



# NARROWING THE CHARTER- ENROLLMENT GAP

Denver's Common-  
Enrollment System

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## EXECUTIVE SUMMARY

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As charter schools continue their rapid expansion in America's cities, questions related to equitable access to these schools of choice have jumped to the forefront of the policy conversation. Indeed, the proportion of students in charters with classifications that suggest that they are difficult to educate—such as students with disabilities, those who are not proficient in English, and those who are eligible for free or reduced-price lunch—is often substantially below their respective proportions in traditional (“district”) public schools.

Policymakers have considered various interventions to increase access to charters for disadvantaged students, including imposing strict quotas. However, another, less heavy-handed, approach holds particular promise: simplifying the charter-application process. In most cities, students apply to each charter school individually. This process imposes informational and other costs that are often more challenging for disadvantaged parents. Some cities have recently adopted “common-enrollment” systems for their charter and district schools that centralize and simplify the enrollment process—by requiring parents to list their school preferences on a single application form—and better match students with their preferred school with an advanced algorithm.

This paper uses longitudinal data from Denver to measure whether adoption of common enrollment increased the proportion of disadvantaged students enrolled in that city's charter elementary schools. It finds that Denver's adoption of common enrollment substantially increased the proportion of students enrolling in charter kindergartens who are minority, eligible for free/reduced-priced lunch, or speak English as a second language. Importantly, this paper considers only one specific effect of common enrollment on the charter-school sector. While policymakers should take a more expansive measure of the merits of common enrollment before adopting it, this paper suggests that an effective way to boost disadvantaged students' enrollment in charters is to make applying to them easier.



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### INTRODUCTION

Charter-school students are less likely to be eligible for free/reduced-price lunches, to speak English as a second language (ESL), or to have a disability than are students in surrounding district schools. In a series of recent papers, this author used student enrollment data to examine why this is so: contrary to conventional wisdom, such differences in student populations have little to do with disadvantaged students being more likely to leave charters than traditional public schools; instead, they are a product of disadvantaged students being less likely to apply to—and enroll—in charters. How might policymakers narrow this enrollment gap?

Replacing traditional “school-based” enrollment systems (where parents who wish their kids to attend a public school other than their default district school must complete separate applications for each extra school to which they apply) with common-enrollment systems (where parents need only complete a single application listing their school preferences) might reduce informational and other costs associated with applying to charters. The public school districts of Denver, New Orleans, Newark (N.J.), and Washington, D.C., have all recently adopted common enrollment and have included charters in their application forms. Other cities, including Boston, Detroit, Chicago, Oakland, and Indianapolis, are considering adopting common enrollment, too.<sup>1</sup> New York City and Boston currently use common enrollment for some grades but do not include charters in their application forms.

This paper measures the effect of Denver’s move, from school-based enrollment to common enrollment that includes charters, on disadvantaged students’—defined as those who are ethnic minorities, low-income, bilingual/ESL speakers, or in special education—enrollment rates in the city’s charter elementary schools.

## I. THE ENROLLMENT GAP

Charter schools—public schools that have been granted significant administrative autonomy—have expanded rapidly. As of the 2011–12 school year, nearly 8 percent of students in American cities attended a charter.<sup>2</sup> In some urban areas, charter enrollment rivals that of traditional district schools. As of 2013–14, there were 43 school districts in which at least 20 percent of students were enrolled in charters, including Detroit (55 percent of students enrolled in charters), Philadelphia (30 percent), Los Angeles (21 percent), and Houston (21 percent).<sup>3</sup>

As charters have grown more popular, concern over ensuring equitable access for disadvantaged students has also grown, among friends as well as foes of charters.<sup>4</sup> The president of New York City’s teachers’ union, for example, has argued that the state should not increase its cap on charters until charters serve similar proportions of disadvantaged students as district schools.<sup>5</sup> Previously, New York State’s legislature revised its charter-school law to require that charter authorizers consider whether charters make satisfactory efforts to enroll and retain disadvantaged students.<sup>6</sup>

Many observers assert that the primary driver for student-enrollment differences between charters and nearby district schools is that charters systematically “push out” low-performing or otherwise difficult-to-educate students, in order to inflate their test scores—and, thus, improve their position in school rankings.<sup>7</sup> Empirical research suggests that such fears are, at the very least, greatly exaggerated. Indeed, recent studies find that low-performing students are just as likely to leave district schools as charters;<sup>8</sup> and students with disabilities and those learning English are as likely, or less likely, to exit charters as district schools.<sup>9</sup>

