Principles of Economics II

Lecture 4: The competitive labour market model

Fall 2020
Tuukka Saarimaa

Outline for this lecture

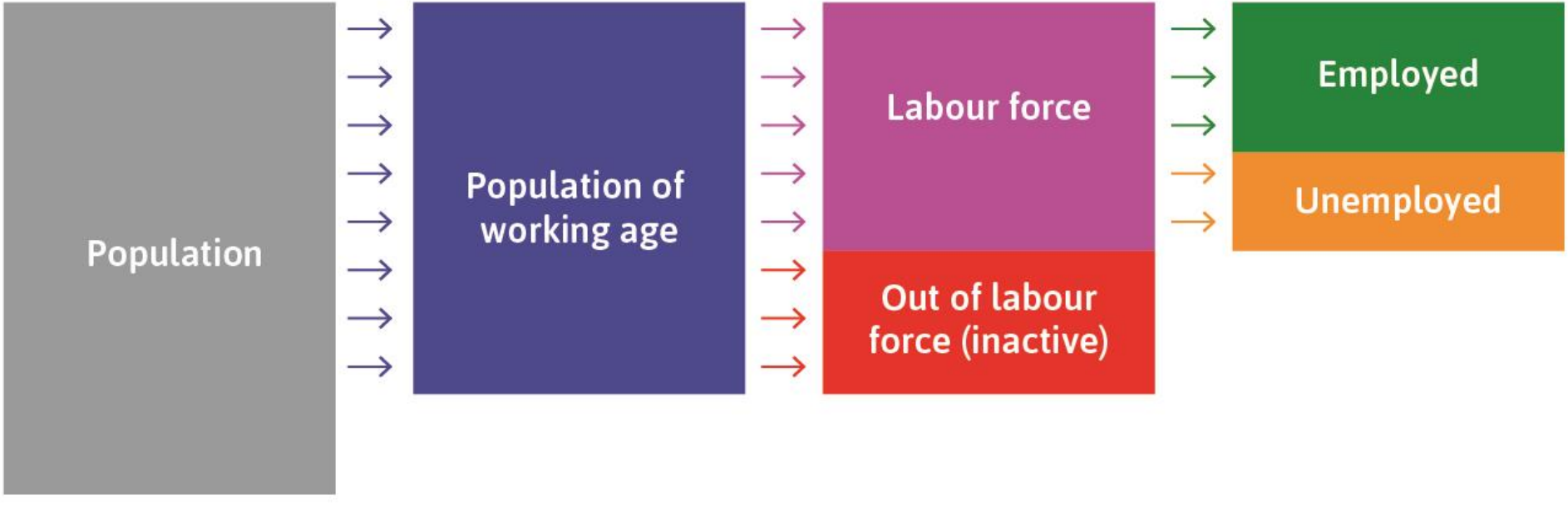
- **Introduction**
- **Measuring unemployment**
- **Competitive labour market model and applications**
  - Immigration, minimum wage

Measuring unemployment

The unemployed

- **The unemployed are the people who:**
  - are not in paid employment or self-employment
  - are available for work
  - are actively seeking work

The labour market



The Finnish labour market in 2017

Population of working age (15–74y) : 4.1M

Labour force: 2.7M

Out of labour force: 1.4M

Employed: 2.5M

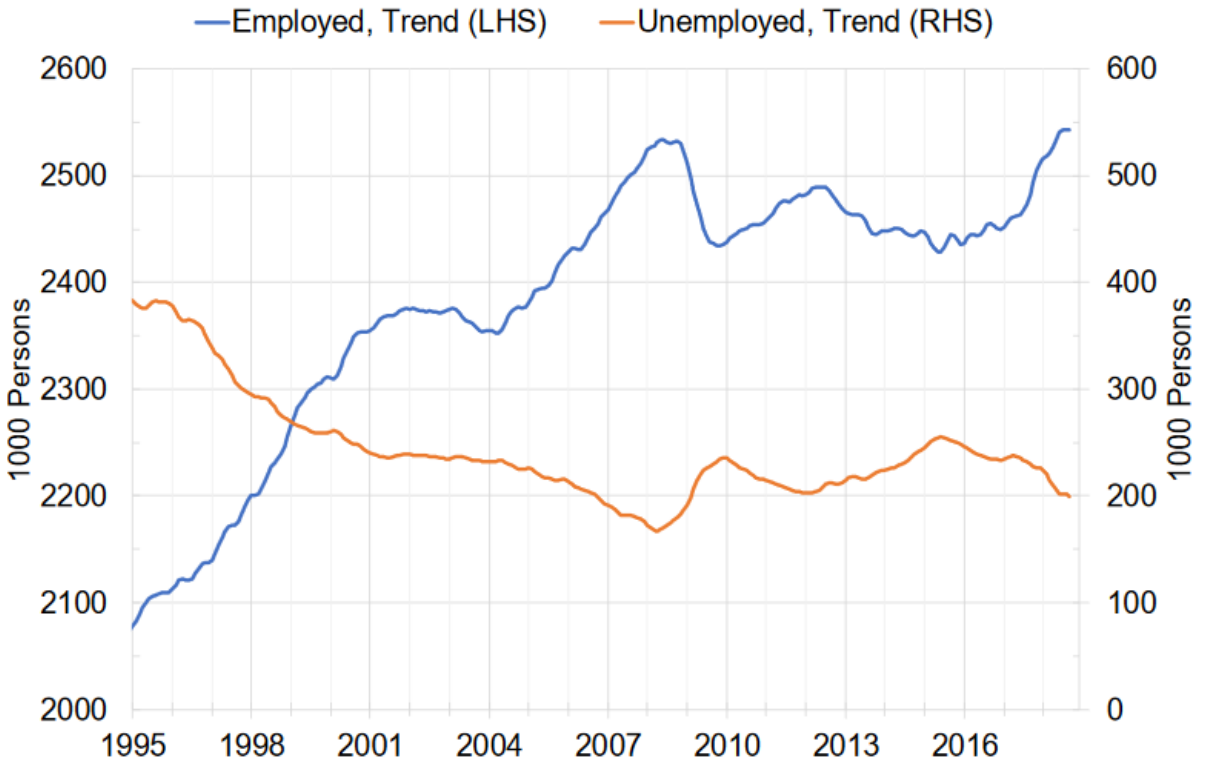
Unemployed: 230 000

Labour market statistics

- **Unemployment rate:**
  - unemployed / labour force = 0.23M/2.7M = 8.5%
- **Employment rate:**
  - employed / population of working age = 2.5M/4.1M = 61.0%
- **Participation rate:**
  - labour force / population of working age = 2.7M/4.1M = 65.8%

Employment and unemployment

Figure 3.1.1: Employment of 15-74-year-olds has increased faster than unemployment has decreased.

