

“Workhorses of Opportunity”: Regional Universities Increase Local Social Mobility

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- ▶ Dependent on state funding
 - ▶ Ongoing discussions of consolidation in several states
- ▶ This paper: new strategy to identify effects of these universities on economic mobility of nearby children
 - ▶ Placement of normal (teacher's schools) vs. insane asylums in late 19th/early 20th century
 - ▶ Normal schools converted to regional universities
 - ▶ Asylums are now mostly psychiatric facilities, and stayed small in size

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 - ▶ Effects appear driven by causal effects on children, not just selection on living near a university
- ▶ Relevant for policymakers and individuals:
 - ▶ Discussions about consolidation and future of regional publics
 - ▶ Where should people live to increase social mobility of their children?

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 - ▶ Card (1993); Kling (2001); Alm and Winters (2009); Do (2004); Doyle and Skinner (2016); Kane and Rouse (1995); Long (2004); Jepsen and Montgomery (2009); Bedard (2001)
3. Highlight impacts of understudied regional public universities
 - ▶ Russell and Andrews (2022); Russell, Yu and Andrews (2022) use runners-up strategy, do not focus on regional universities, smaller sample

Outline of Talk

1. History of Normal Schools
2. History of Asylums
3. Data and Empirical Strategy
4. Results
5. Potential Channels

Normal School History

- ▶ Mid-19th century begins an era of government-chartered normal schools to train teachers
 - ▶ Part of a broader social movement to increase public institutions for general well-being
- ▶ 209 normal schools opened from 1839-1930 (Ogren 2005)
 - ▶ Often multiple established within a state

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- ▶ 209 normal schools opened from 1839-1930 (Ogren 2005)
 - ▶ Often multiple established within a state
- ▶ Established through legislation; location chosen by legislature or commissions established by the legislature
- ▶ Factors determining locations of normal schools (Humphrey 1923):
 - ▶ Political influence
 - ▶ Demand for instruction
 - ▶ Accessibility
 - ▶ Financial and Land Donations
 - ▶ Locations of Existing Schools
 - ▶ Natural Beauty

Normal School History

DeKalb chosen as location of new normal school in northern Illinois (1895)



A surviving piece of ephemera celebrating the choice of DeKalb for the new state normal school, this embroidered and painted cloth still resides in NIU's Regional History Center / Archives.

Source: Northern Illinois University website

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- ▶ 1950s: Many become state colleges
- ▶ 1950-1970s: Many become universities
 - ▶ Half of public comprehensive universities started as normal schools
- ▶ Examples: Eastern, Northern, Western, Southern Illinois

Normal School History

E X T R A

Eastern State News

"Tell the Truth and Don't Be Afraid"

VOL. XXXII . . . EXTRA EASTERN ILLINOIS STATE COLLEGE . . . CHARLESTON TUESDAY, JULY 15, 1947

General Assembly Approves Name Change for Eastern

Donald A. Rothschild to Head New Department of Psychology

A REALIGNMENT of faculty consonant with the changing of the college will place the present head of TC high in charge of new department of psychology, it was learned as a result of the Teachers College board meeting at Macomb Monday. Dr. Donald A. Rothschild, who has administered the training high school for 13 years, will start building the new professional department.

Archie R. Ayers, presently head of the physics department at George Peabody College for Teachers, Nashville,

Governor Will Sign Bill, Says Nickell At Meeting of Teachers College Board

"GOVERNOR GREEN will approve the bills changing the name of Eastern Illinois State Teachers college to Eastern Illinois State college." State Superintendent of Public Instruction Vernon L. Nickell stated this conviction yesterday at a meeting of the Teachers College board, of which he is secretary and an ex officio member. President R. G. Buzzard, returning last night from the Macomb meeting, brought the news. The Governor's signature on House Bills 809, 810, 811, and 812 will effect the second change in the name of the 48 year old institution and again make the title more descriptive of the functions of the college. In

Eastern State News, July 15, 1947

Normal School History

- ▶ Quote from E. Alden Dunham, *Colleges of the Forgotten Americans* (1969):
 - ▶ "My children were delighted with the T-shirts I bought for them on sale at several campuses. The reason for the discount: the campus stores often had a difficult time keeping the insignia on the shirt current with the rapidly changing names of the institutions"

Asylum History

- ▶ Mid 1800s to early 1900s also a period of establishing insane asylums
 - ▶ Not just for housing patients
 - ▶ Emphasis on restoration
- ▶ Typically assigned locations by legislatures
 - ▶ Sometimes at the same time as normal schools
 - ▶ Usually several per state
- ▶ Important factors (Kirkbride 1854):
 - ▶ Near population centers
 - ▶ Close to roads and railroads
 - ▶ Picturesque locations
- ▶ In practice, political influence and land donations also played major roles

Asylum History



Kankakee Gazette, August 9, 1877

- ▶ There were also Northern, Southern, and Western Asylums
- ▶ Article explicitly thanks the land benefactor and local politicians
- ▶ City celebrated with a party that included band music and a bonfire

Asylum History

- ▶ Unlike normal schools, asylums never got big
- ▶ Deinstitutionalization movement: 1950-1980
- ▶ Today, many are psychiatric facilities, a few are prisons, some acquired by universities

