The long term returns to early childhood education: Evidence from the first US Kindergartens
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- Most of the current empirical evidence on the long-term effects based on small samples.
- Studies tend to focus on high-quality model programs that are targeted to the poor, which may not generalize to the full population.

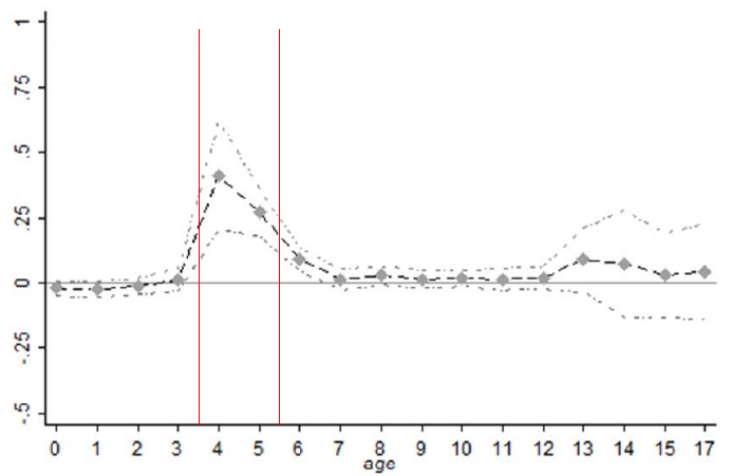
Results

- Enrollment -

$$I(enrolled_{iacs} = 1) = \sum_a D_a.(\#\ of\ Public\ Kindergartens/pop; c).\beta_a$$
$$+\alpha_a + \delta_s + f(a, X_c) + \epsilon_{iacs}$$

Figure 4: Number of public kindergartens and probability of enrollment in "any educational institution" (by age)

Sample: white children aged 0-17 living in cities and towns with kindergartens by 1912, IPUMS 1910 1% sample



$I(enrolled_{iacs} = 1) = \sum_a D_a.(\#\ of\ Public\ Kindergartens/pop; c).\ \boldsymbol{\beta_a} + (\ldots)$

Note: The graph plots the coefficients β_a of equation (1). These coefficients were obtained from an OLS regression of attendance on the number of kindergartens per thousand inhabitants in each city or town by 1912 ("# of kindergartens/pop") interacted with a full set of age dummies (Da). The model also include a full set of age dummies, state fixed effects, and a forth order polynomial in the city population interacted with the full set of age dummies. Standard errors were clustered at the city level.

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  - The kindergarten stock only appears to affect the enrollment of children aged 4 and 5.

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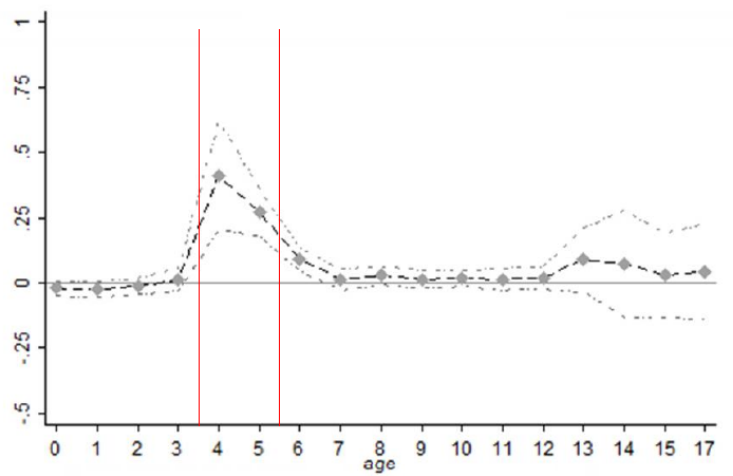

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$$y_{iacst} = \alpha_s + \beta.Kinder_{iacst} + \sum_j \gamma_j (age_{iac})^j + \delta_t + \gamma.X_{(1880)c} + \epsilon_{iacst}$$