Instead, such enrollment gaps are primarily produced by the fact that not all parents seek admission for their children to charters. In New York City, for instance, the enrollment gap for English-language learners is nearly entirely explained by the fact that such students are particularly unlikely to apply to attend charters in transition grades—typically, entering kindergarten; entering middle school (sixth grade); and entering high school (ninth grade).<sup>10</sup>

## II. APPLYING TO CHARTERS

Unlike district schools, charters rely on students to apply for admission. Families may choose not to apply to charters for numerous reasons: parents may be unaware of charters’ availability; parents may be insufficiently motivated to apply; parents with children requiring special ed might fear that charters lack the necessary resources to properly assist their kids; and parents may fear that some charters may be unwelcoming to their children.

One such factor affecting charter enrollment that policymakers directly control is the ease of applying. In theory, because applicants are enrolled in charters via random lottery, all eligible students who wish to attend a particular charter have an equal opportunity to do so. In reality, there are application barriers—albeit less restrictive than the residential barriers to attending a preferred district school—that are more easily overcome by more involved and informed parents.

To apply, parents must know that charters are available. Parents must understand the application process. Lower-income parents, parents who do not speak English fluently, or those with children requiring special ed might not understand the available choices to the same extent as other parents. A recent survey of parents in several school districts with expanding charter sectors, including Denver, found that parents with less education and those with children with disabilities have particular difficulty determining if their children are eligible to attend charters.<sup>11</sup>

At present, in the vast majority of school systems, the procedure to apply to a charter is separate from that for enrolling in a district school. Adding a sepa-



rate application process increases the layers of bureaucracy required to apply to a charter. While students are automatically assigned to a district school based on residence, they must apply individually to each charter in which they wish to enroll. Families with greater informational resources and bureaucratic acumen might be more likely to successfully navigate these extra steps.

Indeed, many cities require families to research and understand complicated charter-application processes—with multiple forms, deadlines, and rules. Families that are nonnative English speakers face obvious challenges, while new immigrant families may also be unfamiliar with the idea of school choice. Recent research further confirms that the charter-application process poses challenges even for families without language barriers: parents with less education are more likely to report difficulty in navigating deadlines, multiple applications, and sorting out their child’s eligibility for schools.<sup>12</sup>

### III. COMMON ENROLLMENT

Recently, some U.S. cities have centralized their enrollment process to allow families to apply to multiple charter or district schools by submitting a single annual application. A central system then assigns students to schools by lottery, accounting for students’ preferences, using an algorithm not susceptible to manipulation.

Denver, this paper’s focus, adopted common enrollment in 2012–13. Each spring, Denver parents can now list up to five preferred schools on a single application form. Parents who prefer their children to remain in their current school do not have to submit the form; students in transition grades who do not submit a form are automatically assigned to a nearby district school.

Denver’s charter-application process is two-sided: parents *and* schools list their preferences. The latter can list preferences for students based on attributes approved by the school district: some prefer the siblings of currently enrolled students; others prefer students from certain neighborhoods.

Next, an algorithm matches students with charters.

The matching process continues until there are more students in a charter’s preference category than there are available seats—at which point, students in the preference category are assigned by lottery. Students are then assigned to their highest-preference schools among those that matched. There is broad participation in Denver’s common-enrollment system, particularly in transition grades. As many as 80 percent of Denver students in transition grades submit the form, of which about 83 percent are matched with a top-five choice.<sup>13</sup>

Importantly, Denver supplemented the adoption of common enrollment with measures to assist parents, including publishing a school guide, sponsoring parent-resource centers, and creating a website to help parents compare schools.<sup>14</sup> This paper’s findings should thus be considered as an empirical analysis of a common-enrollment system supplemented with useful, city-sponsored informational tools.

