

University of Arkansas, Fayetteville

ScholarWorks@UARK

Education Reform Faculty and Graduate
Students Publications

Education Reform

9-25-2017

What Leads to Successful School Choice Programs? A Review of the Theories and Evidence

Corey A. DeAngelis

University of Arkansas, Fayetteville, cadeange@uark.edu

Heidi Holmes Erickson

University of Arkansas, Fayetteville

Follow this and additional works at: <https://scholarworks.uark.edu/edrepub>



Part of the [Educational Assessment, Evaluation, and Research Commons](#), [Educational Leadership Commons](#), [Educational Methods Commons](#), and the [Social and Philosophical Foundations of Education Commons](#)

Citation

DeAngelis, C. A., & Holmes Erickson, H. (2017). What Leads to Successful School Choice Programs? A Review of the Theories and Evidence. *Education Reform Faculty and Graduate Students Publications*. Retrieved from <https://scholarworks.uark.edu/edrepub/3>

This Article is brought to you for free and open access by the Education Reform at ScholarWorks@UARK. It has been accepted for inclusion in Education Reform Faculty and Graduate Students Publications by an authorized administrator of ScholarWorks@UARK. For more information, please contact scholar@uark.edu.



UNIVERSITY OF
ARKANSAS

College of Education & Health Professions
Education Reform

WORKING PAPER SERIES

What Leads to Successful School Choice Programs? A Review of the Theories and Evidence

Corey A. DeAngelis

Heidi Holmes Erickson

12 November 2017

EDRE Working Paper 2017-17

The University of Arkansas, Department of Education Reform (EDRE) working paper series is intended to widely disseminate and make easily accessible the results of EDRE faculty and students' latest findings. The Working Papers in this series have not undergone peer review or been edited by the University of Arkansas. The working papers are widely available, to encourage discussion and input from the research community before publication in a formal, peer reviewed journal. Unless otherwise indicated, working papers can be cited without permission of the author so long as the source is clearly referred to as an EDRE working paper.

What Leads to Successful School Choice Programs? A Review of the Theories and Evidence

Corey A. DeAngelis*
Policy Analyst
Center for Educational Freedom
Cato Institute
&
Ph.D. Candidate
Department of Education Reform
University of Arkansas
CDeAngelis@cato.org

Heidi Holmes Erickson
Doctoral Fellow
Department of Education Reform
University of Arkansas
hh018@email.uark.edu

November 12, 2017

*Corresponding author is Corey A. DeAngelis, CDeAngelis@cato.org, +1(210) 818-6713. The content of the report is solely the responsibility of the authors and does not necessarily represent the views of the University of Arkansas or the Cato Institute.

Abstract

There is a large body of thorough research showing many positive benefits of school choice. However, many questions remain on how school choice works. Rigorous school choice experiments can only determine if access to school choice programs alters student outcomes; they cannot confidently identify the specific mechanisms that mediate various outcomes. Two commonly theorized mechanisms in school choice programs that lead to positive outcomes are (1) an increased access to higher-quality schools and (2) an improved match between schools and students. We examine the existing empirical evidence and the theoretical arguments for these two primary mechanisms. While there is evidence supporting both mechanisms, no studies are able to isolate the effect of quality schools independent of families selecting schools that match their preferences. Since the majority of this research is descriptive and has limited causal interpretation, theory is essential in guiding interpretation and policy implications. Theory suggests that people make choices based on what they believe to be the best match for their children, and those choices lead to incentives for individual schools to improve. We conclude with policy recommendations based on our summary of the literature.

Keywords: school choice; school vouchers; charter schools; education reform

JEL codes: I21; I28

1. Introduction

Families frequently participate in public school choice by selecting where they live. This is known as Tiebout choice. Economist Charles Tiebout (1956) posited that families select their homes based on a basket of goods and services, including their schools. Since the decision to move is made based on many factors such as proximity to a city center, pollution levels, commute times, safety, budget constraints, and natural surroundings, moving is a very costly option for a family in order to opt out of their residentially assigned public school. More realistic public school choice comes in the form of publicly funded and privately managed charter schools that usually have specialized missions. State law requires that public charter schools are tuition-free, and, when oversubscribed, most schools use a random lottery to determine which children attend.

