-biased technical change, think about the invention of a robot that can spray paint a car or tighten a bolt on an automobile assembly line.

a)   The robot is a substitute for the unskilled worker on the assembly line.

b)   The robot does not do the creative work of designing the car. The skilled worker continues to do that job. The skilled worker designs the car and the robot builds it. In that way, the robot complements the skilled worker.

As another example, think about the further development of web-based teaching. This complements the skill of Greg Mankiw (our textbook author) as he can now leverage up his skill to potentially teach tens of thousands of students in economics classes across the country. And substitute for "lower skilled" professors or graduate students :(

Henry Ford unskilled-biased technical change

- Interesting to contrast the recent trend of "Skill Biased Technical Change" with the trend earlier in the 20th century.

- Skilled worker at that time: skilled craftsman who has learned a trade after a long apprenticeship.

- Unskilled worker: Hands and arms connected to a strong back.

- Technological change at time (Henry Ford's assembly line) Take unskilled worker and put him on an assembly line. Up to speed in a few days. Here unskilled-biased technical change. In this period there was a decline in the skill premium.

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Longer Term Trend (percent return per year of schooling)

The Skill Premium
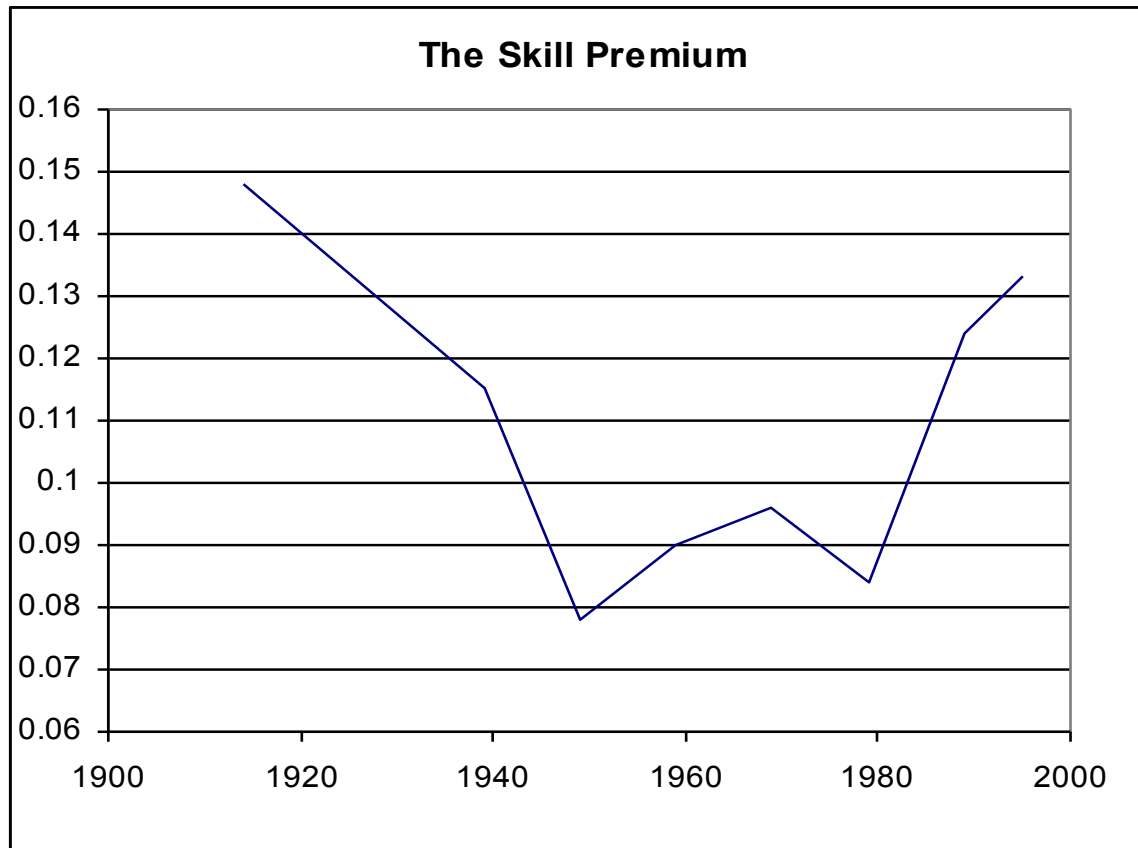
- Can see in that in 1910, the return for an extra year of schooling was 15% and this fell to 8% in 1950.