Non-econometric evidence of balance

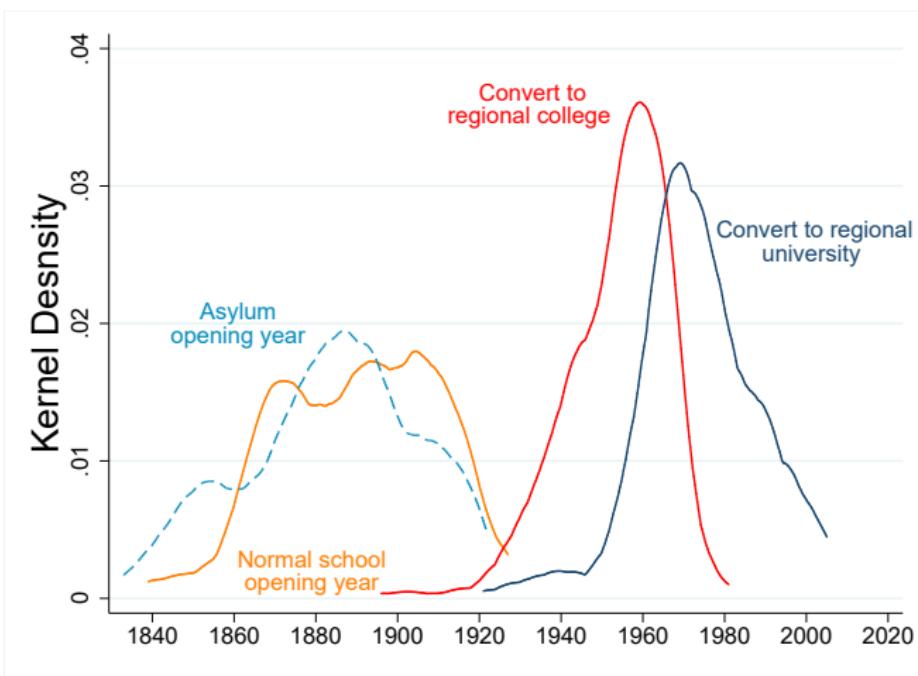


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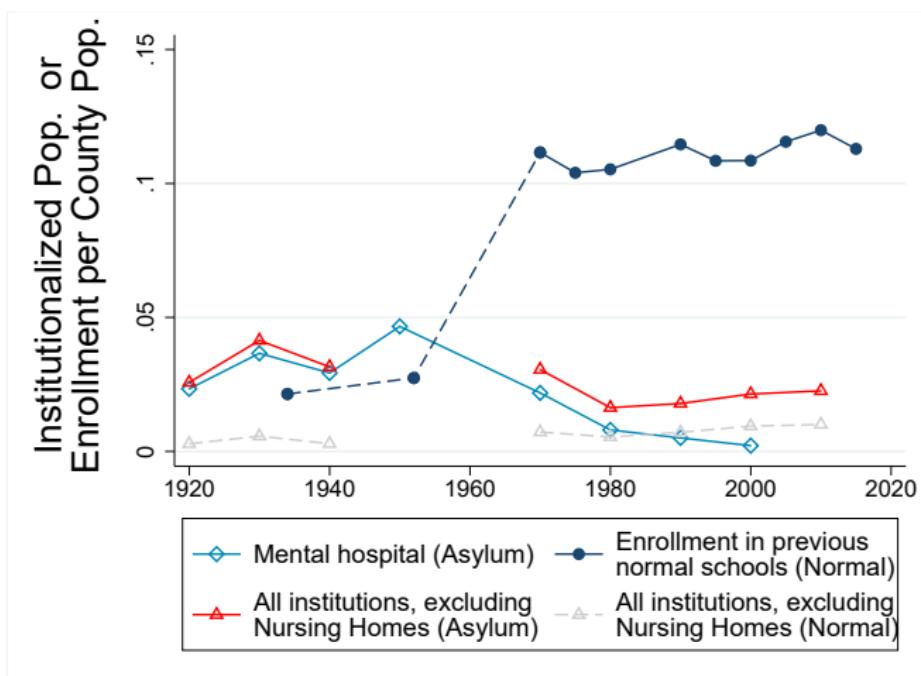


