

# Charter Schools in Kentucky? A Review of the Evidence on Student Outcomes

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# Kentucky's Unique Position

- Kentucky is one of seven remaining to pass legislation authorizing charter schools.
  - State is uniquely positioned, to implement or choose not to implement, a charter school policy based on a growing body of rigorous empirical evidence.
  - Opportunity to learn from successes and failures within other states.
  - Informed, evidence-based decision-making should be central in the process.
- Kentucky also has strong tradition of public schooling
  - View evidence through lens of impacts on public schools and their students
  - Choice does not operate purely through market mechanisms—consider how policies can help spur improvements across all sectors.

# Charter School Debate

- The idea of charter schools stirs passionate debate from supporters and detractors alike:
  - All charter schools are great!                      All charter schools are bad!
  - They serve all students well!                      They only take the best students!
  - They need freedom from regulations!                      They are not held accountable!
  - Public schools prosper!                      Public schools suffer!
- Passionate responses, but perhaps not evidence-based perspectives.
  - Move questions to: “What does objective research say about charter school effects on student outcomes?” and “How can that research inform policy?”

# Role of Research Design and Methodology

- When talking about implementing large-scale programs and policies, must move beyond beliefs, ideals, dispositions, anecdotes, or simple correlation/association.
  - Proponents/opponents of any policy can use research findings to support their argument.
  - Important to view evidence, with an open, but critical lens.
  - Assess internal and external strength and design of studies (validity).
  - What works? Under what conditions and context? How and why?
- Not every study meets important thresholds of methodological rigor.
  - Each study should not receive equal weight in an evidence-based discussion.

# Causal Inferences in Educational Research

- Long quest in educational research to have empirical evidence from which we can draw causal inferences about the effects of various education interventions, programs, or policies.
  - Causal effect: effect of a treatment on an outcome whereby the only systematic reason for differences in outcomes between treatment & control groups is the treatment itself.
- Often difficult to assess causal effects of educational programs or policies due to implementation and/or selection bias.

# Internal and External Validity

- When examining the findings of empirical studies, consider the validity of results.
  - **Internal Validity:** How valid are the estimates of the program's/policy's effects?
  - **External Validity:** How can we generalize these results?
- Often times, there is a tradeoff between internal and external validity.
  - My approach: place premium on internal validity (get estimates correct), then recognize limitations of generalizability.

# Internal Validity

- Internal validity relates to the bias of estimated results.
  - Can we make a causal conclusion about the true impact of intervention X on outcome Y or are the results biased in any way?
  - Can we rule out all other possible alternatives to explain this effect?
- Selection bias refers to differences between treatment and control groups prior to the intervention that explain any observed outcome.
  - Researchers cannot just “control away” for a multitude of factors in a statistical model that are responsible for these starting-gate differences between groups and assume causal effects.
  - Social science researchers attempt to mitigate this issue in a number of ways.

# Internal Validity

- **Best:** Randomized Control Trial or Natural Experiment
  - Randomly assign groups to treatment and control at start of study.
- **Good:** Quasi-Experimental Methods
  - A collection of empirical techniques used to estimate causal impacts.
  - Researcher chooses a methodological approach to mitigate selection bias.
- **Should Not Be Trusted:** Analyses from Observational Studies
  - Whether descriptive in nature or using a statistical model.



# Charter School Context

- There is a growing body of rigorous research on the causal effects of charter schools.
  - Ability to assess effects in studies where methodological rigor is satisfied.
  - Cuts both ways—understand strengths and limitations to inform policy.
- Charter schools (and school choice, more broadly) are not a panacea.
  - No one-size-fits-all charter school model.
  - Heterogeneity in the impacts of charter schools on student outcomes.
  - Context matters.
  - Assess research critically without drawing “broad-brush” conclusions.