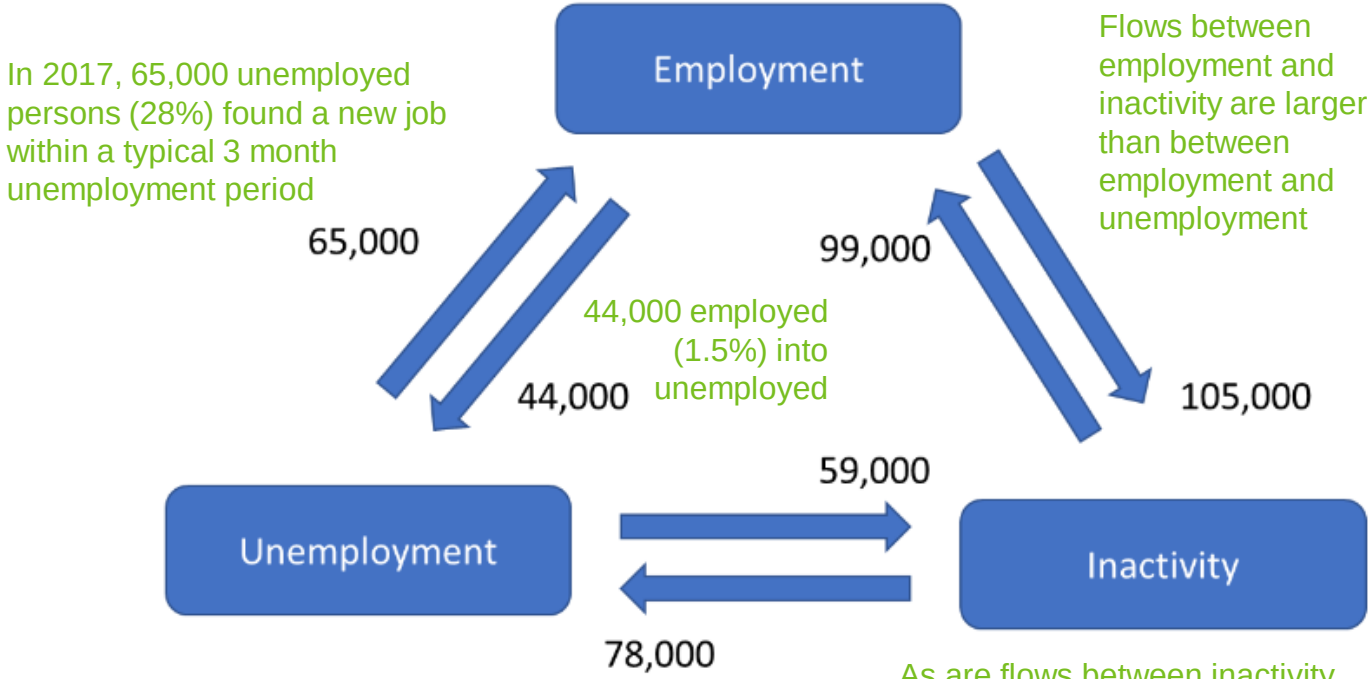


Source: Statistics Finland: Labour Force Survey and EPC.

Source: Economic Policy Council Report 2018

Flows between employment, unemployment and inactivity in 2017

Figure 3.1.2: Average quarterly flows between employment, unemployment and inactivity in 2017.

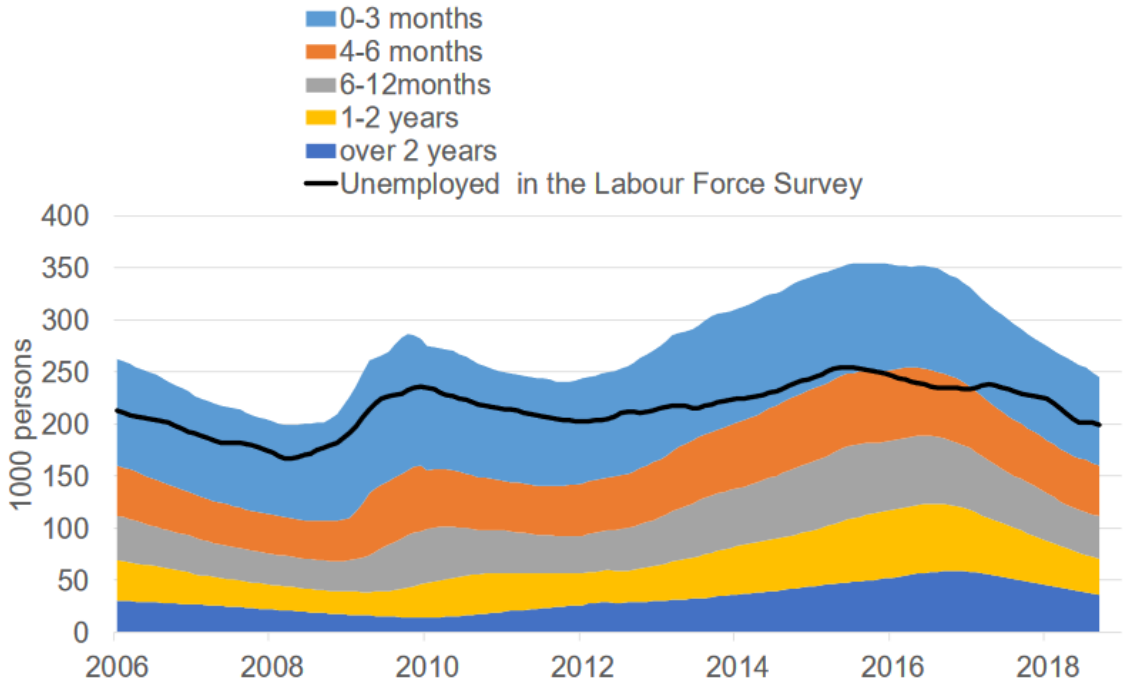


Sources: Eurostat Labour Force Survey and EPC.

Source: Economic Policy Council Report 2018

Registered unemployed persons vs. Labour Force Survey

Figure 3.1.3: The stock of registered unemployed persons by the duration of unemployment and number of unemployed according to the Labour Force survey, trends.



Sources: Ministry of Economic Affairs and Employment; and Statistics Finland. Trend adjustment by the EPC.

Source: Economic Policy Council Report 2018

Registered unemployed vs. Labour Force Survey

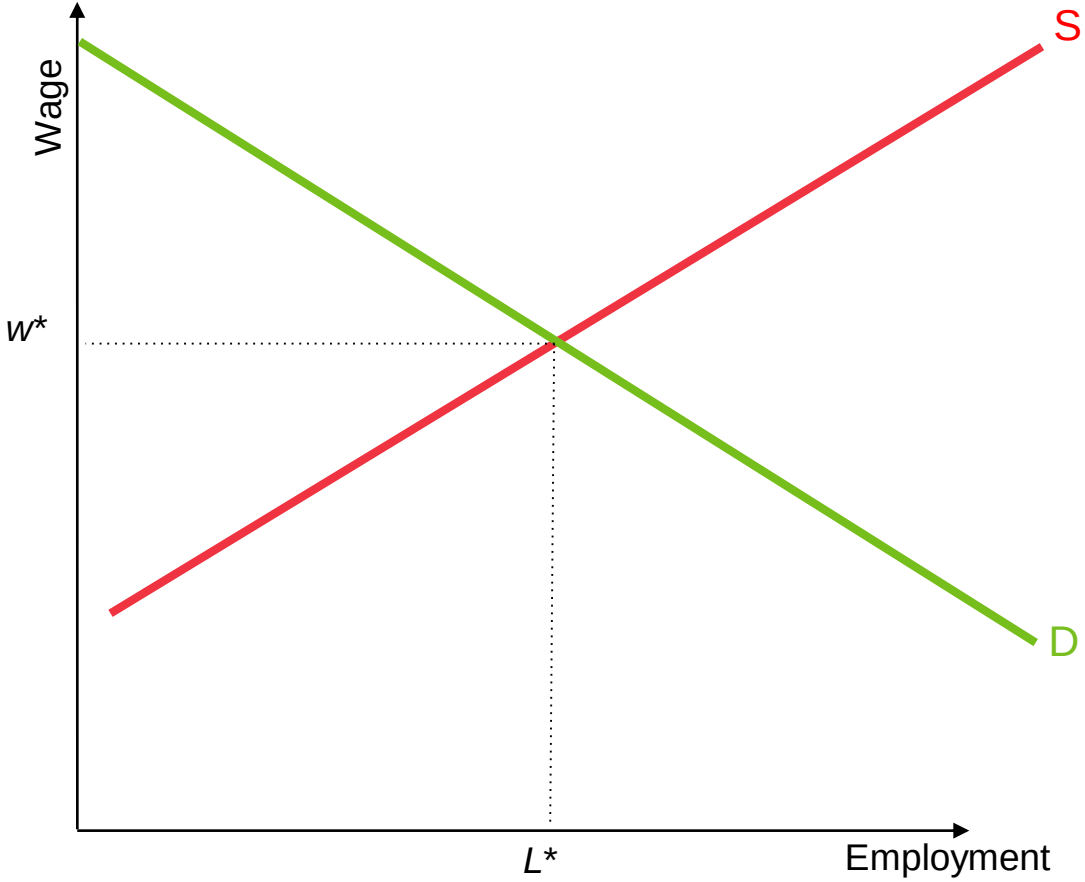
- **Labour Force Survey:**
  - A random sample from the Statistics Finland population database
  - The monthly sample consists of some 12,000 persons and the data are collected with computer-assisted telephone interviews
  - Unemployed = respondent says (i) unemployed, (ii) has seeked a job within the last four months and (iii) is willing to accept a job offer within two weeks of the offer
- **Employment Service Statistics:**
  - Jobseekers registered at the employment and economic development offices
  - Unemployed = person registered as jobseeker who is not working over 4h a week, is not a student, entrepreneur or pensioner
  - https://www.stat.fi/til/tyti/tyti_2016-08-23_men_001_en.html