Black-and-white are normal schools, color photos are asylums

Timeline



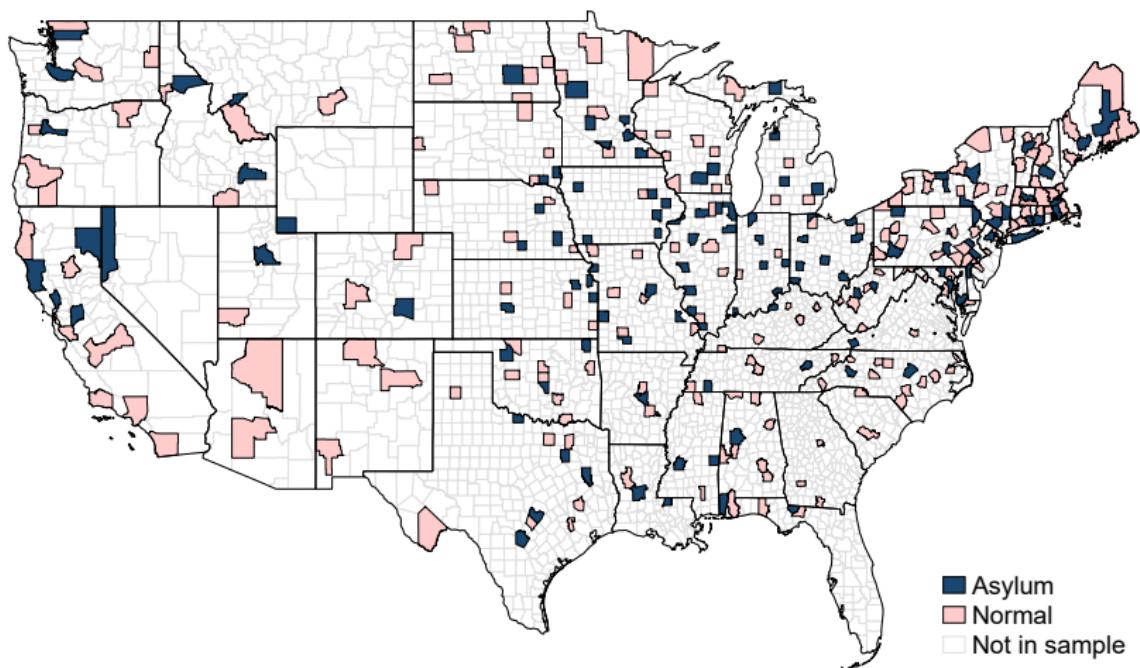
Timeline



Data Collection

- ▶ Historical data on normal school location comes from Ogden (2005)
- ▶ We digitize data on asylums from the 1923 special census of “institutions of mental disease”
- ▶ Exclude 5 asylums that predate the normal schools
- ▶ If a county had both a normal school and an asylum, we classify it as a normal county.
- ▶ Left with 204 normal counties, 126 asylum counties

Map of Normal Schools and Insane Asylums



Balance

► Compare means, run state-FE regression: $y_i = \beta \text{Normal}_i + \alpha_s + \epsilon_i$

	(1)	(2)	(3)	(4)	(5)
	Variable Means			Difference in Means With State FE	
	Normal	Asylum	All others	(1) - (2)	(1) - (3)
Panel A: Geographic Characteristics					
Within 150 Miles of State Capital	0.48 (0.5)	0.52 (0.5)	0.42 (0.49)	-0.11* (0.06)	-0.02 (0.03)
Water Coverage	6.23 (12.96)	6.35 (12.44)	4.39 (11.06)	-0.04 (1.34)	-0.83 (0.92)
Panel B: Characteristics in 1840					
Log Population	9.71 (1.38)	9.51 (1.59)	8.99 (1.22)	-0.02 (0.13)	0.27*** (0.08)
Log Nearby Population	11.00 (0.36)	10.94 (0.37)	10.92 (0.33)	-0.02 (0.02)	0.001 (0.01)
Log Manufacturing Capital Stock	12.02 (2.07)	11.87 (2.07)	10.51 (1.86)	-0.18 (0.19)	0.49*** (0.14)
Urban Share	6.72 (16.13)	9.22 (20.31)	1.40 (8.11)	-3.15 (2.56)	2.71** (1.15)
<i>Sectoral Employment Share</i>					
Agriculture	73.94 (21.3)	68.65 (23.51)	82.47 (20.39)	5.16 (3.22)	-1.57 (1.47)
Commerce	2.97 (5.42)	3.82 (5.22)	2.48 (5.03)	-0.69 (0.78)	0.09 (0.18)
Learned Professions and Engineers	2.25 (3.51)	4.20 (11.16)	2.00 (4.05)	-1.85 (1.42)	0.12 (0.12)
Manufacturing	17.38 (14.44)	19.51 (15.66)	10.53 (12.85)	-1.94 (1.66)	2.19* (1.31)

1920 Balance

Balance on Historical Measures of Mobility

- ▶ Educational Mobility, 1850
 - ▶ School attendance rate of 14-17 year-olds, whose father's value of real estate is \leq median
 - ▶ School attendance rate for teens in 1850 is upward sloping in father's real estate value
 - ▶ 1850 full count of the U.S. Census

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 - ▶ 1850 full count of the U.S. Census
- ▶ Did normal schools impact mobility before converting to universities?
- ▶ Educational Mobility, 1940
 - ▶ Fraction children attaining 8th grade, living with parents with \leq 6th grade attainment
 - ▶ Data from Card, Domnisoru and Taylor (2022)

Balance on Historical Measures of Mobility

	Normal	Asylum	Within-State Difference
Upward educational mobility, 1850			
White	0.4 (.23)	0.44 (.19)	-0.01 (0.02)
Black	0.22 (.26)	0.25 (.27)	0.04 (0.04)
Upward educational mobility, 1940			
White	0.7 (.18)	0.75 (.15)	0.00 (0.01)
Black	0.58 (.29)	0.67 (.26)	0.02 (0.03)

- ▶ No significant differences in 1850 or 1940 educational mobility

The County-Level Higher Education Sector in 1980

	(1)	(2)	(3)
	Variable	Means	Difference in Means With State FE (1) - (2)
	Normal	Asylum	
Has regional college formerly normal school	0.91 (0.29)	0.00 (0.00)	0.93*** (0.02)
Total public four-year colleges	1.11 (0.67)	0.44 (0.88)	0.69*** (0.12)
Total private four-year colleges	1.39 (3.27)	1.94 (4.62)	-0.45 (0.53)
Total two-year colleges	0.97 (2.17)	1.16 (2.17)	-0.22 (0.31)
Enrollment as % of population	11.72 (9.23)	4.56 (5.51)	8.41*** (1.59)
Total degrees awarded as % of population	3.04 (2.77)	0.93 (1.41)	2.47*** (0.5)
% Population over 25 with Bachelor's degree	16.57 (4.79)	15.02 (6.1)	2.04** (0.86)

- ▶ Not all normal counties have a regional university
- ▶ Some asylum counties have a public four-year university
 - ▶ Reduced form will underestimate impact of regional university

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- ▶ Not all normal counties have a regional university
- ▶ Some asylum counties have a public four-year university
 - ▶ Reduced form will underestimate impact of regional university
- ▶ Asylum counties have more private and two-year colleges
 - ▶ But universities in normal counties are public and much larger

