

# Studying Early Care and Education Programs Using Administrative Records

NAWRS presentation

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# Summary: What?

- Data exploration analytical work (uses Illinois administrative records)
- Study enrollment in multiple early care and education (ECE) programs through the early childhood cycle
  - 1) Head Start (HS);
  - 2) state funded pre-K and;
  - 3) CCDF-childcare subsidy programs
- Estimate associations between participation in those programs and third grade school test scores
  - Estimates across programs and age ranges (0-3/3-5)
  - Also with reference to a no-program state

# Summary: Why?

Limited knowledge about:

- How do families use ECE programs through early childhood?
- How do enrollment of children in those programs affects their development (cognitively/socio-emotionally)?
- How do programs rank on the basis of quality?
  - Evidence often extrapolated from small-scale, highly intensive programs
  - Most of the evidence is short-term outcomes

# Summary: How?

- Form a unique database of linked administrative records:
- 3rd graders in Chicago Public Schools (2007-2008) retrospectively followed in:
  - Child Care and Development Fund subsidies
  - Head Start
  - State funded pre-K
- And their households followed in:
  - TANF
  - SNAP
  - UI wages
  - 2000-Census
- Model selection into those programs (and program types)
- Compute semi-parametric regressions (inverse probability weighting; Hirano, Imbens, and Ridder (2003))

- 1 Data
- 2 Methods
- 3 Results: only on math (similar for reading)
- 4 Conclusions

# Outline

1 Data

2 Methods

3 Results: only on math (similar for reading)

4 Conclusions

Retrospectively follow 3rd grade cohort (2007-2008) in Chicago Public Schools:

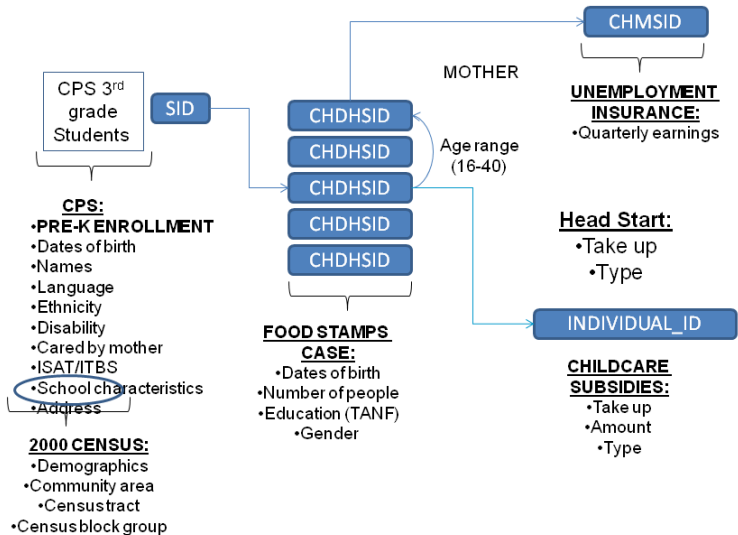
- Framed in SNAP (subset to low income; recover HH info)
  - Matched birth-5 to Head Start, CPS-pre-K and CCDF (centers, homes, relatives, non-relatives)

Recover pre-determined variables for mothers and households in:

- TANF, SNAP (participation)
  - Unemployment insurance (wages and employment)
  - Match residential addresses to census tract data (2000-SF3 files)

Recover Illinois Standardized Achievement Tests (ISAT 3rd grade; math and reading)

# Data: a research database





## ① Treatments:

- Challenges to define treatments: program collaboration; discontinuity in supply by age; differential dosages; multiple ages at first subsidy receipt
  - Ages at first program take up 0-35 months CCDF (centers, homes, relatives, non-relatives)
  - Ages at first program take up 36-59 months CCDF (centers, homes, relatives, non-relatives) + HS + CPS-pre-K

## ② Outcomes are third grade ISAT test scores:

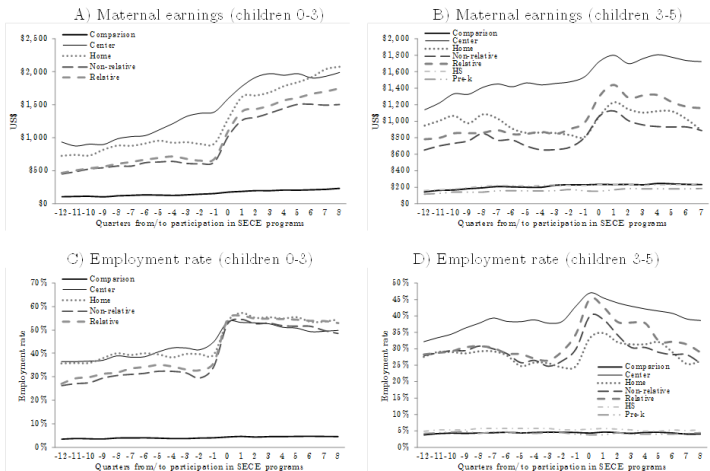
- Math
- Reading

## Data: Descriptive statistics reveal

- Parental choice of child care subsidies (CCDF) is heavily driven by a pre-program dip in earnings
- Disadvantaged children (lower SES, parental education, etc.) are more often exposed to subsidized care by relatives and non-relatives than less disadvantaged children
  - They differ from children never exposed
- Less disadvantaged children are more often exposed to center-based care (CCDF-centers, HS and pre-k)
  - Families who utilize center-based child care programs look remarkably similar

