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THREE SIGNS THAT A PROPOSED CHARTER SCHOOL IS AT RISK OF FAILING

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FOREWORD & SUMMARY

It's well established—by excellent work from the Center for Research on Education Outcomes (CREDO) and others—that some charter schools do far better than others at educating their students. This variability has profound implications for the children who attend those schools. Yet painful experience shows that rebooting or closing a low-performing school is a drawn-out and excruciating process that often backfires or simply doesn't happen. But what if we could predict which schools are likely *not* to succeed—before they even open their doors? If authorizers had that capability, they could select stronger schools to launch, thereby protecting children and ultimately leading to a higher-performing charter sector overall.

This study employs an empirical approach to do just that. Analysts coded charter applications for easy-to-spot indicators and used them to predict the schools' academic performance in their first years of operation.

Authorizers rejected 77 percent of applications from a sample of over six hundred applications from four states. They worked hard at screening those applications, seemingly homing in on a common set of indicators—"trigger warnings," if you will—whose presence in or absence from applications made it more likely that they would reject the application.

Yet despite the vigorous screening process that authorizers used to determine which applicants to turn down and which to entrust with new schools, 30 percent of the approved applications in this study led to charter schools that performed poorly during their first years of operation. Given that research has shown that a school's early-year performance almost always predicts its future performance, those weak schools are unlikely to improve.¹

Could a different kind of screening process, informed by common risk factors, have prevented at least some of this school failure? It was surely worth investigating.

We turned to Dr. David Stuit, co-founder of Basis Policy Research and the author of two previous Fordham Institute reports on school choice. He was joined by lead author Dr. Anna Nicotera, senior associate at Basis who brings substantial charter school and school choice expertise. Before joining Basis, Anna was senior director of research at the National Alliance for Public Charter Schools, worked for the National Center on School Choice at Vanderbilt University, and served as an advisor to the U.S. Department of Education's evaluation of the federal Charter Schools Program.

Our Basis colleagues found three risk factors that were present in the approved applications that also turned out to be significant predictors of future school performance in the initial years:

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- 1. Lack of Identified Leadership:** Charter applications that propose a self-managed school without naming its initial school leader.
- 2. High Risk, Low Dose:** Charter applications that propose to serve at-risk pupils but plan to employ “low dose” academic programs that do not include sufficient academic supports, such as intensive small-group instruction or individual tutoring.
- 3. A Child-Centered Curriculum:** Charter applications that propose to deploy child-centered, inquiry-based pedagogies, such as Montessori, Waldorf, Paideia, or experiential programs.

The presence of these risk factors in charter applications significantly boosted the probability that the school would perform poorly during its first years of operation. When an application displayed two or more of these risk factors, the probability of low performance rose to 80 percent.

We also learned that the following indicators, among others, made it more likely that authorizers would reject the application entirely:

- A lack of evidence that the school will start with a sound financial foundation;
- No description of how the school will use data to evaluate educators or inform instruction;
- No discussion of how the school will create and sustain a culture of high expectations; and
- No plans to hire a management organization to run the school.

Here’s what we make of those findings.

First, authorizers already have multiple elements in mind—though not always consciously—that they use to screen out applications. The factors named above that are already linked to rejection may well predict low performance, had the schools displaying them been allowed to open. But since those schools *did not* open, we have no way of knowing for sure. Still, the authorizers we studied—and their peers throughout the country—would probably be wise to continue to view these factors as possible signs of likely school failure and to act accordingly.

Second, we were somewhat surprised to see that an applicant’s intention to use a child-centered, inquiry-based instructional model (such as Montessori, Waldorf, or Paideia) made it less likely that the school would succeed academically in its first years. It’s hard to tell what’s going on here. Some of these pedagogies, expertly implemented, can surely work well for many children. But they are not intended to

prepare students to shine on the kinds of assessments that are typically used by states and authorizers to judge school performance—in other words, the same tests that our research team used to judge quality for purposes of this analysis.

We do not mean to discourage innovation and experimentation with curriculum and pedagogy in the charter realm going forward. That sector’s mission includes providing families with access to education programs that might suit their children and that might not otherwise be available to them. Fordham is a charter authorizer itself (in its home state of Ohio) and we’re keenly aware of the need to balance the risk that a new school may struggle academically against a charter’s right to autonomy and innovation. Well-executed versions of inquiry-based education surely have their place in chartering. But the present study finds that they boost the probability of low performance as conventionally measured.

Third, let’s acknowledge that quality is in the eye of the beholder. Many of these child-centered schools aren’t “failing” in the eyes of their customers. The parents who choose them may not care if they have low “value added” on test scores. But authorizers must balance parental satisfaction with the public’s right to assure that students learn. Schools exist not only to benefit their immediate clients but also to contribute to the public good: a well-educated society.

Yes, it’s a tricky balance, especially in places where dismally performing district schools have been the only option for many youngsters. The best we can say to authorizers is to exercise your authority wisely. Consider the quality of existing options, plus a prospective charter school’s ability to enhance those options—not only academically, but in other ways fundamental to parents and the public. Pluralism is an important value for the charter sector, and is worth taking some risk to achieve.

Fourth, these findings aren’t a license for lazy authorizing. Yes, the trio of significant indicators that we found helps to identify applications that have a high probability of yielding struggling charter schools. But these aren’t causal relationships. Nor do they obviate an authorizer’s responsibility to carefully evaluate every element of a charter application. If our results are used to automatically reject or fast-track an application, they have been misused. Yet they ought, at minimum, to lead to considerably deeper inquiry, heightened due diligence, and perhaps a requirement for additional information. In short, their proper use is to enhance an authorizer’s review.

Deciding whether to give the green light to a new school is a weighty decision. Failing to authorize a potentially successful school for children desperately in need of one is just as bad as authorizing a school that ultimately fails to educate them. The information herein adds one more tool to authorizers’ toolkits. May they use it wisely.

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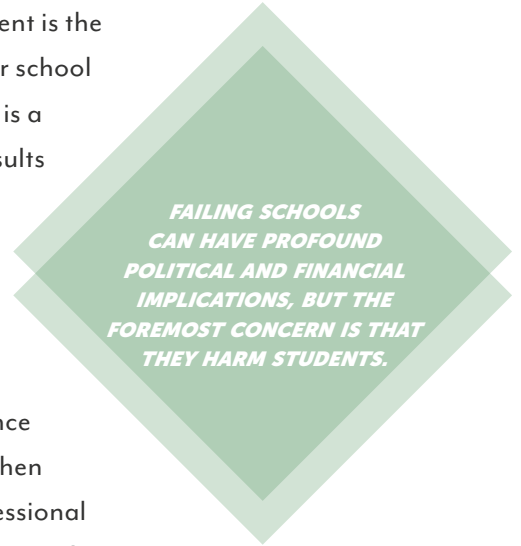
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INTRODUCTION

Over the last two and a half decades, we have witnessed charter schooling evolve from a novel and controversial policy experiment to a dynamic institution that has gained widespread acceptance among education reformers, policymakers, and, sometimes, the mainstream public education community. The growth of this sector has, by and large, been fueled by the compelling principles on which the charter schooling concept rests: more education options for families, less regulation for schools, and greater accountability for student results. A 2014 meta-analysis indicated that elementary and middle charter schools had a small, but statistically significant, positive impact on student mathematics performance.² More promising has been the research on urban charter schools. In a 2015 study, CREDO found that students who attended such schools experienced significantly higher levels of academic growth in math and reading than their counterparts in traditional district schools.³ For low-income African American, Hispanic, and English language learner students, the difference in performance by attending urban charter schools can be on the order of twenty-five to seventy-nine additional days of learning per year.⁴

While many charter schools have demonstrated considerable success, perhaps the greatest threat to the legitimacy of the charter school movement is the continuing presence of chronically failing schools. When a charter school consistently produces sub-par academic results for its students, it is a sign that the latter half of the “charter school bargain” (better results in return for more autonomy) is not being met. Failing schools can have profound political and financial implications, but the foremost concern is that they harm students.



Charter school authorizers play a critical role in addressing the problem of chronic charter school failure. There is growing evidence showing that authorizer practices make a significant difference when it comes to dealing with struggling charter schools.⁵ Several professional guides, such as the National Association of Charter School Authorizers’ (NACSA) *Principles & Standards for Charter School Authorizing*, draw from the experiences of authorizers with portfolios of high-performing schools to recommend authorizing practices that may be linked to improving school quality.⁶ Such guides typically recommend that authorizers engage in ongoing monitoring and oversight and that they develop transparent and rigorous procedures for application, renewal, and revocation decisions.

Since authorizers and authorizing practices can influence charter quality, it’s essential to understand the tools that authorizers have to deal with failing schools. There are several strategies available to them.

