

Long-Term Effects of Unemployment

What can we learn from plant closure studies

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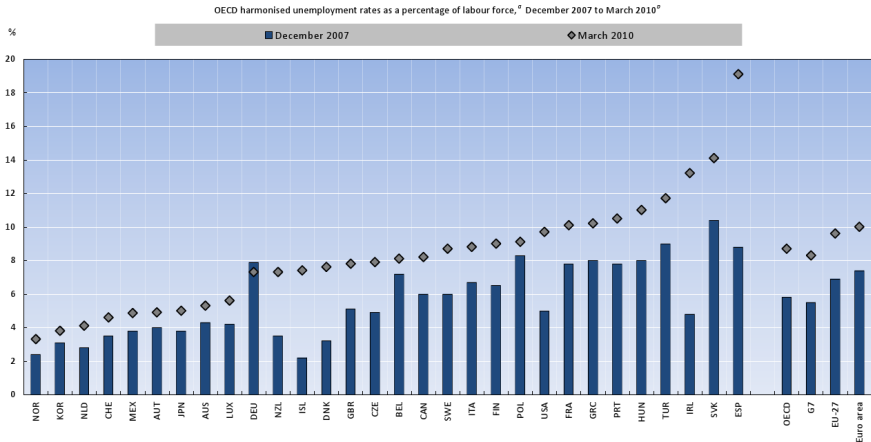


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I am very honored to be here

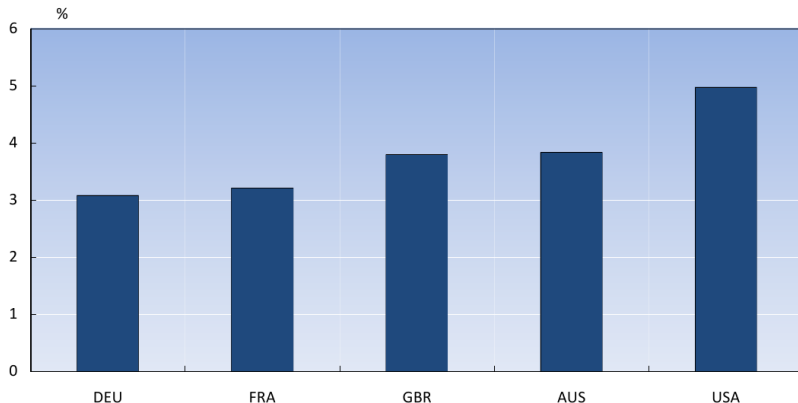
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The big recession: unemployment increase (OECD Employment Outlook)



Dismissal of workers is widespread

Dismissal rates in selected countries, 1995-2007, OECD Employment Outlook



Note: Country average rates expressed in percentages and adjusted for industry composition. Australia: 1995-2001; France: 2006-07; Germany: 2003-07; the United Kingdom: 1997-2005; the United States: 1996-2006.

Source: OECD (2009).

Long-Term Costs of Job Displacement

- Wage losses
- Long-term employment losses
- Health
- Family formation and fertility

Why Plant Closure Studies?

- Analysing displacement faces problems
 - Eliminate voluntary quits
 - Eliminate displacement for cause
- "Displaced Workers Survey" where displacement status is clear
- Workers "displaced for economic reason" may be negatively selected
- Plant Closure or Mass Layoff more random

Health effects of displacement/plant closure mixed

- Browning et al (2006): no effect on hospital admission in Denmark
- Eliason and Storie (2011): increased hospitalisation and mortality due to alcohol-related problems in Sweden
- Kuhn, Lalive and Zweimüller (2009): overall medical expenditures not affected, but small effect on antidepressants in Austria
- Sullivan and Wachter (2006) excess death risk following a job loss (US)
- Deb et al. (2011) effects on overweight and drinking in the US

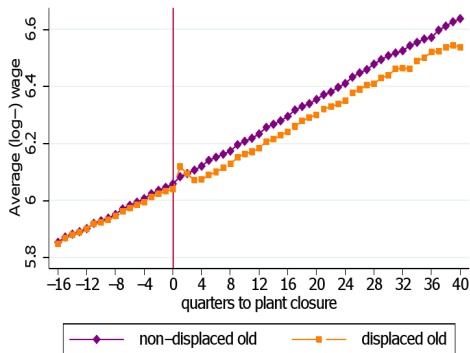
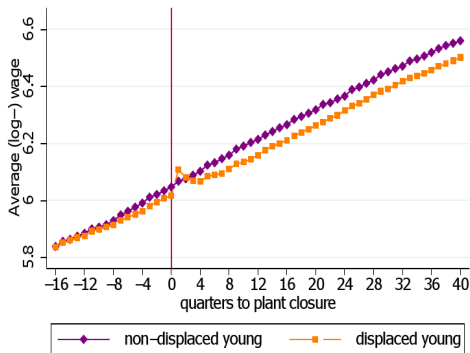
Employment and Wage Effects of Plant Closure

Joint with Ichino, Schwerdt and Zweimüller

- Use universe of Austrian workers
- Plant closures in the 1980s
- Long-term effects over ten years