Publicly funded private school choice is available to fewer families. The most well-known type of private school choice is school vouchers. Vouchers provide families with public money to attend a private school of their choice. Private school vouchers are often attributed to economist Milton Friedman (1962), but K-12 education vouchers have existed in the United States since the 19th century in Maine and Vermont. John Stuart Mill (1869) advocated for education vouchers just before town-tuition programs were implemented in Maine and Vermont. Other types of private school choice include tax-credit scholarships, tax-credit deductions, and, most recently, Education Savings Accounts (ESA). While there are slight differences in each of these programs, they all make it less costly for parents to opt out of their residentially assigned public school in order to send their children to the school that better fits their needs.

There is a substantial evidence that private choice programs have positive effects for students. A meta-analysis of nineteen voucher experiments around the world indicates that

private school choice slightly improves student math and reading test scores (Shakeel, Anderson, & Wolf, 2016). Out of the twenty experimental evaluations of private school choice in the U.S., only two find negative impacts on student math and reading test scores (Abdulkadiroglu, Pathak, & Walters, 2015; Dynarski et al., 2017). One notable experiment (Wolf et al., 2013) shows that the DC voucher program increased the likelihood of high school graduation by 21-percentage points and one quasi-experiment (Cowen et al., 2013) finds that the Milwaukee Parental Choice Program (MPCP) increased high school graduation rates by 3-percentage points. While research of school choice effects on educational attainment is limited, a review of twelve studies suggests that private and public school choice has a positive effect on student attainment (Foreman, 2017). Further, a review of the experimental and quasi-experimental evidence finds that private school choice programs in the U.S. reduce criminal activity, increase civic engagement, and increase tolerance of others (DeAngelis, forthcoming 2017). Another review of the evidence shows that seven out of eight voucher studies conclude that private school choice improves racial integration (Swanson, forthcoming 2017). Furthermore, Egalite's (2013) review finds that twenty out of twenty-one empirical studies indicate that competitive pressures from school choice programs improve test scores for students that remain in traditional public schools. Moreover, over twenty evaluations (Forster, 2016) have found that all of these benefits result in state (e.g. Costrell, 2010; Spalding, 2014; Trivitt & DeAngelis, 2016) and district-level (Scafidi, 2012) financial savings.

The question remains: how does school choice lead to these benefits? We examine two possible mechanisms: (1) a better match between educators and students and (2) an increase in the supply of generally better schools. While these two theories are closely related, and quite the

philosophical exercise to completely disentangle, we scrutinize the relative strengths of the theories and summarize the current empirical evidence.

We discuss the impact of quality schools on the success of school choice programs, but we are not concerned with defining the absolute measures of school quality. We recognize that measuring school quality is a highly debated issue in education policy; however, that is not the aim of this paper. Alternatively, this paper's focus is to discuss the theories and empirical evidence of the potential mechanisms necessary for successful school choice programs.

2. Theory

Within school choice programs, there are a variety of mechanisms that can lead to improved student outcomes. For our purpose, we will focus on two of the most compelling logic models. The first mechanism is largely related to basic economic theory. The traditional public school system in the United States – and around most of the world – consists of a strong public school monopoly on publicly raised funds (Merrifield, 2001). Families pay taxes that finance K-12 public schools whether their children attend public schools or not. If families are dissatisfied with their residentially assigned options, they can only opt out of their school if they move neighborhoods or pay for private school tuition. Meanwhile, they continue paying for public schools indirectly through the tax system. Consequently, there are few incentives for public schools to innovate or respond to families' needs.