# Data: pre-program dip in earnings

Figure 1. Employment and earning series (by type of care and age of the child)



# Outline

1 Data

2 **Methods**

3 Results: only on math (similar for reading)

4 Conclusions

- 1 Multiple counterfactuals:
  - Anchor treatment/participation in one program and use other programs as counterfactuals
  - Estimate effects with reference to a no-treatment state (children never exposed)
- 2 Employ semi-parametric regression [inverse probability weights; Hirano, Imbens and Rider (2003)]
  - Matching on observables
  - Compute a propensity score per effect (maximizes # correctly classified obs; exponentials/interactions)
  - Compute an OLS regression with inverse probability weights (on common support area)

# Outline

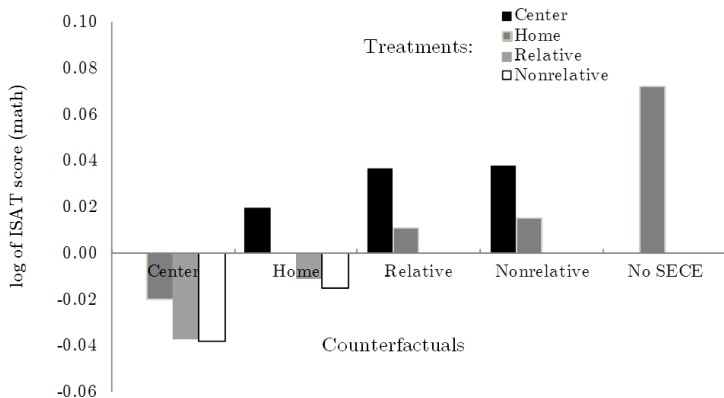
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Table A. Summary of results

	<b>Program effects</b>	<b>Effects across programs</b>
<b>Ages 0-3</b>	CCDF-homes (+ math/read)	CCDF-licensed programs outscore license-exempt ones
<b>Ages 3-5</b>	Head Start, pre-K (+ math/read)	Center-based programs outscore license-exempt CCDF
<b>Ages 0-3 and 3-5</b>	(CCDF-license-exempt at 0-3)+(Center-based programs at 3-5) better than (CCDF-license- exempt at 0-3)	

# Results: Math (0-3)

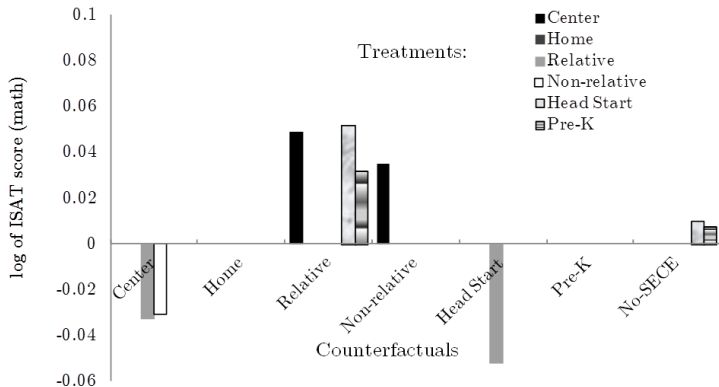
Effects of SECE programs on 3<sup>rd</sup> grade math ISAT test scores  
(3<sup>rd</sup> grade; 0-3 over multiple counterfactuals)





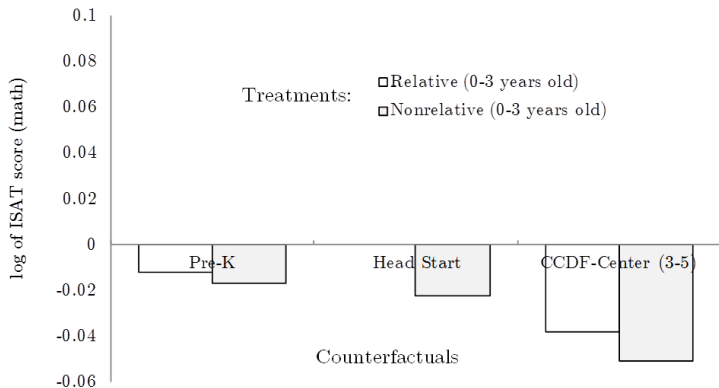
# Results: Math (3-5)

Effects of SECE programs on 3<sup>rd</sup> grade math ISAT test scores  
(3<sup>rd</sup> grade; 3-5 over multiple counterfactuals)



# Results: Math (0-3)/(3-5)

## Effects of license exempt SECE programs on 3<sup>rd</sup> grade math ISAT (counterfactuals are children in license exempt (0-3) and other (3-5))



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- Administrative records provide a unique source of data to study ECE program participation and outcomes
  - Allows continuing monitoring: towards long term outcomes
- Challenges remain to properly define treatment:
  - Dosage: intensity
  - Collaboration across
- Preliminary results
  - Licensing matters
  - Head Start and pre-K effects appear fairly similar for this population of low income children
  - Some evidence of dynamic complementarities
- More research is needed integrating data-systems across ECE programs