Competitive labour market model

Building blocks of the model

- **Firms maximise profits and are competitive both in the product market (seller) and the labour market (buyer)**
- **Labour demand: how many workers to hire at a given wage level**
  - Firms hire workers as long as workers' marginal productivity is higher than the wage level
  - Diminishing marginal product => demand curve slopes down
- **Labour supply: how much workers are willing to work for a given wage level**
  - Assume that as wage increases the willingness to work => supply curve slopes up

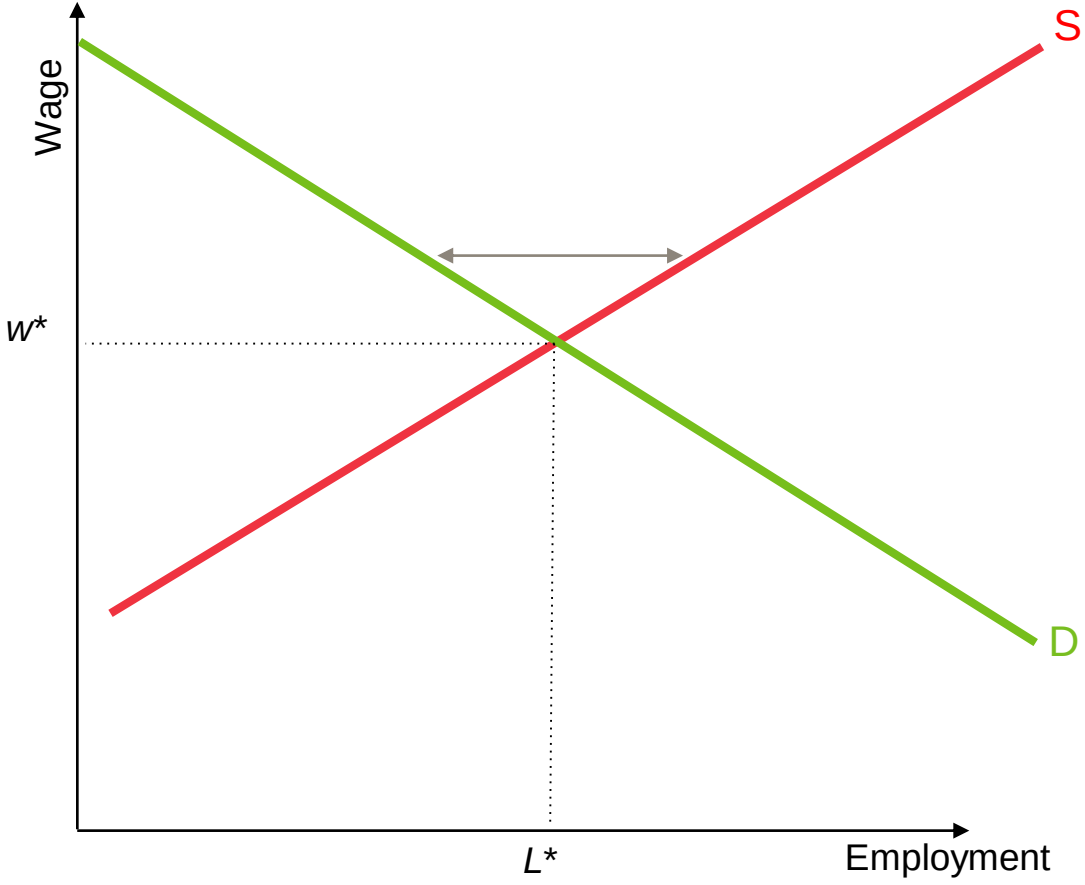
Market equilibrium



In equilibrium, demand = supply

Equilibrium wage is *w** and equilibrium employment is *L**

Market equilibrium



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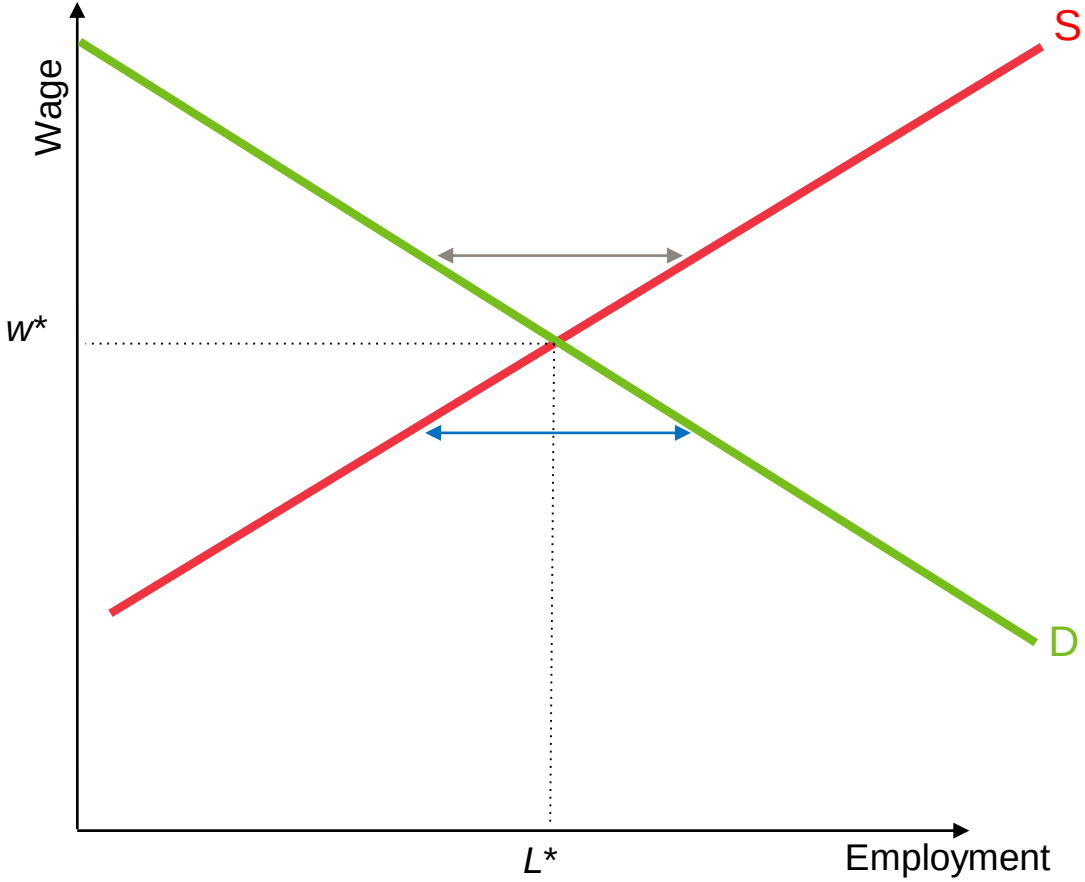
Equilibrium wage is *w** and equilibrium employment is *L**