Data on Economic and Social Mobility

- ▶ Opportunity Insights data from Chetty et al. (2018)
 - ▶ IRS and Census data
 - ▶ County-level outcomes of children born between 1978-1983, who grew up in the county, by parental income
 - ▶ Includes 96% of all children born from 78-83, who were born in the US, or authorized immigrants who arrived in the US as children with parents who were citizens or authorized immigrants

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 - ▶ Parental income: mean over 5 years when children are 11-22 years old
- ▶ Additional data: causal estimates of counties on mobility, identified from families that move when their children are different ages (Chetty and Hendren, 2018)

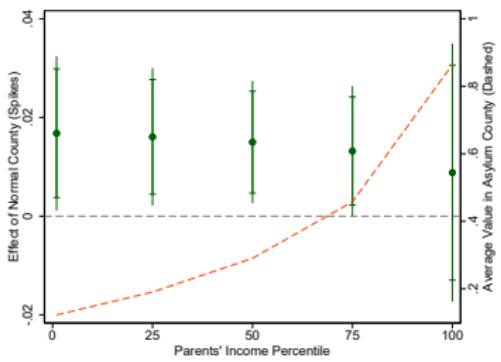
Empirical Strategy

- ▶ Main specification:

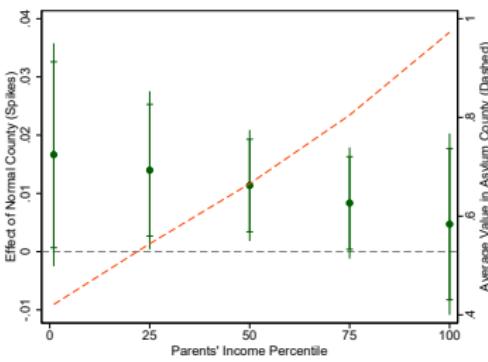
$$y_i = \beta \text{Normal}_i + \alpha_s + \epsilon_i \quad (1)$$

- ▶ Sample: Normal and Asylum counties
- ▶ Include state fixed effects
- ▶ Identification assumption: asylum counties in the same state are a good counterfactual for the social mobility of normal counties
 - ▶ Had the normal school not converted to a regional public university
- ▶ Standard errors clustered at the state level

Regional Universities Raise Educational Attainment of Nearby Children



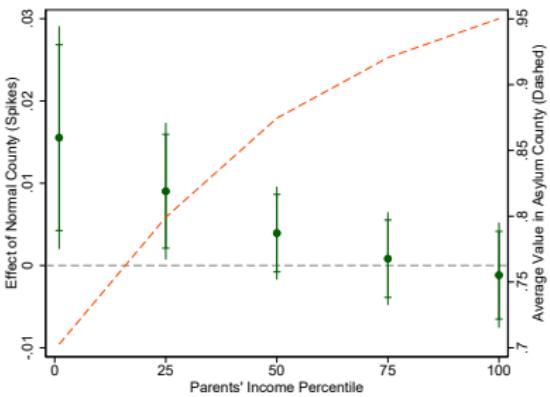
(a) At least 4-year College Degree,
Age 25 and over



(b) At Least Some College, Age 25
and over

- ▶ Regional public universities raise the fraction of local children attaining a four-year degree by 2 percentage points
 - ▶ 8% for children with parental income at 25th percentile

Regional Universities Raise Educational Attainment of Nearby Children



(a) At least HS Graduate or GED, Age 19 and over

- ▶ Regional public universities raise the fraction of local children of low-income parents graduating high school
- ▶ Bedard (2001)

Comparison to Causal Effects on People

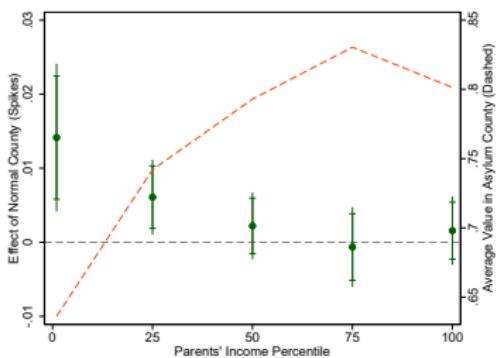
- ▶ Previous figure: causal effects of regional universities on counties
- ▶ Do not identify causal impact on the child
 - ▶ Universities may affect composition of who grows up in the county
- ▶ Use causal effects of counties on mobility from Chetty and Hendren (2018)

Table: Causal Effects on College Attendance, 25th percentile parental income

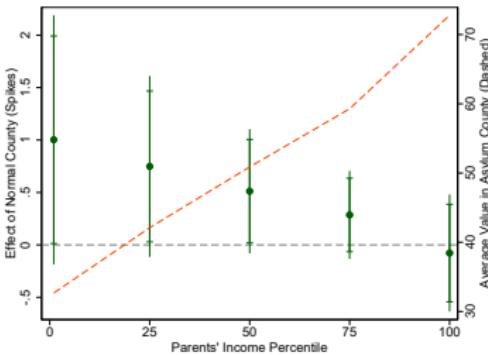
	(1) Some College, Age 25+	(2) Attended College, Age 18-23
Normal	1.398* (0.672)	0.139+ (0.0749)
Observations	325	306
Birth Cohorts	1978-1983	1980-1986
Weights	Unweighted	Precision Weights
Scale	Per Childhood	Per Year
Interpretation	Effect on Place	Effect on Person

