Child care and children's development: Evidence from Norway

Or: The good, the bad and the counterfactual

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Introduction

Over the last decade, there has been a strong push towards expanding access to child care

- e.g. Europe, US, Canada, also less developed countries
- universal arrangments to counter early differences

However, the evidence seems to suggest

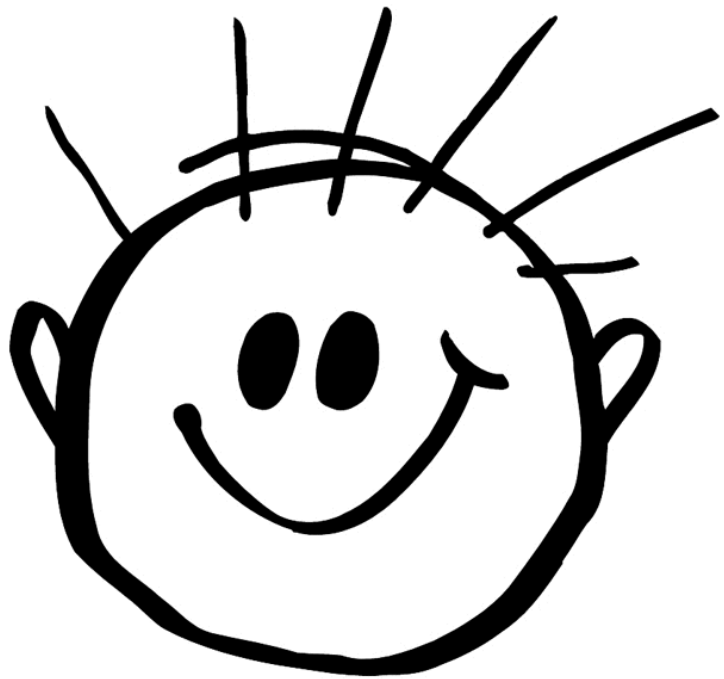
- strong positive effects mostly for disadvantaged children
- begets the questions:
  - how may we improve the quality of child care to stimulate all children?
  - how may we use public funds more efficiently to counter early differences?

Outline

1. **Two challenges** for empirical research on child care
   - Correlation or causality?
   - What is the alternative to child care?
2. **The good:**
   - Early childhood investments have strong potential
   - Seems to improve outcomes of children, also as adults
3. **The bad:**
   - Small or no effect for higher SES and those that opt out
   - Mixed effects on parents' labor supply
4. **The counterfactual:**
   - Depends on the program and the affected population

Two challenges for empirical research on ECEC

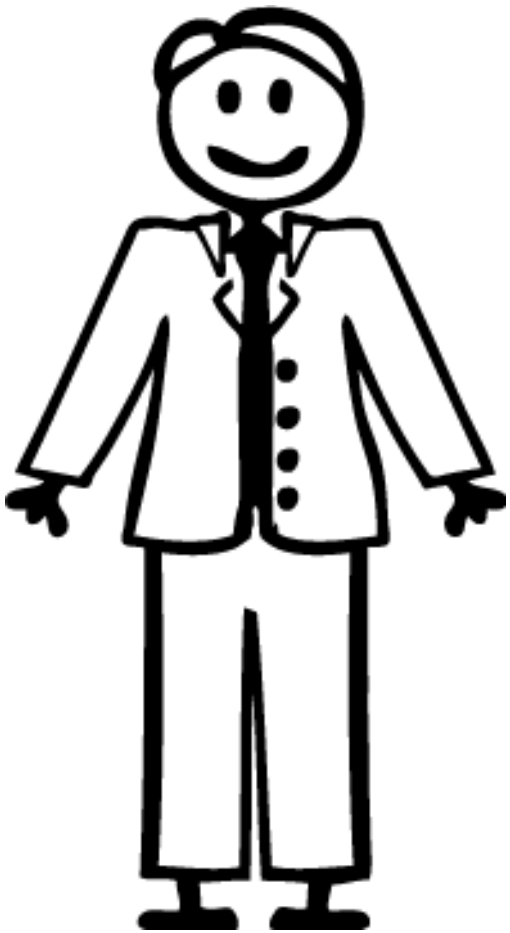
1. Correlation or **causality**?
   - (Omitted variables)
2. What is the **alternative**?
   - (The counterfactual mode of care)

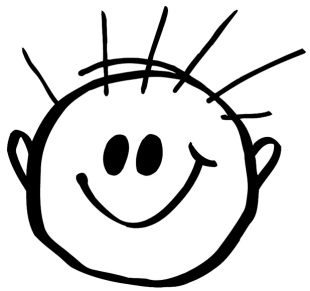


Hi! I'm Ben! I am two years old.

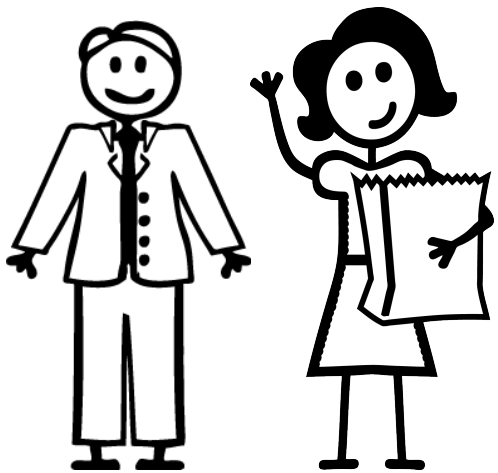
Ben's family

Jim

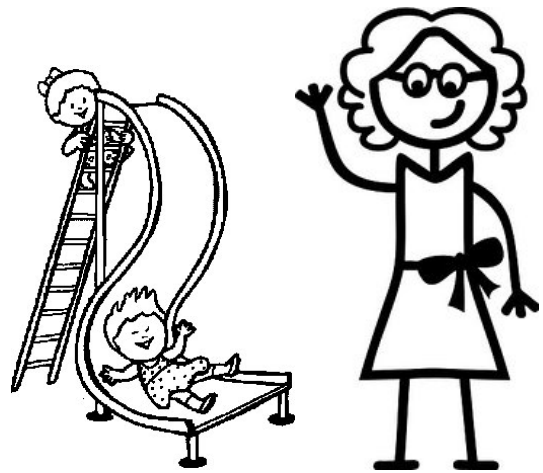




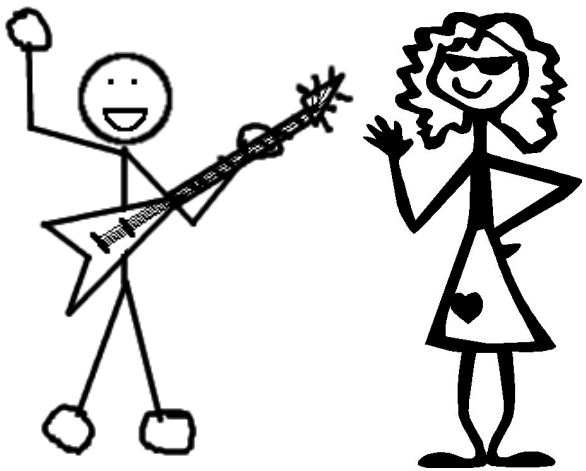
Lisa



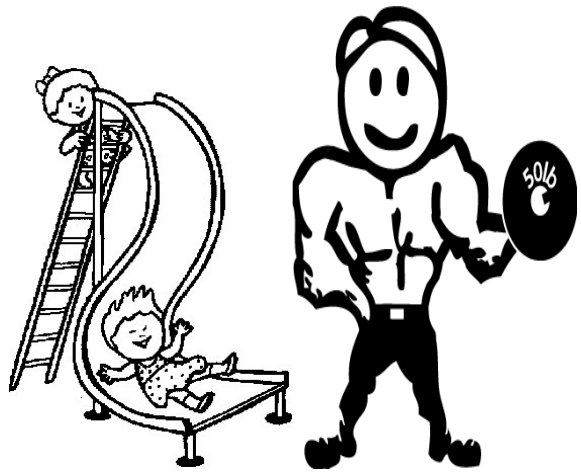
Ben's parents



Local kindergarten



Ben's parents



Local kindergarten

The basic empirical challenge

Two alternative research questions:

1. **Jim and Lisa** consider sending Ben to child care.
   What should be our advice?
2. **Politicians** are considering to subsidize child care.
   What should be our advice?