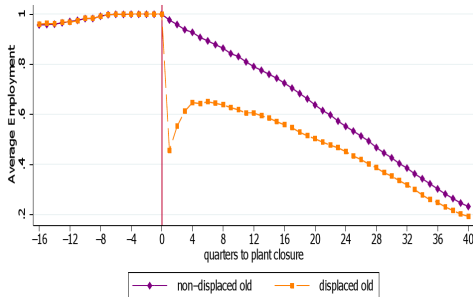
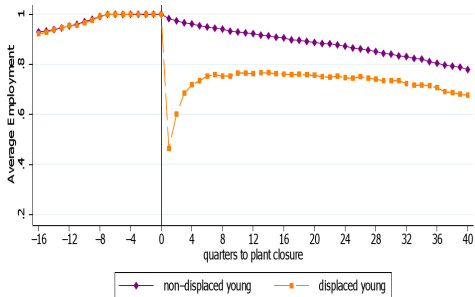
- Concentrate on young (35-45) and old (45-55) workers
- Exact matching to make treated and controls comparable
- Analysis in quarters: one observation per quarter

Earnings Effects of Plant Closure: Young and Old Workers



- Earnings permanently go down by 5%

Employment Effects of Plant Closure



Employment Effects of Plant Closure: Young and Old

	OLS	FE
	(1)	(2)
OLD*PC* Q^{before}	.002 (.002)	
OLD*PC* $Q^{1,20after}$	-.030 (.01)**	-.031 (.011)**
OLD*PC* $Q^{21,40after}$.034 (.012)**	.032 (.012)**
PC* Q^{before}	-.001 (.002)	
PC* $Q^{1,20after}$	-.199 (.006)**	-.198 (.006)**
PC* $Q^{21,40after}$	-.110 (.007)**	-.109 (.007)**
OLD* Q^{before}	.002 (.002)	
OLD* $Q^{1,20after}$	-.118 (.005)**	-.122 (.005)**
OLD* $Q^{21,40after}$	-.419 (.007)**	-.425 (.007)**
$Q^{1,20after}$	-.031 (.003)**	-.046 (.002)**
$Q^{21,40after}$	-.079 (.007)**	-.14 (.004)**
...		
Obs.	2465250	2465250
R^2	.26	.529
F statistic	215.131	2586.184

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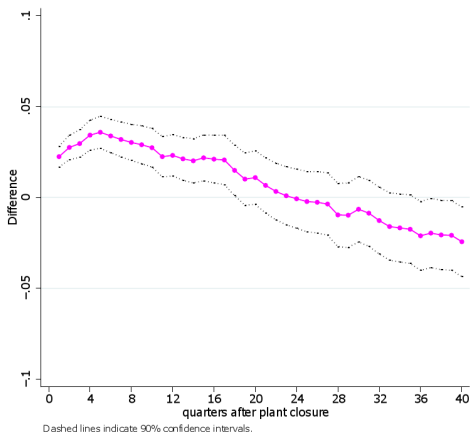
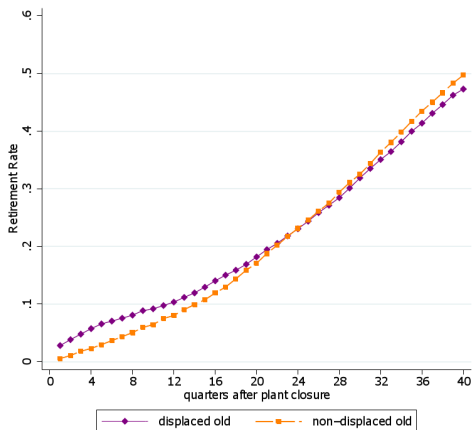
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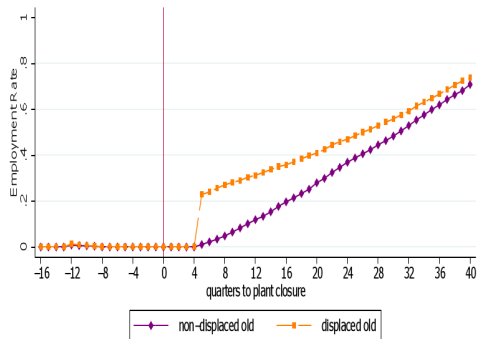
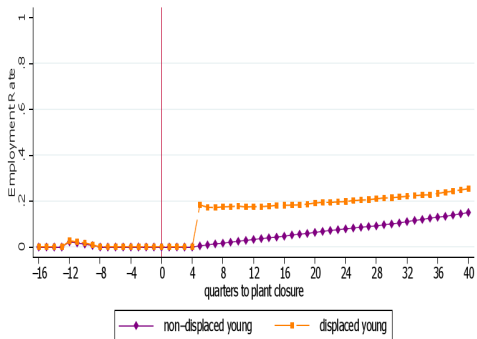
Are Older Workers a Real Problem Group?