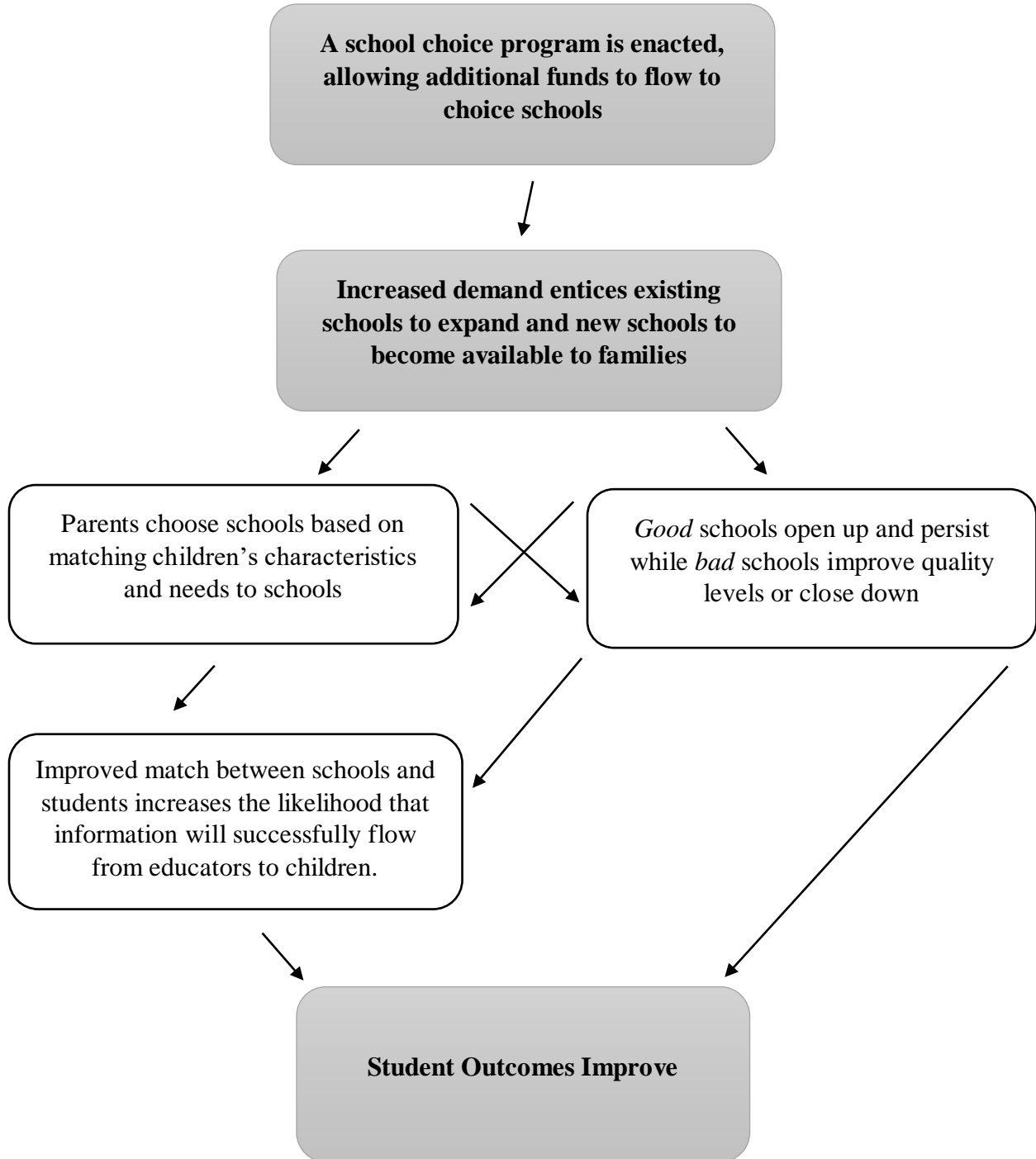
For example, imagine if a company could force people to pay for their services regardless of its quality or if individuals choose to purchase its products. As long as the company met the minimum standards set by the government, it would remain profitable without having to respond to the needs of customers. Conversely, when markets function in an open system, competitive pressures lead to quality improvement (Hoxby, 2003). School choice programs diminish

monopoly power held by traditional public school leaders and, therefore, lead to increased overall quality levels and lower costs (Chubb & Moe, 1990; Friedman & Friedman, 1990). In other words, market pressures could change the supply of schools by enticing high quality schools to open and persist while incentivizing low-quality institutions to either improve or close down.

The second mechanism focuses on the ability of families to choose their children's educational institution which allows for a better match between schools and students. Public K-12 education is a one-size-fits-all system that is unable to serve students' varied needs. Since all children have unique interests, ability levels, desires, and learning styles, an improved student-school match can lead to better student outcomes.

There is a significant theoretical problem with separating the two potential mechanisms and determining which is primarily responsible for generating positive student outcomes. If the student-school match improves, student outcomes will improve. If students have access to better quality schools, student outcomes will also improve. However, if the quality of schooling options increases, the likelihood of a strong student-school match also increases. The two interrelated theories can be found in figure 1 below.

Figure 1: Logic Model for School Choice Improving Student Outcomes



To better understand the causal stories of the two primary mechanisms, it is helpful to think of different definitions of quality. If the definition of quality is unique to each individual, we could say that the school selection itself – the student-school match – is the definition of quality. Indeed, the match is likely made based on attributes that are unique to each family situation. The perceived match, based on income, race, gender, test scores, ability levels, family culture, distance to home, school safety, learning styles, and other individual interests, leads to competitive pressures that alter the quality levels of current and future schools existing in the market.