If the wage level would be higher than *w** more people would be willing to work than firms would be willing to hire

Market equilibrium



In equilibrium, demand = supply

Equilibrium wage is *w** and equilibrium employment is *L**

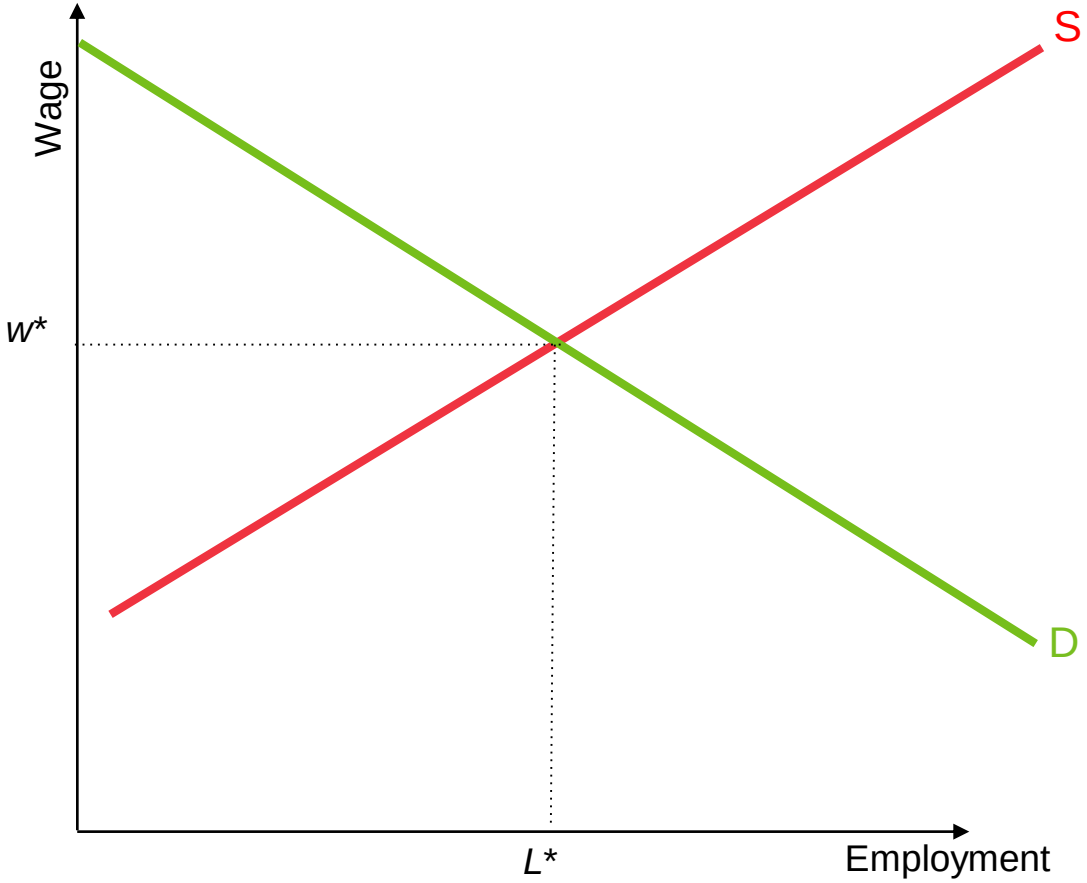
If the wage level would be higher than *w** more people would be willing to work than firms would be willing to hire

If the wage level would be lower than *w** firms would be willing to hire more people than would be willing to work for this wage

Effect of immigration on wages and employment

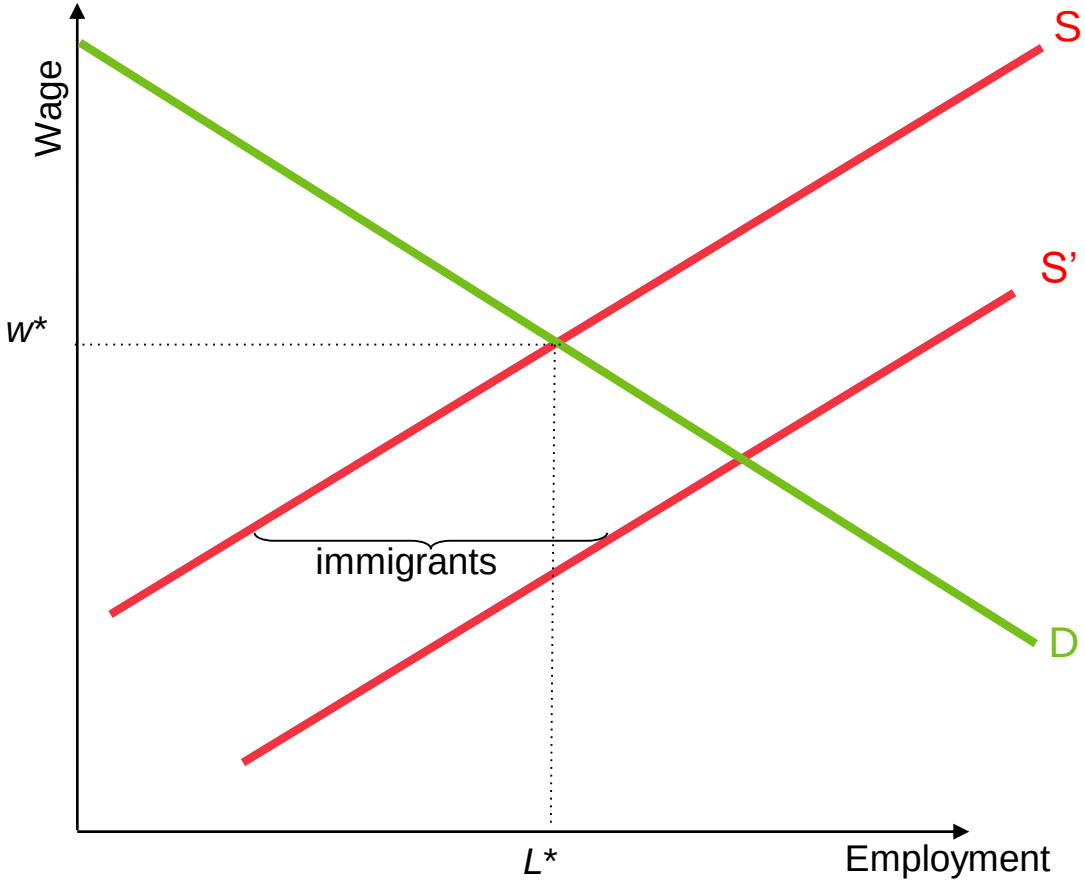
- **This is a simple model, but let's use it to analyse some important and not so simple questions**
  - What happens to wages and employment when immigration increases?
  - What about when a minimum wage is introduced?