- Old workers initially (5 years) lose more in employment than younger ones
- Old workers catch up after that
- Reason may be easy access to early retirement

Retirement Rates of Old Workers by Displacement Status



Permanent Non-Employment Rates: Young and Old



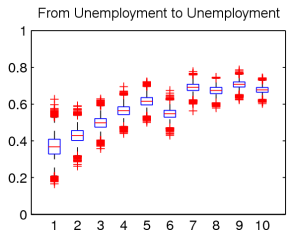
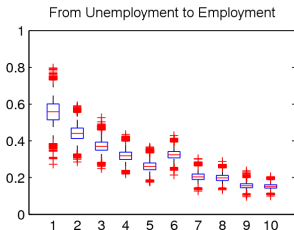
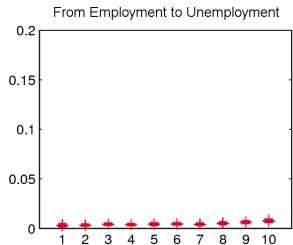
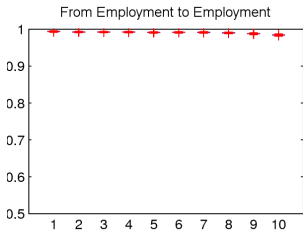
Are All Workers the Same?

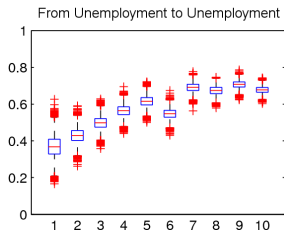
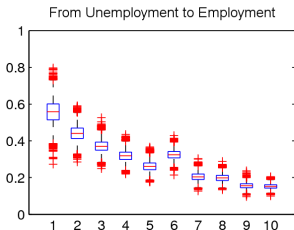
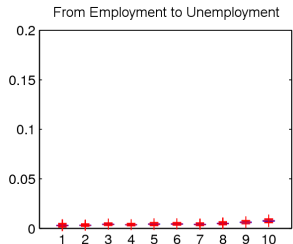
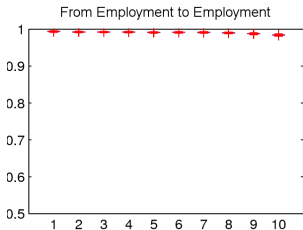
Joint with Frühwirth-Schnatter and Weber

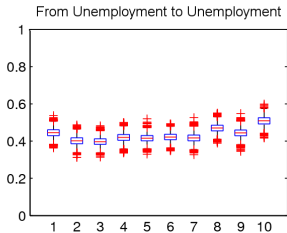
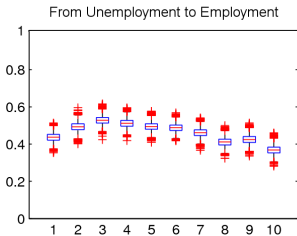
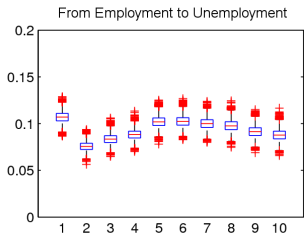
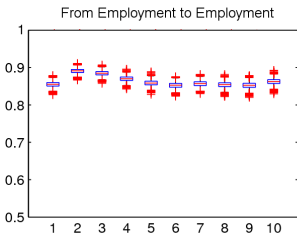
No studies on heterogeneous displacement costs (except along simple demographics)

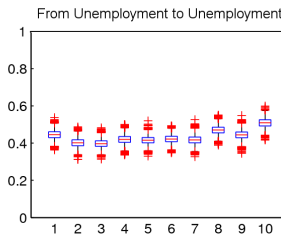
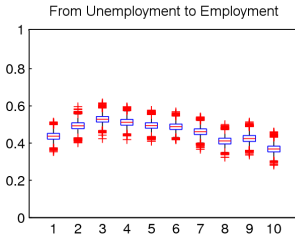
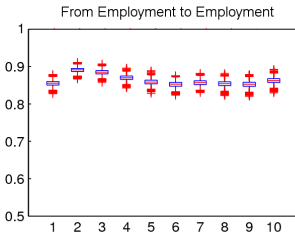
- Bayesian clustering approach to differentiate b/n types of workers
- Model dynamic transition processes as a inhomogeneous Markov chain model with time-varying transition matrix
- 10 years, states: employment, unemployment, sickness, retirement, OLF

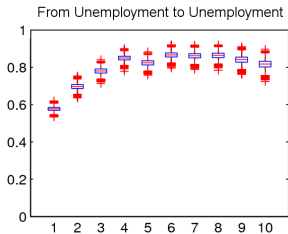
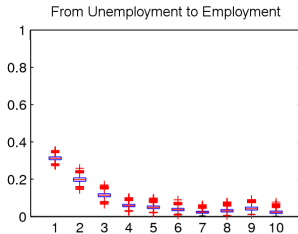
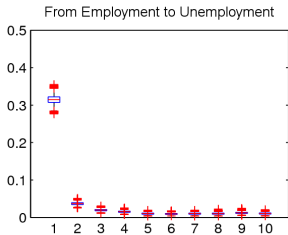
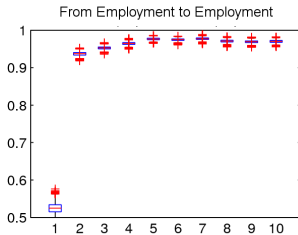
⇒ 4 distinguishable groups in terms of employment career are found