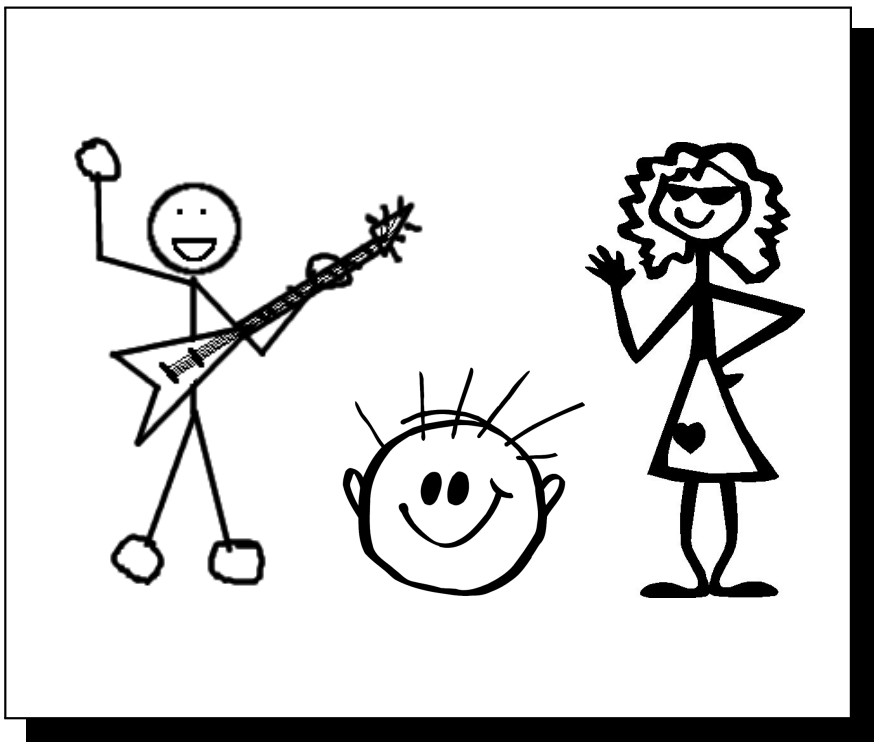
Answers to both rely on a causal claim:

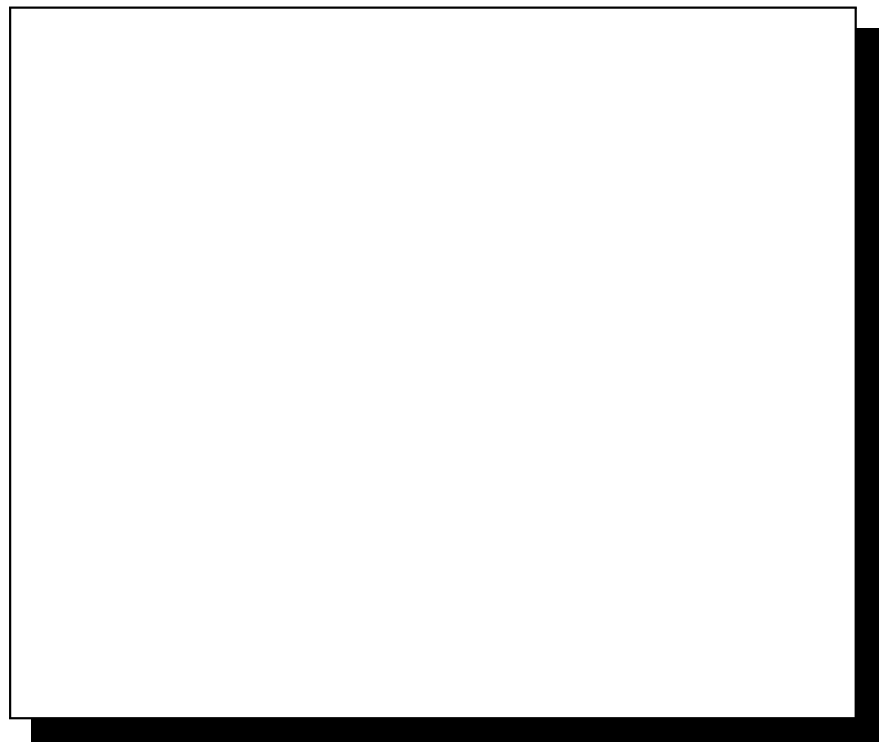
- What will happen to Ben if he attends child care?
- (For politicians: What will happen with his parents?)

Meaningful only compared to what would happen if he does not attend child care.