Low skilled vs high skilled technollogical change
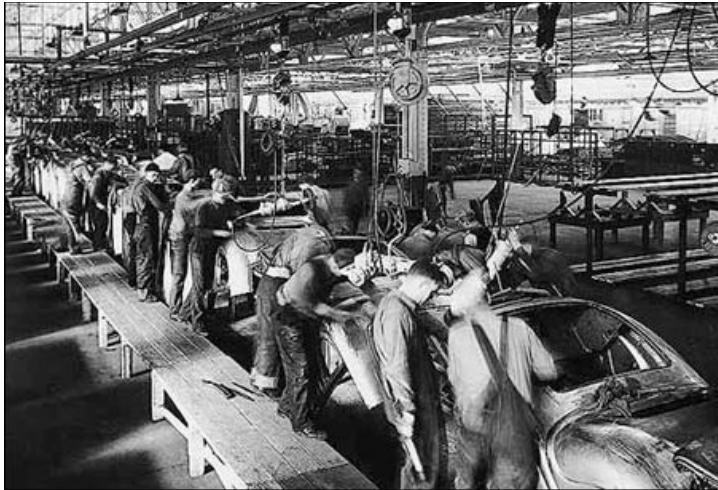
Ford assembly plant in St Paul that closed Dec 2011 (picture is from 1935)

Auto factories today

We are still manufacturing many things in this country, but this type of manufacturing employment is way down because machines (and low skill workers in other countries) have replaced assembly workers
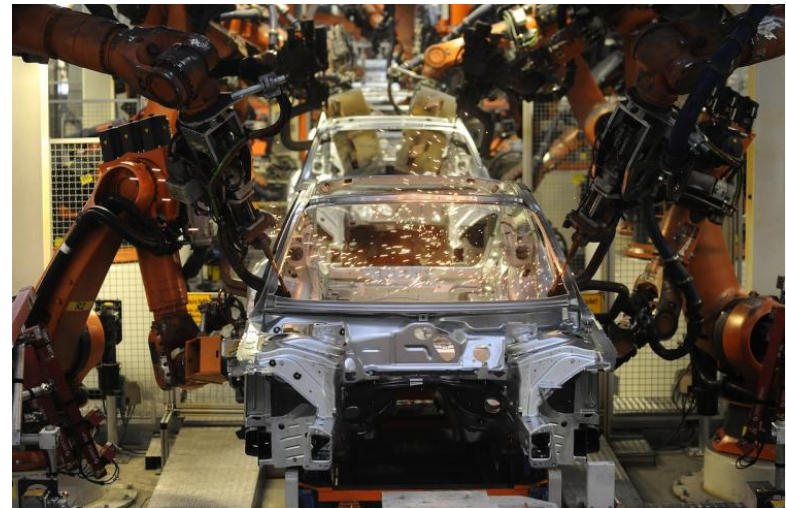
Factors that explain skilled and unskilled demand shifts

2. Expansion of Trade and Immigration

Factor 2: Expansion of trade and immigration.

Why should that raise the skill premium in the U.S.?

- In the United States, the ratio of skilled workers to unskilled is quite high relative to the rest of the world.
- With an expansion of trade, we tend to export goods with high skill content and import goods with low skill content
- With an expansion of trade, the demand for unskilled labor declines in the U.S.
  - Because of the increased availability of substitute products made by the vast number of unskilled workers throughout the world.
- And, the demand for skilled labor increase in the States.
  - As the US specializes more in high tech and other industries that emphasize creativity, demand for skilled labor goes up.

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Factors that explain skilled and unskilled demand shifts

3. Decline of Unions

Factor 3: Decline of Unions

(Not a demand shift, rather a change in market power of unskilled.)

- Unions have declined significantly over the past 30 years. Production (or "blue collar") jobs are much more likely to be unionized than "white collar" jobs like management

- In the 1950s and 60s, when the skill premium was the lowest, the percent unionized was the highest.

