Card and Krueger

Minimum wage laws

- Minimum wage laws imposed by state, local and Federal governments
- "covered" sector includes most jobs
- States/locals can raise but not lower Federal minimum wage
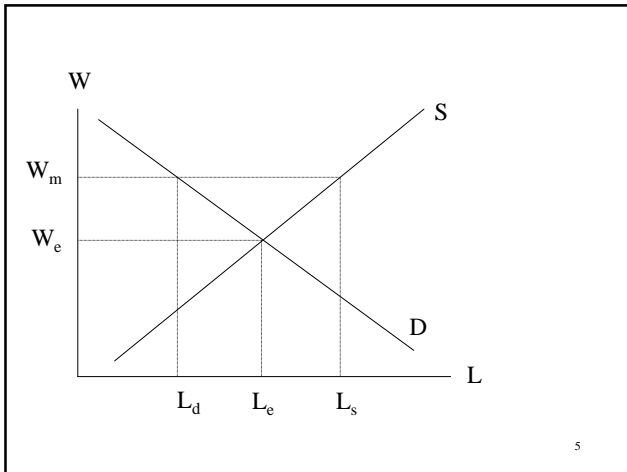
Federal Minimum Wages

- 01/01/1981 $3.35
- 04/01/1990 $3.80
- 04/01/1991 $4.25
- 10/01/1996 $4.75
- 09/01/1997 $5.15
- 07/24/2007 $5.85
- 07/24/2008 $6.55
- 07/24/2009 $7.25

Some State Minimum Wage Laws

- IL $7.50 (will go to $7.75 on 7/1/08)
- MA $8.00
- NY $7.15
- VT $7.68
- WA $8.07
- VA $5.85

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W

W_m

W_e

S

D

L

L_d L_e L_s

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Textbook model of Minimum Wage

- Original conditions: W_e, L_e
- Minimum wage imposed, $W_m > W_e$
- Labor supply: higher wage encourages more work – labor supply increases to L_s
- Labor demand: higher wage is a shift along the demand curve to L_d
- New unemployment rate: $L_s – L_d$
- Job loss from minimum wage: $L_e - L_d$

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Research Question?

- What happens to labor demand when minimum wage laws increased?
- Economic significance: test of theory of demand
- Policy significance: key question faced by lawmakers every time there is a proposed change in the minimum wage law.

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NJ Minimum Wage Hike

- Federal MW stuck at $3.35 for most of the 90s
- Because of inflation, real value of MW fell considerably
- Nov 1989 law raised MW in 2 steps
  – To $3.80 on 4/1/90
  – To $4.24 on 4/1/91
- NJ law
  – Passed in early 1990
  – Went into effect April 1, 1992
  – Raised minimum wage from $4.25 - $5.05/hr, 18% increase

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- In 1992, NJ slipped into a recession
- In March of 1992, State legislature voted to phase it in over two years,
  – Governor vetoed
  – Vote margin not large enough to override veto
- Law went into effect as planned

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Questions

- Why is NJ a good setting to test the impact of minimum wage on employment?
- Why is the fast food industry a good industry to examine?

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Why fast food industry?

-
-
-
-

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Research methodology

- Examine employment before and after law goes into effect in NJ fast food restaurants

- Compare this change to changes in employment for employers not impacted by law
  – Fast food restaurants in PA
  – "Control group"

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- Telephone interview of fast food restaurants before law goes into effect
- Ask store manager for basic information
  - Employees (full and part time)
  - Wages
  - Price of a basic meal
- Re-survey the same stores in November

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Table 1: Sample Frame

	NJ Stores		PA Stores	
	Contacted	Interview	Contacted	Interview
Wave 1	364	331	109	79
Wave 2	331	321	79	78

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Notes about sample

- Restaurants from 4 chains --BK, KFC, Roy's, Wendy's – no McDonalds
- Key outcome, Full time equivalents
  - FTE
  - FTE = Full time + .5* halftime

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TABLE 2—MEANS OF KEY VARIABLES

	Stores in:		
Variable	NJ	PA	t^a
1. *Distribution of Store Types (percentages):*			
a. Burger King	41.1	44.3	−0.5
b. KFC	20.5	15.2	1.2
c. Roy Rogers	24.8	21.5	0.6
d. Wendy's	13.6	19.0	−1.1
e. Company-owned	34.1	35.4	−0.2
2. *Means in Wave 1:*			