First, authorizers can provide support to struggling charter schools with the goal of improving them. Across the public education system, school turnaround approaches have been the most



commonly used strategy to improve low-performing schools,⁷ despite the painful reality that turning around schools (in any sector) is an incredibly challenging and resource-intensive task—and that there are not many examples of success.⁸ In a study that examined low-performing charter and district schools over five years, Stuit found that only 1 percent of them—from either sector—made significant improvements in performance.⁹ Research on the effect of School Improvement Grants (SIG) in several states provides mixed results, with evidence that turnaround efforts improved performance for some schools in California¹⁰ and Ohio,¹¹ but had limited success in North Carolina.¹² The recently released national study of the SIG program showed that despite \$3 billion being spent on improving low-performing schools, the reform effort, on average, had no significant impact on math or reading test scores.¹³

Similarly, the research team at CREDO examined the trajectories of high-, middle-, and low-performing charter schools after their first years of operation and found that early school performance nearly perfectly predicted performance in later years. Specifically, the study divided charter schools into quintiles based on the first available performance measure for new charter schools. The researchers found that 80 percent of schools in the bottom two quintiles were unable to break out after five years. On the flip side, 94 percent of new charter schools that were in the top quintiles after the first performance measure remained in the top category after five years.¹⁴ Other studies have shown that average student performance improves when students attend more mature charter schools, but the CREDO results suggest that charter schools that struggle in their early years rarely see dramatic improvements in student performance in subsequent years.¹⁵

Second, authorizers can aggressively identify and close failing schools. In 2012, NACSA called for authorizers to be more proactive in this work, stating, “In some places, accountability has been part of the charter model in name only. If charters are going to succeed in helping improve public education, accountability must go from being rhetoric to reality.”¹⁶ However, authorizers have been reluctant to respond. While the total number of charters that close each year has increased,¹⁷ the closure rate remained constant at roughly 3.7 percent between 2011–12 and 2014–15.¹⁸

There are a variety of reasons why authorizers have found it difficult to close struggling schools. Authorizers may not have clearly defined academic, financial, or operational metrics to which they hold charter schools accountable. Many authorizers fail to regularly collect information or monitor charter schools in order to make tough decisions—or don’t use the accountability data in those decisions.¹⁹ School closures can be particularly challenging when stakeholders, such as parents and educators, become invested in struggling schools. Often, families believe that they have made the right school choice decision and are satisfied with the low-performing school because it is safer or better than the alternative. When you add to this the challenge that authorizers are more likely to be affluent and white, while the students served by the schools are poor and minorities,²⁰ closure decisions can turn into politically and emotionally fraught battles.²¹ Fifteen states have passed automatic closure policies that require charter schools to close



if they do not meet pre-defined performance benchmarks,²² but it's unclear how much of an impact these laws have had on weeding out low-performing schools.²³ Again, the reality is that charter school closures are too infrequent to make a significant dent in the number of low-performing charter schools.

Third, the most straightforward strategy, and the focus of this report, is to reduce the number of failing charter schools by denying them the opportunity to open their doors in the first place. That is, reject the applications of schools that are unlikely to succeed. Many authorizers already employ well-developed criteria and procedures by which to review prospective school operators and subsequently reject the majority of applications that they receive. This report provides them with an additional tool to improve authorizing decisions. It asks:

- Is it possible to identify risk factors in the written content of charter applications that signal that an applicant is unlikely to succeed in operating a quality school?

We define risk factors as easy-to-spot and hard-to-game indicators that increase the likelihood that the proposed charter school will struggle academically in its first years. Since early success is highly predictive of strong performance in the future, it is critical to develop and validate tools and procedures that will help authorizers make better chartering decisions.

We use charter applications as a primary source of data. We coded 639 of them as submitted to thirty authorizers in Colorado, Indiana, North Carolina, and Texas between 2009–10 and 2014–15. We combined the coded application data with school performance data in the first year that they were reported for new charter schools. We then used these data to build a predictive model that identifies charter school application indicators that point to schools that will struggle academically in their early years. The analysis suggests that there are three risk factors that authorizers should look out for and evaluate carefully:

1. **Lack of Identified Leadership:** Charter applications that propose a self-managed school without naming a school leader.
2. **High Risk, Low Dose:** Charter applications that propose to serve at-risk pupils but plan to employ “low dose” academic programs that do not include sufficient academic supports, such as intensive small-group instruction or extensive individual tutoring.
3. **A Child-Centered Curriculum:** Charter applications that propose to deploy child-centered, inquiry-based pedagogies, such as Montessori, Waldorf, Paideia, or experiential programs.



We do not suggest that every applicant that falls into one of these categories will ultimately produce a charter school that struggles academically in its early years. Our intent is not to stifle innovation in the charter sector by suggesting that authorizers deny every application with one or more of these risk factors. Indeed, a major tenet of the theory of charter schools is to encourage innovation, which means that there may be an optimal amount of school failure to ensure that educators can experiment. Unfortunately, we do not know what constitutes that optimal failure amount. And it is probably safe to say that the current number of low-performing charter schools is above optimal, so taking steps to reduce failing schools is warranted.

We are also mindful of the limitation inherent in any attempt to predict performance on the basis of applications, as—obviously—we are only able to analyze the performance data for schools whose applications were approved. Authorizers deny most applications and we have no information on how students would perform at schools that never started (see *The Debate on Authorizers' Ability to Predict Charter School Quality*).

Still and all, the three risk factors we identified are easy-to-spot and hard-to-game pieces of information found in the written content of applications.

And they are strong predictors of future school performance.

Authorizers can use this information to improve their processes for reviewing and approving new charter school applications so they can identify ahead of time those applicants who will likely struggle to succeed. Specifically, they can use these risk factors to determine which charter applicants merit more thorough review. Plus, they will be in a better position to provide additional support to risky candidates if the proposed charter school is one that the authorizer believes would meet the needs of students it serves.

In the following pages, we describe the data and methods we used to predict—based on the content of charter applications alone—whether a proposed school is apt to succeed or struggle in its early years. For each of the risk factors that emerged, we present the specific finding, discuss what the literature says about why that risk factor matters, and suggest ways in which an authorizer could address applications that include the risk factor. Authorizers can use this information to make better decisions, improve charter school quality, and diminish the risk that unsuccessful schools will open.

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THE DEBATE ON AUTHORIZERS' ABILITY TO PREDICT CHARTER SCHOOL QUALITY

Charter applications provide a wealth of data, yet little research to date has systematically analyzed them. One notable exception is a 2015 report by Douglas N. Harris and Whitney Bross that used information from 155 applications to the Louisiana Board of Elementary and Secondary Education with applicants hoping to operate charter schools in Orleans Parish. The report coded ten components common across the applications and used them to predict approval and renewal decisions, as well as future school performance.²⁴ It found that a limited number of components were related to approval and renewal decisions, and only one of the categories coded from the applications predicted schools' future academic performance, specifically: planning to partner with a nonprofit organization had a negative influence on school performance.

After Harris and Bross released their study,²⁵ University of Arkansas professor Jay P. Greene responded that, because authorizers cannot predict future success, they should not be in the business of preventing charter schools from opening.²⁶ Nelson Smith, senior advisor to NACSA, responded that authorizers do in fact have a strong set of resources and procedures by which to assess the quality and prospects of charter applications.²⁷

Authorizers today approve, on average, just one-third of the charter applications that they receive.²⁸ The majority of authorizers employ rigorous and transparent application review criteria to identify applications that demonstrate a likely capacity to operate a quality school.²⁹ We do not know how rejected applicants would have performed if their applications had been approved and they had opened schools, but it is likely that authorizers are preventing many poor-performing schools from opening. Of course, there will always be some "false negatives"—i.e., prospective schools that are denied at the application stage but that might have worked well for students. Others get denied due to practical concerns that could be addressed through policy, such as assured access to unused district facilities.³⁰ Perhaps more worrisome, from a quality control standpoint, are "false positives"—i.e., schools that get approved on the basis of seemingly strong applications but that end up serving children poorly.

Results from such studies should *not* be used to discourage authorizers from carefully evaluating every element of a charter application. Rather, they should be used to *enhance* rigorous review of charter applications and to reduce the number of both false positives and false negatives in determining which prospective schools should launch.

CHARTER SCHOOL APPLICATION DATA

To identify potential risk factors, we collected and coded 639 charter school applications received by thirty different authorizers across four states: Colorado, Indiana, North Carolina, and Texas (Table 1). The Colorado League of Charter Schools provided access to charter applications in that state from 2009 to 2014. For the other three states, applications were retrieved from publicly available online resources for all authorizers that received at least one application between 2011 and 2014.

In Colorado, the authorizers included twenty-four local school districts (LEAs) and the statewide independent charter review board. In Indiana, the authorizers included a university, a municipal government entity, and an independent charter school board. In North Carolina and Texas, the only authorizers are state boards of education.

TABLE 1. NUMBER OF APPLICATIONS CODED, BY STATE, AUTHORIZER, AND YEAR

State	No. Charters	No. Authorizers	Applications by Year of Submission						Total
			2009	2010	2011	2012	2013	2014	
Colorado	214	25	23	17	17	16	19	30	122
Indiana	79	3	n.a.	n.a.	38	25	22	23	108
North Carolina	151	1	n.a.	n.a.	87	70	71	42	270
Texas	718	1	n.a.	n.a.	49	31	27	32	139
Total	1,162	30	23	17	191	142	139	127	639

Note: “n.a.” indicates that applications were not publicly available. Source for number of charter schools in 2014–15: National Alliance for Public Charter Schools, “Charter School Data Dashboard,” <http://dashboard2.publiccharters.org>.

DEFINING LOW PERFORMANCE

We combined the application data with performance data from schools that were approved. School-level student growth and academic proficiency data were collected from state departments of education. To be included in this report, new schools had to have student growth and proficiency data reported within the first two years of operation; we used the data that was reported the first time during those first two years.³¹ For both student growth and proficiency data, we generated percentiles by ranking every school in the state—both charter and district—between one and one hundred. We defined low performance, or failure, as charter schools that fell below the 25th percentile in proficiency *and* below the 50th percentile in growth. These percentile cutoffs mean that failing schools had proficiency rates lower than 75 percent of schools in the state, as well as below-average student growth.