- More on unions in next lecture....

The 99% and the 1%

- Next look at increasing inequality even within the upper range of the income distribution. The "haves" starting to complain about the "have mores"

You can look at recent research from Piketty and Saez
http://elsa.berkeley.edu/~saez/pikettyqje.pdf

Use tax return data to estimate the distribution of income at the very top.

- Strong evidence that "have mores" rising relative to the "haves"

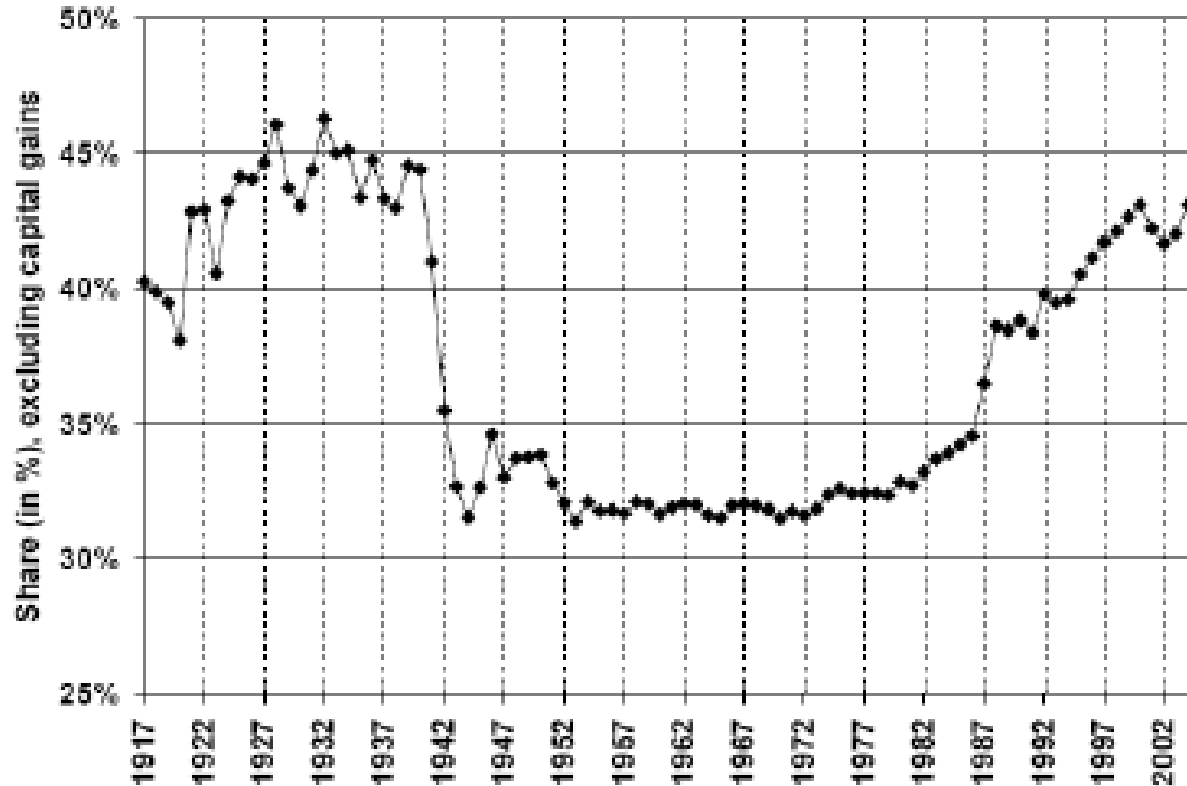Let's look at the figures:

The 10 Percent

FIGURE 1
The Top Decile Income Share, 1917-2005

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- Can see in figure that top 10% of income earners had the following shares of income:

Year	Share of Total Income	Income Relative to Average
1917	41%	**4.1**
1972	32%	**3.2**
2005	**45%**	**4.5**

- So a relative raise going from 1972 to 2005, going from 3.2 times average income to 4.5 time average income.