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2. *Means in Wave 1:*

a. FTE employment	20.4 (0.51)	23.3 (1.35)	−2.0
b. Percentage full-time employees	32.8 (1.3)	35.0 (2.7)	−0.7
c. Starting wage	4.61 (0.02)	4.63 (0.04)	−0.4
d. Wage = $4.25 (percentage)	30.5 (2.5)	32.9 (5.3)	−0.4
e. Price of full meal	3.35 (0.04)	3.04 (0.07)	4.0
f. Hours open (weekday)	14.4 (0.2)	14.5 (0.3)	−0.3
g. Recruiting bonus	23.6 (2.3)	29.1 (5.1)	−1.0

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Table 2 – Means at Wave 1

Outcome	NJ	PA	t-stat on difference
%BK	41.1	44.3	-0.5
% Roys	24.8	21.5	0.6
FTE	20.4	23.3	-2.0
% full time	32.8	35.0	-0.7
Starting wage	4.61	4.63	-0.4
Hours open	14.4	14.5	-0.3

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TABLE 3—AVERAGE EMPLOYMENT PER STORE BEFORE AND AFTER THE RISE IN NEW JERSEY MINIMUM WAGE

	Stores by state			Stores in New Jersey[a]			Differences within NJ[b]	
Variable	PA (i)	NJ (ii)	Difference, NJ−PA (iii)	Wage = $4.25 (iv)	Wage = $4.26–$4.99 (v)	Wage ≥ $5.00 (vi)	Low–high (vii)	Midrange–high (viii)
1. FTE employment before, all available observations	23.33 (1.35)	20.44 (0.51)	−2.89 (1.44)	19.56 (0.77)	20.08 (0.84)	22.25 (1.14)	−2.69 (1.37)	−2.17 (1.41)
2. FTE employment after, all available observations	21.17 (0.94)	21.03 (0.52)	−0.14 (1.07)	20.88 (1.01)	20.96 (0.76)	20.21 (1.03)	0.67 (1.44)	0.75 (1.27)
3. Change in mean FTE employment	−2.16 (1.25)	0.59 (0.54)	2.76 (1.36)	1.32 (0.95)	0.87 (0.84)	−2.04 (1.14)	3.36 (1.48)	2.91 (1.41)
4. Change in mean FTE employment, balanced sample of stores[c]	−2.28 (1.25)	0.47 (0.48)	2.75 (1.34)	1.21 (0.82)	0.71 (0.69)	−2.16 (1.01)	3.36 (1.30)	2.87 (1.22)
5. Change in mean FTE employment, setting FTE at temporarily closed stores to 0[d]	−2.28 (1.25)	0.23 (0.49)	2.51 (1.35)	0.90 (0.87)	0.49 (0.69)	−2.39 (1.02)	3.29 (1.34)	2.88 (1.23)

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	Stores by state		
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Table 3 – row 4

Change in full time equivalent employment Mean and (standard error of mean)		
PA ($\bar{X}_2$)	NJ ($\bar{X}_1$)	Diff ($\Delta = \bar{X}_1 - \bar{X}_2$)
-2.28	0.47	2.75
(1.25)	(0.48)	(1.34)

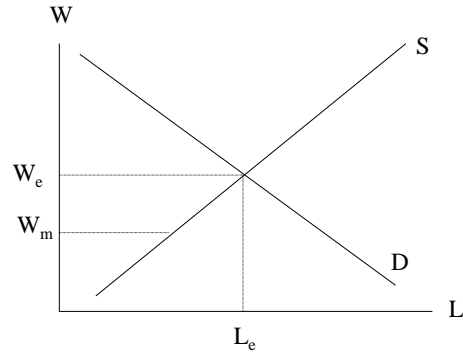## Why did employment increase

- Maybe PA is a poor control – notice that employment in NJ increased, but in PA it fell. Most of the effect is generated by an increase in the employment in PA
  - What would we like to know tp help prove PA is a good control?
- Fast food is a monopsony?
  - Nah – fast food restaurants are all different

Alternative control groups

- Maybe PA is a bad control – are there other control groups available?
- High wage stores in NJ
  - Stores currently paying above the new MW
  - Will not be impacted by the new law – it is not binding

TABLE 3—AVERAGE EMPLOYMENT PER STORE BEFORE AND AFTER THE RISE
IN NEW JERSEY MINIMUM WAGE

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Table 3 – row 4

Change in full time equivalent employment Mean and (standard error of mean)		
High Wage stores in NJ ($\bar{X}_2$)	Low Wage stores in NJ ($\bar{X}_1$)	Diff ($\Delta = \bar{X}_1 - \bar{X}_2$)
-2.16	1.21	3.36
(1.01)	(0.82)	(1.30)

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- Reduced turnover?
  - High turnover of jobs in fast food – 400% in a year
  - Most due to quits
  - Higher wage reduces quits, decreases number of "open" jobs

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