Of the 127 applications that resulted in schools that were approved and opened, thirty-five (28 percent) were deemed low-performing schools during their first years of operation.

Since our data on new charter schools come from a range of academic years based on when the charter applicant submitted the application, was approved, and opened the school, our sample size decreases significantly when we look beyond the first two years of reported data. As a result, we cannot examine charter performance three, four, or five years after the schools opened. However, we did use the subset of our sample that had reported data beyond the first year to check if their first year performance predicted later performance. Schools that we classified as low performing in their first years had a 45 percent probability of being classified as low performing in their third year of operation. In contrast, for schools that were not low performing in their first years, the probability of future low performance was just 7 percent.

MISSING DATA

After collecting and coding 639 applications, we excluded ninety-seven (or 15 percent) from the predictive model because of missing data (Table 2). First, we excluded thirty-nine applications that proposed alternative high schools, including dropout prevention programs, credit recovery, and GED completion programs, as well as programs targeting juvenile offenders. Five of the thirty-nine proposals for alternative high schools were approved, but we excluded them from the analysis because performance data were not available by their second year of operation. Second, we excluded seventeen applications that were approved by authorizers but did not open charter schools. We excluded the schools that never opened, rather than include them in the count of academic failures. Finally, we excluded forty-one charter applications that were approved but did not have student growth and proficiency performance data reported within their first two years of operation. We searched extensively for performance data for schools that opened and enrolled students, but in these cases we were not able to find such data, typically because the schools served early grades where state assessments are not administered. Appendix A provides more detailed information about the excluded applications.

TABLE 2. APPLICATIONS THAT WERE EXCLUDED, BY STATE AND REASON

State	Alternative high school applicants	Approved applicants that did not open schools	Approved applicants with missing test score data	Total excluded	Pct. excluded
Colorado	6	0	14	20	16%
Indiana	13	14	6	33	31%
North Carolina	9	2	19	30	11%
Texas	11	1	2	14	10%
Total	39	17	41	97	15%



APPLICATION APPROVAL AND FAILURE RATES

Figure 1 provides a visual representation of the applications for each state by year. The orange bars below the year indicate the number of submitted applications that were rejected by authorizers. Above the year, the bars indicate the number of approved applications. The approved application bars are broken out by the number that did not open schools (light green), the number that opened and were not deemed to be low performing in the first years of operation (green), and the number that opened and were defined as low performing (light orange). The total of all bars (orange, light orange, green, and light green) indicates the total number of applications submitted to authorizers by state and year.

The figure also presents the approval and failure rates by state and year, and shows how those rates are calculated. The approval rate is calculated by dividing the total number of schools approved (the sum of approved applications that did not open, schools that are not failing, and schools that are failing) by the total number of applications submitted (the sum of the total number of schools approved and the total number of schools rejected). The overall approval rates ranged from 11 percent (Texas) to 46 percent (Colorado).

The failure rate is calculated by dividing the total number of failing schools approved by the total number of schools approved (sum of approved applications that are not failing and approved applications that are failing). The overall failure rates ranged from 16 percent (North Carolina) to 31 percent (Texas).

Figure 1 shows that the number of applications submitted, as well as approval and failure rates, varied across and within states throughout the years included in this report. In Colorado, for example, there was a steady flow of submitted applications; the approval rate hovered around 50 percent except in two years where it was high (69 percent in 2012) and low (21 percent in 2013). Overall, 23 percent of the approved charter schools in Colorado were deemed low performing during their first years of operation.

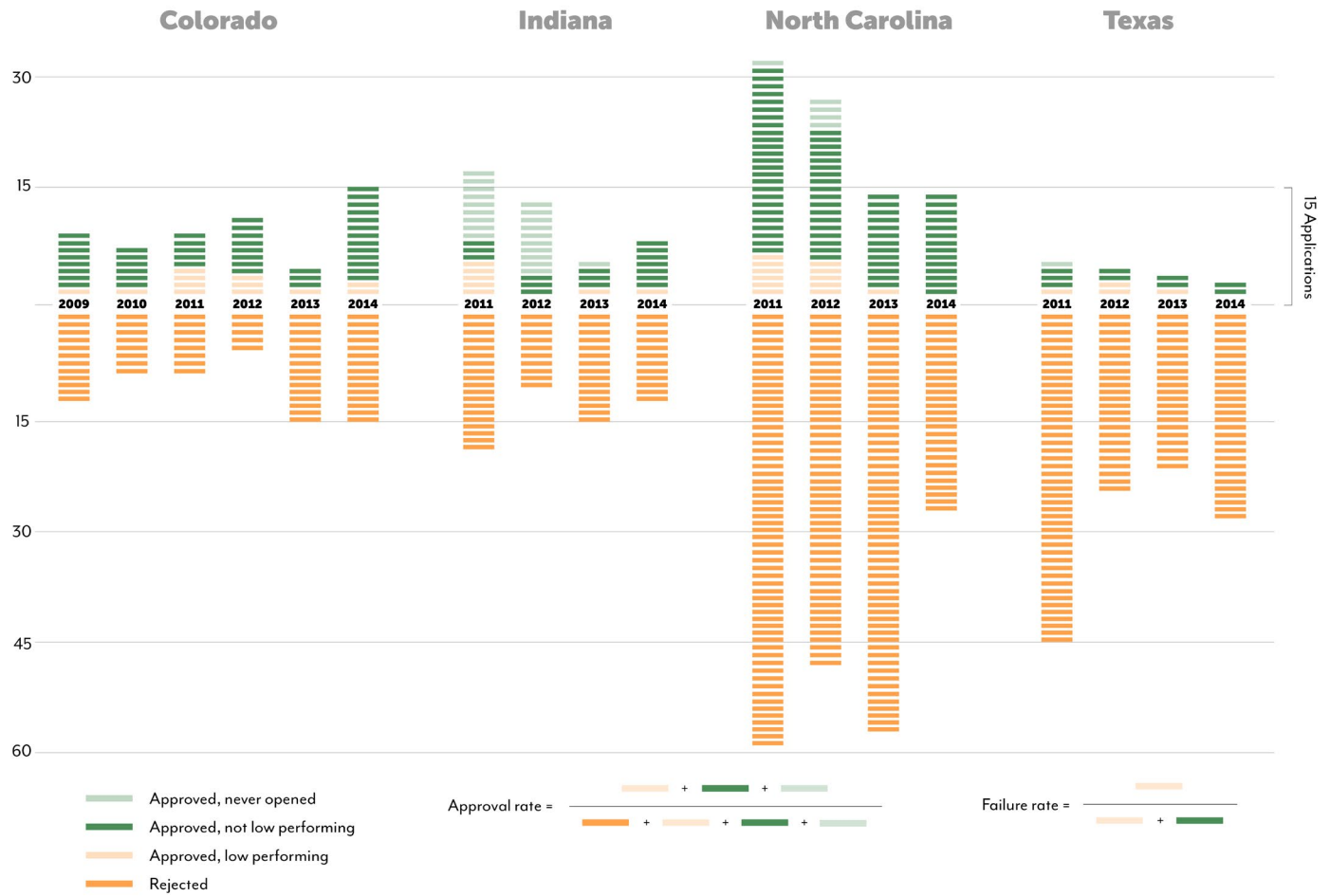
Of the four states in this report, Indiana experienced the largest number of approved applicants that did not open their doors to students. Out of ninety-five applications submitted in Indiana, thirty-nine were approved (41 percent), and twenty-three opened. Of the schools that opened, seven were deemed to be low performing in their first years of operation (30 percent).

North Carolina's charter sector experienced the largest increase in new schools during this period. The state's sole authorizer, the Office of Charter Schools within the NC Department of Public Instruction, received 270 applications between 2011 and 2014. Seventy-nine of them were approved (30 percent); twelve of the schools that opened failed (16 percent). The growth in submitted and approved applications resulted from changes to state law in 2011 that lifted the cap on the number of charter schools allowed to operate in the Tar Heel State.



Texas had the second-highest number of applications submitted, 129, during the years included in this report. Due to the cap on the number of charter schools permitted in the state, only fourteen were approved (11 percent), and of the schools that opened, four failed (31 percent).

FIGURE 1. CHARTER SCHOOL APPLICATION APPROVAL RATES, BY STATE AND YEAR



	Colorado							Indiana					North Carolina					Texas				
Year	09	10	11	12	13	14	All	11	12	13	14	All	11	12	13	14	All	11	12	13	14	All
Approval rate	43%	47%	53%	69%	21%	46%	46%	44%	52%	25%	40%	41%	35%	36%	18%	31%	30%	11%	14%	13%	7%	11%
Failure rate	11%	14%	44%	27%	25%	15%	23%	63%	0%	25%	13%	30%	21%	25%	8%	0%	16%	25%	50%	33%	0%	31%



IDENTIFYING SIGNIFICANT RISK INDICATORS FROM CHARTER SCHOOL APPLICATIONS

We developed a three-step process to identify application risk factors (Figure 2). To meet our criteria for a strong indicator that would be useful for authorizers across multiple states, such an indicator had to be simple, research validated, quickly and accurately identifiable, and a statistically significant predictor of whether the school will be low performing in its first years of operation.

First, we reviewed the extant research literature and generated a working list of “candidate” indicators that one would expect to be correlated to low school performance based on existing evidence and theory. To generate this list, we reviewed NACSA’s *Principles & Standards for Quality Charter School Authorizing*³² along with seminal research on charter schools³³ and effective schooling practices in general.³⁴ This process resulted in roughly fifty candidate indicators (see Table B-1 in Appendix B).