Immigration



Let’s analyse the supply response first

Immigration



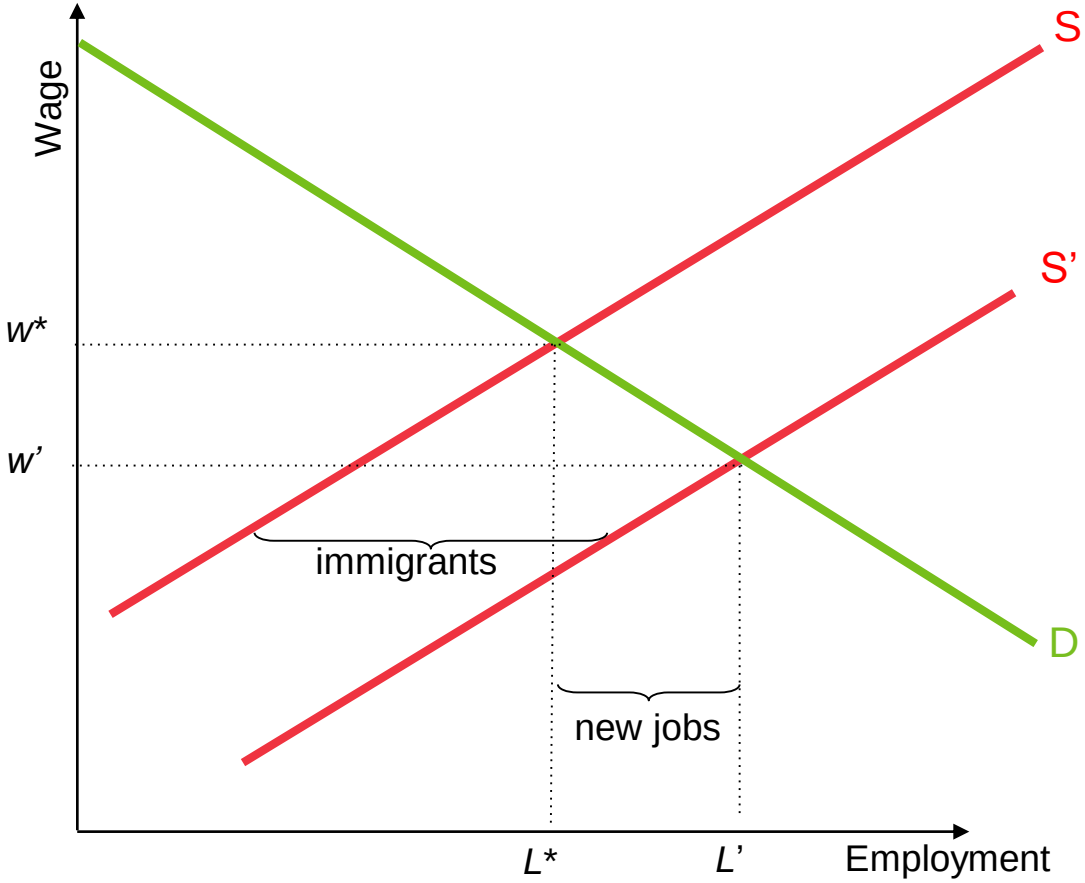
Let's analyse the supply response first

As immigration increases, there are more workers willing to work at any given wage level

We see this as a rightward shift in the labour supply curve

At the initial wage, labour supplied exceeds the quantity demanded

Immigration



Let's analyse the supply response first

As immigration increases, there are more workers willing to work at any given wage level

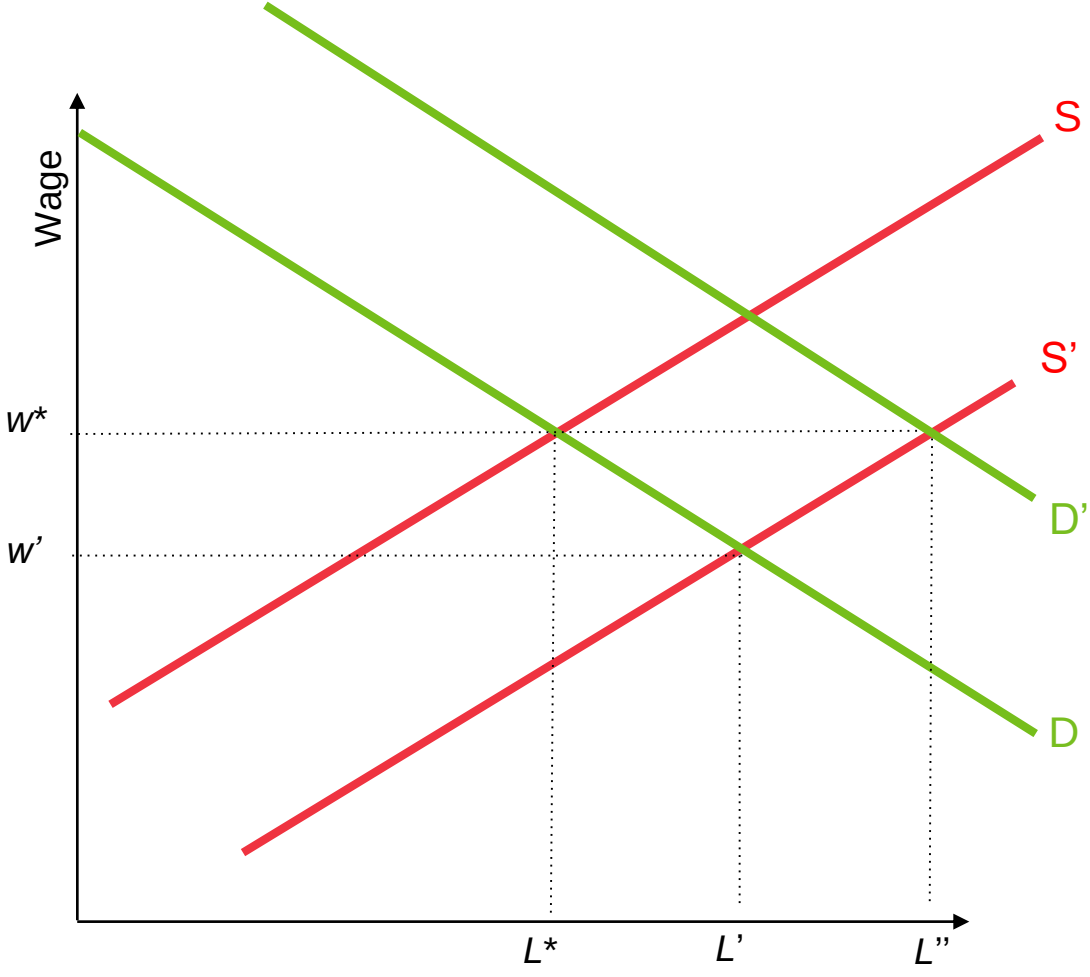
We see this as a rightward shift in the labour supply curve

At the initial wage, labour supplied exceeds the quantity demanded

This puts downward pressure on wage: *w** => *w'*

But the supply response is not the whole story!

Immigration



The new workers will of course spend their money

They may become employers etc.