Ideal comparison

The counterfactual is **fundamentally unobservable**





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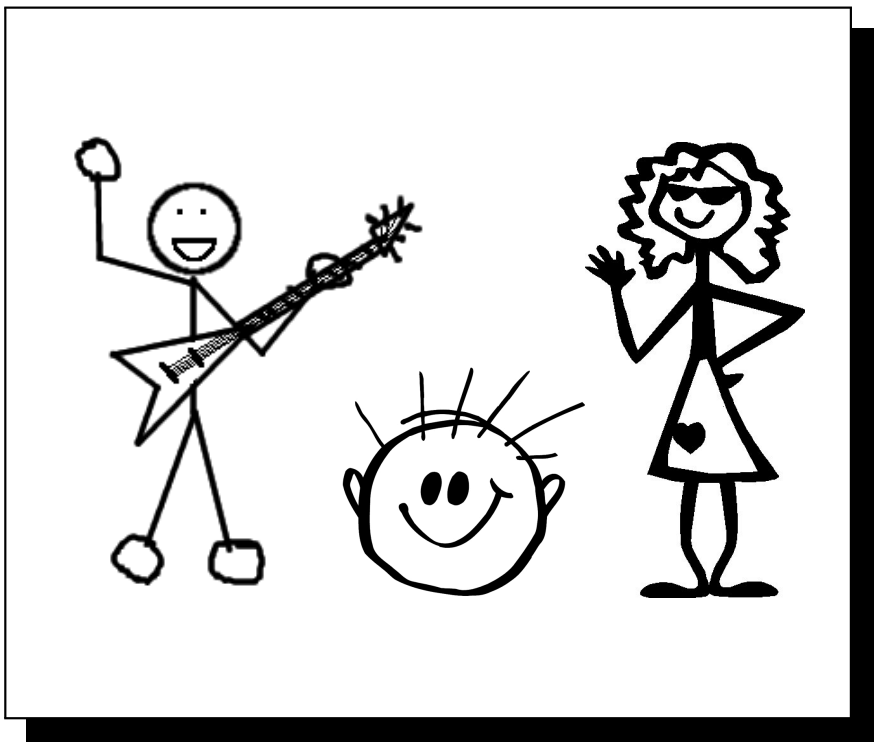
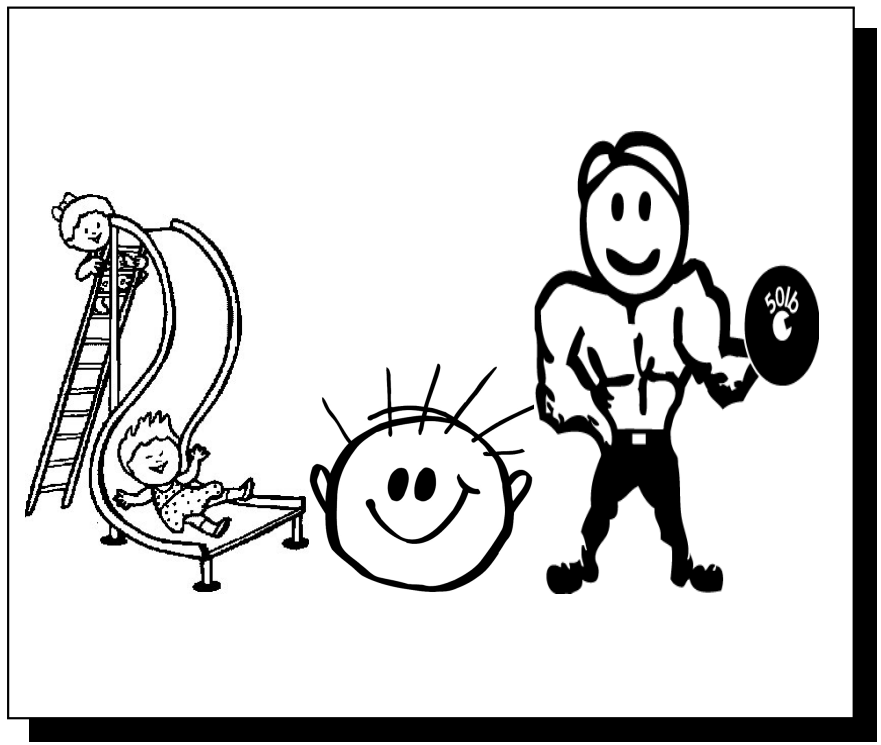
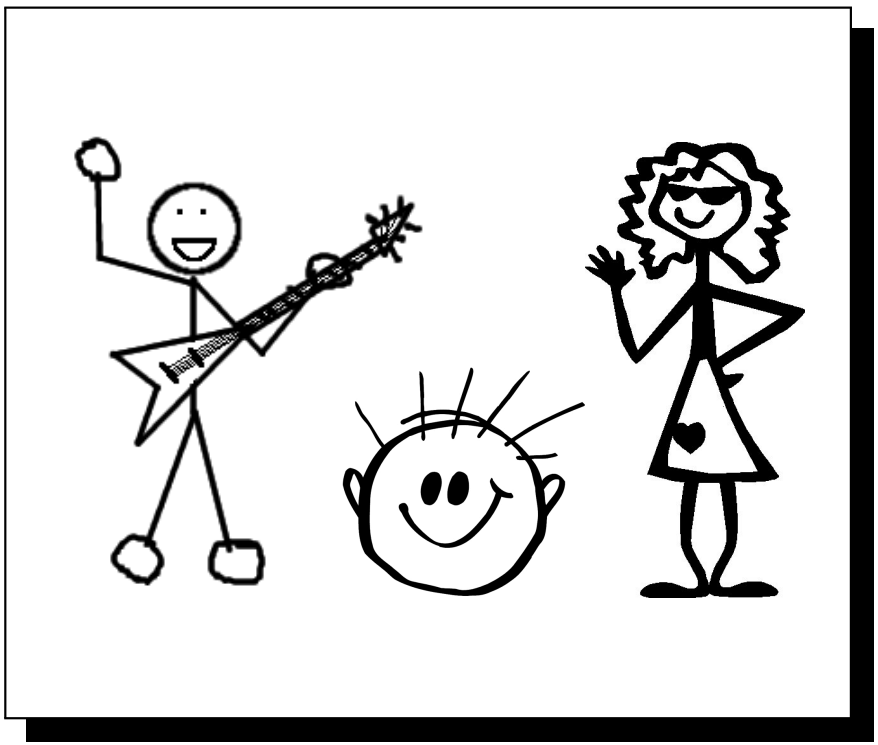
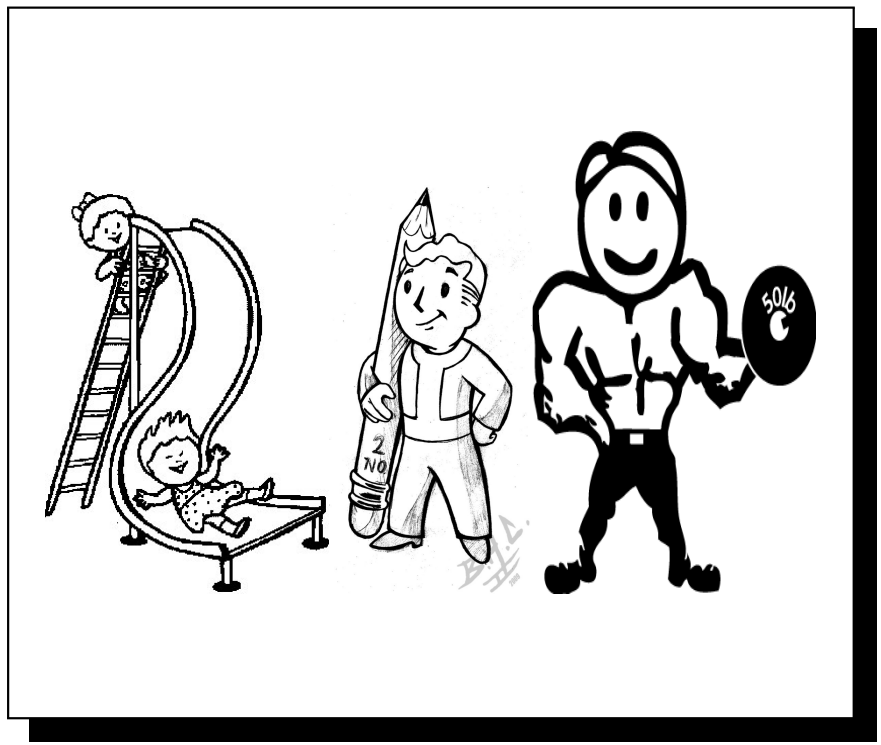




Actual comparison

The counterfactual is **fundamentally unobservable**





Problem 1: Omitted variables

Cause bias in the estimates!

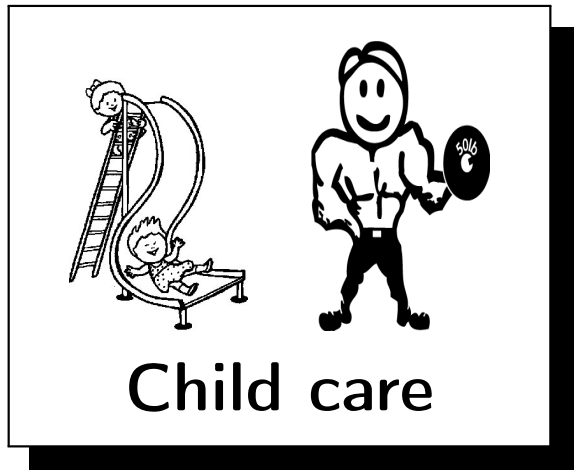
Correlation vs causality

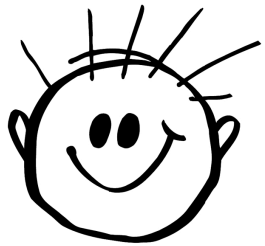
- Parents choose whether they want to send their children to child care
- Children in child care are **not** the same as other children
  - seemingly identical parents + very different choices = differences we cannot observe?
    - e.g. child care parents more concerned with language?
    - children may then do better even if child care is harmful!

Solution:

- Experimental data with **random allocation** of slots
- Or, you need an **identification strategy**

Problem 2: The counterfactual mode of care





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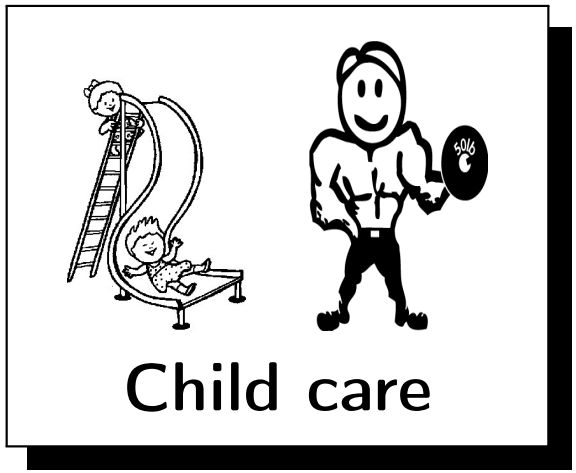

