California High Schools That Beat the Odds in High School Graduation

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By

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Abstract

Although the importance of graduating from high school is well documented, there is relatively little research literature on the strategies high schools can use to improve their graduation rates. To address this issue, this study identified 22 California schools that are "beating the odds" (BTO) in terms of graduation rates, dropout rates, and test scores, compared to schools with similar demographics and challenges. After identifying such BTO high schools, interviews were conducted with principals of six of these schools to determine the policies, procedures, and practices their leaders believe have contributed to their demonstrated ability to "beat the odds." Although all six principals emphasized that there is no one formula for success, four overarching themes emerged from the interviews: (1) connecting with and engaging students; (2) Engaging parents and community members to support school efforts; (3) providing interventions and supports to students at risk of dropping out; and (4) creating a culture of accountability and high expectations.

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I. Introduction

The importance of graduating from high school is well documented, from its effect on the economic and social well being of individuals, as well as for the society as a whole (Belfield and Levin, 2007). As such, efforts to ensure that students graduate from high school have received increased attention from researchers and policy makers alike. Much of the literature regarding enhanced graduation success focuses on specific interventions and attempts to establish their relative efficacy (Catterall and Stern, 1986).

This study attempts to complement this literature on high school dropouts through the identification of specific schools that appear to be unusually effective in limiting dropouts, promoting graduation, and maintaining high academic standards in relation to schools of similar student composition. In discussions of what works, school administrators, researchers and policy makers may seek specific examples. They want to hear about successful schools they can potentially identify with, so they can learn about what these schools have done to reduce dropouts and increase their rates of graduation.

The purpose of this paper is to identify schools we refer to as "beating-the-odds" (BTO) in terms of the following criteria: substantially reduced dropout rates, increased graduation rates, and strong academic performance given the characteristics of the student populations they serve. Although we identify BTO schools based on these criteria across all socio-economic strata, for the purposes of this paper we are especially interested in schools with high percentages of students participating in the Free or Reduced Price Lunch Program. These are the schools that generally have the potential to struggle the most and are the schools from which policy makers can conceivably learn the most.

A weakness of this type of BTO approach is that what is being done in one or more BTO schools may not transfer to other schools. On the other hand, it is also unclear whether interventions that may be shown as efficacious through more rigorous quasi-experimental approaches can be implemented effectively in other schools in a way that would lead to their success.

Thus, we believe there are strengths and weaknesses associated with both approaches in an attempt to identify, learn from, and disseminate strategies for school success. Both identifying BTO schools and identifying effective strategies from evaluations of specific school reform models have the potential to inform practice. The strongest evidence of efficacy may be where we see overlap from the two approaches—that is, practices identified from evaluations of school reform models being implemented in beating-the-odds schools.

With this underlying rationale in mind, the objectives of this study are twofold. First, we address the question whether it is possible to identify California high schools which appear to be unusually effective in limiting dropouts in relation to similar schools. In this exercise we analyze the relationship between high school graduation, dropout rates, and academic achievement. While our specific focus is on substantially higher-than-expected graduation and lower-than-expected rates of dropping out, we include academic performance as a selection criterion because we believe the most interesting exemplars will be those schools that can excel on all three criteria.

Once these "beating-the-odds" high schools have been statistically identified, what subsequent qualitative devices may be needed to better understand if they are strong examples worthy of further description? For example, if the schools that emerge as BTO are selective in their admissions (e.g., magnet schools), they are likely not interesting exemplars for the vast majority of public schools. Similarly, if these schools are transferring their struggling students to other schools where they subsequently drop out, they may not have developed strategies of interest to other schools.

Thus, we employ quantitative analyses followed by qualitative screens, such as interviews with district and school officials. The goal is to identify schools employing specific strategies that they believe have contributed to "beating-the-odds" in regard to graduation rates, dropout rates, and academic achievement. Once identified, we carried out

case studies in order to describe the policies, procedures, practices, and interventions that these schools believe have contributed to their success.

This paper is organized as follows. Section II presents the relevant literature regarding methodological approaches to identifying beating-the-odds schools and predicting and measuring dropout rates. Section III provides a general overview of the dropout problem in California and how it is distributed by geographic location, gender, and ethnicity. Section IV identifies California BTO high schools. Section V presents profiles of selected BTO schools and summarizes over-arching themes across them. Section VI presents conclusions and policy implications.