The second step was to whittle the candidate list down to indicators that one would expect to find in the written content of applications and that could easily and accurately be coded through a page-by-page review. Eight applications were randomly selected (two per state) and three researchers independently reviewed and coded them. We analyzed the results and identified a subset of twelve indicators that (a) were possible to code in all eight applications and (b) all three researchers assigned the same binary rating (Yes or No) in at least six of the eight applications.³⁵ Table 3 shows the twelve indicators that met these requirements.

FIGURE 2. CRITERIA FOR SELECTING APPLICATION RISK FACTORS

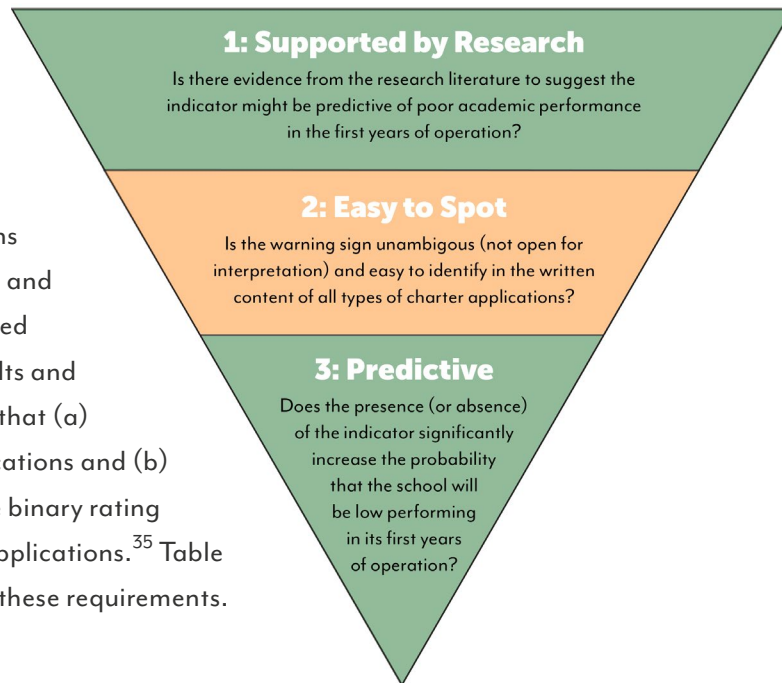




TABLE 3. INDICATOR CODING PROTOCOLS

Indicator	Coding Criteria
1. Describes demographics of surrounding community	Applicant includes a description of the demographics of the neighborhood that the school intends to serve at the county, city, zip code, or neighborhood level and includes at least two of the following demographics: educational attainment, poverty rates, free or reduced-price lunch rates, racial/ethnic makeup, average income, and unemployment rates.
2. Intends to serve at-risk students	Applicant meets one of the following five criteria: intends to serve a primarily minority population, intends to serve a high-poverty population, intends to serve a migrant population, intends to serve drop-outs or students in danger of dropping out, or intends to serve pregnant or parenting students.
3. Names school leader	Applicant lists the name(s) of the expected school leader and qualifications (e.g., resume or description of experience) or includes the name(s) and qualifications of one or more candidates for the school leader position.
4. Provides per-pupil revenue projection	Applicant includes revenue projection based on estimated per-pupil revenue and number of students expected to enroll in first year.
5. Identifies external funding source	Applicant lists specific grant funding already received, applied for, or that they intend to apply for and includes details about the amounts, timelines, and/or application process.
6. Intends to use a child-centered instructional model	Applicant intends to implement one of the following instruction/curricular approaches: Montessori, Waldorf, Paideia, Experiential Learning, Expeditionary Learning, or other child-centered, inquiry-based approaches.
7. Intends to offer extended school year or school day	Applicant indicates an intention to exceed the number of school days required by the district or intends to offer a longer school day than the district.
8. Describes rigorous educator evaluation plan	Applicant includes description of an educator evaluation model that incorporates multiple evaluation measures, including student growth component (e.g., value-added model or student growth percentiles) and classroom observations.
9. Intends to provide high-dosage, small-group or individual tutoring	Applicant meets two of the following four criteria: offers tutoring two or more days a week after school, requires all teachers to establish after-school tutoring hours, offers small-group tutoring (no more than ten students) during and/or after school day, or describes intervention plans, which include small-group or individual tutoring.
10. Describes plan for using data to drive instructional improvement	Applicant has identified a valid and reliable vendor-based benchmark assessments (e.g., Scantron Performance Series, NWEA Measures of Academic Progress), provides an assessment schedule, and describes how the data will be used to inform instruction.
11. Describes a culture of high expectations	Applicant describes two of the following six criteria: intends to implement a college preparatory curriculum, intends to use parent contracts, intends to use student contracts, details the school and/or student goals, details the goal setting process, and/or adopts a zero-tolerance policy.
12. Does not plan to hire a management organization (no CMO or EMO)	Applicant indicates it intends its school to be "self-managed" and not contract with a Charter Management Organization (CMO) or Educational Management Organization (EMO).



Table 4 provides descriptive information about the number of applicants that included—or omitted—one of the final twelve indicators in their charter applications. The table shows that while the twelve final indicators were present in both rejected and approved applications, there are some differences in the prevalence. For example, the indicator for whether the application identifies an external funding source is more prevalent in the rejected applications than those approved (66 percent versus 57 percent). Moreover, a larger percent of the rejected applications did not plan to offer an extended school day or year (64 percent versus 59 percent), did not describe a rigorous educator evaluation plan (74 percent versus 54 percent), did not intend to offer additional academic support such as tutoring (80 percent versus 66 percent), and did not describe a culture of high expectations (60 percent versus 45 percent).

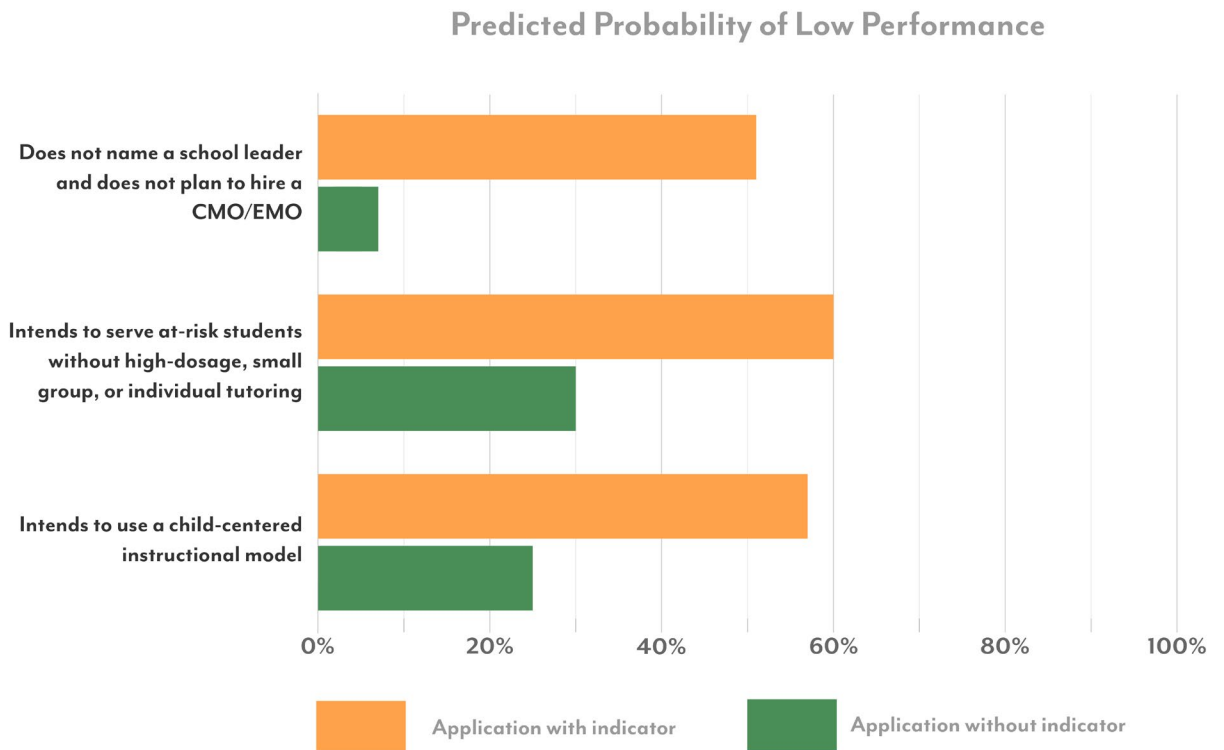
TABLE 4. PRESENCE OF TWELVE INDICATORS IN APPLICATIONS

Indicator	All applications (n = 542)	Rejected applications (n = 415)	Approved applications (n = 127)
1. Does not describe community demographics	204 (38%)	159 (38%)	45 (35%)
2. Intends to serve at-risk students	189 (35%)	139 (33%)	50 (39%)
3. Does not name school leader	368 (68%)	273 (66%)	95 (75%)
4. Does not provide per-pupil revenue projection	91 (17%)	74 (18%)	17 (13%)
5. Does not identify external funding source	347 (64%)	274 (66%)	73 (57%)
6. Intends to use a child-centered instructional model	72 (13%)	53 (13%)	19 (15%)
7. Does not intend to offer extended school day/year	341 (63%)	266 (64%)	75 (59%)
8. Does not describe rigorous educator evaluation plan	375 (69%)	306 (74%)	69 (54%)
9. Does not intend to provide high-dosage, small-group or individual tutoring	416 (77%)	332 (80%)	84 (66%)
10. Does not describe plan for using data to drive instructional improvement	175 (32%)	150 (36%)	25 (20%)
11. Does not describe a culture of high expectations	307 (57%)	250 (60%)	57 (45%)
12. Does not plan to hire a CMO or EMO	423 (78%)	333 (80%)	90 (71%)

The third and final step in identifying risk factors was to test whether the twelve final indicators were statistically significant predictors of whether or not the applicant would have low academic performance in its first years of operation.³⁶ In addition to testing how well the indicators predicted school performance on their own, we examined whether certain indicators were stronger predictors of low performance when used together. For example, we hypothesized that the risk of low performance would be greater for applicants that intended to serve at-risk students, but did not indicate in their proposals that they had a plan to offer additional academic support. Appendix C describes in detail the series of statistical tests involved in the prediction procedure.