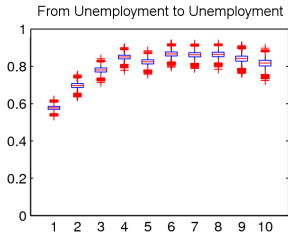
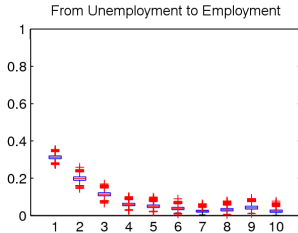
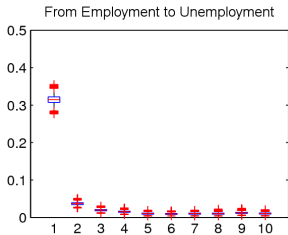
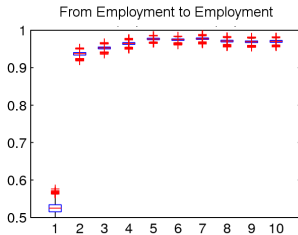


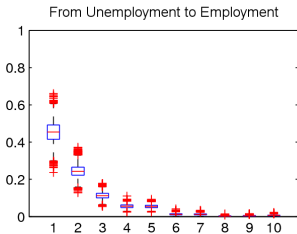
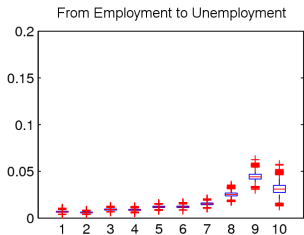
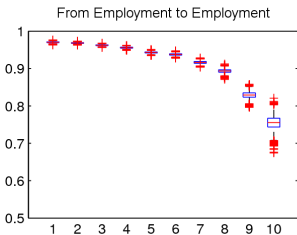




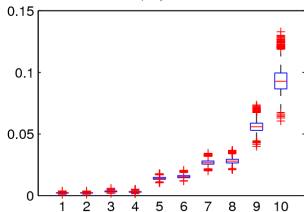




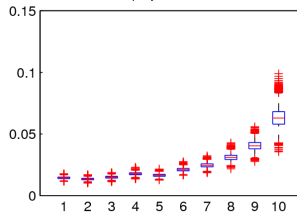




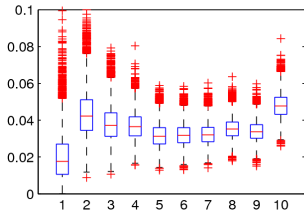
From Employment to Retired



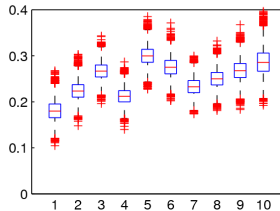
From Employment to Sickness

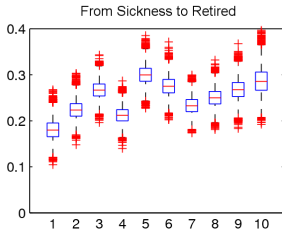
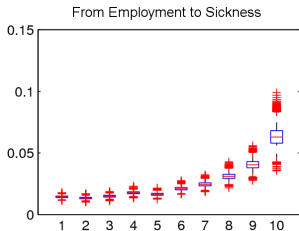


From Unemployment to Retired

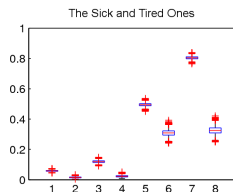
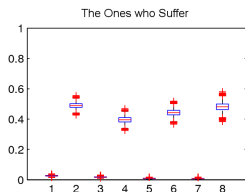
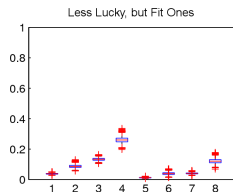
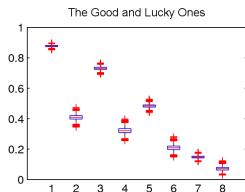


From Sickness to Retired



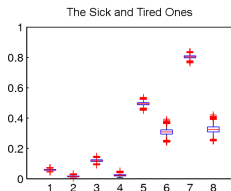
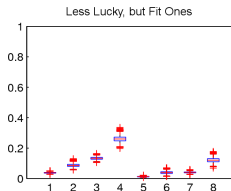
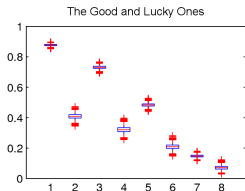


Which persons are in which group?



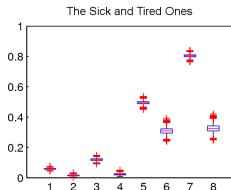
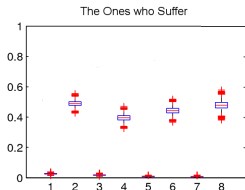
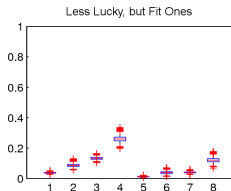
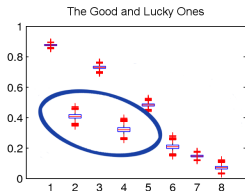
- Groups 2,4,6,8 displaced
- Groups 1,2 young whitecollar, 3,4 young bluecollar, 5,6 old whitecollar, 7,8 old bluecollar

Which persons are in which group?