- The picture is even more stark for the top .01%
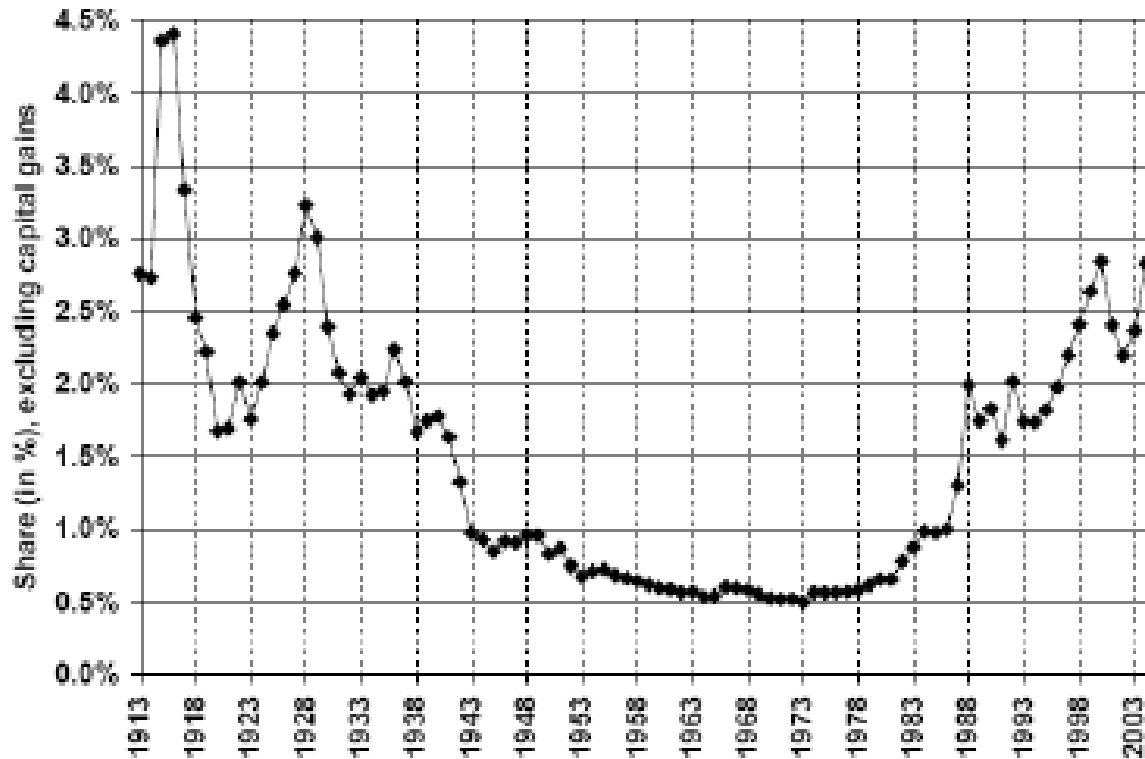
The 0.01 Percent

FIGURE 3
The Top 0.01% Income Share, 1913-2004

- Can see in figure that top .01% of income earners earned had the following shares of income:

Year	Share of Total Income	Income Relative to Average
1913	2.7%	270
1972	0.5%	50
2005	3.3%	330

- So a fantastic relative raise going from 1972 to 2005, going from 50 times average income to 330 times average income.

Possible explanations of the trends at the very top:

1. Supply and Demand
   - "Extreme skill-biased technical change" (benefiting workers way out a the extreme of the talent distribution.)
   - Return to very special talent has gone up, **economics of superstars** (easier to leverage up talent)

2. Changes in social norms about payments to super stars. (we pay them more now)

3. Looting. The .01% have figured out a new way to work the system to redistribute the economic social pie to themselves, including busting unions. (Occupy Wall Street explanation.)

4. Busting Unions (More on Unions in the next slides)

Factors that explain skilled and unskilled demand shifts

4. Economics of superstars

4. Economics of Superstars

- The superstars are certainly close to the top .01%; why do they make so much more money now?

- For example, a long time ago, the money the best singer in the world was limited to income from radio and concerts

- The 2nd, ... , 100th best singers probably made close to the same money since the best singer was limited in how many people he/she could reach

- With the Internet, digital music, easy distribution of the services of talent, the winner can take it all

- The issue of how the internet (and communications technology more generally) impacts the return to being the best is called the

    Economics of Superstars

- But now think about what happens when new technologies (like recorded music) emerge that make it possible for the best singer to sell music to everyone. No one will be interested in listening to the 100th best anymore. Things move to a case where 1st best gets everything and 100th best nothing. (Winner take all.)