One of the twelve final indicators passed the statistical tests, as well as two of the “combination indicators.” Figure 3 shows the predicted probability that the school would perform poorly in the first years of operation for the three risk factors for applications that were approved and opened. The orange bars are the predicted probabilities of low performance for applications where the risk factor was present. The green bars show the predicted probabilities of low performance for applications without the risk factor.

FIGURE 3. PREDICTED PROBABILITY OF LOW-PERFORMANCE FOR APPLICATIONS WITH AND WITHOUT THE THREE RISK FACTORS



We find that the predicted probability that a charter school will be low performing in its first years of operation is 51 percent when the approved application proposes opening a standalone charter school without naming a school leader. The predicted probability of low performance is 60 percent when the approved application highlights an intention to serve at-risk students without providing sufficient academic supports. And for applications that propose using a child-centered, inquiry-based instructional model, the predicted probability of low performance is 57 percent. Moreover, we find that when an application includes two of these risk factors, the predicted probability that the school will be low performing rises to roughly 80 percent. For applications that include all three risk factors, the predicted probability of low performance during the first years of operation is 93 percent.

In the next section we will discuss each of the three risk factors that predict school performance in depth. But first, let's examine whether authorizers in our sample were more likely to reject applications based on the three risk factors or any of the other twelve final indicators.

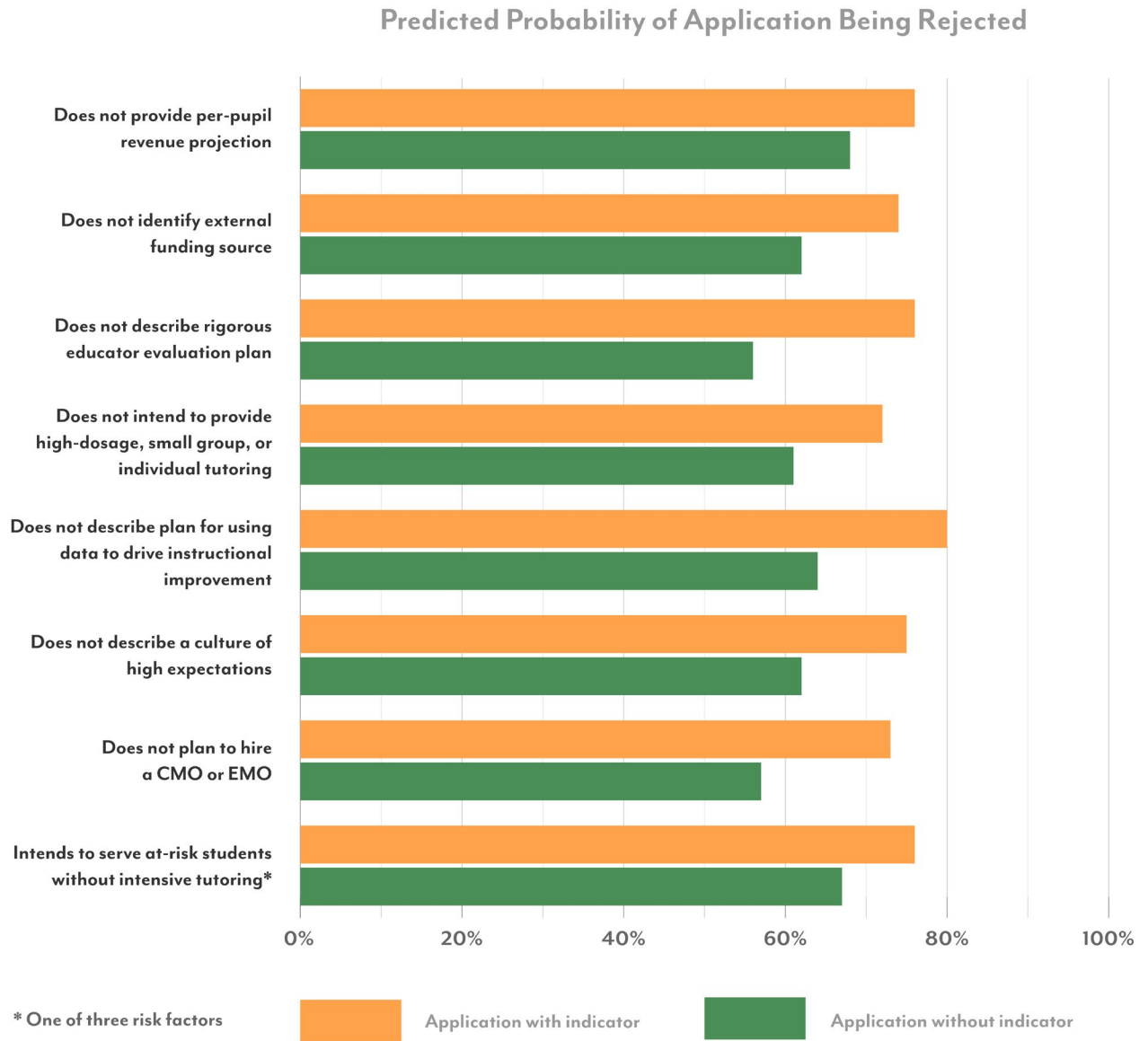
Ultimately, we found eight indicators (seven of the twelve final indicators and one of the three risk factors) where the difference between applications with and without the respective indicator was positive and statistically significant (p -value < 0.10), indicating that applications with these indicators were *more likely* to be rejected by authorizers. None of the differences that were negative were statistically significant, which would suggest that the presence of the indicator would *decrease* the probability that it was rejected. (See Table D-1 in Appendix D for the predicted probability for all twelve final indicators and three risk factors.)

Figure 4 shows the eight significant indicators. It appears that authorizers in this sample were more likely to reject applications that were unable to demonstrate that the charter school would open with a solid financial foundation. Specifically, authorizers were more likely to reject applications that did not provide per-pupil revenue projections (68 percent versus 73 percent) nor identify external funding sources (73 percent versus 62 percent). Authorizers were more likely to reject applications that described neither the ways in which the charter school would use data to evaluate educators (76 percent versus 56 percent) nor plans to use data to drive instruction (80 percent versus 64 percent). Applications that neither described strategies to increase academic support, such as by tutoring (72 percent versus 61 percent), nor outlined a plan to create a culture of high expectations for students (75 percent versus 62 percent) were more likely to be rejected by authorizers. Authorizers were also more likely to reject applications that did not plan to hire a management organization to run the school (73 percent versus 57 percent).

Finally, one of the three risk factors was a significant predictor of whether the authorizer would reject the application. When applications indicated that they intended to serve high-risk students without additional academic support, authorizers were more likely to reject them (76 percent versus 67 percent).



FIGURE 4. PREDICTED PROBABILITY OF REJECTION FOR APPLICATIONS WITH AND WITHOUT THE RESPECTIVE INDICATOR



How do we make sense of the difference between the indicators that are related to whether an application is rejected and the indicators related to future school performance? The factors that led charter applicants to be rejected may very well predict low performance, had the schools been allowed to open. But since the applications with the factors were less likely to be approved, we have no way of knowing. The authorizers we studied—and those elsewhere—would probably be wise to continue to view these factors as possibly predictive of school failure, and to act accordingly.

In the next section we discuss the three risk factors in depth. We report on the specific finding, describe what the literature says about the indicator, and provide an action item for authorizers.



LIMITATIONS

This analysis has several limitations. The sample is gleaned from four states during a limited range of academic years. The four states include thirty authorizers, but the sample is not large enough to parse differences among types of authorizers. Because of the timing of when applications were submitted, approved, and schools opened, we were unable to examine school performance beyond the first time that performance data were reported for new schools, though we show that performance in the first years correlates with performance in the third year of operation for a subset of schools with those data.

Moreover, the findings do not indicate a causal relationship between the risk factors and future school performance. Rather, the significant indicators provide information about applications that have a high probability of producing charter schools that will struggle academically in the first years of operation.

Our assessment of whether new schools will be low performers based on the presence of the risk factors in their applications does not translate to the probability of academic success should the application *exclude* those risk factors. Specifically, our findings provide average predicted probability of low performance for prospective schools whose charter applications do not include the risk factors; these probabilities are always much lower than the probabilities of low performance for applications *with* these risk factors.