II. Literature Review

This study merges three areas of education research. The first area discusses issues in the measurement of graduation, completion, and dropout (GCD) rates. A classification of statistical estimators for high school GCD rates employed by federal governmental agencies and state education agencies (SEAs) has been compiled by Swanson (2004) and the National Center for Educational Statistics (NCES). Swanson's "High School Graduation, Completion, and Dropout (GCD) Indicators: A Primer and Catalog" contextualizes the methodologies underlying GCD rate estimations by "thinking rigorously about high school completion processes and addressing the challenges associated with empirically measuring graduation, completion, and dropout rates." (Swanson, 2004) As such, that study classifies and defines several outcomes of the secondary education process, the inclusion or exclusion of which can affect the estimation of GCD rates.

The type of data used to measure GCD rates is also crucial to the accuracy of and comparison of estimations. For example, longitudinal data are recommended as best for measuring GCD rates. Mishel and Roy (2006) attribute the lack of uniformity in the categorization of high school completion and the failure to adjust for the ninth-grade bulge (i.e., estimating GCD rates using total ninth-grade enrollment rather than excluding retained students) to inconsistencies in GCD rate estimations. In addition, as many of our current data systems do not collect detailed cohort data, many existing measures of high school completion and dropout rates depend on cross-sectional data. As "a set of assumptions to bridge the gap from cross-sectional data to the desired cohort rate" (Seastrom et al., 2006) is required, until data systems can be revamped with capabilities to track individual students across time and space, many existing measures of GCD rates must be carefully scrutinized and often can not be easily contrasted and compared. Definitions and classifications of GCD rates analyzed in this study are further explained in Section III: Graduation and Dropout Rates in California.

The second area of education research is the literature on beating-the-odds schools that builds a methodological approach for identifying unusually successful schools that are outperforming their peers. Klitgaard and Hall (1975) provide evidence that it is possible to identify schools and school districts with consistently high student achievement, even after controlling for socioeconomic factors. Their methodology consists in setting an achievement threshold conditional on student characteristics, and analyzing the frequency with which schools perform above that threshold. Perez and Socias (2007) apply that methodology to select high performing California schools in terms of academic achievement.

In addition, the approach to selecting California high schools that are beating-the-odds for this study draws upon extensive research that addresses the role of student characteristics on middle and high school dropouts. Important references are Goldschmidt and Wang (1999), Rumberger (1983), Rumberger (1995), Rumberger and Larson (1998), and Catterall and Stern (1986). These studies identify the influence of race, sex, and social background on dropout rates of middle and high school students. These studies suggest that family background factors such as parental education, parental income, and family structure appear to have an influence on a student's decision to drop out, as well as socio-environmental factors such as geographic location of residence and local employment conditions.

The third area focuses on the school reform literature that describes comprehensive high school reform policies and programs that are effective in improving graduation rates and student achievement. Evaluation studies on high school reform models have indicated policies and interventions that are effective in improving high school student achievement and boosting graduation rates (Herlihy and Quint, 2006; Quint, 2006). Instructional improvement and personalization are two policies indicated as essential to high school reform. These policies aim to improve academic achievement, create an environment conducive to learning, and provide work-based learning opportunities for continued success. Specific interventions include implementing extended class periods and intensive catch-up courses for low-performing students, developing well-defined and standards-aligned curricula, providing ongoing teacher training, fostering school-wide and district-wide support and collaboration, establishing small theme-based learning communities, offering college and career-oriented programs, and investing in skilled school leaders. These practices can be shown to improve student achievement and promote high school graduation, especially in low-performing urban and rural schools. The National Center on Secondary Education and Transition (NCSET) specifically also describes successful dropout intervention and prevention programs and strategies (Lehn, Johnson, Bremer, Cosio, and Thompson, 2004) identified through extensive literature searches.

One particular study has a somewhat similar approach to ours. The study "Confronting the Graduation Rate Crisis in California" (2005), published by the Civil Rights Project at Harvard University, identifies 15 schools in California that are beating-the-odds serving at-risk populations (in terms of racial/ethnic background and percentage of students qualifying for free or reduced price lunch) and display "high promoting power." The promoting power measure, developed by Robert Balfanz at Johns Hopkins University, uses school-level data to analyze the rate at which students meet necessary requirements and pass from grade to grade by comparing the number of ninth grade students at a high school to the number of twelfth graders four years later. Promotion power is linked to graduation and dropout rates based on the assumption that schools that have roughly the same number of seniors as freshmen four years earlier will have high graduation rates and low dropout rates because "most students will have remained in school, been promoted in a timely fashion, and are on course to graduate" (Balfanz and Legters, 2004). This study however, does not include achievement data in its criteria for beating-the-odds and does not discuss the strategies implemented at schools resulting in their high promotion power.