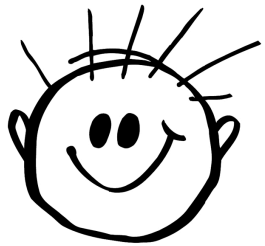

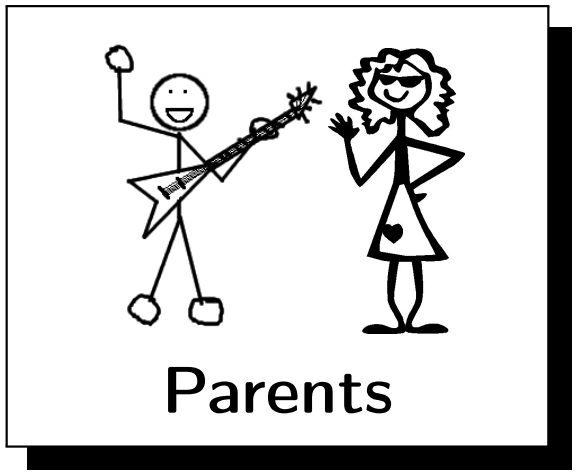

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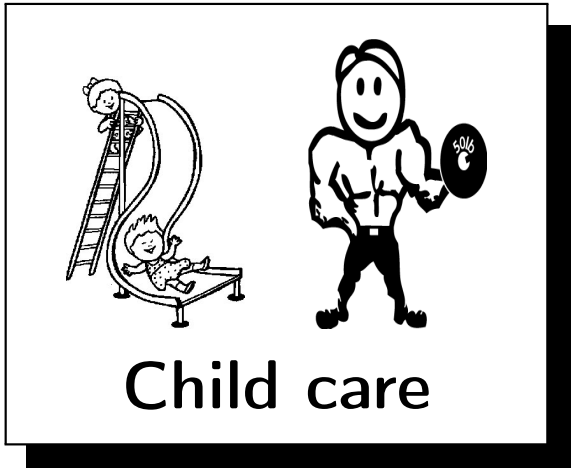
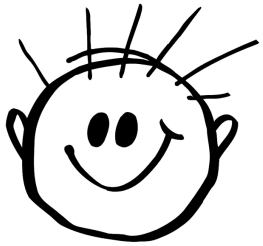
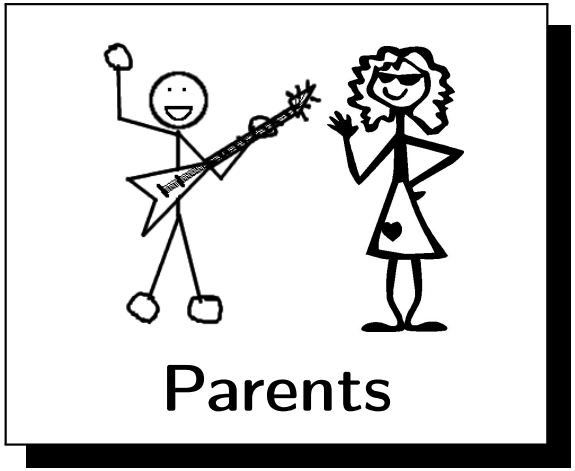
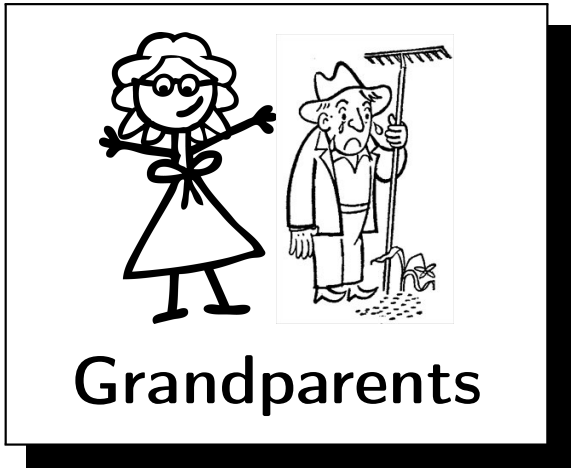


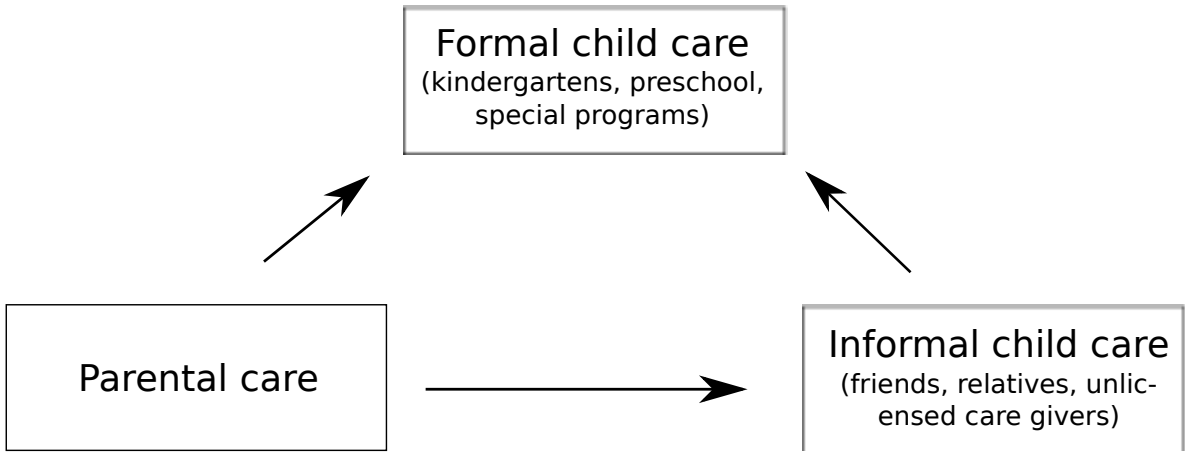






Problem 2: The counterfactual mode of care

Differences in the counterfactual cause concern about external validity!



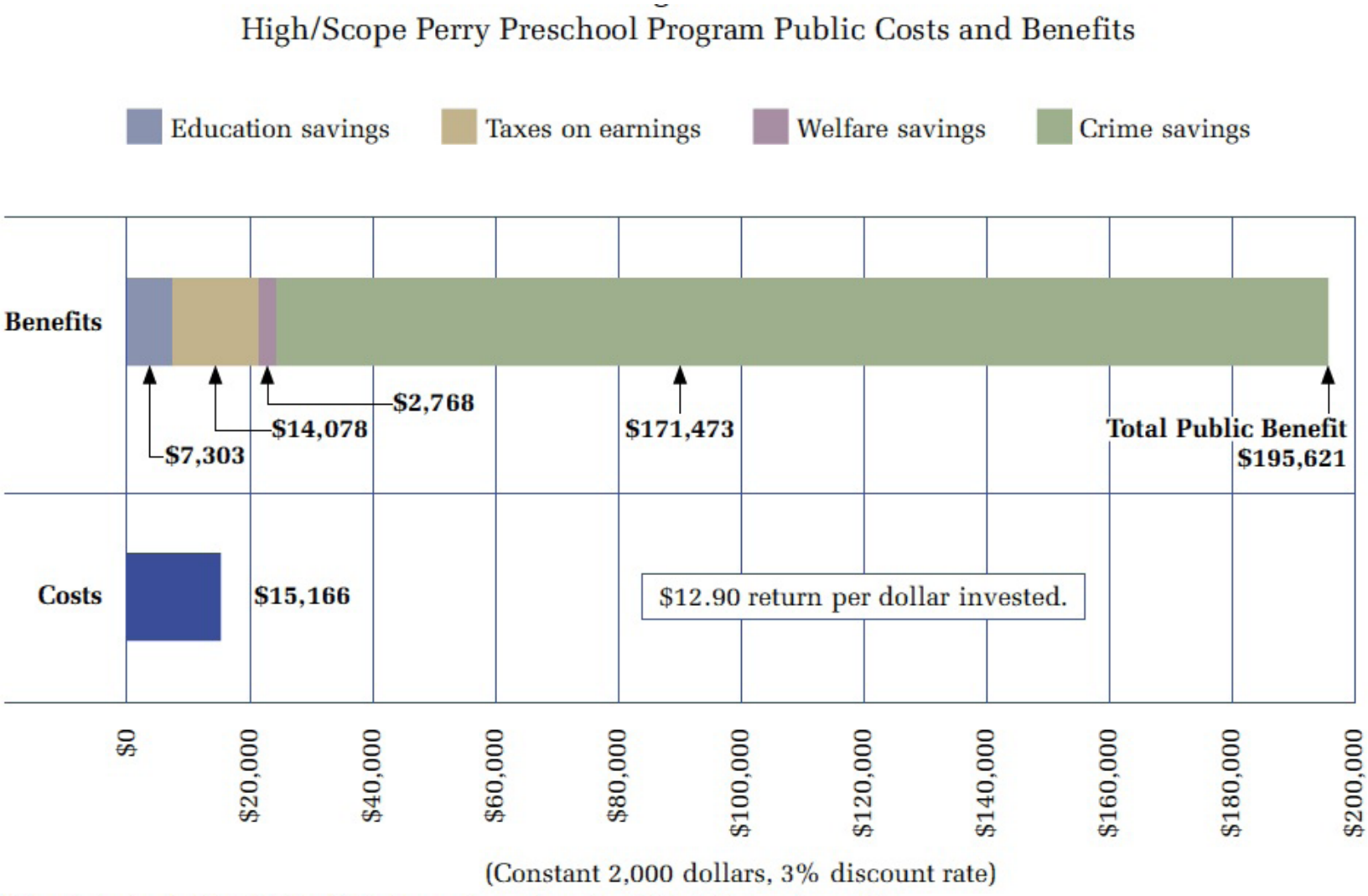
The counterfactual form of care determines the comparison

- The effect on children depends on
  - the **shift under study**
  - the **quality of parental and/or informal care**

The good

The good

US experimental evidence: Perry Preschool Study



Schweinhart et al (2005) The High/Scope Perry Preschool Study through age 40.