- ▶ Similar magnitude for causal effect on county and on individuals

Regional Universities Raise Employment and Income of Nearby Children



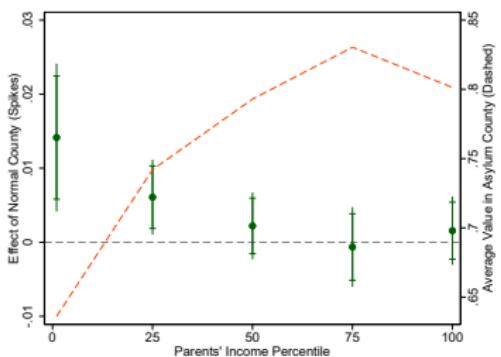
(a) Positive W-2 Earnings, 2015



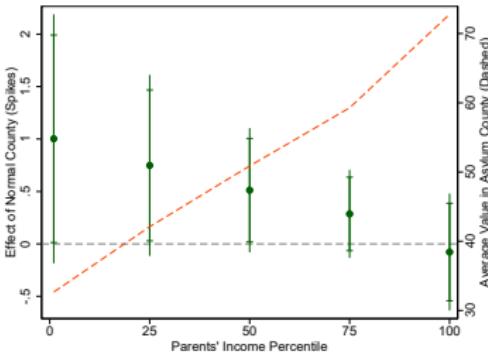
(b) Family Income Percentile,
2014-2015

- ▶ For children with parents at 25th percentile of income distribution
 - ▶ 0.6 percentage point increase in likelihood of W-2 earnings
 - ▶ Large effects on additional degree recipients, if driven by education

Regional Universities Raise Employment and Income of Nearby Children



(a) Positive W-2 Earnings, 2015



(b) Family Income Percentile, 2014-2015

- ▶ For children with parents at 25th percentile of income distribution
 - ▶ 0.6 percentage point increase in likelihood of W-2 earnings
 - ▶ Large effects on additional degree recipients, if driven by education
 - ▶ 0.7 percentile rank increase in household income percentile
 - ▶ Chetty and Hendren (2018): growing up in CZ with one SD lower racial segregation implies 1.6 percentile higher household rank (non-causal)

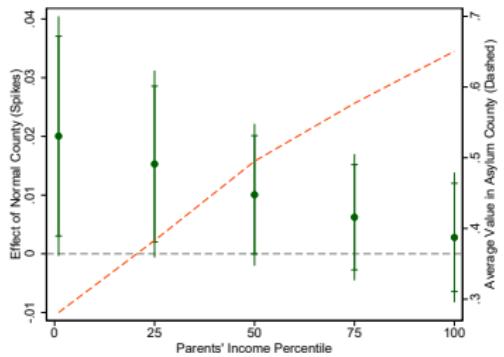
Comparison to Causal Effects of Regional Universities on People

Table: Causal Effects on Income, 25th percentile parental income

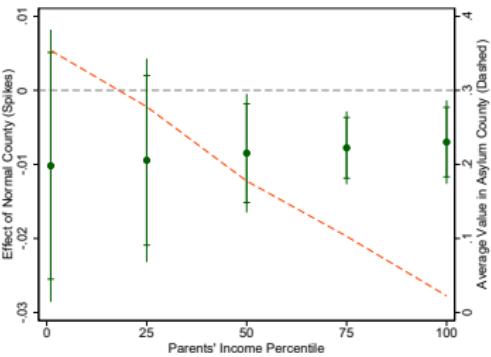
	(1) Family Income Pctile, 2014-15	(2) Family Income Pctile, Age 26
Normal	0.748 ⁺ (0.428)	0.0794 ⁺ (0.0428)
Observations	325	306
Birth Cohorts	1978-1983	1980-1986
Weights	Unweighted	Precision Weights
Scale	Per Childhood	Per Year
Interpretation	Effect on Place	Effect on Person

- ▶ Comparable causal effects on county and on individuals

Regional Universities Increase Marriage, Decrease Teen Births



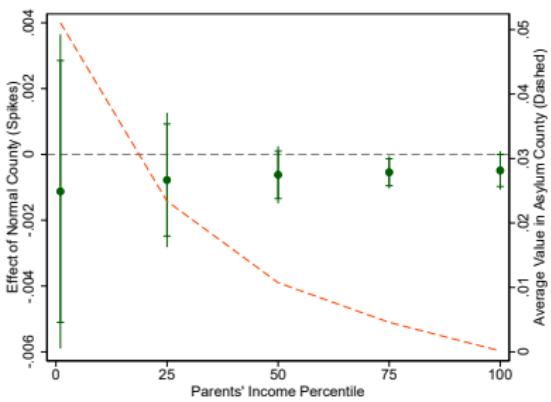
(a) Marriage, 2015



(b) Teen Birth (women-only)

- ▶ 1.5 percentage point (4%) increase in marriage, 25th percentile of family income
- ▶ 1 percentage point lower likelihood of teen birth

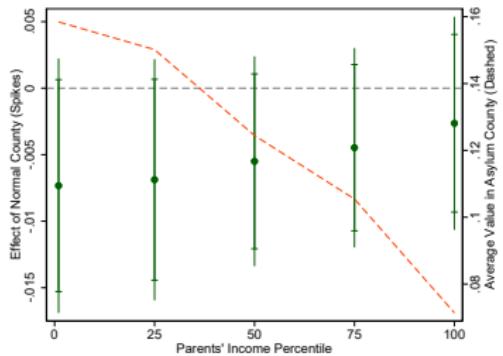
Regional Universities Decrease Incarceration