Under Denver’s common-enrollment system, students with individual education plans (IEP) indicating a mild or moderate disability are treated no differently from other students. However, during the years analyzed in this paper, students with more severe disabilities were assigned directly by the district to schools deemed able to provide the necessary services.<sup>15</sup> Also, if transportation assistance is included in students’ IEP, such students are eligible to participate in the common-enrollment process but on the condition that such assistance may be relinquished if the students select a school beyond a particular area.<sup>16</sup>

Common enrollment is a practical application of the matching-markets technique pioneered by Nobel-winning economist Alvin Roth;<sup>17</sup> today, this technique is also used to assign donor kidneys and match medical students to residencies. In New York City and Boston, common enrollment was not introduced to boost charter enrollment among disadvantaged youth but to allow more students to realize their first-choice schools, as well as to make applications “strategy-proof” (i.e., students would not be penalized for revealing their true preferences).<sup>18</sup>

As discussed, by making application to charters easier, common enrollment likely encourages more

applications. New Orleans’s “One App” common-enrollment form emphasizes the system’s simplicity. Another, less obvious, benefit of common enrollment may be to make disadvantaged parents more aware that charters are indeed open to their kids—surveys suggest that parents are often uncertain about charter eligibility. To the extent that some charters discourage disadvantaged students from applying under school-based enrollment systems, common enrollment would help reduce such inappropriate behavior by eliminating direct contact, during the application process, between parents and schools.

Recent surveys have indeed found that Denver’s common enrollment reduced confusion in the enrollment process, particularly for less educated parents.<sup>19</sup> In the first year following adoption, the percentage of parents with a high school education or less who reported having “difficulty with the number of applications” decreased, from 22 percent to 14 percent, and the percentage reporting “difficulty with deadlines” decreased, from 28 percent to 20 percent. For parents with a bachelor’s degree or higher, the declines were 15 percent to 9 percent and 17 percent to 12 percent, respectively.

#### IV. CONCERNS ABOUT COMMON ENROLLMENT

Moving to common enrollment that is inclusive of charters raises important questions that affect both the charter and district sectors. While this paper examines one such question, it is worth noting that a substantial change to the enrollment process could have numerous consequences and affect different stakeholders in different ways. Section IV considers some of these issues.<sup>20</sup>

Start with the widespread distrust between the charter and district sectors in some cities: charter-school operators, which greatly value their autonomy, are often wary of participating in a centralized process that links them to the district-school bureaucracy. Many charter operators fret that a centralized application process will, inevitably, be used as a backdoor route to more outside meddling in how charters are run.

Another concern involves whether local district-school bureaucracies would fairly and efficiently execute the common-enrollment process. Because charters rely on enrollment for revenue, operators worry that ceding control of enrollment would expose charters to unnecessary delays and other potentially costly mistakes. (This fear might be allayed by assigning an independent auditor—determined by a central board with representatives from the district and charter sectors—to oversee the agreed algorithm and lottery.)

For their part, parents may find an algorithm-based application process confusing, at least initially. When New Orleans adopted common enrollment, some parents even sought to manipulate—to their children’s detriment—the (tamper-proof) lottery by listing fewer school preferences than mandated. It might also be argued that requiring parents to make extra effort to apply to charters allows the latter to better provide a lifeline to motivated students. Similarly, parents with the resources and ability to navigate (traditional) school-based enrollment might be wary of changing a system in which they thrive.

Yet these sentiments are at odds with charters’ oft-stated declarations that, as public schools, charters should be open to—and, indeed, should target—the most disadvantaged students. This paper does not assess all the pros and cons of common enrollment but instead answers an important question: To what extent did common enrollment boost charter enrollment of disadvantaged kids in a major U.S. city?

#### V. FINDINGS

The analysis focuses on the enrollment patterns of entering kindergarten students. The analysis is restricted to elementary schools because Denver operated too few charter middle and high schools during the sample period to allow for significantly powered estimation. The sample is restricted to kindergarten because it is the most common elementary entry grade.<sup>21</sup>

**Figure 1** examines enrollment patterns for entering kindergartners for Denver’s charter and district schools in 2011–12, the year before the city adopted

Figure 1. Entering Kindergarten Students, Charter and District Schools, %, 2011–12\*

	District	Charter
Eligible for Free/Reduced-Price Lunch	70.6%	64.9%
Minority	74.3%	74.2%
Special Education	7.2%	5.4%
Bilingual/ESL	33.7%	25.6%
Number of Schools	88	12