- Grade attainment -

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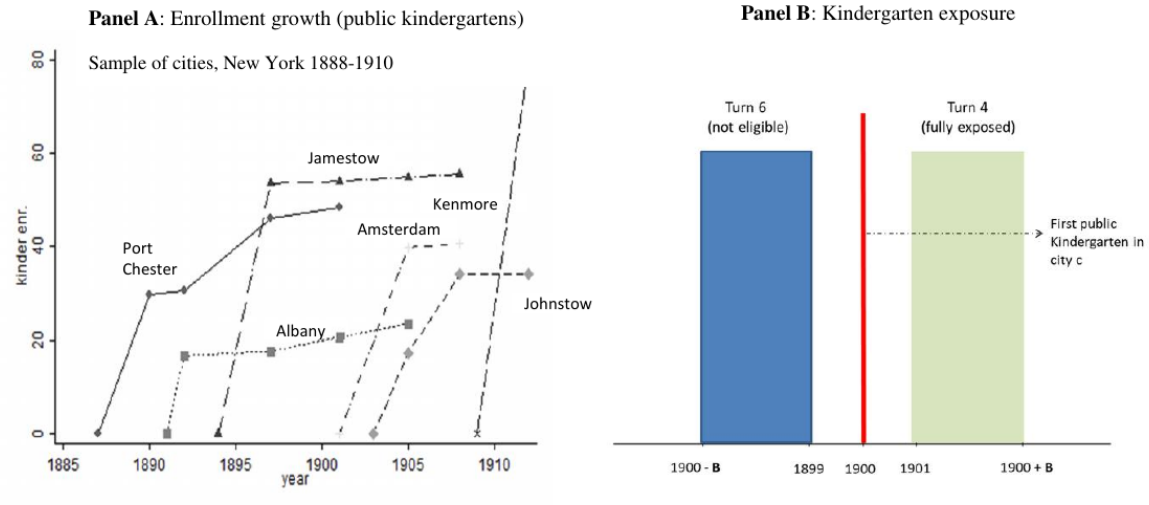
  - Effect through being able to learn English
- The tables show intention to treat effects

Identifying assumptions/strategy

- No preexisting trends in child well-being in the cities that built kindergartens.

Figure 6: Identification strategy



Note: panel A shows for a sample of cities of New York the increment in enrollment in public kindergartens in the years following the construction of the first public kindergarten (Source: Author's calculations based on several reports of the Bureau of Education). Panel B illustrates how "exposure to kindergarten" is defined for a given city C (in the example, I assume that city C built the first public kindergarten in the year 1900). Formally: Exposed to Kindergarten equals 1 if the children turned 4 in $[Year\_K_c + 1 ; Year\_K_c + B]$, and equals 0 if the children turned 6 in $[Year\_K_c - B ; Year\_K_c - 1]$, where $Year\_K_c$ represents the year that kindergartens were incorporated into the public education system ($Year\_K_c$ is equal to 1900 in the example) and B=5 in the benchmark case.

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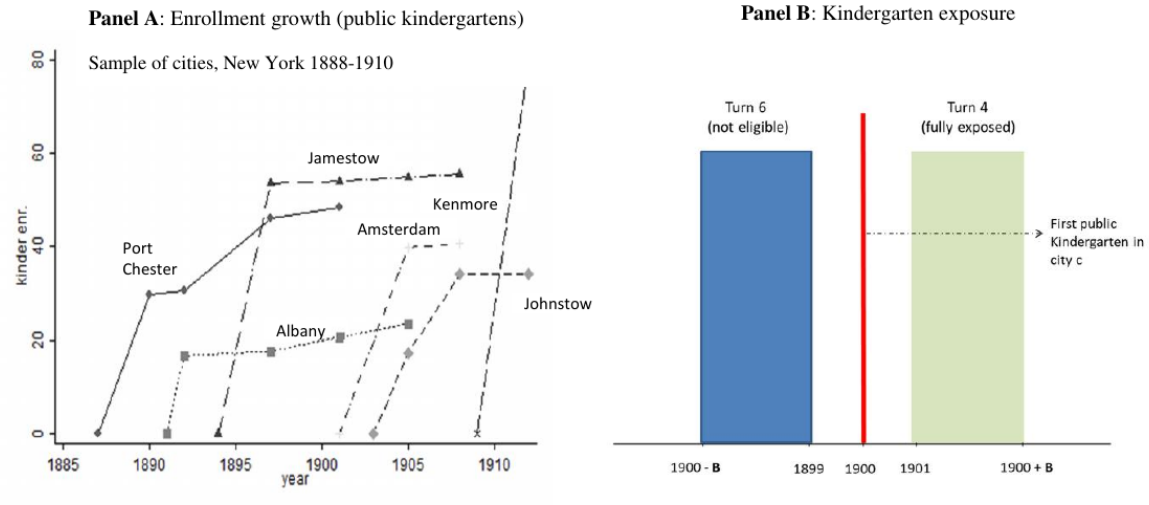