The good

The Norwegian experience

Substantial positive effects for disadvantaged children.

- Drange/Havnes (2018): short-run effects for toddlers
- test scores in language and mathematics
  - from early start (roughly 14 months vs 26 months)
    - *Identification: Random allocation of oversubscribed slots in Oslo municipality in 2005–2007*

The good

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    - *Identification: Random allocation of oversubscribed slots in Oslo municipality in 2005–2007*
- Havnes/Mogstad (2011a): long-run effects for preschoolers
  - education, college enrollment, high school completion
  - labor force attachment, welfare recipiency
    - *Identification: Rapid expansion following 1975 Kindergarten Act*

The good

Short-run effects for toddlers (Drange and Havnes, 2018)

Centralized admission process in Oslo

- Main application date in March, for admission with start in mid-August
- Allocation inside city district, both private and public
- Parents apply to up to seven child care centers in the application

The majority receive no priority:

- public institutions -> lottery if oversubscribed
  - randomized sorting of lists, offers by random rank
  - 29 % of children that applied got an offer in the main round of admission
- private institutions -> administer their own admissions according to lists distributed from the municipality

The good

Short-run effects for toddlers (Drange and Havnes, 2018)

We estimate the impact of

- early child care start on
- early cognitive skills
  - language and mathematics
  - tested in the first year of school (~6 years old)

The good

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We estimate the impact of

- early child care start on
- early cognitive skills
  - language and mathematics
  - tested in the first year of school (~6 years old)

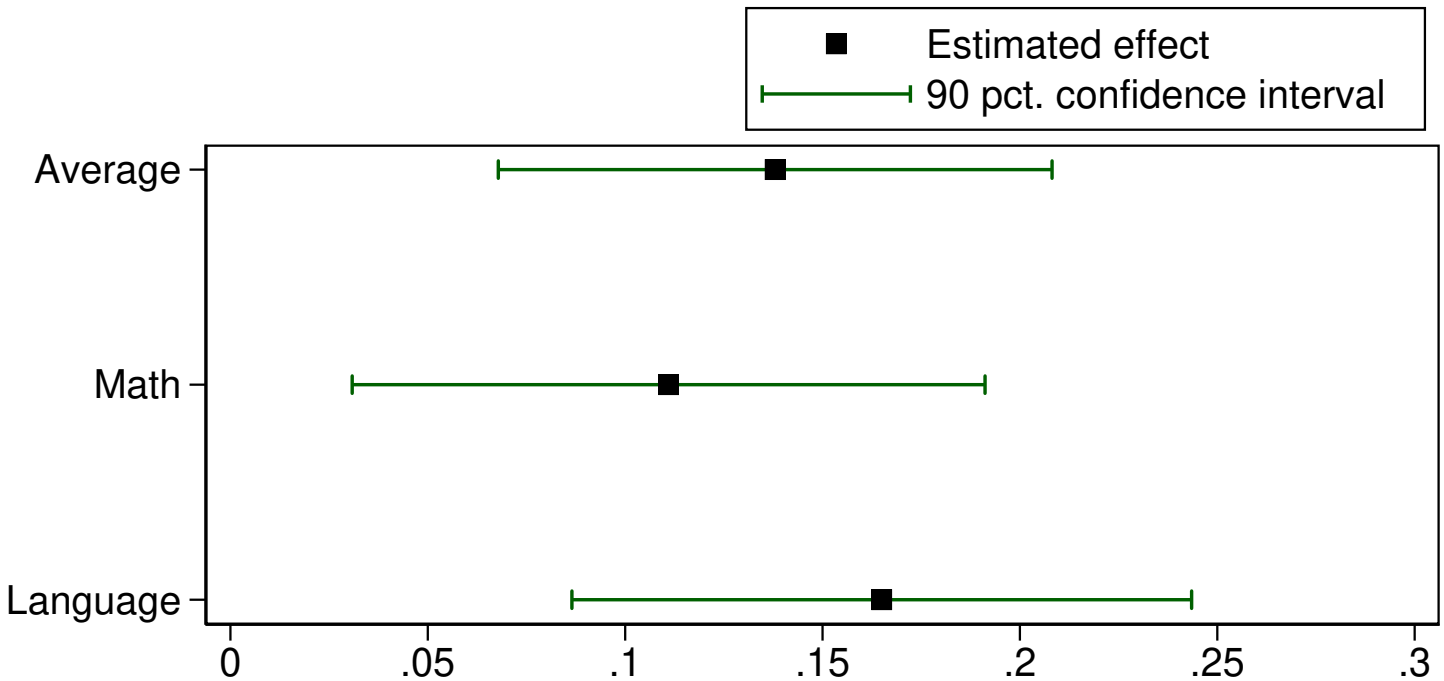
Identification exploits unique data from Oslo, Norway:

- large undersupply of child care for toddlers in 2005–2007
- oversubscribed = lottery in public child care institutions
  - compare children who got an offer
  - to children who did not
  - conditional on applying to the same institution in the same year

The good

Short-run effects for toddlers (Drange and Havnes, 2018)

Effect of getting an offer in the lottery:



The good

Short-run effects for toddlers (Drange and Havnes, 2018)

Estimated effects can be compared to achievement of different groups on the test:

- compared to children of low vs. high educated parents
  - 50% of the language gap
  - 25% of the math gap

Impacts are compensating with respect to overall performance:

- underperforming groups of children improve the most

The good

Short-run effects for toddlers (Drange and Havnes, 2018)