III. Graduation and Dropout Rates in California

A. Definition of Dropout

A major difficulty associated with the research on graduation and dropout rates is the lack of standardization of who is considered a dropout, and how graduation and dropout rates are defined. There are several categorizations for students who have not graduated from the formal high school education system, as well as several definitions for graduation and dropout rates. These distinctions are important to this paper as the definitions selected can affect which schools appear as BTO.

For instance, high school outcomes such as *high school completion rates* are often used as an indicator of student success. But what does *high school completion* mean? Often, high school completion assumes finishing required secondary school coursework and the receipt of a diploma. However, high school completion may be attained through the passing of equivalency tests and alternative non-diploma credentials such as the General Educational Development (GED) certificate. National and state graduation rate indicators, regulated by No Child Left Behind (NCLB), mandate that only recipients of regular, standards-based high school diplomas are to be counted as graduates and not students who have completed alternative programs or equivalency exams and received non-diploma credentials.[1]

[1] Similarly, a non-completer – an individual who is not enrolled in an elementary or secondary school and has not completed a standard high school program – can be commonly categorized into two groups: dropout and equiva-

In addition, given that this study focuses on California, it is also important to clarify how the California Department of Education (CDE) defines a dropout. In 2003 the CDE adopted the NCES dropout definition[2] which defines a dropout as a person who:

• Was enrolled in grades 7, 8, 9, 10, 11 or 12 at some time during the previous school year, left school prior to completing the school year, and has not returned to school as of Information Day.

• Or, did not begin attending the next grade (7, 8, 9, 10, 11 or 12) in the school to which they were assigned or in which they had pre-registered or were expected to attend by Information Day.

Therefore, students who have been transferred to other schools, are attending college, are absent due to suspension or illness, or have moved out of the state or country, are not considered dropouts under this definition.

B. Graduation and Dropout Indices

The U.S. Department of Education's National Center for Education Statistics (NCES) defines dropout rates into three distinct classifications: a) event, b) status, and c) cohort rates. The event rate is defined as the proportion of students in a particular subgroup who drop out each year without completing a high school program. The status rate is defined as the proportion of a particular subgroup not completing a high school program or not enrolled in school at a specific point in time. Finally, the cohort rate is defined as the proportion of a particular subgroup of students who drop out over a period of time. These three classifications show how the same dropout phenomenon can be analyzed in very different ways.

On the other hand, Swanson (2004) defines two main types of rate indicators: event rates and status rates.[3] Event rate indicators measure incidence, “the rate at which an event occurs over a particular period of time,” while status rate indicators measure prevalence, “the proportion of a population having a particular characteristic at a specific point in time.” Rumberger further sub-categorizes event rates as a) retrospective, b) synthetic, c) cohort, d) panel, and e) pseudo-cohort event rates.

Given the extensive set of possible alternative graduation and dropout measures, we focus on nine different GCD indexes in order to provide a rich picture of the problem at hand while keeping the analysis manageable. In this study, we review four graduation rates and five dropout rates, listed in Exhibit 1.

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lency recipient. A ***dropout*** is defined as a non-enrolled individual who has not completed a high school program or earned high school credential, whereas an ***equivalency recipient*** is a non-enrolled individual who has not completed a secondary educational program but has earned a high school credential through a test-based equivalency such as the GED.

[2] http://dq.cde.ca.gov/dataquest/gls_drpcriteria.asp

[3] In other words, under Swanson’s (2004) approach, NCES cohort rates fall under his ***event rate*** category.

Exhibit 1: Classification of Definitions for Nine Graduation and Dropout Indicators

Graduation Indicator	Definition
California Graduation Rate	Percentage of students of a specific high school cohort graduating within four years, accounting for dropouts. Defined as the ratio of the number of graduates in a given year to the sum of those graduates, plus the dropouts in 12th grade of that same year, the dropouts in 11th grade or the previous year, the dropouts in 10th grade two years before, and the dropouts in 9th grade three years before.
9th Grade Cohort Rate	Percentage of 9th grade students graduating within four years. Defined as the sum of the students who entered the cohort, either in the 9th grade or as a transfer, and who graduated on time to the sum of all students in this cohort.
9th Grade Cohort Rate - Adjusted for Growth	Percent of 9th grade students estimated to graduate in four years, taking into consideration both in-coming and out-going transfers. Defined as the ratio of the sum of students who entered the cohort, either in the 9th grade or as a transfer, and who graduated on time, to the sum of all students in this cohort, excluding students who departed due to the following reasons: 1) transfer to institution offering state-designated diploma-granting programs, 2) imprisonment or 3) death.
Swanson's Cumulative Promotion Indicator (CPI)	Combines the percentage of students enrolled in a higher grade the following year, with the percentage of graduating 12^{th} graders. Defined by the cumulative product of the ratio of students who progress from one grade to the next at the end of the school year for grade 9 through 11, multiplied by the proportion of 12th grade graduates at the end of the school year.