If we measure quality based on state grading systems, overall school quality could remain stagnant while student test scores improve. However, if overall school quality is defined as test score gains, and student outcomes are measured by the test scores, there is an obvious connection between the two mechanisms. Student matching could lead to improved test scores and, by definition, higher quality schools. Alternatively, higher quality schools opening up could lead to more and better opportunities for matching between schools and students. Nonetheless, if quality is objectively measured, we find ourselves with a classic chicken-and-the-egg predicament. Did the match boost measures of quality in the schools, or did the robust supply of quality schools allow for better matching? Concurrently, did a robust supply of quality schools improve student outcomes, regardless of the quality of the match?

3. Existing Literature

While there is an abundance of literature on the effects of school choice programs on student outcomes such as test scores, graduation rates, civic skills, and parental satisfaction, it is particularly difficult to confidently determine the precise program mechanisms at play. Even gold-standard school choice experiments do not provide insight, since experimental evaluations

treat programs as black boxes. Randomly assigning children to public or private schools can tell us about the average differences in student outcomes but cannot tell us exactly why one group outperforms the other. We must rely on theory and a few descriptive analyses that have attempted to peer into the black box of school choice interventions in the U.S.

3.1 High Quality Schools Mechanism

The most robust set of literature unravelling these two theories examines the competitive effects of school choice programs. These studies look at the effect of competitive pressures created by school choice programs on the students who remain in traditional public schools. Since non-choice students do not select their residentially assigned schools, any effects for these students suggests that the mechanism is not exclusively matching. Traditional public schools face a financial incentive to keep children in their schools, and they must improve quality by changing instructional practices (Rouse et al., 2013). These studies indicate that increasing the supply of schools in the market has a positive effect on students.

Egalite's (2013) review of the competitive effects literature shows that twenty of twenty-one studies find positive effects of private school choice programs on student test scores in traditional public schools. Three other studies have been released since Egalite's (2013) review, and twenty-three out of twenty-four evaluations have found positive competitive effects for student test scores in district schools (e.g. Chakrabarti, 2013; Egalite, 2014; Egalite, 2016). None of the studies found negative effects. A recent study on this topic finds that nearby public charter schools in New York City leads to increases in student math and reading achievement in local district schools (Cordes, 2017). However, we must not overlook the fact that although the affected students did not choose, the competitive effects are driven by self-interested schooling selections made by families using school choice programs. The selections made by those families

must be made by their subjective definitions of quality. Those decisions could be made based on academic measures, such as standardized test scores, or more subjective measures such as school mission, culture, and even safety (Stewart & Wolf, 2016).

Wolf and Hoople (2009) descriptively look at school factors that explain voucher gains in Washington, D.C. They find that more advantaged peers, responsible teachers, and more time-consuming homework may increase academic achievement of voucher recipients in the nation's capital. All three of these attributes are commonly associated with what one considers to be greater school quality. In a similar study, Berends et al. (2010) find no clear charter school effect in three states, but find that high-quality instructional conditions, such as teacher quality and a focus on academics, explain gains in math test scores. Another study further supports the quality theory, finding that high-performing charter schools have longer school days, comprehensive behavioral policies, intense tutoring, teacher feedback and coaching, and data-driven instructional practices (Gleason, 2016). Nonetheless, this same empirical analysis finds that successful charter schools are more likely to have a mission that prioritizes student academic achievement (Gleason, 2016). While this attribute is commonly associated with higher school quality, one could also make the case that a mission based on academic achievement could improve the match between schools and students. If the school has a clear mission based on academics, families interested in shaping math and reading test scores could be more likely to choose that institution. In addition, Hoxby (2000) finds that school choice enhances competition between schools and increases the demand for high quality teachers. A recent study by DeAngelis (2017) compares open-enrollment (choice) charters to district-conversion (non-choice) charters in Arkansas and suggests that parental satisfaction is higher in choice schools, even after controlling for family and student background characteristics.

3.2 Student-School Match Mechanism

It is difficult to rigorously assess the quality of a student-school match because it requires knowing the preferences and needs of a student, the quality of the school they previously attended, and the quality of the school of choice. Focus groups and surveys are important in understanding what parents want when shopping for a school and if their selected school meets those standards. If parents have clear preferences, select schools based on those preferences, and experience better outcomes, it follows that school choice succeeds by allowing for a better match between schools and students.