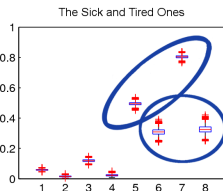
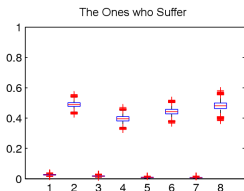
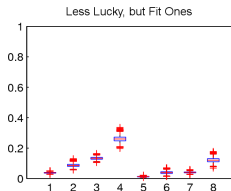
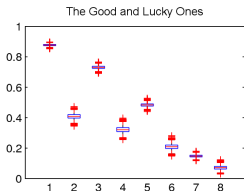
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Fertility effects of displacement

Joint with Del Bono and Weber

- How does fertility interact with economic conditions?
 - Fertility and female participation (Ahn and Mira, 2002, Engelhardt and Prskawetz, 2004)
 - Birth rates drop under income uncertainty (Ranjan, 1999)
 - What is the influence of unemployment on fertility?
 - Problems of unemployment:
 - Income loss
 - Opportunity costs lower
 - Job loss may lead to "career loss"
- ⇒ job loss should have different effect on more or less career-oriented women

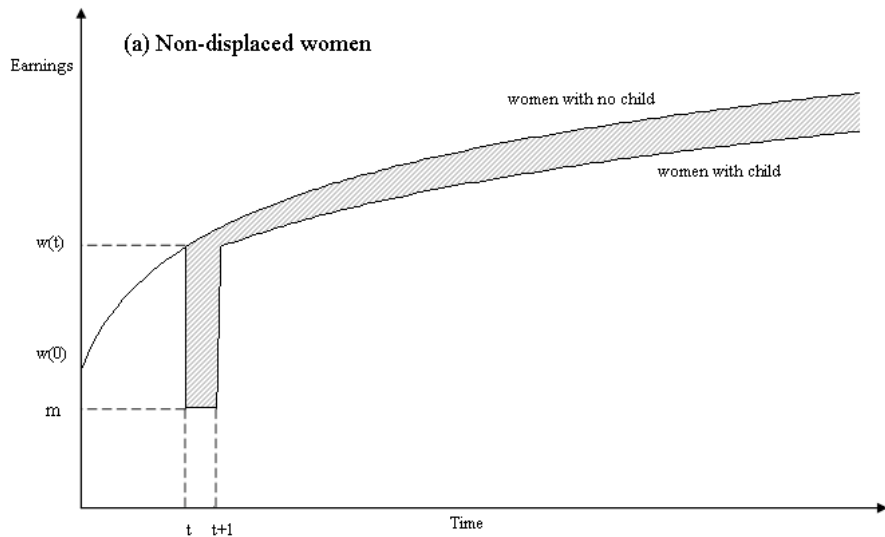
- Fertility and labour supply decisions are modeled jointly
- Dynamic models: birth timing, investment in general human capital, capital market imperfections, stochastic nature of reproduction (Moffitt 84, Cigno and Ermisch 89, Blackburn *et al* 93)
- What will happen if human capital is firm-specific?

- All human capital is firm-specific
- Plant closure destroys all firm-specific human capital
- Birth of a child:
 - Lowers the job finding rate
 - Reduces the rate at which human capital is accumulated in the future

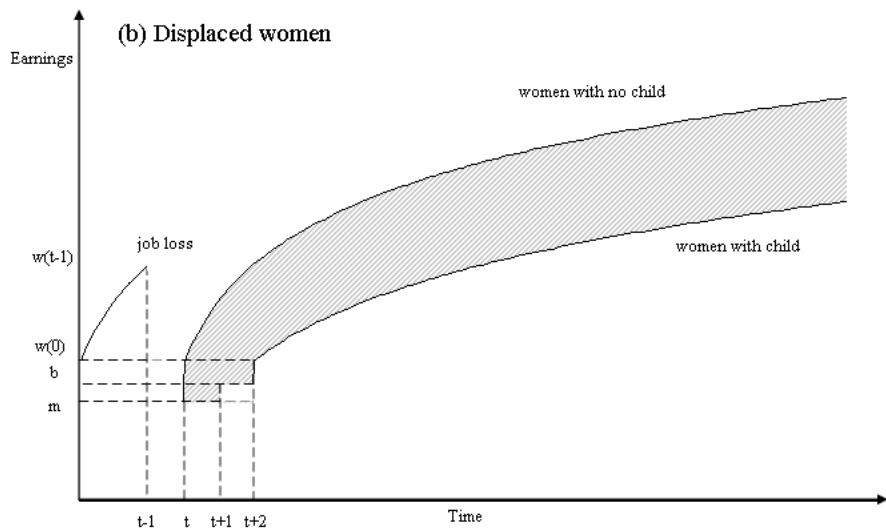
Predictions:

- ⇒ Optimal fertility decisions will be different for displaced and non-displaced women
- ⇒ Birth of a child has different impact on future earnings at different stages in a woman's career

Fertility Decisions for Non-Displaced Women



Fertility Decisions for Displaced Women



Four Possible Effects of Job Displacement

- Substitution Effect (positive)
- Income Effect (negative)