This means that as a result labour demand will also increase

We see this as a rightward shift in the labour demand curve

In the figure, immigration has no effect on the wage level or employment of the native workers

What happens in the end, will depend on the magnitude of the labour demand shift

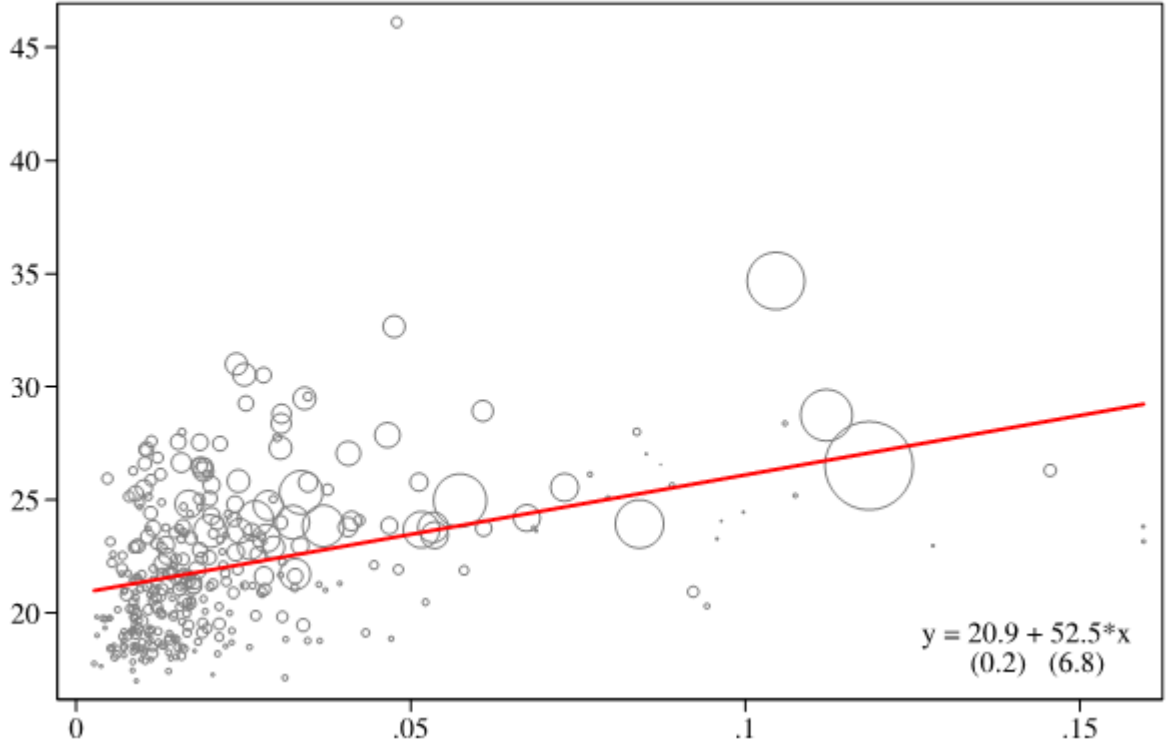
Effect of immigration on wages and employment

- **In a more general model we would have heterogeneity among workers**
  - Some native workers have more similar skills than immigrants (substitutes) => competition in the labour market increases
  - For others, the immigrants are complements in terms of skills and tasks => for these natives wages and employment opportunities may increase
- **The labour market effects of immigration will depend on**
  - Are immigrants substitutes or complements?
  - How fast the economy will adjust to increased labour?

Empirical challenges

- **The causal question**
  - For example, what is the average wage of a particular worker group in Helsinki today when immigrant share is x, as oppose to the share being y (the counterfactual)?
- **How can we construct a plausible counterfactual?**
  - Experimental research designs difficult/impossible to come by => we need to compare labour markets with high and low immigration

Average income and immigrant share in Finnish municipalities



Is this sorting or due immigrants really increase the local wage level?

What would be an ideal research design?

Natural experiments

- **Card (1990): Cuban mass immigration during the "Mariel boatlift"**
  - On April 20, 1980, Fidel Castro declared that any Cuban wishing to emigrate to the US can do so from the port of Mariel
  - From May to September, 125,000 immigrant arrived in Miami
  - Roughly 70 percent stayed permanently => a 7% increase in the labour force and a 20% in the number of Cuban workers
  - Card finds virtually no effect on the wages or unemployment rates of less-skilled workers, even among Cubans who had immigrated earlier
  - Still ongoing debate

Table 3. Logarithms of Real Hourly Earnings of Workers Age 16–61 in Miami and Four Comparison Cities, 1979–85.

Group	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*
Miami:							
Whites	1.85	1.83	1.85	1.82	1.82	1.82	1.82
	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.05)
Blacks	1.59	1.55	1.61	1.48	1.48	1.57	1.60
	(.03)	(.02)	(.03)	(.03)	(.03)	(.03)	(.04)
Cubans	1.58	1.54	1.51	1.49	1.49	1.53	1.49
	(.02)	(.02)	(.02)	(.02)	(.02)	(.03)	(.04)
Hispanics	1.52	1.54	1.54	1.53	1.48	1.59	1.54
	(.04)	(.04)	(.05)	(.05)	(.04)	(.04)	(.06)
Comparison Cities:							
Whites	1.93	1.90	1.91	1.91	1.90	1.91	1.92
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Blacks	1.74	1.70	1.72	1.71	1.69	1.67	1.65
	(.01)	(.02)	(.02)	(.01)	(.02)	(.02)	(.03)
Hispanics	1.65	1.63	1.61	1.61	1.58	1.60	1.58
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)

Note: Entries represent means of log hourly earnings (deflated by the Consumer Price Index—1980 = 100) for workers age 16–61 in Miami and four comparison cities: Atlanta, Houston, Los Angeles, and Tampa–St. Petersburg. See note to Table 1 for definitions of groups.

Source: Based on samples of employed workers in the outgoing rotation groups of the Current Population Survey in 1979–85. Due to a change in SMSA coding procedures in 1985, the 1985 sample is based on individuals in outgoing rotation groups for January–June of 1985 only.

Table 4. Unemployment Rates of Individuals Age 16–61 in Miami and Four Comparison Cities, 1979–85.
(Standard Errors in Parentheses)

Group	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*
Miami:							
Whites	5.1	2.5	3.9	5.2	6.7	3.6	4.9
	(1.1)	(0.8)	(0.9)	(1.1)	(1.1)	(0.9)	(1.4)
Blacks	8.3	5.6	9.6	16.0	18.4	14.2	7.8
	(1.7)	(1.3)	(1.8)	(2.3)	(2.5)	(2.3)	(2.3)
Cubans	5.3	7.2	10.1	10.8	13.1	7.7	5.5
	(1.2)	(1.3)	(1.5)	(1.5)	(1.6)	(1.4)	(1.7)
Hispanics	6.5	7.7	11.8	9.1	7.5	12.1	3.7
	(2.3)	(2.2)	(3.0)	(2.5)	(2.1)	(2.4)	(1.9)
Comparison Cities:							
Whites	4.4	4.4	4.3	6.8	6.9	5.4	4.9
	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.4)
Blacks	10.3	12.6	12.6	12.7	18.4	12.1	13.3
	(0.8)	(0.9)	(0.9)	(0.9)	(1.1)	(0.9)	(1.3)
Hispanics	6.3	8.7	8.3	12.1	11.8	9.8	9.3
	(0.6)	(0.6)	(0.6)	(0.7)	(0.7)	(0.6)	(0.8)

Note: Entries represent means of unemployment indicator variable for individuals age 16–61 in Miami and four comparison cities: Atlanta, Houston, Los Angeles, and Tampa–St. Petersburg. Samples are based on individuals in the labor force. See notes to Table 3 for definitions of groups and data sources.