Parents consider a variety of factors that are specific to their circumstances when participating in school choice, and they make tradeoffs among their preferences based on their needs. Parents participating in choice programs report considering a variety of factors, such as: curriculum (Stewart et al., 2009; Stewart et al., 2010), better academics than previous schools (Kelly and Scafidi, 2013; Catt and Rhinesmith, 2016), test scores (Lincove, Cowen, and Imrogno, 2016), class size (Stewart et al., 2009, Catt and Rhinesmith, 2016), individual attention/better learning environment (Kelly and Scafidi, 2013; Catt and Rhinesmith, 2016), school safety (Stewart et al., 2009; Kelly and Scafidi, 2013), religious or moral instruction (Stewart et al., 2009; Kelly and Scafidi, 2013; Catt and Rhinesmith, 2016), sport programs (Stewart et al, 2010; Lincove, Cowen, and Imbrogno, 2016), school convenience (Stewart et al., 2010), school reputation (Stewart et al., 2010), as well as the child's preference (Stewart et al., 2010).

It is clear that parents have preferences and select schools based on them. Stewart et al. (2009) and Stewart et al. (2010) conduct focus groups for parents participating in school voucher programs in D.C. and Milwaukee and find that parents seek educational institutions that fit their

children's needs better than their traditional public schools. For example, Stewart et al. (2009) find that many parents in the nation's capital choose private schools for increased safety and report that they worry less about their children's safety at their schools. There is also evidence that students experience the desired outcomes that parents want from a better school match. Hastings and Weinstein (2008) take advantage of a natural experiment and show that lower-income parents receiving direct information on academic performance are more likely to exercise public school choice as a means towards academic achievement. Consequently, children of informed low-income parents experience increased test scores.

Some of the previously mentioned studies indicate that shaping the supply of high quality schools improves student outcomes. It is difficult to measure the quality of a student-school match because it depends on unobservable student and school characteristics. For example, one of the studies finds that choice students that are around advantaged peers (based on income and prior achievement levels) experience increased academic achievement (Wolf & Hoople, 2009). However, these same students could have matched with students that share the same interests as them. Perhaps the students are diverse based on socioeconomic status, but similar on learning styles and academic interests. While studies such as this one show that diversity of household income levels may be beneficial, the observable characteristic may be correlated with important unobservable traits such as family culture, student curiosity, learning style, and long-term goals.

Theoretically, it may be that student-school matching and high quality schools are necessary, but not sufficient, to elicit the positive outcomes seen in school choice programs; both mechanisms are likely essential in school choice. Notably, the observational study designs that even the best social scientists are limited by may never allow us to separate the two mechanisms with quantitative analyses. If, for example, parents matched their children to schools based on a

mix of academic rigor, school culture, safety, and moral education, how would one begin to assess the match? The task would be near impossible for researchers to perform for each individual family and child, especially since experiments require grouping people to make causal claims (Federer, 1955; Rossi, Lipsey, & Freeman, 2003). These studies can only descriptively tell us how families choose schools, their preferences, and the types of schools they select.

4. Policy Implications

The empirical findings on school choice mechanisms are mixed overall; in part because the two primary mechanisms are acutely connected and difficult to disentangle. Based on the empirical evidence and the interconnectedness of the two theories, we cannot determine with certainty which mechanism is principally responsible to the positive outcomes of schools choice. Because of the severe limitations of the existing empirical analyses, we should to be cautious in using them to design choice programs.

Policy makers trying to design an effective school choice program could look at limited evidence on school-quality as the mechanism and hastily conclude that regulated school choice is the best path forward. Since successful choice schools often have characteristics that are associated with high school quality such as increased seat time, time-consuming homework, and qualified teachers, the policy makers might conclude that highly-regulated school choice is the best path forward. If a decision-maker could feasibly limit the school choices of families only to *high quality* institutions, should he or she not do so?

The answer to this question is particularly unclear for four fundamental reasons: (1) observational analyses, by definition, can only be based on observable characteristics, while parents match their children to schools based on numerous observable and unobservable characteristics, (2) even if we could determine what the “secret sauce” is made out of today, the

factors that lead to educational success likely differ across locations and students and change over time, (3) alternative evidence suggests that attempting to control the quality of the supply of schools reduces overall school quality, and (4) there is a growing body of school choice evidence indicating a disconnect between short-term observable measures and arguably more important long-term student outcomes.