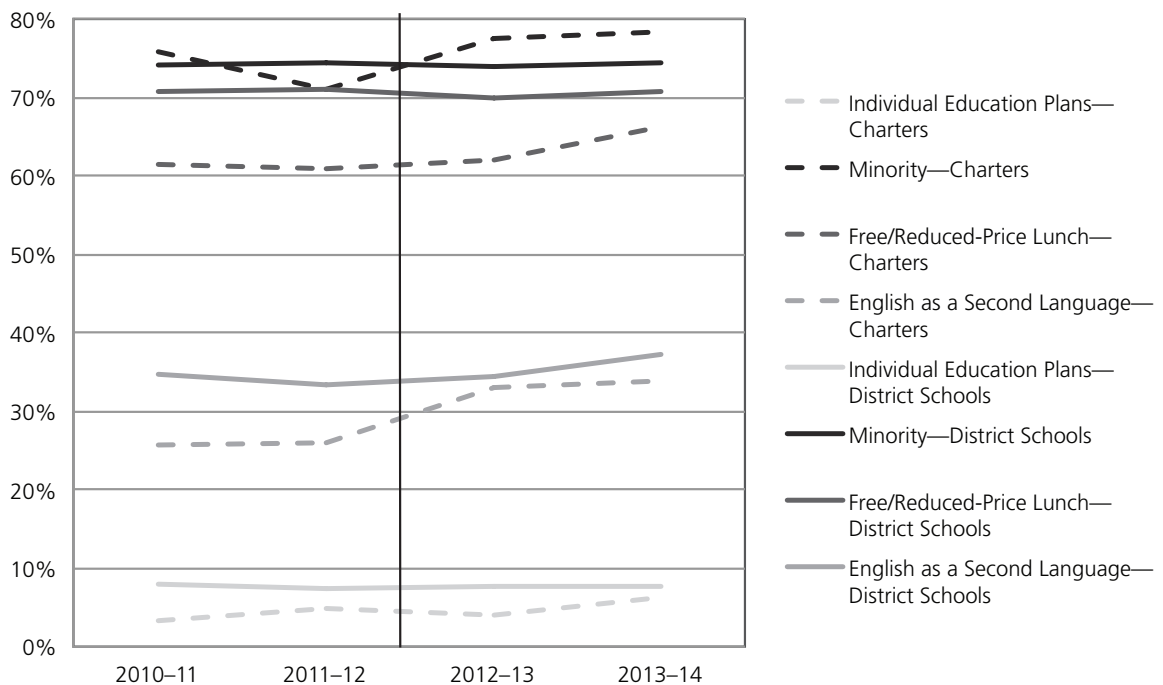
\*Includes only students observed in school for the first time in 2011–12. Numbers differ from those reported in Figure 2 because data include all schools, not only schools open as of 2011–12.  
Source: Author's analysis of Denver Public Schools data

common enrollment. Figure 1 reveals that Denver's charter elementary schools enrolled lower percentages of disadvantaged students than district schools (except for minority students, where the percentage was the same).

In his analysis of Denver's common-enrollment system, the author utilizes a 2009–10 through

2013–14 student data set for charters and district schools—including demographic- and service-classification information—provided by the Denver Public Schools' authority. This paper's analysis focuses on enrollments, not applications, because enrollment is likely more policy-relevant and because the data do not include information on applications before Denver's adoption of common enrollment.<sup>22</sup>

Figure 2. Entering Kindergarten Students, by Classification and Sector



Source: Author's analysis of Denver Public Schools data

The spread of new charters in Denver during the period scrutinized complicates the analysis because their creation was unlikely to have been influenced by the adoption of common enrollment. For this reason, the analysis herein focuses on enrollment trends at schools in operation at least two years before common enrollment took effect:<sup>23</sup> the final, main estimation sample includes kindergarten enrollments at 89 district schools and ten charters, open as of 2010–11; the main analysis, covering 2010–11 through 2013–14, covers two years before and two years after Denver’s adoption of common enrollment in 2012–13. And, as discussed later, the author uses a type of differences-in-differences (DD) methodology.

**Figure 2** shows the percentage of entering kindergarten students, by relevant classification, in charter and district schools. Solid lines represent enrollment in district schools; dashed lines represent enrollment in charters; and the vertical line represents Denver’s final year, 2011–12, of school-based enrollment.