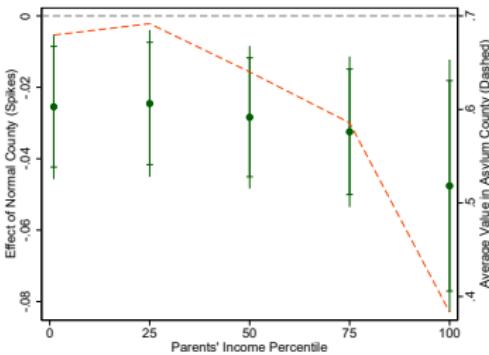
(a) Incarcerated, April 1, 2010

- Decline in incarceration across income distribution, although significant only at top end

Regional Universities Increase Geographic Mobility



(a) Staying with Parents, 2015



(b) Live in Childhood Commuting Zone

- ▶ Large increase in geographic mobility

Comparison to Causal Effects of Regional Universities on People

Table: Causal Effects on Marriage, 25th percentile parental income

	(1) Married, 2015	(2) Married, Age 26
Normal	1.529 ⁺ (0.790)	0.0880 ⁺ (0.0468)
Observations	325	301
Birth Cohorts	1978-1983	1980-1986
Weights	Unweighted	Precision Weights
Scale	Per Childhood	Per Year
Interpretation	Effect on Place	Effect on Person

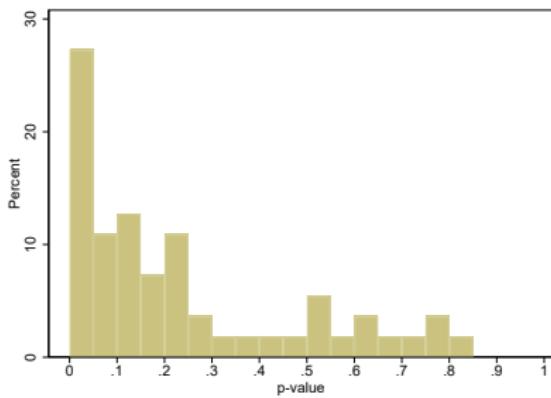
- ▶ Comparable causal effects on county and on individuals
- ▶ Causal effects on individuals not available for other social outcomes

Multiple Hypothesis Testing

- ▶ Investigate 11 outcomes at 5 parental income percentiles
- ▶ Are results robust to considering multiple hypothesis testing?

Multiple Hypothesis Testing

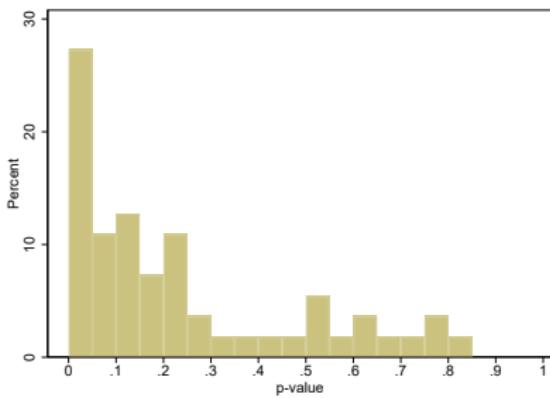
- ▶ Investigate 11 outcomes at 5 parental income percentiles
- ▶ Are results robust to considering multiple hypothesis testing?



- ▶ More than 25% of p-values < 0.05

Multiple Hypothesis Testing

- ▶ Investigate 11 outcomes at 5 parental income percentiles
- ▶ Are results robust to considering multiple hypothesis testing?



- ▶ More than 25% of p-values < 0.05
- ▶ Implement Young (2020), reject null that there is no effect on the 55 outcomes

Multiple Hypothesis Testing: Principal Components

- ▶ Want to test for effect on “social mobility:” common part of each outcome
 - ▶ Particularly for lower-income children
- ▶ Calculate principal component of the 11 outcomes
- ▶ Test for effect at each of the five percentiles
- ▶ Adjust for 5 different tests using Romano and Wolf (2005)
 - ▶ Adjusted p-values under 0.05, except for 100th ($p = .12$)

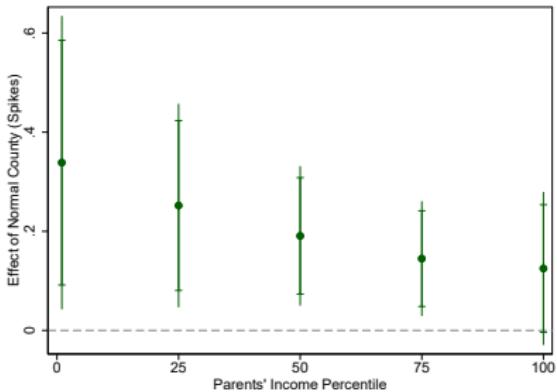


Figure: Principal Components

Takeaways

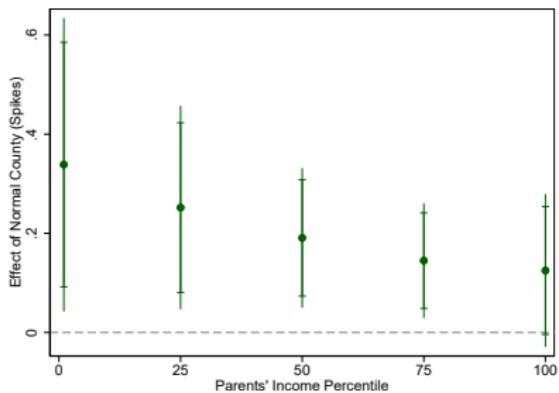


Figure: Principal Components

- ▶ Larger point estimates for lower-income children
- ▶ These differences not a key aspect of our study
- ▶ If regional universities help low-income children, then they increase relative to national distribution
 - ▶ Regardless of whether they help high-income children