Ironically, in failing to trust families with the decision of selecting a school that meets their children's needs, policymakers inadvertently lower the amount of available quality schools. Sude, DeAngelis, and Wolf (2017) find that higher quality private schools are less likely to participate in highly regulated voucher programs. Further, only a third of the private schools in Louisiana participate in the most-regulated program in the study – the Louisiana Scholarship Program. Regulations may very well lead to less choices overall since they serve as a significant cost for participating schools. Similarly, Kisida, Wolf, and Rhinesmith (2015) find that the biggest concern for leaders of schools participating in the Louisiana Scholarship Program is the likelihood of future regulations.. Further, DeAngelis and Burke (2017) find that private schools in more highly regulated voucher programs are less likely to be specialized. Evaluations of the Louisiana voucher program was also the first experiments to find statistically significant and large negative effects on student achievement (Abdulkadiroglu, Pathak, & Walters, 2015; Mills & Wolf, 2017).

The ability for families to match their children to an appropriate schools is obviously at least partially related to whether they have the information necessary to make decisions that would maximize each child's utility. While parents may not currently be education experts, recent evidence from online search behavior finds that school choice programs increase the amount of information gathered on differences in quality across schools (Lovenheim & Walsh,

2017). Other research has also found that low-income parents gather information about schools when given the opportunity to choose (Kelly & Scafidi, 2013; Teske, Fitzpatrick, & Kaplan, 2007). However, even if the information held by parents is less than perfect, we cannot ignore the fact that information held by bureaucrats sitting in offices, hundreds of miles away, is also imperfect. Government officials cannot possibly know the utility curves of each individual family (Hayek, 1945), and, even if they did, they are forced to decide what schools are “high-quality” using uniform measures (Buchanan & Tollison, 1984). Since all children are inherently unique, uniform policies are bound to fail them.

As Greene (2017) points out, there is a growing literature indicating that short-term changes in student test scores do not necessarily translate to long-term outcomes. For example, some studies on Boston charter schools (Angrist et al, 2016), Harlem Promise Academy (Dobbie & Fryer, 2014), and SEED boarding charter in DC (Unterman et al., 2016) find huge test score gains with no increase in high school graduation rates. On the other hand, the voucher programs in D.C. (Wolf et al., 2013) and Milwaukee (Cowen et al., 2013) produced little or no test score gains with large increases in graduation rates. Consequently, regulating school choices based on the state’s preferred accountability measure – standardized test scores – may very well harm other student outcomes that individuals and society cares about.

Despite the empirical difficulties of disentangling school choice mechanisms, we argue that both underlying mechanisms lead to similar policy implication. If the primary mechanism is matching, decision-makers ought to give families as many choices as possible so that parents could match their children to a schools that best fit their needs, whatever they may be. An ESA available to all families, regardless of income or ability levels, would allow parents to customize the educational environment for their children to the best of their abilities. Importantly, ESAs

allow parents to fit student needs for schooling, tutoring, textbooks, and even college. A universal program would generate enough demand for robust market entry in the long-run, meaning more choices for all families. If parents do not perceive that certain schools or services will be appropriate for their children, they will not choose them enticing schools to improve or force them to close down. The schools that are a quality match for many children will be financially rewarded and expand in the long-run.

If the primary school choice mechanism is the supply of high quality schools, we should allow the market to determine which institutions are high quality. The choices of individual parents, rather than bureaucrats, can determine which schools remain open and which ones close. When public officials choose a uniform measure, such as school test scores, they must determine which level is appropriate for which students. Since student ability levels are dispersed, the uniform measure would fail, and since test scores are, at best, a crude proxy for lifelong success, focusing on test scores may result in harming students that would have otherwise benefitted from marginally more diverse education. A universally accessible ESA would allow for robust market entry and customization that would allow individual families to choose high-quality schools. Stronger influxes of demand, through a universal program, and price differentiation, generated through the ESA, allows the market for schooling to more closely resemble perfect competition, and, consequently, work as theorized. Price differentiation sends signals to high and low quality schools alike, giving them the information and incentives necessary to provide the best possible K-12 educational experience to all children.

5. Conclusion

It is likely that we may not be able to empirically disentangle the mechanisms of school choice. Descriptive empirical analyses, by definition, rely on the use of observable

characteristics. If we accept the assumption that parents choose schools that are fitted for their children, and that parents want to improve their children's outcomes, we must also accept that the resulting match leads to higher overall school quality levels.

Since the answer to this question cannot be resolved descriptively, we must use sound theory. People make choices based on what they perceive as the best match for their children, and those choices create incentives for individual schools to improve. The supply of quality schools then improves because families choose educational products that best fit their needs. Regardless of which mechanism is the most important, ESA programs that are accessible to all children, regardless of incomes, abilities, or other background characteristics offer the best opportunity for a robust market to thrive where the supply of quality schools can increase and families are able find the best educational match.

