Taxing Childcare:
Effects on Family Labor Supply and Children

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Motivation

What are effects of a home care subsidy ('Betreuungsgeld'?)
Germany:

- Federal law passed in parliament on Nov. 9, 2012 and implemented on August 1, 2013
- Abolished by Federal Constitutional Court on July 21, 2015

Finland, Norway: still in place today

How do childcare costs affect female labor supply and preschool children?

- Estimate behavioral responses (e.g. price elasticity)
- Spillover effects in the family?
- Fiscal consequences

A lot of Media Attention!

Reform in Thuringia

- Introduced July 1, 2006 (adapted July 1, 2010)

- Subsidy to parents who do *not* send 2-year-old to public daycare

- 150-300 Euros per month

- Subsidy declines linearly in hours in public daycare
- Part-time: 50% of subsidy to parent
- Full-time: 100% to facility, 0% to parent

Betreuungsgeld in Thuringia

	Euros per Month	Percent of Monthly Household Income			
		Whole Sample	Low Education	Single Parents	Low Income
Eligible 2-year-old is 1st child	150	7	15	11	16
Eligible 2-year-old is 2nd child	200	10	20	14	22
Eligible 2-year-old is 3rd child	250	12	24	18	27
Eligible 2-year-old is 4th (or more) child	300	14	29	21	33

Expected Effects: Childcare

Families not using daycare: income effect

- childcare at home ↑ (if normal good)

- informal childcare ↑ ↓

Families using daycare: comp. substitution effect

- public daycare ↓ (rel. more expensive)

- informal childcare at home ↑ or ↓

Expected Effects: Labor Supply

Low-income Families: reduction in subsidy

- old subsidy 300 Euros/month
- if working hours do not exceed 30 hours
- adj. annual earnings $\leq$ 16,500 Euros for couples (13,500 Euros for single parents)
- labor supply?, Hours $\uparrow$?

Other Families: increase in subsidy

- families above the earnings threshold: old subsidy $= 0$
- labor supply $\downarrow$

Empirical Predictions

- **Effect on public daycare ↓**

- **Effect on informal childcare (complement or substitute)?**

- **Effect on labor supply ↓?**

- **Effect on fertility ↑?**

Data Sources

Labor Supply and Fertility

- *Mikrozensus* (2005-2009)
- Repeated cross-section
- Large samples
- No panel, no information on childcare

- <u>LFP</u> = full- or part-time work, 400 Euro job, family or temporary worker, unemployed, parental leave
- <u>Full-time</u> = at least 30 hours/week
- <u>Fertility</u> = 1 if child born in family in past 12 months

Data Sources

Childcare choices and children's skills

- *German Socio-Economic Panel* (2000-2009)
- Household panel
- Measures of early childhood skills (Vineland scale)
- But: Small samples

Empirical Strategy

- To evaluate the policy, need a suitable control group

- Use families with 2-year-olds in other East German states

Use **differences-in-differences** approach:

$$Y_{ist} = \beta * Treat_{is} * After_t + \delta_1 After_t + \delta_2 Treat_{is} + \alpha_s + \tau_t + \lambda' X_{ist} + \varepsilon_{ist} \tag{1}$$

- Identifying assumption: common trend (conditional on X)
- Checks: placebo reform, triple differences, test for pre-trends

Results: Childcare choices

	Public Daycare		Childcare at Home		Informal Childcare	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment Dummy	-0.081**	-0.076**	0.183*	0.173*	-0.182*	-0.173**
	[0.018]	[0.022]	[0.075]	[0.071]	[0.066]	[0.061]
Observations	1,146	1,146	1,023	1,023	1,009	1,009
R Squared	0.304	0.307	0.252	0.258	0.113	0.118
Implied elasticity	-0.62	-0.58	1.39	1.22	-1.22	-1.16

Graphical Evidence: Female Labor Supply
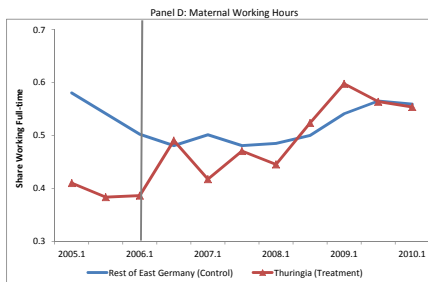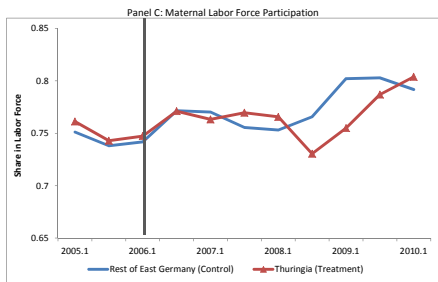
Results: Labor Supply (Extensive Margin)

	Labor Force Participation (Year of Eligibility)		Labor Force Participation (Year after Eligibility)		Labor Force Participation (2 Years after Eligibility)	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment Dummy	0.010	-0.006	-0.022	-0.044*	-0.041	-0.048*
	[0.041]	[0.047]	[0.021]	[0.017]	[0.025]	[0.020]
Observations	2,660	2,660	2,616	2,616	2,583	2,583
R Squared	0.118	0.133	0.116	0.177	0.128	0.195
Implied Elasticity				-0.14		-0.15

Results: Labor Supply (Intensive Margin)