Potential Channels

- ▶ Regional universities may
 - ▶ Decrease geographic frictions in college attendance, and this affects social mobility
 - ▶ Impact local economy and increase local return to education
 - ▶ Impact community composition, with direct and indirect effects on mobility (e.g., through K-12 schooling)
- ▶ Use data from Chetty et al. (2018); Chetty and Hendren (2018) to test for differences
 - ▶ Fairly speculative exercise, but correlations may be informative

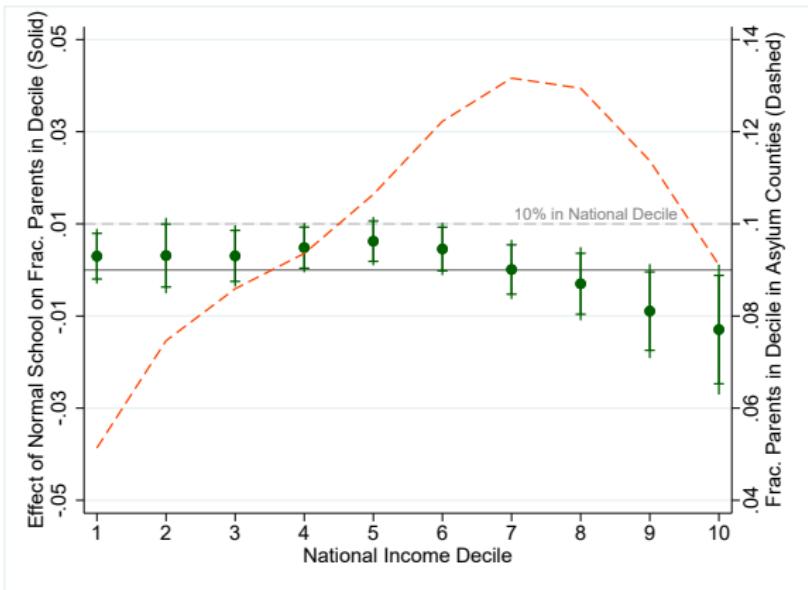
	Normal	Asylum	Within-State Difference
Economic Characteristics			
Manufacturing employment share, 2000	0.13 (0.06)	0.15 (0.07)	-0.01+ (0.01)
Average annualized job growth, 2004-2013	0 (0.01)	0 (0.01)	-0.00 (0.001)
HS grad. wage growth, 2005-2009 - 2010-2014	0.06 (0.11)	0.05 (0.07)	0.01 (0.01)
Bachelor's degree share, age \geq 25, 2000	0.24 (0.07)	0.22 (0.09)	0.02* (0.01)
Population, 2000	269,614 (765,738)	304,082 (591,179)	-27,213 (91,084)
Children < 18, 2000	67,974 (209,691)	76,844 (152,362)	-7,406 (23,965)
K-12 Public Schools and Colleges			
K-12 expenditures per stud., 1996-1997	6.38 (1.43)	6.39 (1.43)	0.01 (0.07)
K-12 student teacher ratio, 1996-1997	16.88 (2.18)	17.47 (2.16)	-0.42* (0.17)
Mean 3rd grade math test scores, 2013	3.28 (0.63)	3.29 (0.71)	0.02 (0.07)
College tuition, local colleges, IPEDS 2000	4149.01 (3,836.2)	6836.79 (4,652.87)	-2,508.13** (597.97)
Family characteristics, children in Chetty et al. (2018)			
Children claimed by two people			
parent income at p25	0.51 (0.12)	0.49 (0.12)	0.02* (0.01)
parent income at p75	0.94 (0.04)	0.93 (0.06)	0.00 (0.01)
Fraction of childhood spent in the county	0.74 (0.07)	0.76 (0.06)	-0.01+ (0.01)

► Little difference in local economy

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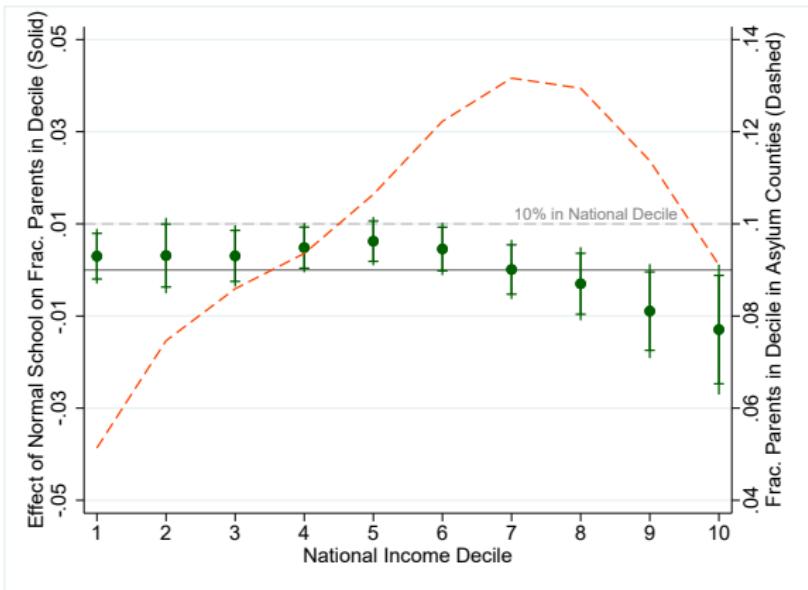
- ▶ Little difference in local economy
- ▶ Fraction claimed by 2 people higher by 2 percentage points (4%)
- ▶ Use data from Chetty et al. (2016), disaggregated by child's family structure, to show our results are not driven by this By family composition

Regional Universities Do Not Affect Parental Income Distribution



- ▶ Similar fraction of parents in each national income decile

Regional Universities Do Not Affect Parental Income Distribution



- ▶ Similar fraction of parents in each national income decile
- ▶ Both have substantial underrepresentation at the bottom and some at the very top of the income distribution

Conclusion

- ▶ Regional universities improve local economic and social mobility
 - ▶ Larger effects for lower-income children
 - ▶ Causal effects on counties appear driven by causal effects on people, not sorting in the mid 1800s to early 1900s.