# Lottery-Based Research Studies

- When a charter school is oversubscribed—that is, number of applicants exceeds open seats—schools are required to hold an admissions lottery.
  - Lottery acts as a natural experiment (like a randomized control trial).
  - Directly compare winners and losers of charter school lottery to assess effects of winning charter school lottery on student outcomes (intent-to-treat).
    - Groups should be the same on a number of background characteristics prior to lottery.
  - Focus on treatment-on-the-treated estimates, which are the effects of charter school attendance on student outcomes.
    - Lottery winners usually attend charter school; losers usually attend public school.
    - Lottery used as instrument to predict charter school attendance.

# Lottery-Based Research Studies

- Focus on eight peer-reviewed, lottery-based charter school studies
  - Most report middle-school student achievement outcomes
- Boston/Massachusetts<sup>(1)(2)(3)(4)</sup>
  - +0.13 to +0.20 std. dev. annual gain in English/Language Arts (ELA)
  - +0.32 to +0.36 std. dev. annual gain in Mathematics
  - Effects concentrated in urban, “No Excuses” schools (e.g., KIPP).
    - Non-urban charter schools—losses of 0.12-0.14 std. dev.
  - Strongest for Black/African American students, English Language Learners, special education students, and lowest-achievers upon entry.
  - Increases in likelihood of sitting for AP exams, attending four-year college, SAT scores. No effect on high school graduation rates.

# Lottery-Based Research Studies

- Harlem/New York City<sup>(13)(14)(15)</sup>
  - Null (citywide) to +0.20 std. dev. annual gain in ELA
  - +0.12 to +0.20 std. dev. annual gain in Math
  - Two studies focused on Promise Academy within Harlem Children's Zone
    - Host of social supports for families in addition to schooling
  - Strongest for Black/African American students.
  - Increases in achievement and on-time graduation/college enrollment indices.
- Nationwide<sup>(10)</sup>
  - Null gains in ELA and Math
  - Positive gains for low-SES and urban charter schools in math
  - Losses for white, higher achieving, and non-urban students in both subjects

# Lottery-Based Research Studies

- Why put stock in this work?
  - Internally valid research design of enrollment lotteries (natural experiment).
  - Strongest evidence for potential “scale-up” or new policy design.
    - Need additional context of what makes these schools work.
- Generalizability
  - All findings limited to oversubscribed schools.
    - Parents knowledge of schools—correlation between performance and oversubscription.
    - Important Note: While more “motivated” parents may enter their child into an admissions lottery at a high-performing charter school, the average initial “motivation” of winners and losers of the lottery should be the same.
  - Positive effects limited to urban areas, certain types of charter schools.

# Quasi-Experimental Research Studies

- Student fixed-effects with longitudinal data<sup>(5)(7)(8)(18)(19)(20)(21)(23)</sup>
  - Compare students switching from traditional public to charter schools.
    - Each student acts as own control/experiment.
  - Charter school effect is within-student comparison of charter vs. public achievement outcomes.
- Overall, mixed findings (some positive, some negative, most null) of charter school effects on student achievement outcomes
  - Several studies find a first-year achievement loss upon entering charter school
    - Disruption from change in environment?
  - Study of schools within Chicago, Denver, Florida, Indianapolis, Milwaukee, Ohio, North Carolina, Philadelphia, San Diego, Texas.

# Quasi-Experimental Research Studies

- Matching<sup>(9)(11)(16)(21)</sup>
  - Match students between charter and traditional public schools based on demographic and academic background characteristics.
    - Via propensity score matching or virtual control records (CREDO).
  - Charter school effect is comparison of charter vs. public student outcomes.
- CREDO (2013) findings (nationwide)
  - Small loss in ELA (-0.01 std. dev.) and small gain in math (+0.01 std. dev.)
  - Larger gains in both subjects for low-SES, ELL, and special education students
- Other findings on educational attainment/longer-term outcomes
  - Increases in likelihood of high school graduation, college attendance, college persistence, and earnings. (multiple states, one study focused on CMOs)

# Quasi-Experimental Research Studies

- Why put stock in this work?
  - Reasonably strong internal validity
    - Results consistent and robust to a number of alternative specifications.
- Generalizability
  - Findings across broader scope of charter schools.
    - Recognize that these are average effects across all schools.
    - Considerable heterogeneity when capturing more of charter sector.
  - Some schools performing well, some poorly.
    - Additional context of what types of schools performing well/poorly.