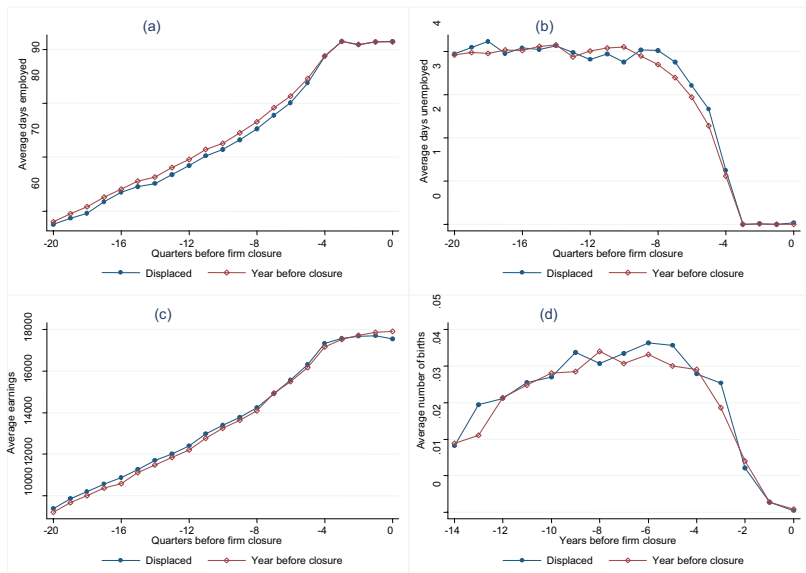
- Employability Effect (negative): birth or young child make job-search more difficult
- Career Effect (negative): delay childbirth until you reach the flatter part of wage profile

- take firm closure as an exogenous shock which displaces workers from their old job
- the old job disappears, therefore firm-specific HC is gone
- compare two groups:
 - displaced women (treated)
 - non-displaced women (control)
- ask the following questions:
 - how similar are the 2 groups before displacement?
 - does displacement affect fertility?

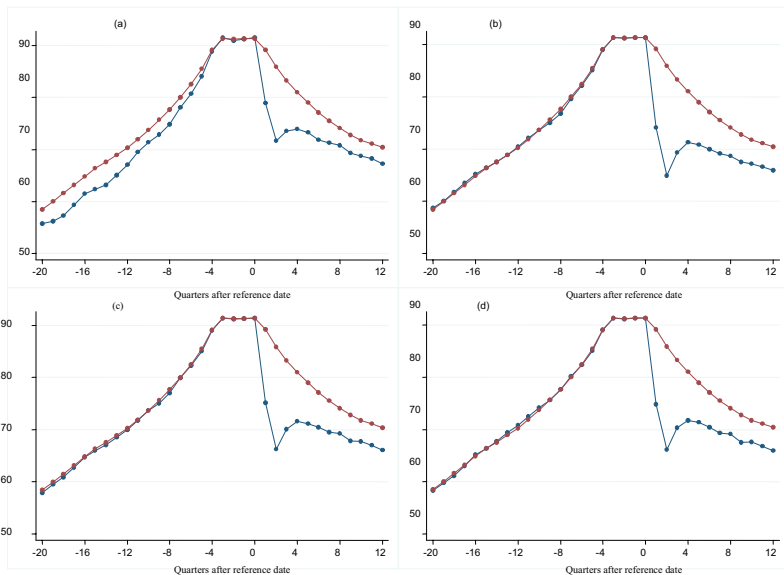
- women aged 18-35
- women with at least one year of tenure
- for each year-quarter:
 - treated: women employed in the last quarter before firm closure
 - control: 5% sample of women employed in surviving firms
 - Early-leavers: women employed one year before firm closure
- outcome of interest: (wage, employment and) number of births 3 & 6 & 9 years after reference date

- use propensity score weighting

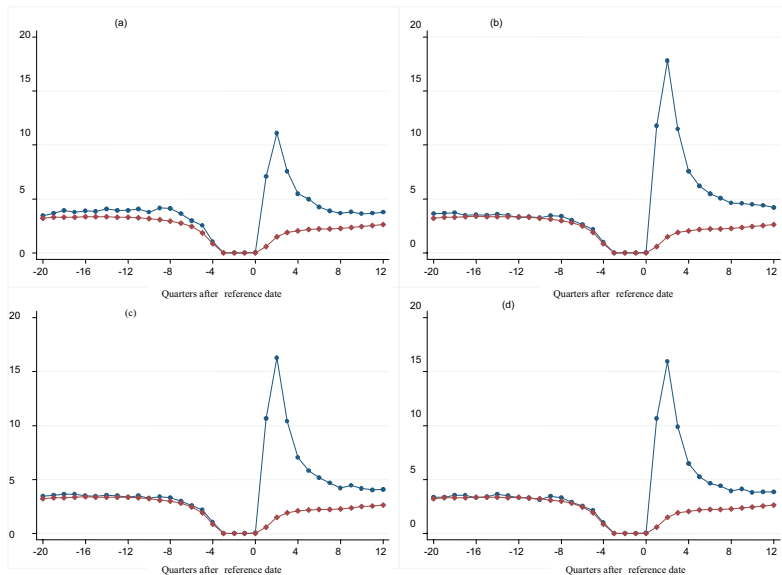
Workforce composition of closing firms at the closure date and one year before closure