Dropout Indicator	Definition
Annual Dropout Rate	Percentage of students in grades 9 through 12 dropping out during a specific year. Defined as the ratio of the sum of dropouts in grades 9 through 12 to the sum of the total enrollment in grade 9 through 12, in the same school year.
Derived Four-Year Dropout Rate	Percentage of students dropping out over a four-year cohort, based on grade-specific dropout rates. This indicator uses the ratio of dropouts to enrollment in grade 12 in a specific year, the ratio of dropouts to enrollment in grade 11 the year before, and this same ratio in grade 10 and 9 two and three years before, to estimate an overall dropout rate for a specific cohort of students.
Synthetic Four-Year Dropout Rate, Version 1	Percent of students estimated to drop out of a cohort in four years, based on grade-specific dropouts rates during a school year. This indicator is structured in the same way as the Derived Four-Year Dropout Rate, but uses only data of the same year. It combines the ratio of dropouts to enrollment in grade 12 - which provides an estimate of the “failure” rate in that grade in a specific year - with the observed ratio in grade 11, 10, and 9, to come up with a general dropout rate for that year.
Synthetic Four-Year Dropout Rate, Version 2	Percent of students estimated to drop out of a cohort over four years, based on aggregate dropout rates during a school year. Same as Version 1, but dropouts and enrollment in grades 9 through 12 are combined in a single ratio instead of computing grade-specific “failure” rates.
Non-Persistence Rate	Percentage of students dropping out of high school when transitioning from grade 11 to 12. Defined as the complement of the ratio of students enrolled in 12th grade during the school year to the students enrolled in 11th grade during the previous school year.

Source: Swanson (2004) and Seastrom et al. (2006). See Appendix 1 for the formula of each indicator.

C. Data

The data for this study come from the California Basic Educational Data System (CBEDS), maintained by the California Department of Education (CDE). These data are publicly available and can be downloaded from the CDE website.[4] The CBEDS Section F data files contain enrollment and dropouts figures in grades 7 through 12 by primary ethnicity and gender at each school in California.[5] In this research study we focus on high schools, so we limit the analysis to grades 9 through 12.

Combining the enrollment and dropout figures across ethnicities and gender, we obtain total enrollment and dropouts in grades 9 through 12 at each school from 1996-97 through 2005-06. The CBEDS Section C data files provide the number of high school graduates by primary ethnicity and gender. Again, combining figures across ethnicities and gender, we obtain the number of total high school graduates from 1996-97 through 2005-06.

School-level demographic characteristics come from the Academic Performance Index (API) databases maintained by the CDE.[6] From these files we obtain the percentage of students eligible for free or reduced price lunch, the percentage of Hispanic, African-American, and Asian students, as well as the percentage of English learners. Note that these data are available from 1998-99 through 2005-06.

D. Descriptive Analysis

With California's definition of dropouts framing the discussion, this section analyzes the historic trajectory of the indicators introduced in the previous section. Exhibit 2 shows the trajectory of the five dropout indicators for regular public high schools[7] in California during the last ten years.[8] Note that we focus exclusively on high schools with enrollments in grades 9 through 12.[9]

The Annual Dropout Rate at regular public high schools with enrollments in grades 9 through 12 has remained relatively stable, around 2 percent, from 1996-97 through 2005-06. In other words, approximately 2 out of every 100 California regular public high school students enrolled in grades 9 through 12 drop out each year. The other dropout indicators, however, have a higher overall average than the Annual Dropout Rate. The Synthetic Four-Year Dropout Rate has fluctuated between 7 and 10 percent during the last ten years, and was almost identical in 2005-06 to the Derived Four-Year Dropout Rate. Finally, the Non-Persistence Rate has been the dropout indicator with the highest average value during the period 1996-97 through 2005-06. Even though it has declined over time from its peak of 14 percent in 1996-97, the Non-Persistence Rate is still considerably higher at its current level of 11.6 percent than the other dropout indicators.