Figure 2 shows that district schools experienced little change in enrollment patterns. At charters, however, enrollment rates for disadvantaged students—most prominently, minority and ESL students—rose sharply after Denver adopted common enrollment. To account for heterogeneity across schools, to quantify magnitude, and to provide significance testing for the relationships observed in Figure 2, the author estimates the following regression model (**Equation 1**):

$$\%Classified_{st} = \beta_0 + \delta_s + \lambda_t + \beta_1 (Charter_s * Post_t) + \epsilon_{st}$$

In Equation 1, **%Classified<sub>st</sub>** represents the percentage of students entering school; *s*, in the fall of year; *t*, students who are identified as having a relevant classification (minority, eligible for free/reduced-priced lunch, special ed, bilingual/ESL); **Charter** indicates whether the school is a charter school; **δ** is a school-fixed effect; **λ** is a year-specific effect; **Post** indicates whether the year is after Denver’s adoption of common enrollment; **ε** is a stochastic term clustered by school; and **β1** represents the differential relationship, between the school being a charter and the per-

centage of students in a particular classification, that occurs after adoption of common enrollment.<sup>24</sup>

This paper does not use a typical DD methodology. The typical DD methodology compares the difference, from previous trends, for a group that received a treatment with that of a comparison group that did not receive the treatment; in this paper’s DD methodology, both charter and district schools simultaneously receive the treatment (participating in common enrollment). The latter approach allows one to determine if Denver’s adoption of common enrollment resulted in higher percentages of disadvantaged students entering charters relative to district schools.<sup>25</sup>

### Assumptions

To interpret **β1** as the causal effect of common enrollment on the proportion of disadvantaged students entering charters, one must assume that deviations from previous enrollment trends were not influenced by unobserved factors that happened contemporaneously with Denver’s adoption of common enrollment. As discussed, one such factor would be the creation of new charters during the period scrutinized. Given that charters vary considerably, newly created charters might well have different enrollment patterns from existing charters—hence the decision to include only schools open at least two years before the city’s adoption of common enrollment.

This paper also assumes that enrollment trends before Denver’s adoption of common enrollment were the same for charters and district schools. With the exception of minority students, this assumption is supported by the flat lines before adoption (Figure 2) and confirmed by t-tests, which (again, with the exception of minority students) find no significant difference between charter and district schools in 2010–11. As for minority students, the pre-common-enrollment trend for charters is negative (Figure 2), suggesting that any bias of the estimated policy effect is likely downward.

**Figure 3** offers results from estimating Equation 1, with the sample restricted both to students entering kindergarten as well as to schools in operation in 2010–11. At the top of columns, the dependent

Figure 3. Regression Results: Kindergarten Entrants<sup>^</sup>

Dependent Variable	% Free/Reduced-Price Lunch	% Minority	% Special Ed	% Bilingual/ESL
2010–11	0.0122 [0.0110]	0.00481 [0.00923]	0.00342 [0.00887]	-0.00266 [0.0134]
2011–12	0.0127 [0.00944]	0.00313 [0.00814]	-0.00170 [0.00875]	-0.0105 [0.0127]
2012-13	0.0176* [0.00963]	0.00893 [0.00790]	0.00480 [0.00622]	0.0287** [0.0125]
Charter * Post	0.0482 [0.0334]	0.0557*** [0.0193]	0.00860 [0.0135]	0.0535* [0.0308]
Constant	0.685*** [0.00674]	0.737*** [0.00553]	0.0711*** [0.00553]	0.337*** [0.00867]
School-Fixed Effect	YES	YES	YES	YES
Observations	382	382	382	382
R-squared	0.976	0.976	0.515	0.924
Total Schools	99	99	99	99
Charter Schools	10	10	10	10

<sup>^</sup>Model estimated via ordinary least squares (OLS). Sample includes observations from 2010–11 through 2013–14. \*p-value <= 0.10 \*\*p-value <= 0.05 \*\*\*p-value <= 0.01  
Source: Author's analysis of Denver Public Schools data

variable for each regression is listed. Standard errors, clustered by school, are in brackets.

Consistent with Figure 2, Figure 3 suggests that Denver's common-enrollment system increased the percentage of disadvantaged students entering charter elementary schools. In each column, the coefficient on the interaction between charter schooling and posttreatment years is positive and of meaningful magnitude. In the case of minority and ESL students, the relationships are statistically significant. In the case of students with disabilities, the relationship is insignificant at reasonable levels. In the case of students eligible for free/reduced-price lunches, the coefficient estimate is positive and substantial but narrowly misses the standard cutoff for statistical significance ( $p = 0.169$ ).