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- Kindergarten construction was not correlated with other policies that differentially affected children of kindergarten age.
- Compares cohorts that were slightly older than the entry age when kindergartens were introduced with those that were slightly younger.

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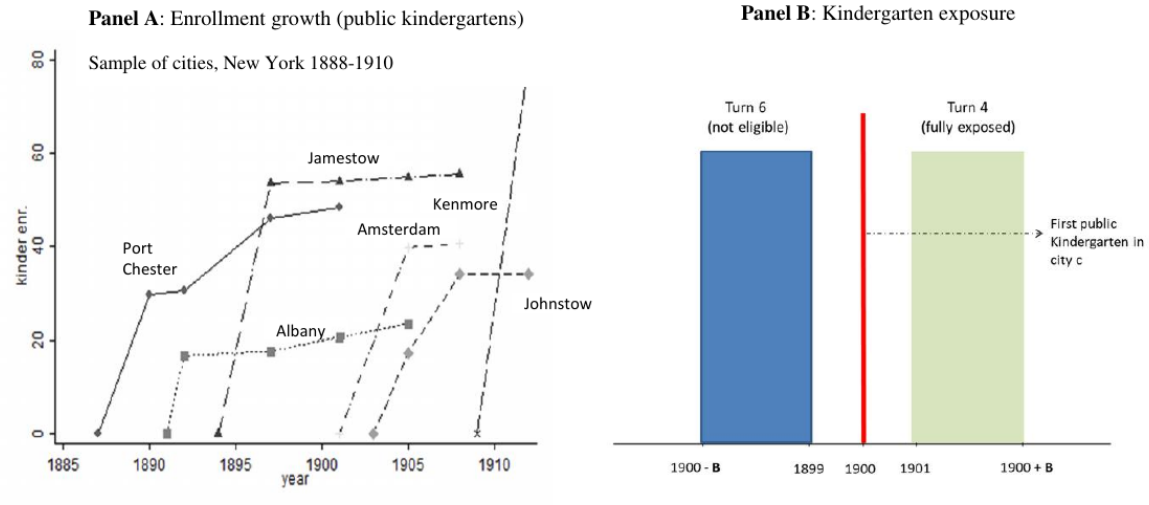

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- Figure 4 suggests that other educational policies (for example, the construction of high school buildings) do not seem to be correlated with the construction of kindergartens.
- Heterogeneity across cities controls for national policies.
- City level policies like to affect both ”treatment” and ”control” groups.
  - *At least show summary stats on other variables- number of students, number of immigrant students, pupil teacher ratio, teacher salaries, teacher qualifications, number of high schools etc. - show that they are same across the groups.*

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- Possible that non-English speakers benefited more because their families were poorer. Need information on socio-economic status of individuals, native countries.

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  - Tackles it by dropping out of state individuals
- Fixed in educational outcomes by matching.

Robustness

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  - Age trends
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- Does quite a few robustness tests
  - Age trends
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  - Noisy cohorts
- *In the earnings regression, using 1880 county controls.*
  - *Occupation score, enrollment - These change considerably with time.*
  - *Why not 1900?*

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- Play based intervention -> organize extra-curricular classes - swimming, self-defense etc.
- Public kindergarten is needed because child care is really expensive!
  - Obviously does not touch upon this.

Thanks!