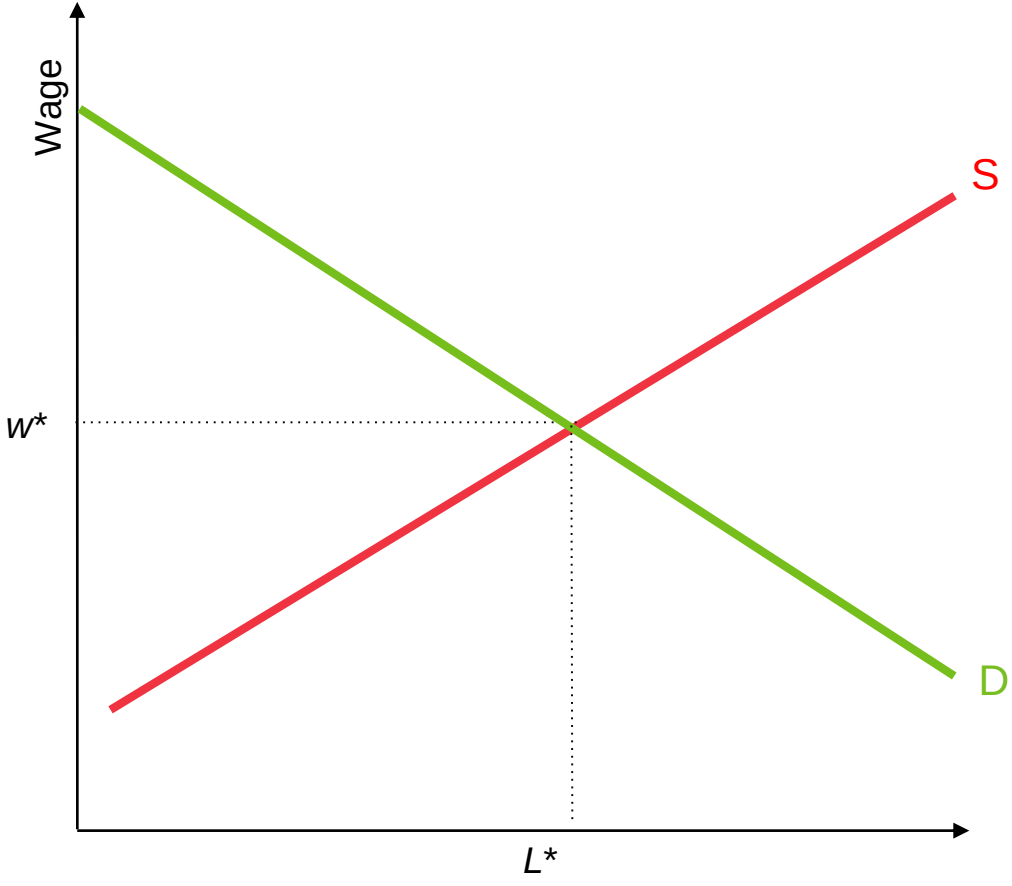
Natural experiments

- **Friedberg (2001):**
  - Mass migration from the former Soviet Union into Israel had no effect or slightly increased Israeli wages and employment
- **Glitz (2012):**
  - Mass migration to West Germany: Within 15 years, 2.8 million arrived and these immigrants were exogenously allocated to different regions to ensure an even distribution across the country
  - Lowered West German employment, but had no effect on wages
- **Bratsberg and Raaum (2012):**
  - EU enlargement
  - Licensing requirements in the Norwegian construction sector: Easy to enter some segments (e.g. electrical installation and plumbing companies) but not others (e.g. carpenter and painting firms)
  - Lowered wages of construction workers who faced more competition

Immigration empirics recap

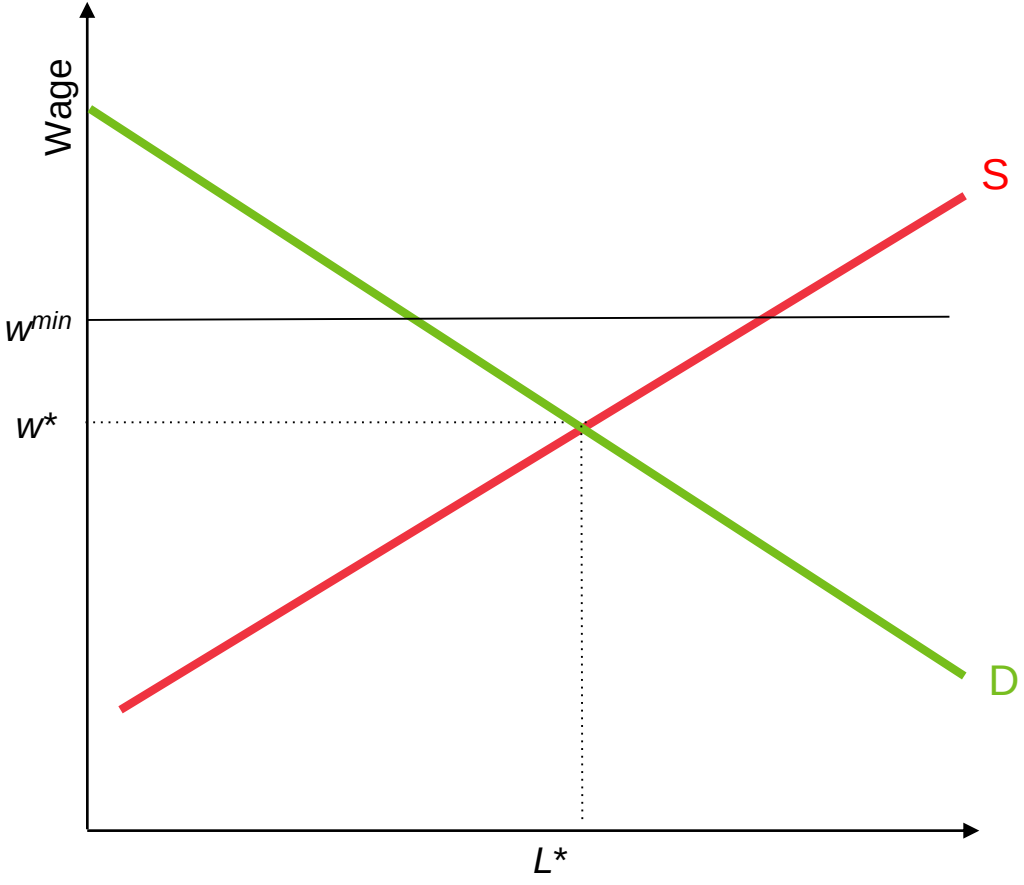
- **Immigration seems to have a moderate effect on native wages and employment possibly due to**
  - Economy adjusts in many dimensions: employment, wages, industry structure, technology
  - Some native groups may lose substantially, while many may gain moderately
  - The estimates are biased?
- **What about Finland?**
  - Labour market effects likely to be small
  - Larger effects maybe through public finances and politics

Minimum wage



Let's assume that the public sector wants to increase the wages of low-skilled workers (typically low wage workers) by setting a minimum wage (w^{min}) which is higher than the market wage (w^*)