Effect of lottery offer on starting age

- 4 months delay on average
- 1/5 are postponed by one year

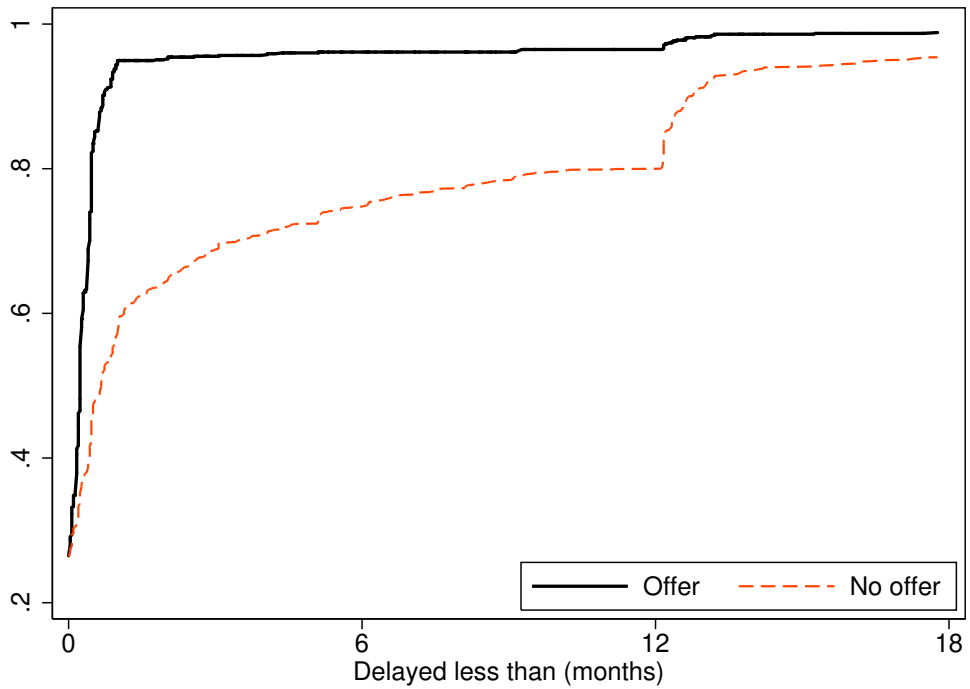
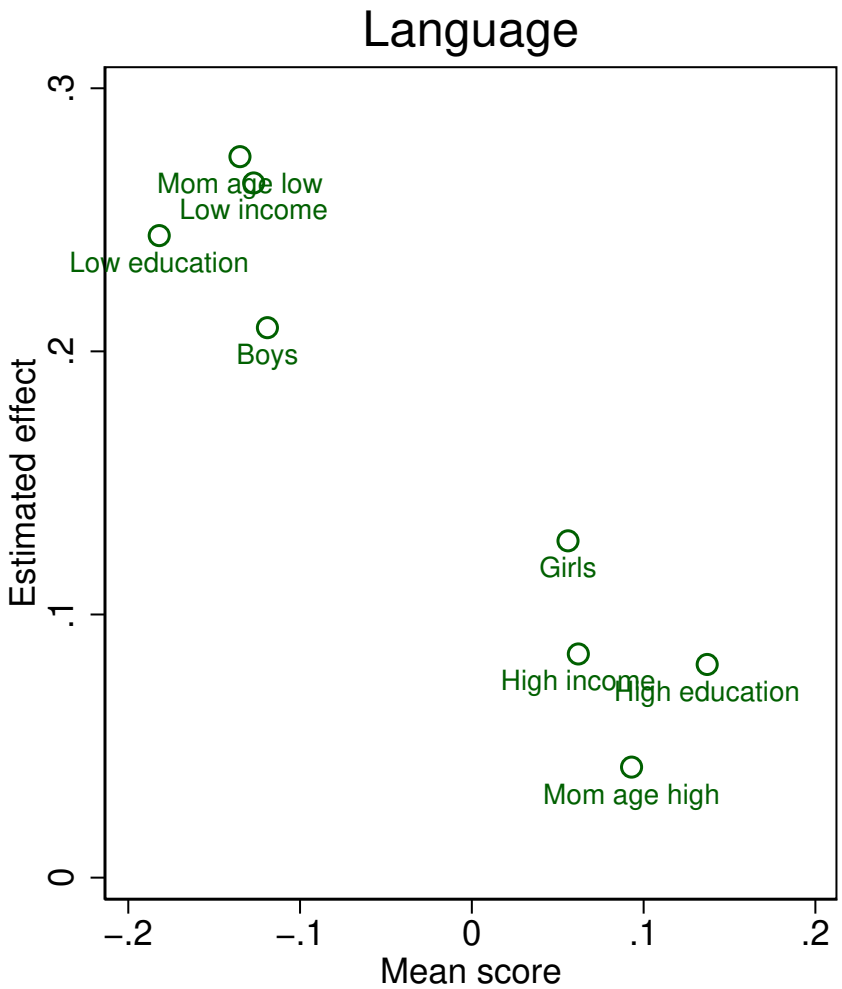


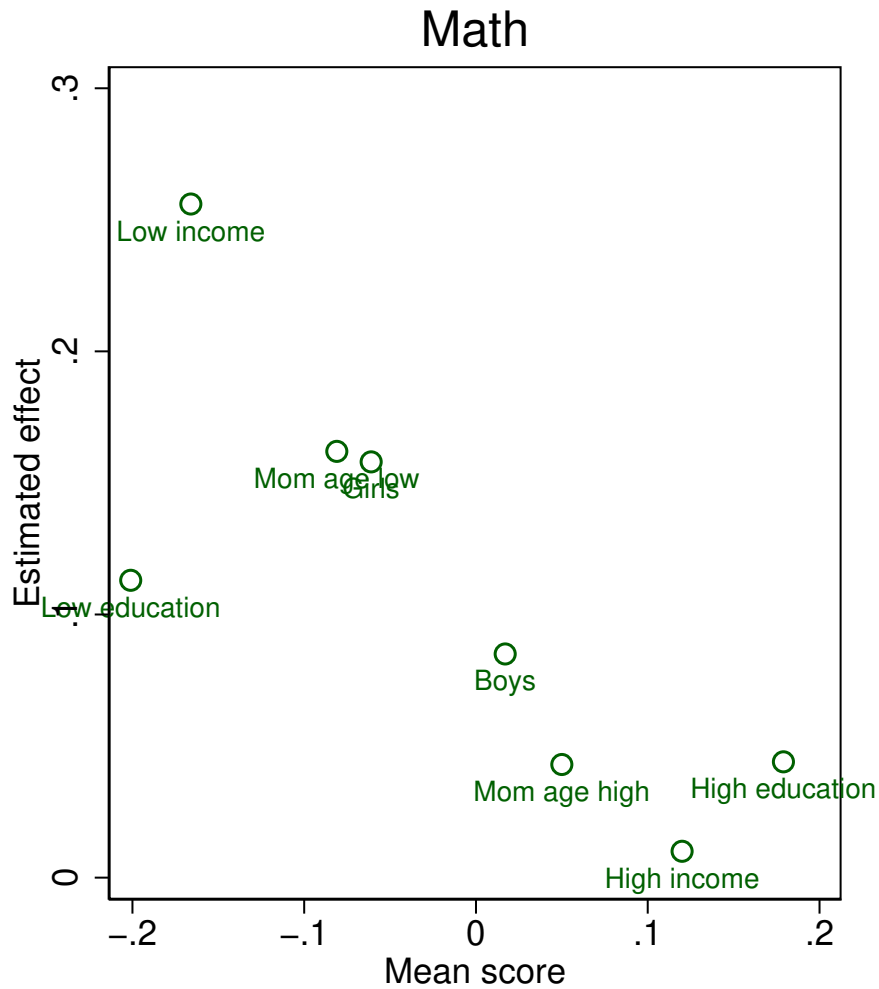
Figure: Delay in starting age with and without a lottery offer

The good

Short-run effects for toddlers (Drange and Havnes, 2018)

Estimates suggest that child care effects are compensating





The good

Short-run effects for toddlers (Drange and Havnes, 2018)

Counterfactual mode of care is likely parental care

- Most used alternative
- Getting an offer increases maternal employment

Two candidate drivers

1. starting child care earlier
2. higher quality of child care if you get an offer
    - but institutions look quite similar in both structural, staff and peer characteristics

The good

Long-run effects for preschoolers (Havnes and Mogstad, 2011a–b, 2015)

Compare **changes** in outcomes

- across municipalities
  - where child care for 3-6 year olds expands rapidly vs more slowly
  - over 1973–76
- across cohorts
  - born too early to benefit (1967-1970)
  - born just late enough to benefit (1973–76)
- measured at age 30–33

The good

Long-run effects for preschoolers (Havnes and Mogstad 2011a)