Furthermore, we did not use the twelve final indicators to predict whether new charter schools would be academically successful—measured as high academic growth and proficiency—in the first years of operation. In our opinion, the indicators are not nuanced enough to determine that their presence in a charter application demonstrates, without a doubt, that a charter school will succeed. The presence of any of these indicators should not fast-track the approval of charter applications.

Given these limitations, the findings from this report should be used as a tool to enhance, not replace, the procedures that authorizers use to evaluate charter applications. The statistically significant risk factors we identified that predict school performance are simple, easy-to-spot, commonsensical risk factors that authorizers can use to flag applications for a more thorough review.

RISK FACTOR #1: LACK OF IDENTIFIED LEADERSHIP

Finding: The first risk factor that an applicant is not ready to succeed in the first years of operation is when the application for a self-managed charter school does not list the name of the individual who will lead the school, or name potential candidates.

This risk factor was present in 289 of all 542 applications in the report (53 percent), but it was not related to whether an authorizer was more likely to reject the application (71 percent versus 68 percent predicted probability of rejection). However, it significantly increased the probability of low performance for applicants that were approved and opened. The predicted probability that applicants that did not name a school leader or provide at least one potential candidate for the position would fail during their first years of operation was 51 percent.

Interestingly, this finding applies only to self-managed or standalone charter schools. Applications for new charter schools from existing networks of charter schools, either CMOs or EMOs, could omit the name of a school leader and the indicator was not a predictor of future school performance.

An effective school leader is critical to the success of a new charter school. To get a new school operational, the school leader will have to, at a minimum, manage a budget and make financial decisions, recruit and hire teachers and staff, engage with families and communities, recruit students, report to a governing board, negotiate with the authorizer, secure and manage a facility, and raise money. These skills are essential to the basic task of getting a new charter school up and running. However, they are not necessarily the skills that principals acquire via traditional training programs because in traditional districts many of these tasks are handled by the central office rather than at the building level.³⁷

Beyond the important operational tasks a leader of a new charter school is responsible for, the leader must focus on components associated with student learning in order to create an educational environment that supports strong academic growth. A meta-analysis conducted by Robinson, Lloyd, and Rowe³⁸ found that the following school leader practices had a positive impact on student academic outcomes: establishing goals and expectations; allocating resources to align with instruction; planning, coordinating, and evaluating teaching and the curriculum; promoting and participating in teacher learning and development; and ensuring an orderly and supportive environment.

UNLIKE STANDALONE CHARTERS, APPLICATIONS FROM EXISTING CMOs OR EMOS COULD OMIT THE NAME OF THE SCHOOL LEADER AND THE INDICATOR WAS NOT A PREDICTOR OF FUTURE SCHOOL PERFORMANCE.



The majority of respondents to a survey of charter school leaders indicated that they take on the sole responsibility for the long list of operational and instructional responsibilities described above.³⁹ Add this to the expectation that charter schools will perform at high levels, and there is substantial pressure to engage an excellent school leader. It is a real challenge to find one individual who possesses all of the operational and instructional leadership skills to lead with clarity of purpose through the first years of operation.

Moreover, compared to charter schools in EMO and CMO networks, self-managed schools tend to be small, independent start-ups. Applications that do not name a school leader are typically developed by groups of parents or nonprofit organizations that want to open a school with a particular focus. These independent charter schools may not have access to strong networks through which to recruit school leaders, and may be limited further in their attempts to find an individual who can fully embrace and execute the vision of the proposed charter school in the short amount of time between an application being approved and the opening of the school. EMOs and CMOs, on the other hand, have the ability to recruit promising deans, assistant principals, and educators from their network of existing schools to lead new charter schools.

If the charter application does not name a school leader, the school will be at a disadvantage from the start. The school leadership pipeline is an ongoing challenge for the charter sector, as the proliferation of new schools continues and existing schools struggle with high rates of turnover in the principal's office. A survey of charter leaders found that 71 percent of respondents planned to leave their schools within five years.⁴⁰ Many charter networks have taken it upon themselves to grow their own talent to ensure that they have a pool of competent school leaders for new charter schools.⁴¹

ACTION ITEM

An applicant who proposes a self-managed school and has not already identified a school leader will likely not have extensive resources to find candidates. What can an authorizer do if it finds this risk factor in a submitted charter application? The most practical guidance is to interview the board of the proposed school to determine whether there is a realistic and viable plan to hire an appropriate school leader in a timely fashion to set the school up for success. The Colorado Department of Education's charter application and review rubric guide recommends that applicants include a detailed job description for the school leader position and a narrative that "includes a detailed and rigorous process to locate, interview and hire the school leader six months to a year before school opens, and includes a timeline and financial considerations."⁴² It would not be unreasonable for any authorizer to request that an applicant provide similar details so as to avoid a rocky start to the charter school—or delay approval until a leader is identified.



RISK FACTOR #2: HIGH RISK, LOW DOSE

Finding: The second risk factor arises when the applicant intends to target one or more student subgroups that are historically at greater risk of academic failure—yet the application shows no plan to offer an intensive academic program that includes high-dosage, small-group instruction or extensive individual tutoring.

This risk factor was present in 128 of all 542 applications in the report (24 percent). Applications with this risk factor were more likely to be rejected (76 percent versus 67 percent predicted probability of rejection). Even though authorizers appeared to make approval decisions based on this risk factor, it was still a significant predictor of low performance for applications that were approved. The predicted probability that these schools would fail during their first years of operation was 60 percent.

Simply stating in a charter application that the proposed school will seek to serve high-risk students does not mean that the school will serve such students well. We found that applications that proposed to serve high-risk students, but did not provide concrete evidence of how the school would provide them with additional academic support, predicted that the school would struggle academically in its first years of operation.

Serving high-risk students who haven't done well in other educational settings is the *raison d'être* of many charter schools—and many charters with this mission are doing phenomenally well. A study of urban charter schools across the country showed that high-poverty African American and Hispanic students who attended charter schools experienced learning gains that translated to fifty-nine and forty-eight more days, respectively, of learning in math. For reading, learning gains translated to forty-four and twenty-five more days of learning in reading, respectively, compared with similar students in traditional district schools.⁴³ For Hispanic students classified as English language learners, the gains in math and reading translated to seventy-two and seventy-nine additional days of learning compared with similar pupils in district schools. Special education students experienced math and reading learning gains of nine and thirteen additional days compared with students in traditional public schools.

*SIMPLY STATING IN
A CHARTER APPLICATION
THAT THE PROPOSED
SCHOOL WILL SEEK TO
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WELL.*



A common thread among charter schools that serve high-risk students well is that they offer significant levels of academic support. For example, charter schools in New York City have demonstrated exceptional academic results.⁴⁴ In a study of thirty-nine New York City charter schools, Dobbie and Fryer find that effective charter schools were more likely to offer high-dosage tutoring, defined as instruction in groups with six or fewer students that meet four or more times per week.⁴⁵ Students who attended charter schools that provided this type of high-dosage, small-group instruction saw significant increases in their reading performance.

Using information about the instructional practices associated with highly effective charter schools, Fryer implemented an intervention in Houston public schools that included high-dosage tutoring and found that tutoring was independently related to increases in students' mathematics performance.⁴⁶ In the Houston high-dosage, small-group tutoring model, the practice was used to remediate students who were performing below grade level or to provide accelerated instruction for students performing at or above grade level. By providing differentiated high-dosage tutoring to all students, educators reduced the negative stigma of "pull-out" tutoring for remediation.⁴⁷

In Boston, the Match Charter Public Schools have developed a rigorous, high-dosage tutoring program that is fully integrated into the school day. The tutoring program, called Match Corps, hires full-time tutors for year-long service opportunity assignments at their schools. The tutors work with two to three students in small groups every day to address learning gaps and accelerate growth. The tutors receive training prior to the start of the academic year and professional development throughout the year from teachers at the schools.⁴⁸ Research on the Match Corps program suggests that the high-dosage tutoring strategy is related to increases in high school English language arts results.⁴⁹

It's not cheap, however. There can be significant costs associated with increasing academic supports, like offering intensive, small-group tutoring. The cost can include additional human capital expenses to hire and train more people to provide additional instructional support, or to provide additional salary or stipends for staff who commit to longer hours or extra days. And of course there's a risk of staff burnout.

ACTION ITEM

Authorizers should carefully review applications for charter schools that intend to enroll high-risk students for evidence that the proposed school will provide students with substantive academic support if it is in fact to create a learning environment that produces significant learning gains. The absence of details about how the school will make good use of increased instructional time or one-on-one support for high-risk students should serve as a warning sign to authorizers that the proposed school is likely to struggle to achieve its goals during the first years of operation.



RISK FACTOR #3: A CHILD-CENTERED CURRICULUM

Finding: The third risk factor that an applicant would struggle in its first years of operation is when the applicant proposes to use a child-centered, inquiry-based instructional model, such as Montessori, Waldorf, Paideia, or other experiential models.

This risk factor was present in seventy-two of all 542 applications in the report (13 percent). Authorizers were not more likely to reject applications that proposed child-centered, inquiry-based instructional models (there was a 67 percent predicted probability of rejection regardless of whether the risk factor was present in the application or not). For approved applicants with this risk factor, the predicted probability that the schools would fail during their first years of operation was 57 percent.