6. References

- Abdulkadiroglu, A., Pathak, P. A., & Walters, C. R. (2015). School vouchers and student achievement: First-year evidence from the Louisiana Scholarship Program. Cambridge, MA. National Bureau of Economic Research.
- Angrist, J. D., Cohodes, S. R., Dynarski, S. M., Pathak, P. A., & Walters, C. R. (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.
- Berends, M., Goldring, E., Stein, M., & Cravens, X. (2010). Instructional conditions in charter schools and students' mathematics achievement gains. *American Journal of Education*, 116(3), 303-335.
- Buchanan, J. M., & Tollison, R. D. (Eds.). (1984). *The Theory of public choice--II*. Ann Arbor: MI. The University of Michigan Press.
- Chakrabarti, R. (2013). Vouchers, public school response, and the role of incentives: Evidence from Florida. *Economic inquiry*, 51(1), 500-526.
- Chubb, E. J. & Moe, T. M. (1990). *Politics, markets, and America's schools*. The Brookings Institution, Washington DC.
- Cordes, S. A. (2017). In pursuit of the common good: The spillover effects of charter schools on public school students in New York City. *Education Finance and Policy*.
- Costrell, R. M. (2010). The fiscal impact of the Milwaukee Parental Choice Program: 2010-2011 update and policy options. SCDP Milwaukee Evaluation. Report# 22. School Choice Demonstration Project.
- Cowen, J. M., Fleming, D. J., Witte, J. F., Wolf, P. J., & Kisida, B. (2013). School vouchers and student attainment: Evidence from a state-mandated study of Milwaukee's Parental Choice Program. *Policy Studies Journal*, 41(1), 147-168.
- DeAngelis, C. A. (2017). Does choice matter for school choice? An instrumental variables analysis of the effect of choice on parental satisfaction in charter schools. EDRE Working Paper No. 2017-06. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2911285.
- DeAngelis, C. A. (forthcoming 2017). Self-interested schooling selections improve society? A review of the evidence. *Journal of School Choice*, 11(4).
- DeAngelis, C. A. & Burke, L. (2017). Does regulation induce homogenization? A school fixed-effects analysis of three voucher programs in the United States. EDRE Working Paper No. 2017-14. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3038201.

- Dobbie, W., & Fryer Jr, R. G. (2014). The impact of attending a school with high-achieving peers: Evidence from the New York City exam schools. *American Economic Journal: Applied Economics*, 6(3), 58-75.
- Dynarski, M., Rui, N., Webber, A., & Gutmann, B. (2017). Evaluation of the DC Opportunity Scholarship Program: Impacts after one year. NCEE 2017-4022. National Center for Education Evaluation and Regional Assistance.
- Egalite, A. J. (2013). Measuring competitive effects from school voucher programs: A systematic review. *Journal of School Choice*, 7(4), 443-464.
- Egalite, A. J. (2014). Competitive impacts of means-tested vouchers on public school performance: Evidence from Louisiana and Indiana (Vol. 5). PEPG Working Paper 14.
- Egalite, A. J. (2016). The competitive effects of the Louisiana Scholarship Program on public school performance. Louisiana Scholarship Program Evaluation Report #4. School Choice Demonstration Project, University of Arkansas.
- Federer, W. T. (1955). *Experimental design*. New York, NY: Macmillan Co.
- Foreman, L. M. (2017). Educational Attainment Effects of Public and Private School Choice. EDRE Working Paper 2017-16.
- Forster, G. (2016). A win-win solution: The empirical evidence on school choice. EdChoice.
- Friedman, M. (1962). *Capitalism and freedom*. University of Chicago press.
- Friedman, M., & Friedman, R. (1990). *Free to choose: A personal statement*. Orlando, FL: Houghton Mifflin Harcourt.
- Gleason, P. M. (2016). What's the secret ingredient? Searching for policies and practices that make charter schools successful. Mathematica Policy Research.
- Greene, J. P. (2017). Evidence for the disconnect between changing test scores and changing later life outcomes. Education Next. <http://educationnext.org/evidence-for-the-disconnect-between-changing-test-scores-and-changing-later-life-outcomes/>
- Hastings, J. S., & Weinstein, J. M. (2008). Information, school choice, and academic achievement: Evidence from two experiments. *The Quarterly Journal of Economics*, 123(4), 1373-1414.
- Hayek, F. A. (1945). The use of knowledge in society. *The American economic review*, 519-530.
- Hoxby, C. (2000). Would school choice change the teaching profession? (No. w7866). National Bureau of Economic Research.