- We will talk about widening inequality even at the top of the income distribution (the "have mores" pulling away from the "haves" and the "Economics of Superstars" is one explanation.)

Paying the super stars

Look at Theory 1: Return to Talent

Highest Paid ball players

	Hank Aaron 1972	Alex Rodriguez 2007
Salary ($)	$200,000	**$28 million**
GDP per capita ($)	$6,000	**$44,000**
Ratio	33	**636**

- Analogous forces going on with CEOs, globalization, multinationals…

Inequality: International Comparison

- We see a similar pictures (compared to Lec14(ii)) when we add other countries

Figure 3. Share of the Top 1 Percent in Total Income in Selected Industrial Countries, 1920–2000[a]

Percent of total income
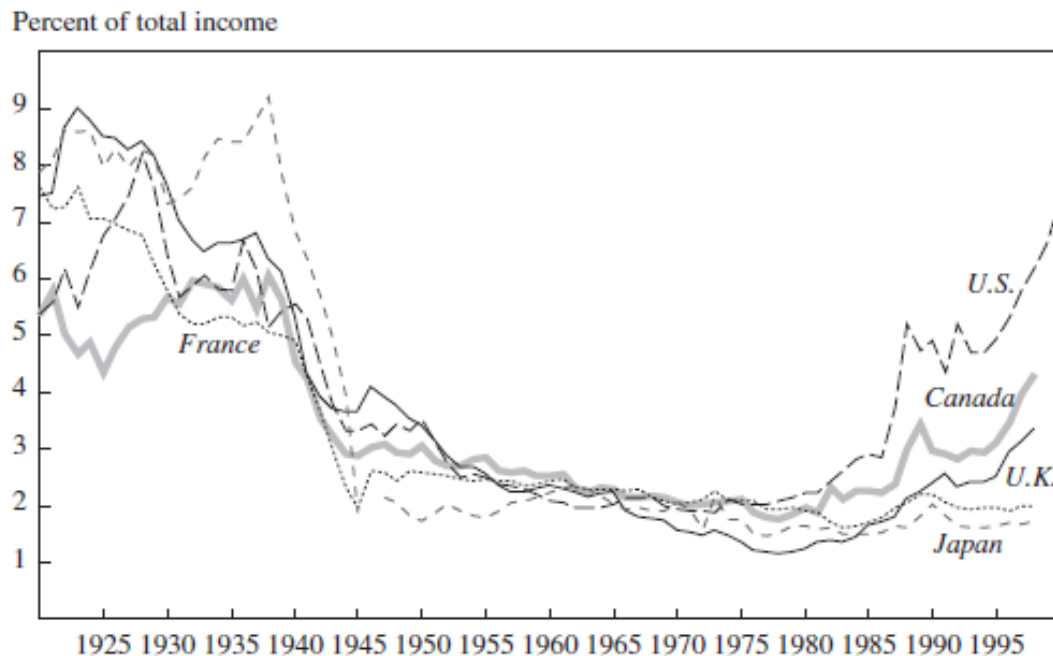
Source: Piketty and Saez (2006b).
a. Total income includes labor, business, and capital income but excludes capital gains.

As cited in Gorden and Dew-Becker, "Selected Issues in the Rise of Income Inequality"

This is a very interesting graph.

In terms of past several decades

"Anglo countries" (i.e. US, Canada, UK)
        Canada is "US light"
        UK is "US lighter"

Japan and France completely different.

- If this is all Skill-Biased Technical Change, why are the Anglo countries different?

One possible explanation: France not paying market wages.

- Interesting New York Times article about "brain drain" of academics to the United States

http://www.nytimes.com/2010/11/22/world/europe/22france.html

Percent of French émigrés to U.S that were Academics
- 1971-1981: 8 percent
- 1996-2006: 27 percent

Many reasons for this, one is pay.
- A French biologist who moved back to France had to take a 2/3 pay cut.

France raising the top marginal tax rate to 75% last year won't prevent the migration of people with high earnings potential.