	Hours Worked (Year of Eligibility)		Full-time Employment (Year of Eligibility)		In School (Year of Eligibility)	
	(7)	(8)	(9)	(10)	(11)	(12)
Treatment Dummy	2.935	3.215	0.151	0.164	-0.054***	-0.056***
	[1.827]	[1.868]	[0.079]	[0.083]	[0.009]	[0.009]
Observations	1,839	1,839	1,793	1,793	2,657	2,657
R Squared	0.048	0.053	0.025	0.030	0.105	0.107

Results: Male Labor Supply

	Male Labor Supply		
	Labor Force Participation	Hours Worked	Full-time Work
	(4)	(5)	(6)
Treatment Dummy	0.079***	1.792*	-0.051***
	[0.016]	[0.778]	[0.007]
Observations	2,171	1,913	1,871
R Squared	0.028	0.080	0.050

Results: Fertility

| | Newborn in HH with Eligible Child | | Newborn in HH |
| | Overall | Nonlinear | Nonlinear |
	(1)	(2)	(3)
Treatment Dummy	-0.038		-0.011**
	[0.015]		[0.003]
Treatment Dummy (1 Other Child)		-0.042**	0.008***
		[0.012]	[0.001]
Treatment Dummy (2 or More Other Children)		0.038*	0.009***
		[0.018]	[0.001]
Observations	2,660	2,660	51,173
R Squared	0.144	0.257	0.285

Results: Heterogeneity

	Female LFP (5)	Parental Leave (6)	Female Hours (7)	Fertility (8)
Treatment Dummy	0.027	0.083*	2.319	-0.041*
	[0.053]	[0.032]	[1.946]	[0.017]
Treatment*Single Parent	-0.155**	-0.136***	6.647**	0.031*
	[0.043]	[0.024]	[2.219]	[0.011]
Treatment Dummy	0.014	0.049	3.278	-0.032
	[0.050]	[0.029]	[1.840]	[0.016]
Treatment*Low-Skilled Parent	-0.255**	0.078***	-0.361	-0.065*
	[0.082]	[0.013]	[0.482]	[0.025]
Treatment Dummy	0.024	0.023	1.266	-0.043*
	[0.043]	[0.027]	[1.721]	[0.016]
Treatment*Low-income HH	-0.131***	-0.054*	6.389***	0.039*
	[0.007]	[0.021]	[1.175]	[0.017]
Treatment Dummy	-0.002	0.041	3.103	-0.044
	[0.052]	[0.028]	[1.671]	[0.018]
Treatment*Foreign HH	-0.275**	0.064**	6.692	0.184**
	[0.079]	[0.023]	[6.493]	[0.048]

Robustness

Differential Trends?

- state-specific linear trends included
- no anticipation effects or prior trends
- older children in same state as additional control

Confounding Changes

- no other major social policy reform
- control for federal reform of parental leave
- control for state election, state ideology

Alternative Specifications, Standard errors

Summary of Results

- Public childcare ↓ 8p.p. (23%), childcare at home ↑ 18p.p. (also for older siblings)

- Women postpone labor market re-entry (men ↑ LS)

- Sizable decline in public daycare and LS for vulnerable families (single, low-skilled, low-income and foreign HH)

- Boys benefit, girls do worse in terms of skills (Vineland scale)

Backup Slides

Political Economy of Reform

- Introduced by Conservative government
- Held an absolute majority since 1999
- Motivation 1: Freedom to choose for parents
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- Conservatives lost absolute majority in 2009
- New coalition of Conservatives and Social Democrats

Empirical Results: Cognitive Skills

	Mean	Main Effect		Differential Effect Girls	
	(1)	(4)	(5)	(6)	(7)
Vineland Adaptive Behavior	0.038	0.338*	0.325**	-0.442**	-0.484**
	[0.990]	[0.127]	[0.115]	[0.150]	[0.149]
Social Skills	0.037	1.326***	1.154***	-1.300**	-1.237***
	[0.962]	[0.275]	[0.225]	[0.288]	[0.271]
Motor Skills	0.026	0.092	0.072	-0.339	-0.447*
	[0.992]	[0.193]	[0.175]	[0.187]	[0.217]
Skills in Daily Activities	0.046	0.507**	0.427**	-0.684*	-0.710**
	[0.985]	[0.135]	[0.132]	[0.248]	[0.219]
Language Skills	0.034	0.068	0.084	-0.020	-0.106
	[0.964]	[0.170]	[0.163]	[0.181]	[0.176]

	Public Daycare (1)	CC at Home (2)	Informal CC (3)	Female LFP (4)	Parental Leave (5)	Female Hours (6)
Treatment Dummy	-0.015	0.579***	-0.595***	0.010	0.059	3.273*
	[0.087]	[0.086]	[0.068]	[0.033]	[0.032]	[1.355]
Treatment*Girl	-0.043	-0.272***	0.295***	0.022	-0.019**	3.805**
	[0.046]	[0.031]	[0.045]	[0.023]	[0.006]	[1.059]
Observations	1,146	1,023	1,009	2,660	2,660	1,839
R squared	0.309	0.262	0.123	0.132	0.125	0.051

- Pay subsidy to many who would not use childcare
- Average subsidy: € 196 per eligible child
  $(196 * (0.3) * 12,700) = $ **€ 746,760**)

- Some children drop out of daycare
- Subsidy for running cost: € 360 per child
  $(360 * (0.17) * 0.7 * 12,700) = $ **€ 544,068**

- Additional costs (SR) of **€ 202,692**
- Ignore: costs of ↓ LS, savings from ↓ unused slots