- Hoxby, C. M. (2003). School choice and school productivity. Could school choice be a tide that lifts all boats? In *The economics of school choice* (pp. 287-342). University of Chicago Press.
- Kelly, J. P., & Scafidi, B. (2013). More than scores: An analysis of why and how parents choose private schools. Indianapolis, IN: The Friedman Foundation for Educational Choice.
- Kisida, B., Wolf, P. J., & Rhinesmith, E. (2015). Views from private schools: Attitudes about school choice programs in three states. American Enterprise Institute for Public Policy Research.
- Lovenheim, M. F., & Walsh, P. (2017). Does choice increase information? Evidence from online school search behavior. NBER Working Paper No. w23445. Retrieved from <http://www.nber.org/papers/w23445>.
- Merrifield, J. D. (2001). *The school choice wars*. Lanham, MD: R&L Education.
- Mill, J. S. (1869). *On liberty*. Longmans, Green, Reader, and Dyer.
- Mills, J. N., & Wolf, P. J. (2017). Vouchers in the bayou: The effects of the Louisiana Scholarship Program on student achievement after 2 years. *Educational Evaluation and Policy Analysis*, 39(3), 464-484.
- Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2003). *Evaluation: A systematic approach*. Sage publications.
- Rouse, C. E., Hannaway, J., Goldhaber, D., & Figlio, D. (2013). Feeling the Florida heat? How low-performing schools respond to voucher and accountability pressure. *American Economic Journal: Economic Policy*, 5(2), 251-281.
- Scafidi, B. (2012). The Fiscal Effects of School Choice Programs on Public School Districts. National Research. EdChoice.
- Shakeel, M., Anderson, K. P., & Wolf, P. J. (2016). The participant effects of private school vouchers across the globe: A meta-analytic and systematic review. EDRE Working Paper No. 2016-07. Available at SSRN: <https://ssrn.com/abstract=2777633>
- Spalding, J. (2014). The school voucher audit: Do publicly funded private school choice programs save money. EdChoice.
- Stewart, T., & Wolf, P. (2016). *The school choice journey: School vouchers and the empowerment of urban families*. New York, NY: Palgrave MacMillan.
- Stewart, T., Wolf, P., Cornman S. Q., McKenzie-Thompson, K., & Butcher, J. (2009). Family reflections on the District of Columbia Opportunity Scholarship Program. Final Summary Report. School Choice Demonstration Project, Fayetteville, AR: University of Arkansas.

- Stewart, T., Lucas-McLean, J., Jensen, L. I., Fetzko, C., Ho, B., & Segovia, S. (2010). Family voices on parental school choice in Milwaukee: What can we learn from low-income families? Report #9, School Choice Demonstration Project, Fayetteville, AR: University of Arkansas.
- Sude, Y., DeAngelis, C. A., & Wolf, P. J. (2017). Supplying choice: An analysis of school participation decisions in voucher programs in Washington, DC, Indiana, and Louisiana. *Journal of School Choice*, 1-26.
- Swanson (forthcoming 2017). Can we have it all? A review of the impacts of school choice on racial integration. *Journal of School Choice*, 11(4).
- Teske, P., Fitzpatrick, J., & Kaplan, G. (2007). Opening door: How low-income parents search for the right school. Center on Reinventing Public Education.
- Tiebout, C. M. (1956). A pure theory of local expenditures. *Journal of Political Economy*, 64(5), 416-424.
- Trivitt, J. R., & DeAngelis, C. A. (2016). The fiscal effect of eliminating the Louisiana Scholarship Program on state education expenditures. EDRE Working Paper No. 2016-06.
- Unterman, R., Bloom, D., Byndloss, D., & Terwelp, E. (2016). Going away to school: An evaluation of SEED DC. New York: MDRC, June 2016. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2821816.
- Wolf, P. J., & Hoople, D. S. (2006). Looking inside the black box: What school factors explain voucher gains in Washington, DC? *Peabody Journal of Education*, 81(1), 7-26.
- Wolf, P. J., Kisida, B., Gutmann, B., Puma, M., Eissa, N., & Rizzo, L. (2013). School vouchers and student outcomes: Experimental evidence from Washington, DC. *Journal of Policy Analysis and Management*, 32(2), 246-270.