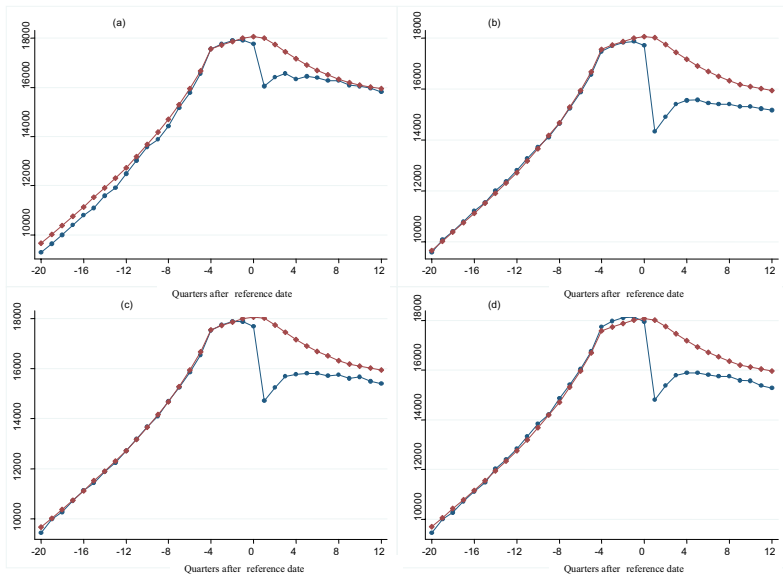
Average days in employment by quarter weighted by propensity scores



Average days in unemployment by quarter weighted by propensity scores

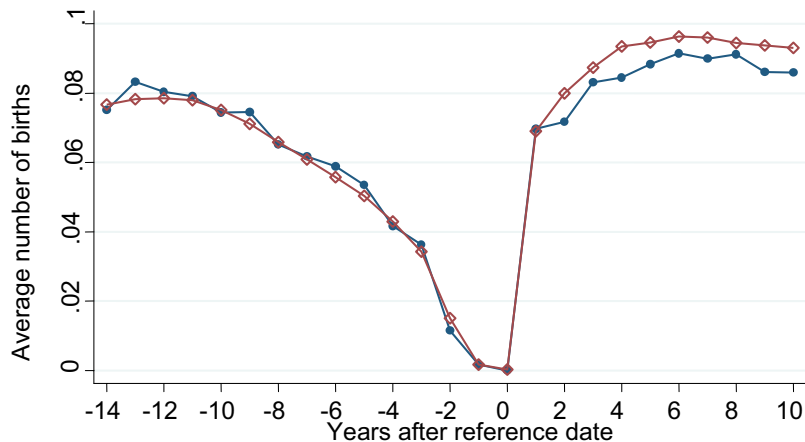


Average earnings by quarter weighted by propensity scores

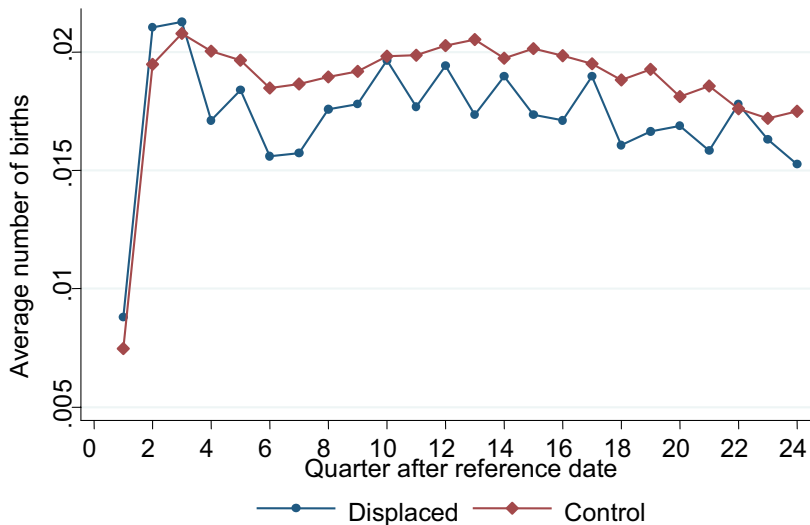


Average Number of Births by Year

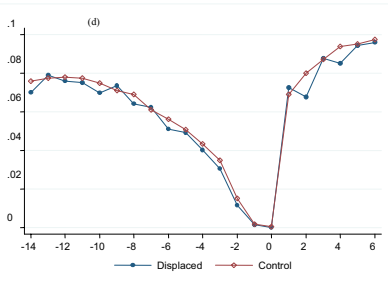
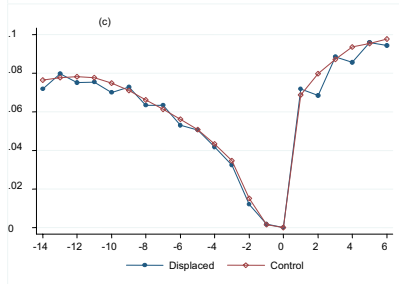
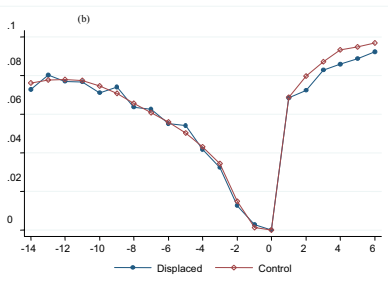
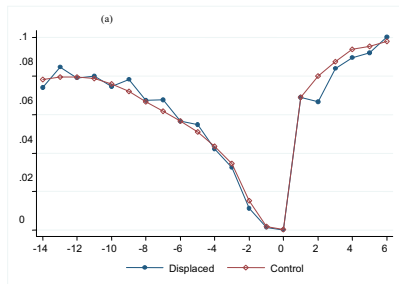
Raw Data