# Meta-Analysis

- Betts and Tang (2014)<sup>(6)</sup>
  - Conducted meta-analysis across 52 studies of charter schools that used lotteries or rigorous quasi-experimental approaches.
  - Overall, null impacts on ELA achievement, +0.03 std. dev. gain in math.
    - Larger positive impacts in math in middle school (+0.08 std. dev.).
  - Subgroups of students or schools with larger-than-average gains
    - Low-SES, special education, Black/African American, urban schools, KIPP schools.
  - Subgroups students or schools with smaller-than-average gains or losses
    - White, Latino, non-urban schools.

# Virtual Charter Schools?

- Virtual charter schools are online or hybrid charter schools operated by for-profit organizations.
- One quasi-experimental study on student outcomes to date:
  - CREDO (2015)<sup>(12)</sup>: substantial annual losses in ELA (-0.10 std. dev.) and math (-0.25 std. dev.)
  - Nationwide, robust findings to alternative specifications
  - Virtual schools not capped by enrollment, so unable to use lotteries

# Policy Considerations

- Decisions should be evidence-based.
  - Kentucky's unique positioning to learn from rigorous research prior to implementing or choosing not to implement charter school policy.
- How will decision-makers use evidence?
  - Understand strengths and limitations of methodological approaches
- Growing consensus about localized charter school impacts.
  - Positive student outcomes for urban charter schools that are operated by non-profit organizations (CMOs, particularly KIPP), and serve underrepresented populations of low-achieving students.
  - Null/negative student outcomes for non-urban charter schools primarily serving White students.
  - Need more information on non-cognitive and attainment outcomes.

# Policy Considerations

- Consider proceeding with caution on virtual charter schools.
  - Only one study, which found substantial losses.
  - Cautious approach with for-profit EMOs (Educational Management Organizations) in general—no rigorous research-base to date on impacts.
- Policies not widely accepted when targeted to specific populations.
  - Where unproven, consider slow scale-up.
    - Researchers still need to understand more about the conditions under which charter schools are or are not effective.
  - Consider some states as models with strong oversight for cautious approach
    - Massachusetts expanded cap on charters in 2011 to allow proven providers.
    - State of Washington – little known about impacts, but strong oversight.

# Thank You!

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# References

## Overview Readings:

- Berends, Mark. 2015. Sociology and school choice: What we know after two decades of charter schools. *Annual Review of Sociology*, 41(2), 159-80.
- Cohodes, Sarah and Susan M. Dynarski. Massachusetts charter cap holds back disadvantaged students. *Economics Studies at Brookings, Evidence Speaks Reports*, 2(1). Washington, DC: Brookings Institution.

# References

## Empirical Studies:

1. Abdulkadiroglu, Atila, Joshua D. Angrist, Susan M. Dynarski, Thomas J. Kane, and Parag A. Pathak. 2011. Accountability and flexibility in public schools: Evidence from Boston's charters and pilots. *Quarterly Journal of Economics*, 126(2), 699–748.
2. Angrist, Joshua, D., Susan M. Dynarski, Thomas J. Kane, Parag A. Pathak, and Christopher R. Walters. 2012. Who benefits from KIPP? *Journal of Policy Analysis and Management*, 31(4), 837-860.
3. Angrist, Joshua D., Parag A. Pathak, and Christopher R. Walters. 2013. Explaining charter school effectiveness. *American Economic Journal: Applied Economics* 5(4), 1–27.
4. Angrist, Joshua D., Sarah R. Cohodes, Susan M. Dynarski, Parag A. Pathak, and Christopher R. Walters. 2016. Stand and deliver: Effects of Boston's charter high schools on college preparation, entry, and choice. *Journal of Labor Economics*, 34(2), 275-318.