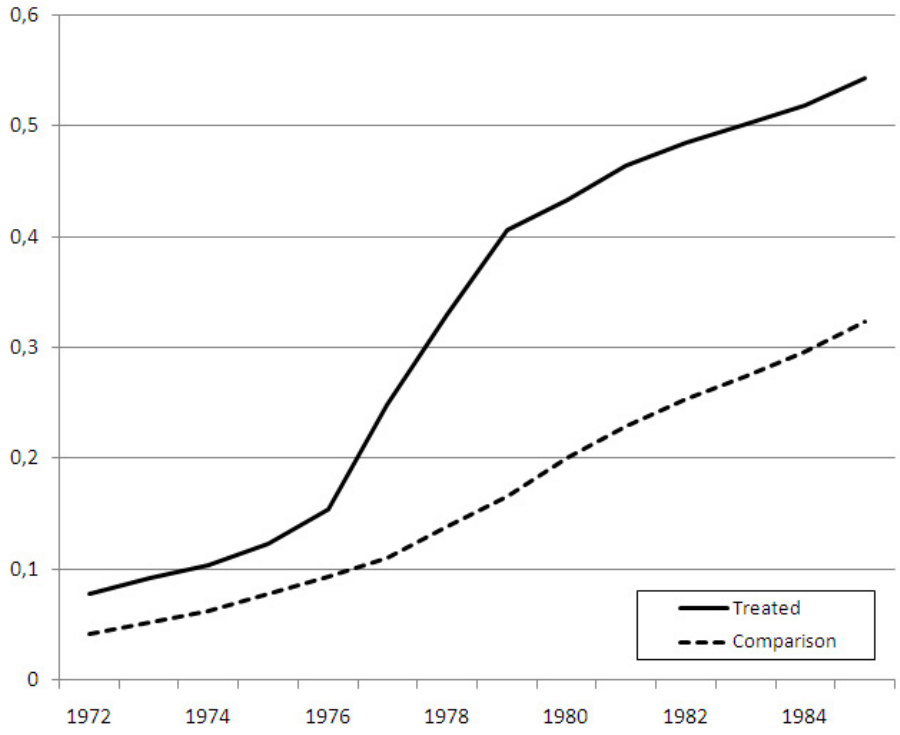


Figure: Child care coverage rate, 3–6 year olds

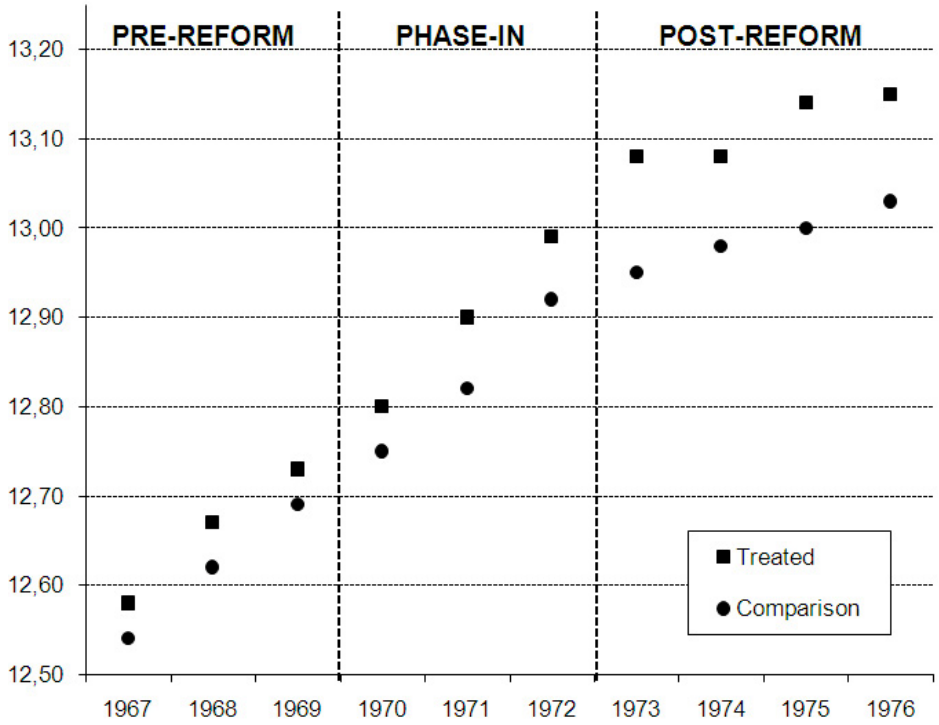


Figure: Years of education (2006)

The good

Long-run effects for preschoolers, 3-6 years old

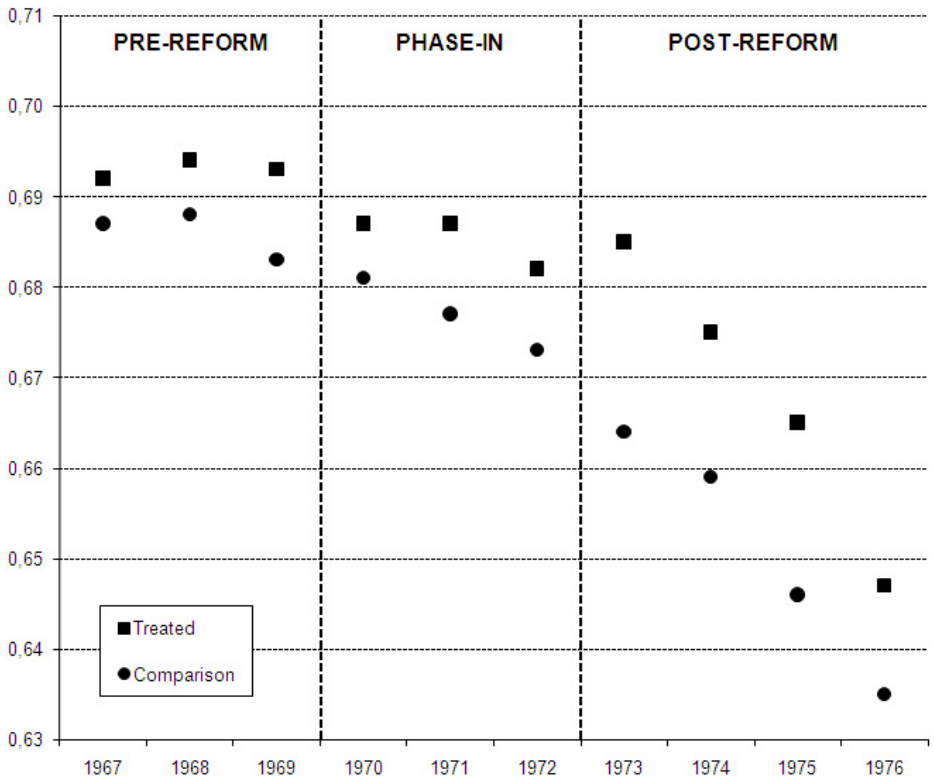


Figure: Employment rate at age 30–33

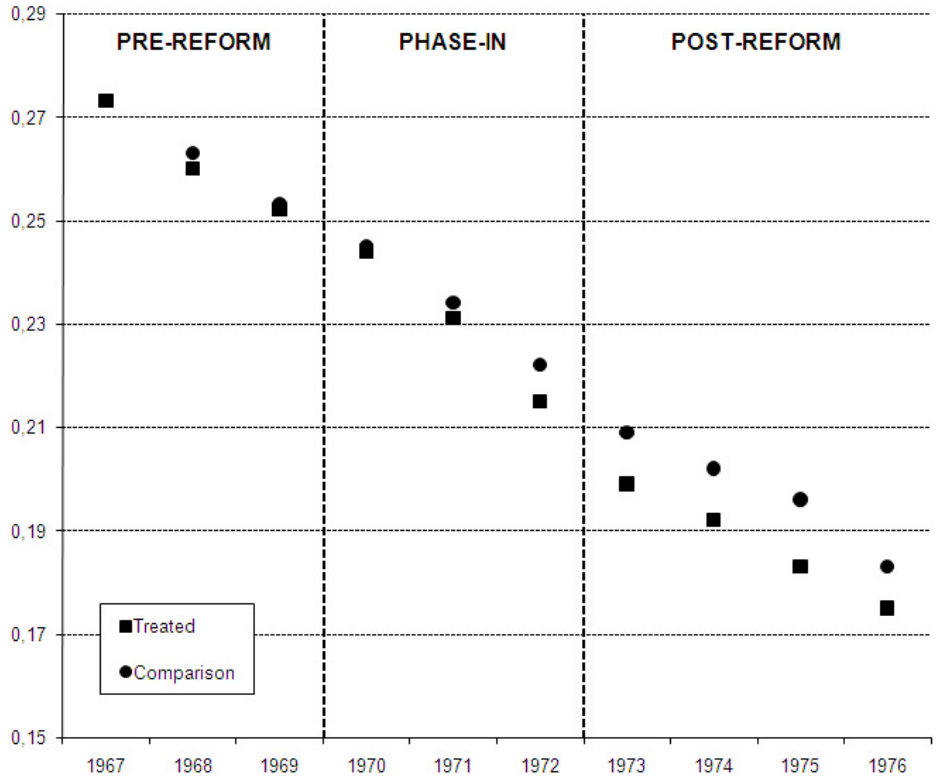


Figure: High school dropout

The bad

The bad

Small or no effect for higher SES and those that opt out

- Havnes/Mogstad (2015):
  - smaller effects for mid-SES
  - zero or even negative at the top
  - over the earnings distribution and across SES-groups
    - *Identification: Rapid expansion following 1975 Kindergarten Act*