The passage of charter laws and the spread of charter schools has been motivated in many ways by the opportunity to open innovative schools with a variety of educational programs.⁵⁰ Attempts to classify the educational programs that charter schools use indicate that roughly 20 percent to 30 percent of them employ a child-centered approach, which may include Montessori, Waldorf, Paideia, and other inquiry-based pedagogies.⁵¹ Of the many new public Montessori schools that have opened in recent years—a 50 percent increase since 2000—half have been charters.⁵²

Child-centered, inquiry-based instructional models encourage students to discover an intrinsic and passionate love for learning by taking an active role in their own development and pursuing their own interests.⁵³ Compared with more traditional didactic teaching strategies, it may look like students are simply “playing” in classrooms rather than engaged in systematic learning. For Montessori schools, teachers need to receive extensive training to effectively observe children as they engage in child-directed discovery and provide carefully orchestrated sequences of hands-on activities.⁵⁴ There is some evidence that Montessori models, when implemented with fidelity, can lead to improvements in student academic outcomes.⁵⁵ The evidence for Waldorf and Paideia models is less convincing.⁵⁶

The era of high-stakes accountability has raised concerns that child-centered, inquiry-based approaches may not adequately prepare students for standards-based assessments, the measure by which charter schools are held accountable.⁵⁷ One programmatic feature of many of these programs, the use of multi-age grouping of children in classrooms, creates misalignment with standards-based education when the teacher needs to cover the standards of multiple grade levels in one class during the academic year.

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In Waldorf schools, students may not be exposed to early literacy skills until second grade. Standards-based accountability also makes it challenging for schools to encourage personalized and self-directed student learning when schools need to cover the content that will be assessed each year. For charter schools that use child-centered, inquiry-based educational approaches, there is an understanding that the model has to be adapted to provide curriculum and instruction aligned with the requirements of state standards and assessments,⁵⁸ even if these changes to the model limit innovation in educational approaches.⁵⁹

ACTION ITEM

When faced with applications for non-traditional educational approaches, authorizers must balance the risk that such schools will struggle academically with a potential benefit: the autonomy that charter schools possess to innovate and provide families and students with educational programs that they desire and may not otherwise be available.⁶⁰ To mitigate the risk of failure, authorizers should carefully review applications for child-centered, inquiry-based models to determine if there is evidence that teachers will be highly trained and that the proposed school has a detailed plan to ensure that grade-level standards are covered. Additionally, authorizers may want to consider developing rigorous, mission-specific performance measures in addition to the standards-based measures that demonstrate whether the school has been successful in fulfilling its pedagogical approach.



DISCUSSION

Why does it matter if authorizers approve weak charter school applications? Isn't the results-based accountability system designed to weed out low-performing charter schools? In theory, yes—but it can be extremely difficult to close such schools once they have opened. Careful vetting in the application review process can help to decrease the number of weak applications that are approved, improving our efforts to prevent low-performing schools from opening.

Low-performing schools are often the result of a combination of factors, including a culture of low expectations, an absence of strong leadership, ineffective teaching strategies, uncoordinated curriculum and standards, inconsistent discipline policies, frequent teacher and school leader turnover, underutilization of data to inform instructional practices, and limited parental involvement—just to name a few. Many of these characteristics have been found to have a direct and negative impact on student performance.⁶¹ Given that there is rarely a single reason why a school struggles, it is difficult to implement changes that will lead to significant improvements—which is why there have not been many successful turnarounds of struggling schools.

If low-performing charter schools are unable to make major improvements, they should be closed. Research from Ohio suggests that students displaced from low-performing schools (both district and charter) that were closed experienced significant academic gains in their new schools.⁶² However, the lengthy political and legal battles—and the moral dilemmas accompanying them—required to close schools costs time and resources, and authorizers have not shown a proclivity toward closing significant numbers of struggling charter schools.

In this report, we used an empirical approach to support a third option for ridding the charter sector of academically struggling schools: prevent failing charter schools from ever opening their doors by rejecting applications of schools that are unlikely to succeed. Authorizers are already weeding out a significant number of applicants that are unlikely to produce high-performing charter schools. Of the 542 eligible applications used in the analyses for this report, authorizers rejected 415, or 77 percent. We found that a number of our candidate risk indicators were significantly related to authorizers rejecting the application. Authorizers, at least in this study, appeared to have homed in on a common set of indicators that when present (or omitted) from applications make it more likely that they will reject the application. These indicators include a lack of evidence that the school will start with a sound financial foundation, no description of how the school plans to use data to evaluate educators or differentiate instruction, and no discussion of how the school will create and sustain a culture of high expectations.

Despite the application screening processes that authorizers employed, we found three risk factors that were easy to spot in the content of charter school applications and significantly predicted future school performance among approved applications. The results suggest that authorizers were not paying sufficient attention to these three risk factors when making approval decisions: applications

that proposed a standalone charter school without naming a school leader, planned to serve at-risk students without providing additional academic supports, or intended to use a child-centered, inquiry-based pedagogy. When approved applications included two or more of these risk factors, the predicted probability of the school failing during its first years rose to 80 percent.

THE RISK FACTORS IDENTIFIED IN THIS REPORT ARE EASY TO SPOT AHEAD OF TIME, BUT HARD TO GAME.

Of course, not every charter applicant that fails to name a leader, or that tries to serve at-risk students without suitable academic supports, or that adopts a child-centered pedagogy will result in a failing school. Our intent is not to stifle innovation in the charter sector by suggesting that authorizers deny every application with one or more of these risk factors. If we want more charter schools like Venture Academy, Ingenuity Prep, or Summit Public Schools—charters that are achieving academic success by testing innovative ways to use time, instructional roles, and technology⁶³—we need to encourage experimentation, which will lead to some failure. Unfortunately, we do not know what constitutes the optimal amount of failure. But it is probably safe to say that the current number of low-performing charter schools is above that amount, and steps to reduce failing schools are warranted.

Very little research has used charter school applications as a source of data. We were able to obtain applications from four states where they were publicly available (Indiana, North Carolina, and Texas) or from a source willing to share them (the Colorado League of Charter Schools). Our findings are limited by the context of charter school laws and authorizing practices in these states. Analyzing charter school applications from more states would greatly enhance our understanding of whether there are additional risk factors in applications that predict school performance.

Still, the risk factors identified in this report are easy to spot ahead of time, but hard to game. Moreover, they are strong predictors of future school performance. For authorizers overwhelmed by extensive applications that can run to one hundred pages of content,⁶⁴ or more, these risk factors provide a good starting point for flagging applications that need an especially thorough review. For authorizers who already screen out a large number of applications because of concerns about future school quality, our data provide empirical insight into the additional risk factors that they should look for.

If an application includes these risk factors, but the authorizer believes that the school meets the needs of the students it intends to serve, the authorizer should be prepared to provide additional support to ensure that the school can succeed.



EXCLUDED APPLICATIONS

TABLE A-1. APPLICATIONS THAT WERE EXCLUDED FROM THE ANALYSIS, BY REASON

State	Total applications coded	Applications used in analysis	Alternative high school applicants	Applications Excluded from Analysis			
				Approved applicants that did not open schools	Approved applicants with missing test score data	Total excluded	Pct. excluded
Colorado							
Approved	55	39	2	0	14	16	29%
Rejected	67	63	4	n.a.	n.a.	4	6%
Total	122	102	6	0	14	20	16%
Indiana							
Approved	41	19	2	14	6	22	54%
Rejected	67	56	11	n.a.	n.a.	11	16%
Total	108	75	13	14	6	33	31%
North Carolina							
Approved	80	58	1	2	19	22	28%
Rejected	190	182	8	n.a.	n.a.	8	4%
Total	270	240	9	2	19	30	11%
Texas							
Approved	14	11	0	1	2	3	21%
Rejected	125	114	11	n.a.	n.a.	11	9%
Total	139	125	11	1	2	14	10%
Total							
Approved	190	127	5	17	41	63	33%
Rejected	449	415	34	n.a.	n.a.	34	8%
Total	639	542	39	17	41	97	15%

CANDIDATE INDICATORS

TABLE B-1. LIST OF CANDIDATE INDICATORS

Academic Support	Budget & Finance
Extended school day	Projected number of sections per grade level
Extended school year	Projected number of students per teacher < 15
Description of high-dosage, small-group tutoring (<10 students)	Projected number of students per teacher > 25
Culture of high expectations	Percent of projected revenue spent on facility > 50%
	Planned grade-level expansion after opening
	Independent audit by a CPA referenced
	Expected per-pupil revenue
	External funding source identified
Plan for Use of Data	School Characteristics
Specific vendor assessments	Intends to serve over 85% FRL
Formative assessment	Intends to serve over 35% ELL
Plan to use student growth or value-added data	Intends to serve over 20% Special Education
Describes data-driven instruction	Intends to serve at-risk students (e.g., migrants, homeless, foster, drop-out, credit recovery, pregnant or parenting teens, adult students)
Rigorous plan to evaluate teachers and leaders and/or rigorous hiring process	Primary School (e.g., K-3, K-4, K-5)
	K-8 School
	K-12 School
	High School
Governance	
One or more former K-12 educator(s) on board	
One or more financial expert(s) on board	
One or more attorney(s) on board	
One or more board member(s) with executive experience	
School Leadership	
School leader named in proposal	
First-time school leader	

TABLE B-1. LIST OF CANDIDATE INDICATORS, CONTINUED

Facilities & Transportaion	School Management
Facility or building site identified in proposal	Board intends to contract with management company
Intend to lease facility	Managed by EMO
Intend to purchase existing facility	Managed by CMO
Intend to construct new facility	CMO/EMO operates other schools in state
Intend to co-locate with an existing charter school	First-time operator
Intend to co-locate with an existing traditional public school	
Location in non-traditional school facility (e.g., church, strip mall)	Vision & Mission Statements
Plan for multi-campus charter	Positivity sentiment
Intend to provide busing	Moral imperative sentiment
Proposed start date less than twelve months from charter approval date	Strong vs. weak modal sentiment
Student Discipline, Expulsion, or Suspension	
Parent contract	
School uniforms	
Zero tolerance behavioral policy in place	

ANALYTIC STRATEGY FOR IDENTIFYING SIGNIFICANT PREDICTORS OF LOW PERFORMANCE

We used the following steps to test the predictive value of the twelve final indicators (and identify the subset) that were robust predictors of low academic performance.