# References

5. Berends, Mark, and R. Joseph Waddington. In Press. School choice in Indianapolis: Effects of charter, magnet, private, and traditional public schools. *Education Finance and Policy*.
6. Betts, Julian R. and Y. Emily Tang. 2014. *A meta-analysis of the literature on the effects of charter schools on student achievement*. National Charter School Research Projects, Center for Reinventing Public Education, University of Washington, Bothell.
7. Bifulco, Robert and Helen F. Ladd. 2006. The impacts of charter schools on student achievement: Evidence from North Carolina. *Education Finance and Policy*, 1(1) 50-90.
8. Booker, T. Kevin, Scott M. Gilpatric, Timothy Gronberg, and Dennis Jansen. 2007. The impact of charter school attendance on student performance. *91*(5-6), 849-876.
9. Booker, T. Kevin, Tim Sass, Brian Gill, and Ron Zimmer. 2011. The effects of charter high schools on educational attainment. *Journal of Labor Economics*, 29(2), 377-415.



# References

10. Clark, Melissa A., Philip M. Gleason, Christina Clark Tuttle, Marsha K. Silverberg. 2015. Do charter schools improve student achievement? *Educational Evaluation and Policy Analysis*, 37(4), 419-436.
11. Center for Research on Educational Outcomes (CREDO). 2013. *National Charter School Study*. Stanford, CA: CREDO, Stanford University.
12. Center for Research on Educational Outcomes (CREDO). 2015. *Online Charter School Study*. Stanford, CA: CREDO, Stanford University.
13. Dobbie, Will and Roland G. Fryer, Jr. 2011. Are high-quality schools enough to increase achievement among the poor? Evidence from the Harlem Children's Zone. *American Economic Journal: Applied Economics*, 3(3), 158-187.
14. Dobbie, Will and Roland G. Fryer, Jr. 2013. Getting beneath the veil of effective schools: Evidence from New York City. *American Economic Journal: Applied Economics*, 5(4), 28-60.

# References

15. Dobbie, Will and Roland G. Fryer, Jr. 2015. The medium-term impacts of high-achieving charter schools. *Journal of Political Economy*, 123(5), 985-1037.
16. Furgeson, Joshua, Brian Gill, Joshua Haimson, Alexandra Killewald, Moira McCollough, Ira Nichols-Barrer, Bing-run Teh, Natalya Verbitsky-Savitz. 2012. *Charter-school management organizations: Diverse strategies and diverse student impacts*. Cambridge, MA: Mathematica Policy Research.
17. Gleason, Philip M., Christina Clark Tuttle, Brian Gill, Ira Nichols-Barrer, Bing-run Teh. 2014. Do KIPP schools boost student achievement? *Education Finance and Policy*, 9(1), 36-58.
18. Hanushek, Eric A., John F. Kain, Steven G. Rivkin, and Gregory F. Branch. 2007. Charter school quality and parental decision making with school choice. *Journal of Public Economics*, 91, 823-848.
19. Imberman, Scott A. 2011. Achievement and behavior in charter schools: Drawing a more complete picture. *The Review of Economics and Statistics*, 93(2), 416-435.

# References

20. Nicotera, Anna, Maria Mendiburo, and Mark Berends. 2011. Charter school effects in an urban school district: An analysis of student achievement gains in Indianapolis. In M. Berends, M. Cannata, and E. B. Goldring (Eds.), *School Choice and School Improvement* (pp. 35-50). Cambridge, MA: Harvard Education Press.
21. Sass, Tim R.. 2006. Charter schools and student achievement in Florida. *Education Finance and Policy*, 1(1), 91-122.
22. Sass, Tim R., Ron W. Zimmer, Brian P. Gill, and T. Kevin Booker. 2016. Charter high schools' effects on long-term attainment and earnings. *Journal of Policy Analysis and Management*, 35(3), 683-706.
23. Zimmer, Ron, Brian Gill, Kevin Booker, Stephane Lavertu, and John Witte. 2012. Examining charter school achievement in seven states. *Economics of Education Review*, 31(2), 213-224.