The bad

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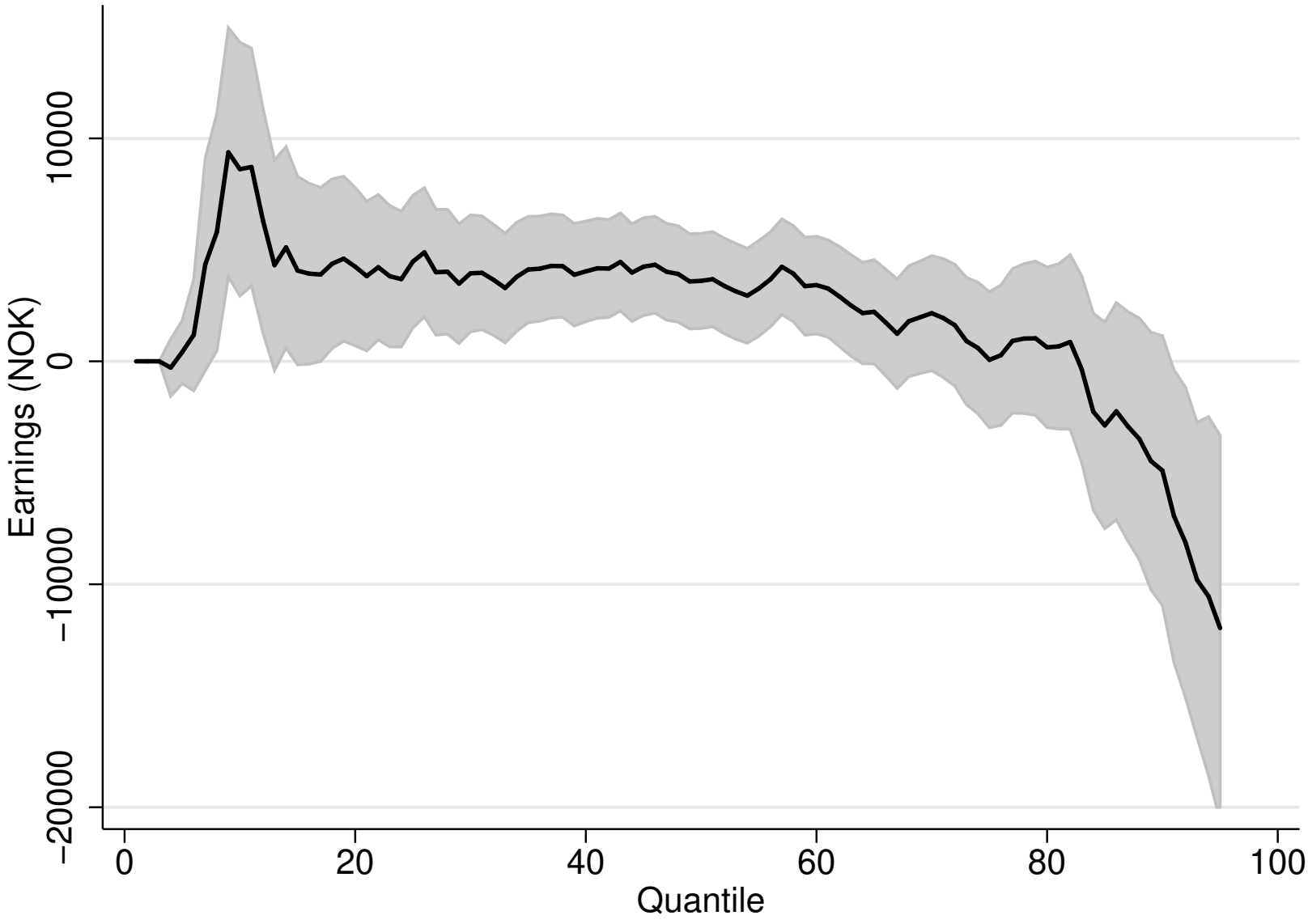
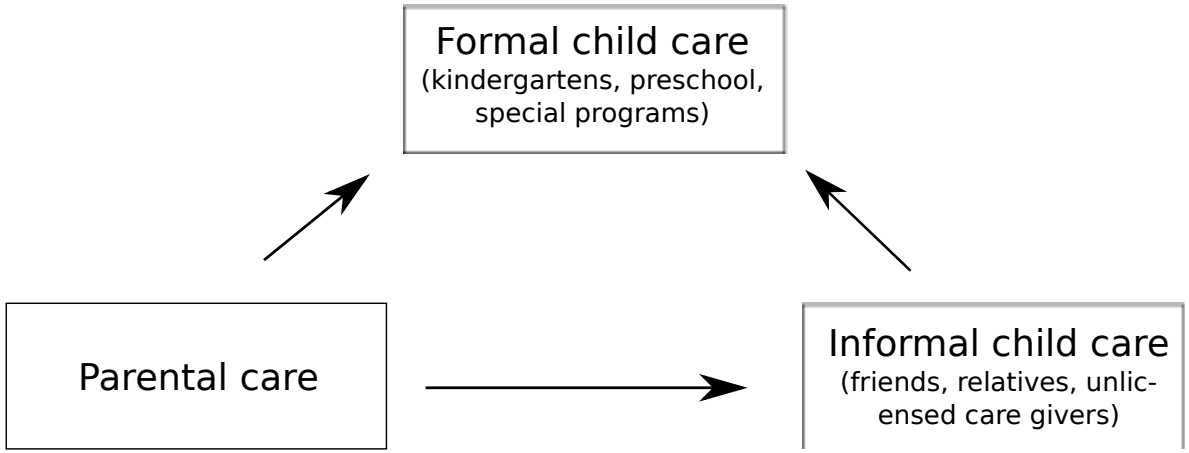
  - zero or even negative at the top
  - over the earnings distribution and across SES-groups
    - *Identification: Rapid expansion following 1975 Kindergarten Act*
- Drange/Havnes/Sandsør (2015):
  - No effect of mandating for 5–6 year olds
  - in face of high voluntary participation
    - *Identification: Lower school starting age with preschool content in 1997*

The bad



The counterfactual

The counterfactual



1. *Preschoolers:* Informal care
2. *Toddlers:* Home care
3. *Mandate:* Home care
4. *High SES vs Low SES:* Quality differences?

Note:

- little effect on mother's work (Havnes/Mogstad 2011b)
- recently: stronger for toddlers (Andresen/Havnes 2018)

Conclusion and caveats

Evidence suggests

1. strong positive effects for disadvantaged children
   - also in the long run
   - little evidence of particularly negative effects of early start
2. small or zero effects for middle and upper class children
3. heterogeneity in line with intuition on the counterfactual
4. mixed effects on maternal labor supply

Conclusion and caveats

Lesson: Policy-makers looking to improve child outcomes may want either

- to improve content in order to make all children benefit
- to target child care more towards disadvantaged groups that seem to benefit

Caveats:

- peer/group effects: may the inclusion of high SES children benefit quality?
- possibly different counterfactual in recent years, when mothers are more career-oriented

We need to focus on understanding **what drives quality** of child care: We know way too little on this.

Further reading

This presentation is based largely on:

- Drange and Havnes: "Early and bright? Child care for toddlers and early cognitive skills". *Journal of Labor Economics,* 2018 (Forthcoming).
- Havnes and Mogstad: "Is universal child care leveling the playing field?" *Journal of Public Economics,* 127, pp. 100–114, 2015.
- —: "No child left behind: Subsidized child care and children's long-run outcomes". *American Economic Journal: Economic Policy*, 3(2), pp. 97-129, 2011a.
- —: "Money for nothing? Universal child care and maternal employment". *Journal of Public Economics*, 95(11-12), pp. 1455-1465, 2011b.
- Drange, Havnes and Sandsør: "Kindergarten for all: Long-run effects of a universal intervention". *Economics of Education Review*, 2016.
- Andresen and Havnes: "Universal child care for toddlers and parental labor supply". *IZA Discussion paper*, 2018.