Minimum wage



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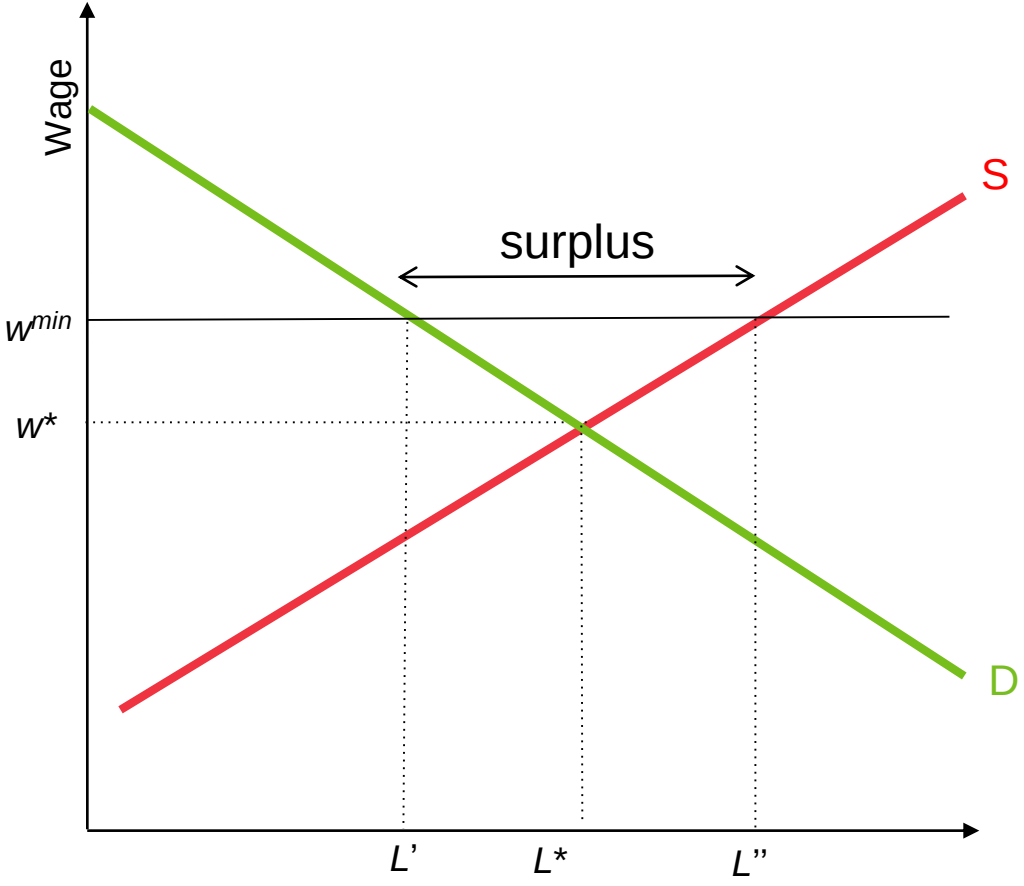


Let's assume that the public sector wants to increase the wages of low-skilled workers (typically low wage workers) by setting a minimum wage (w^{min}) which is higher than the market wage (w^*)

At this new higher wage L'' workers are willing to work, but firms are only willing to hire L' workers

The result is a surplus or unemployment (at the higher wage level)

Empirical example: New Jersey minimum wage increase

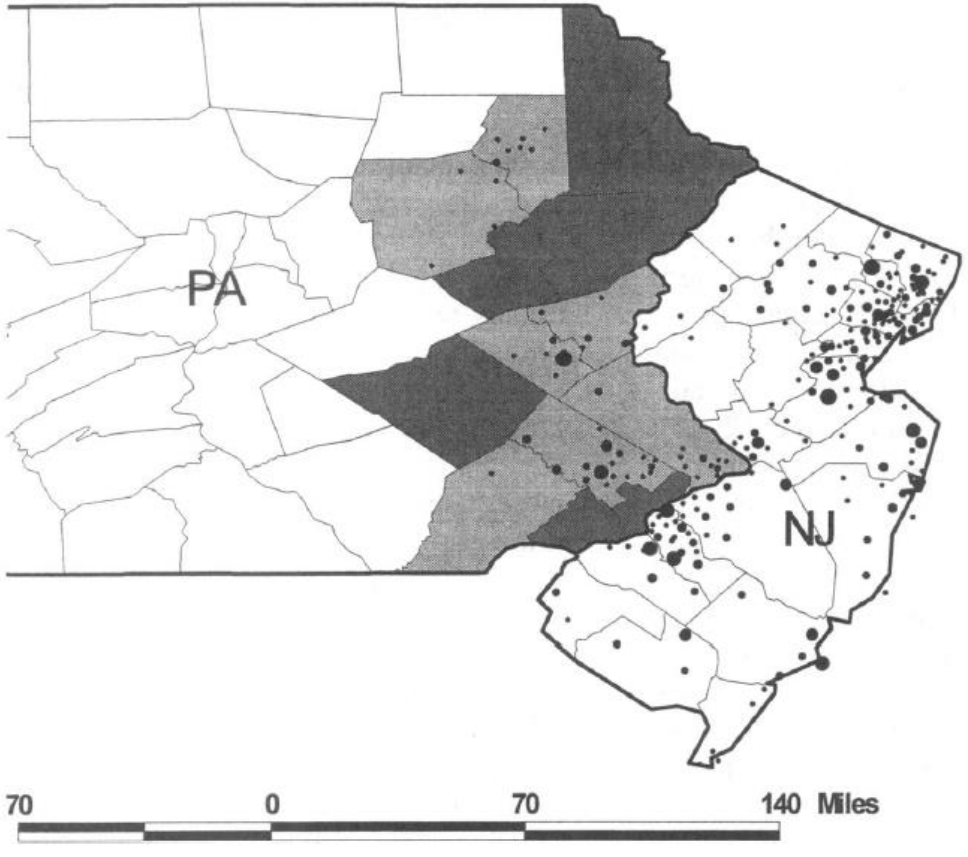
On April 1, 1992, NJ increased the state minimum wage from $4.25 to $5.05; PA's minimum wage stayed at $4.25

Card & Krueger (1994) surveyed about 400 fast food stores both in NJ and in PA before (February) and after (November) the minimum wage increase

Results: Surprisingly, employment rose in New Jersey!

In models where employers have market power in the labour market, this can happen

But sufficiently large increases will decrease employment in any model!



Newer results on minimum wage

- **Still an open question and also quite a heated debate**
  - It seems that major employment effects are rarely found
  - At the same time, minimum wage reforms are often quite small
  - Large enough minimum wage hikes are going to lower employment
- **Incidence of the minimum wage is also an interesting question**
  - If employment and hours are unaffected, do employers bear the cost through lower profits or consumers through higher prices?
  - Harasztosi and Lindner (2019): In Hungary, small employment effects and 75 percent of the minimum wage increase was paid by consumers and 25 percent by firm owners

Minimum wage as a transfer program

- **If there are no employment effects, low-wage workers get a transfer from employers of low-wage workers**
  - Equivalent to an additional tax on the employers
  - Usually transfer programs are funded through the tax system so that everyone chips in
  - Compare to rent control and landlords
- **If the employers can shift some of the burden into higher prices, the minimum wage is similar to a transfer to low-wage workers funded by a tax on employers and a consumption tax on consumers**

Summary

- **The model assumes that the labour market is simply a re-labelled product market with complete contracts**
- **Unrealistic, but is the model useful?**
  - Yes! Real-world markets are typically not perfectly competitive, but some policy problems can be analysed using this rather simple demand and supply model
  - You will see lots of more applications in future courses (especially in product markets)
- **On the other hand, it is too simple to for some markets and questions**
  - Next we will turn to another labour market model