Conclusion

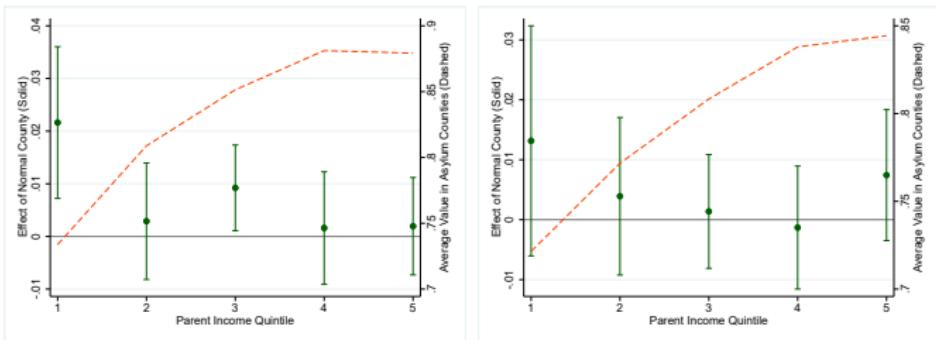
- ▶ Regional universities improve local economic and social mobility
 - ▶ Larger effects for lower-income children
 - ▶ Causal effects on counties appear driven by causal effects on people, not sorting in the mid 1800s to early 1900s.
- ▶ Questions for policymakers and future research
 - ▶ Given local impacts, are universities located optimally?
 - ▶ How to reach students farther from the university?
 - ▶ Why are students in asylum counties not similarly attaining degrees from their local private university?
 - ▶ Why are they not traveling to the regional public? Information frictions, migration frictions?

Balance in 1920

	(1)	(2)	(3)	(4)	(5)
	Variable Means			Difference in Means With State FE	
	Normal	Asylum	All others	(1) - (2)	(1) - (3)
Log Population	10.66 (1.102)	10.86 (1.154)	9.65 (0.946)	-0.14 (0.153)	0.69*** (0.091)
Log Nearby Population	11.91 (0.473)	11.97 (0.438)	11.81 (0.383)	-0.042* (0.023)	0.01 (0.01)
Urban Share	39.97 (28.395)	46.60 (26.917)	16.05 (22.389)	-3.02 (3.929)	18.086*** (2.572)
Male Share	50.98 (1.838)	51.35 (2.578)	51.95 (2.38)	-0.26 (0.283)	-0.894*** (0.176)
African-American Share	10.14 (18.186)	7.01 (13.671)	12.12 (19.643)	0.47 (0.607)	2.154*** (0.703)
White Foreign-Born Share	10.18 (9.402)	11.18 (8.573)	6.38 (7.719)	-1.228* (0.665)	0.946*** (0.356)
Population Density	0.37 (1.762)	1.27 (9.574)	0.07 (0.541)	-0.99 (1.179)	0.17 (0.113)
Log Manufacturing Establishments	4.63 (1.333)	4.86 (1.37)	3.45 (1.027)	-0.18 (0.17)	0.737*** (0.084)
Average Manufacturing Wage	1,035.13 (231.487)	1,071.53 (252.168)	972.40 (284.351)	-7.58 (27.886)	24.73 (15.754)
Manufacturing Employment per Population	6.88 (6.586)	7.78 (6.202)	3.62 (5.288)	-0.968* (0.575)	1.271*** (0.334)
Log Value Added, Manufacturing	15.18 (2.133)	15.58 (2.156)	13.26 (1.944)	-0.32 (0.243)	1.211*** (0.125)
Log Value of Crops	15.30 (1.21)	15.42 (0.997)	14.87 (1.19)	0.04 (0.141)	0.391*** (0.097)
Log Value of Farm Property	16.94 (1.085)	17.15 (0.962)	16.49 (1.084)	0.04 (0.117)	0.437*** (0.083)

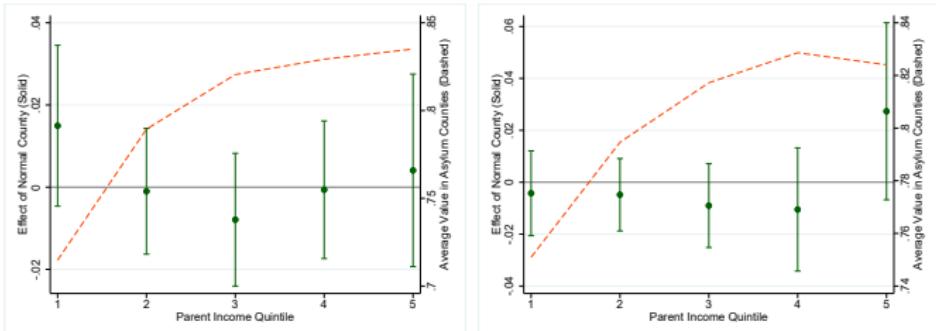
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Employment Results by Family Composition



(a) Men, two parents

(b) Women, two parents



(c) Men, single parent

(d) Women, single parent

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