Average Number of Births by Quarter



Average number of births by year weighted by propensity scores

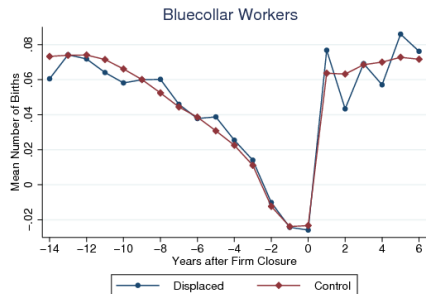
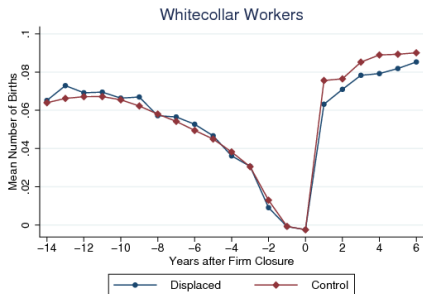


Effect of Firm Closure on Fertility

	Births next 3 years	Births next 6 years	Births next 9 years
<i>Panel A: Number of Births</i>			
Unweighted	-.007 (.005)	-.023* (.008)	-.041** (.011)
Weighted	-.013* (.005)	-.032** (.008)	-.044** (.012)
Births (mean)	.23	.46	.62
<i>Panel B: Any Birth</i>			
Unweighted	-.008 (.005)	-.017** (.005)	-.018* (.007)
Weighted	-.013* (.005)	-.024** (.006)	-.021* (.007)
Any Birth (mean)	.20	.34	.43
Observations	221,139	221,139	145,448

- Fertility drops considerably
- 4.5% over 3 years
- 6.5% over 9 years
- equal in size to a one-year extension in parental leave (Lalive and Zweimüller, 2009)

Average number of births by year by subgroups



Heterogeneous Effects

	Births next 3 years	Births next 6 years
Blue Collar	.002 (.013)	-.013 (.022)
White Collar	-.013 (.009)	-.026* (.013)
Wage 1 st tertile	.007 (.014)	-.008 (.020)
Wage 2 nd tertile	-.005 (.015)	-.031 (.022)
Wage 3 rd tertile	-.030* (.014)	-.047* (.021)
Wage growth > 5% p.a.	-.027* (.013)	-.052* (.021)
Wage growth < 5% p.a.	.006 (.011)	-.008 (.015)
Long tenure, high wage growth	-.035 (.021)	-.050 (.036)
Short tenure or low wage growth	-.001 (.009)	-.019 (.013)
Births (mean)	.22	.45
Observations	221,139	22,139

Heterogeneous Effects

	Births next 3 years	Births next 6 years
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Observations	221,139	22,139

What is the Direct Effect of Unemployment on Fertility?

Joint with Del Bono and Weber

- Not everybody experiences an unemployment spell after PC
- Include unemployment and PC separately in regression
- Instrument unemployment by Plant Closure interacted with region, year, industry dummies
- Identifying assumption
 - PC can have direct effect on fertility but the same direct effect in all regions ...

Pure Displacement versus Unemployment Effect on Fertility

	<u>OLS</u>		<u>2SLS</u>	
	Births next 3 years	Births next 6 years	Births next 3 years	Births next 6 years
<i>Panel A: any unemployment in the first year</i>				
Firm closure	-0.008 (0.005)	-0.014 (0.008)	-0.029* (0.012)	-0.038* (0.019)
Unemployment	-0.032** (0.004)	-0.066** (0.006)	0.046 (0.045)	0.027 (0.071)
F-stat			67.55	67.55
R ²	0.03	0.08	0.03	0.08
<i>Panel B: % unemployment days in the first year</i>				
Firm closure	-0.014* (0.005)	-0.022* (0.008)	-0.022* (0.011)	-0.031 (0.017)
Unemployment	-0.001 (0.001)	-0.001** (0.001)	0.001 (0.001)	0.001 (0.017)
F-stat			107.86	107.86
R ²	0.03	0.08	0.03	0.08

- Negative effect of plant closure on fertility
- Inconsistent with substitution effect
- Inconsistent with income effect
 - No direct effect of unemployment found
- Career effect and employability effect
 - Stronger effect for white-collars and high income women
 - Those with career prospects
 - If you have to start a new career with a new firm, you can't get a kid right now

We Find Very Large Permanent Effects on Wages, Employment and Fertility

- Wages drop by 5%
- Employment rates drop by 10-20 percentage points
- Fertility drops by 6.5% over a 9 year period

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- Wages drop by 5%
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- Too high?
 - Check early leavers (Schwerdt, 2011)
 - Plant closures may be too special (other studies are using shipyards or coal mines)
 - Displacement may lead to repeat unemployment spells (Stevens 1997)
 - Plant closure as such is doing the trick, not unemployment or displacement (fertility)

谢谢大家！

Thank you very much

谢谢大家！