The magnitude of the results displayed in Figure 3 is meaningful, too—suggesting that common enrollment boosted bilingual/ESL student enrollment in charters by 5.35 percentage points. In 2011–12,

among schools included in the sample, 33.7 percent of students entering district schools and 25.6 percent of students entering charters were bilingual/ESL speakers (Figure 2). Thus, as a result of common enrollment, such students—a group frequently targeted by policymakers for increased charter enrollment—virtually closed the enrollment gap between charters and district schools among students entering kindergarten.

## CONCLUSION

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This paper uses a modified DD methodology to determine whether Denver's adoption of common enrollment increased the enrollment of disadvantaged students in the city's charter elementary schools relative to district elementary schools. It finds that common enrollment increased the percentage of disadvantaged students who were minorities, eligible for free/reduced-price lunches, or bilingual/ESL speakers—but not those with disabilities.

Given that policymakers frequently express a particularly ardent desire to boost the charter enrollment of students with disabilities, this latter result is disappointing. Nevertheless, this result was likely influenced by the fact that Denver's school district placed additional restrictions on the ability of students with severe disabilities—as well as those with an IEP requiring the district to provide transportation services—to participate in the common-enroll-

ment system. But the most important limitation of this paper's analyses is the relatively small number of charters included in the estimation sample. The estimates produced are precise enough to detect meaningful magnitudes, but similar analysis of other large U.S. cities that have more recently adopted common enrollment would shine further light on the topic.

As for policy implications, common-enrollment systems that include charters will likely expand disadvantaged students' enrollment in charter schools. This finding is particularly important, given recent research suggesting that the widely noted enrollment gaps between charter and district schools are predominantly determined by who enters charters, not who exits them.<sup>26</sup> Policies, such as common enrollment, that facilitate application to charters thus offer the most promise of narrowing such gaps.



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## ENDNOTES

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- <sup>1</sup> See <http://iipsc.org/projects>.
- <sup>2</sup> Zhang and Gallagher 2014.
- <sup>3</sup> National Alliance for Public Charter Schools 2014.
- <sup>4</sup> The Government Accountability Office found that charter schools nationwide serve significantly fewer students with disabilities than do district schools. While national enrollment comparisons of English-language learners in charter and district schools have been hampered by data-collection issues, there is some evidence from urban school districts that English-language learners are significantly underrepresented in charters.
- <sup>5</sup> See <http://www.balconynewyork.com/2015/02/02/before-you-lift-the-charter-cap-lets-see-some-equity-mulgrew-tells-cuomo>.
- <sup>6</sup> See <http://www.publiccharters.org/get-the-facts/law-database/states/ny>.
- <sup>7</sup> See, e.g., Ravitch 2010.
- <sup>8</sup> Zimmer and Guarino 2013; Winters, Carpenter, and Clayton 2015; Winters 2015A.
- <sup>9</sup> Roy 2014; Winters 2014, 2015B.
- <sup>10</sup> Winters 2014.
- <sup>11</sup> Jochim et al. 2014.
- <sup>12</sup> Ibid.
- <sup>13</sup> Gross, DeArmond, and Denice 2015.
- <sup>14</sup> Ibid.
- <sup>15</sup> In 2014, the process was expanded to include students with more severe disabilities; yet such students are only able to state a preference for schools that the district has determined have the ability to provide them with adequate services.
- <sup>16</sup> E-mail correspondence with Choice and Enrollment Office, Denver Public Schools.
- <sup>17</sup> Roth 1984.
- <sup>18</sup> Ibid.
- <sup>19</sup> Gross, DeArmond, and Denice 2015.
- <sup>20</sup> Many of these issues have been discussed in greater detail in a series of papers by the Center for Reinventing Public Education.
- <sup>21</sup> Results are robust to including additional grade levels in elementary schools. Results are also similar when the analysis includes entry into the sixth and ninth grades—common entry grades in middle and high school.
- <sup>22</sup> To test robustness, the author also ran models that included all students entering elementary school, in kindergarten through fifth grade. The results were comparable with those reported.
- <sup>23</sup> Though not discussed, the author found similar results when different specifications were used.

<sup>24</sup> Estimates are similar when the model is estimated with student-level data. School-level data are used for the main analysis because the school is the level of treatment. Further, since individual students are not observed entering kindergarten in both pre- and post-policy states, the differences-in-differences procedure is difficult to interpret when applied to the student level.

<sup>25</sup> Such an approach does not address the (unlikely) possibility that common enrollment brought new students into Denver's total student pool.

<sup>26</sup> Winters 2014, 2015B; Roy 2014.



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