STEP 1: PRIORITIZING INDICATORS

The first step was to assess the predictive power of each of the twelve final indicators when used separately from the others in the candidate set. These tests are conducted with the univariate logit model, generically specified as:

$$\text{logit}(Y_i) = \log \frac{Y_i}{1 - Y_i} = \eta + \alpha_i C$$

Where Y_i is the probability the charter school applicant i will demonstrate low academic performance in its first two years of operation (reading and math proficiency in bottom quartile statewide and growth results below the state average). α_i is the coefficient of interest in this step, as it indicates the effect of the indicator C on the odds of low academic performance. η is the constant term, indicating the odds (in logits) for those applicants that did not have the candidate risk indicator present.

The standard errors of α_i are bootstrapped by drawing two hundred random samples, each with ninety-six applicants (75 percent of the dataset). This approach is designed to estimate of the amount of variance in the coefficients one could expect if the indicators were applied to other application datasets, such as those used in the future by authorizers who apply the indicators highlighted in this study. Indicators that vary significantly in their ability to predict low performance across the two hundred random samples will have larger standard errors and thus higher p -values, which gives them less chance to make it into the optimal subset of indicators that is built in Step 2.

The results of the univariate logit models are shown in Table C-1. These results are used to inform the model fitting procedure in Step 2, whereby indicators are entered into the model according to their p -values (lowest to highest).



TABLE C-1: PROBABILITY OF LOW PERFORMANCE, BY TWELVE FINAL INDICATORS

Indicator	Predicted probability of low performance	Difference in predicted probability of low performance between applications with and without indicator		
		Difference	Std. err.	P> z
1. Does not describe community demographics	0.267	-0.047	0.082	0.568
2. Intends to serve at-risk students	0.400	0.169	0.081	0.037
3. Does not name school leader	0.326	0.114	0.068	0.095
4. Does not provide per-pupil revenue projection	0.412	0.132	0.144	0.359
5. Does not identify external funding source	0.233	-0.149	0.086	0.085
6. Intends to use a child-centered instructional model	0.474	0.208	0.140	0.138
7. Does not intend to offer extended school day/year	0.293	-0.009	0.105	0.935
8. Does not describe rigorous educator evaluation plan	0.348	0.111	0.083	0.182
9. Does not intend to provide high-dosage, small group, or individual tutoring	0.286	-0.032	0.075	0.667
10. Does not describe plan for using data to drive instructional improvement	0.280	-0.021	0.109	0.847
11. Does not describe a culture of high expectations	0.333	0.066	0.079	0.406
12. Does not plan to hire a CMO or EMO	0.322	0.085	0.086	0.322

Note: The univariate logit models controlled for the following variables: year, state, number of schools authorizer operated, type of authorizer, number of applicants submitted in the year, flag that application was approved on the first attempt, flag that application plans to open in less than a year, and flag that application was for a replication school.





STEP 2: IDENTIFYING THE BEST SUBSET OF INDICATORS

The second step is to identify the subset of indicators that best predicts low school performance when used together. A primary objective of this study is to identify a set of risk factors that authorizers can use to assess whether applicants will struggle in their first two years of operation if awarded a charter. To achieve this objective, each indicator that is included in the risk assessment must provide new and complementary information on the likelihood of low performance. Including redundant or uninformative indicators will reduce the accuracy of the risk predictions and increase the likelihood that authorizers reach the wrong conclusions about how ready the applicants are to open a successful school.

A hierarchical forward selection procedure is used to identify the optimal subset of indicators.⁶⁵

This procedure begins by entering the indicator with the lowest p -value from the univariate logit model in Step 1 into the following multivariate logit model:

$$\text{logit}(Y_i) = \eta + \alpha_i C + \mathbf{x}'_i \beta$$

Where \mathbf{x}'_i is a vector of control variables that are expected to confound the relationship between the candidate indicators and school performance, including binary indicators for first time authorizers, applicants submitting proposals for the first time (versus having received feedback from the authorizer and re-submitted), and fixed effects for state and year of application. The same bootstrapping method used for the univariate models is applied.

In order for the first indicator to be retained it must significantly improve the fit of the model above and beyond the control variables and any previously entered indicator, as determined by the results of an incremental likelihood ratio test ($p < 0.15$). If the first indicator significantly improves the model fit it is retained in the model and the indicator with next lowest p -value is entered and tested. This procedure continues until none of the remaining indicators significantly improves the model fit.

After identifying the best subset of indicators, we proceeded to test whether the model fit was improved by adding interaction terms between select pairs of the retained indicators. The decision to retain an interaction term was based on the likelihood ratio test ($p < 0.10$) and a reduction in the Akaike Information Criterion (AIC) statistic. The best fit model is shown in Table C-2.



TABLE C-2: BEST FIT LOGIT MODEL

Indicator	Predicted probability of low performance	Difference in predicted probability of low performance between applications with and without indicator		
		Difference	Std. err.	P> z
Intends to serve at-risk students	0.343	0.076	0.106	0.473
Does not intend to provide high-dosage, small group, or individual tutoring	0.303	0.016	0.077	0.834
Intends to serve at-risk students without high-dosage, small group, or individual tutoring	0.599	0.297	0.136	0.029
Does not name school leader	0.264	-0.195	0.162	0.228
Does not plan to hire a CMO/EMO	0.250	-0.252	0.146	0.084
Does not name school leader and does not plan to hire a CMO/EMO	0.506	0.439	0.105	0.000
Intends to use a child-centered instructional model	0.566	0.313	0.112	0.005

Note: Model controls for state, year, first-time application submitted, and first-time authorizer.

No. obs	127
LR chi	34.03
Prob > chi ²	0.003
Pseudo R ²	0.2186
Log likelihood	-60.8314





TABLE C-3: ACCURACY STATISTICS OF RISK FACTORS (NO CONTROLS)

Indicator	True Positive Rate	False Positive Rate	Pct. Correctly Classified	Positive Predictive Value
Intends to use a child-centered instructional model	24%	11%	70%	47%
Does not name a school leader or plan to hire a CMO/EMO	76%	47%	60%	41%
Intends to serve at-risk students and does not plan to provide high-dosage, small group, or individual tutoring	34%	12%	72%	54%
Any two or more of the risk factors	40%	8%	77%	68%
<i>True Positive Rate</i>	<i>The percent of low-performing schools flagged by the risk factor</i>			
<i>False Positive Rate</i>	<i>The percent of non-low-performing schools flagged by the risk factor (false alarms)</i>			
<i>Pct. Correctly Classified</i>	<i>The percent of all schools that are correctly classified by the risk factor</i>			
<i>Positive Predictive Value</i>	<i>The probability a school will be low performing if it is flagged by the risk factor</i>			

INDICATORS RELATED TO REJECTION OF APPLICATIONS

TABLE D-1. PROBABILITY OF APPLICATION BEING REJECTED, BY TWELVE FINAL INDICATORS AND THREE RISK FACTORS

Indicator	Predicted probability of rejection	Difference in predicted probability of rejection between applications with and without indicator		
		Difference	Std. err.	P> z
1. Does not describe community demographics	0.726	0.054	0.041	0.192
2. Intends to serve at-risk students	0.662	-0.046	0.041	0.261
3. Does not name school leader	0.671	-0.065	0.041	0.109
4. Does not provide per-pupil revenue projection	0.763	0.085	0.047	0.073
5. Does not identify external funding source	0.737	0.118	0.045	0.009
6. Intends to use a child-centered instructional model	0.679	-0.014	0.051	0.785
7. Does not intend to offer extended school day/year	0.711	0.052	0.041	0.203
8. Does not describe rigorous educator evaluation plan	0.756	0.197	0.043	0.000
9. Does not intend to provide high-dosage, small group, or individual tutoring	0.716	0.105	0.045	0.018
10. Does not describe plan for using data to drive instructional improvement	0.802	0.160	0.036	0.000
11. Does not describe a culture of high expectations	0.753	0.137	0.040	0.001
12. Does not plan to hire a CMO or EMO	0.732	0.166	0.042	0.000
Risk Factors				
1. Does not name school leader and does not plan to hire a CMO/EMO	0.709	0.034	0.037	0.368
2. Intends to serve at-risk students without high-dosage, small group, or individual tutoring	0.756	0.082	0.046	0.076
3. Intends to use a child-centered instructional model	0.679	-0.014	0.051	0.785

Note: The table presents results from univariate logit models that controlled for the following variables: year, state, number of schools authorizer operated, type of authorizer, number of applicants submitted in the year, flag that application was approved on the first attempt, flag that application plans to open in less than a year, and flag that application was for a replication school.

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65. Multicollinearity among indicators was checked prior to executing the forward selection procedure by calculating the Variance Inflation Factor (VIF) and Tolerance statistics for each indicator; all indicators had VIFs below 1.5 and Tolerances above 0.75, indicating multicollinearity is not expected to be a problem.