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[4] www.cde.ca.gov/ds/sd/cb

[5] Schools that only have enrollment in grades 7 and/or 8 are missing in the files from 2000-01 through 2005-06.

[6] More specifically, we use the API Base database of each year, which can be found at www.cde.ca.gov/ta/ac/ap.

[7] "Regular" public high schools, as compared to alternative schools, continuation schools, etc.

[8] This leaves out other schools that may enroll students in grades 9 through 12, such as alternative, community day, continuation, juvenile hall, and charter schools, among others. The school type is taken from the List of California Public School Districts and Schools of the California Basic Educational Data System (www.cde.ca.gov/ds/si/ds/pubschls.asp).

[9] This represents about 60 percent of all regular public high schools in the state. The results are practically identical when we broaden the dropout analysis to all regular public high schools (i.e., not just those with enrollments in grades 9 through 12). See Appendix 2 for these results.

Exhibit 2: Comparison of Dropout Rates in California using Five GCD Indicators
(Regular Public High Schools with Enrollments in Grades 9 through 12)

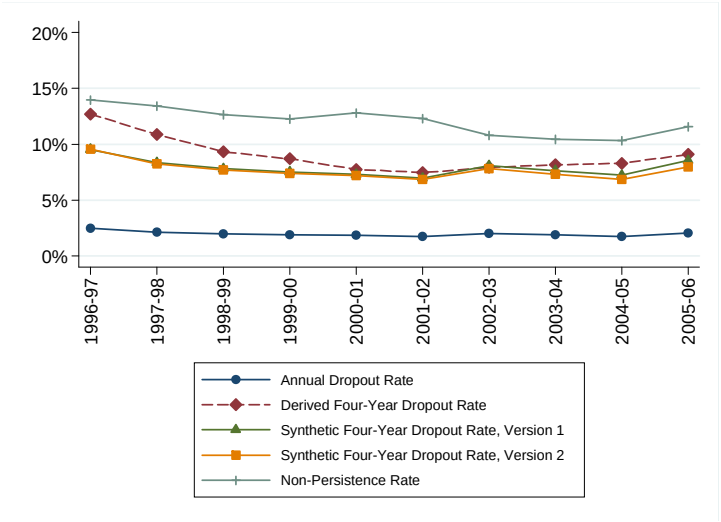
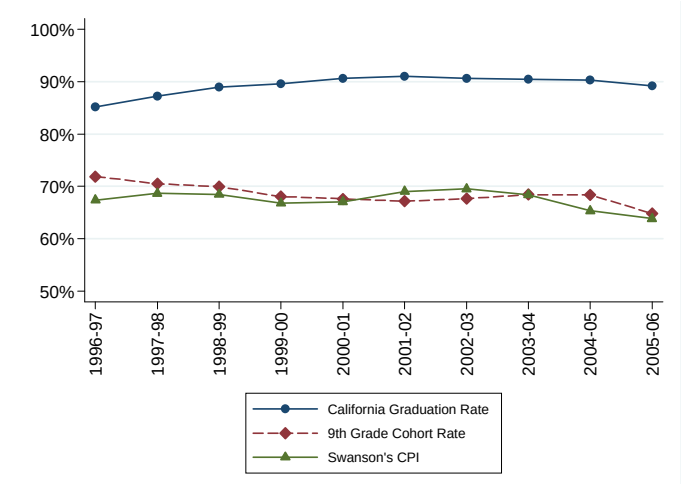


Exhibit 3 presents the historic trajectory of the three graduation indicators: a) the California Graduation Rate, b) 9th Grade Cohort Rate, and c) Swanson's CPI. As shown, the California Graduation Rate has approached the 90 percent benchmark during the last ten years, with a slight decrease in 2005-06. In other words, of every 100 students that enter a regular public high schools with enrollments in grades 9 through 12, this index estimates that about 90 of those students graduate four years later. The other two graduation indicators have historically fluctuated around 70 percent but, similar to the Graduation Rate, declined in 2005-06 to about 65 percent.

A general drawback of all these dropout and graduation indicators is that they are computed at the school rather than the student level. This implies that they do not take into account new students who are coming into a school, students moving out of a school to other institutions, and students that repeat a great. A better approach would be to use longitudinal student-level data that would follow students as they move from one school to another and as they repeat grades. This would allow us to carry out a survival analyses that would answer the question: what is the likelihood that a student graduates from a California high school after four years? But given that these data are not available statewide, it is necessary to rely on school-level data.

Exhibit 3: Comparison of Graduation Rates in California using Four GCD Indicators
(Regular Public High Schools with Enrollments in Grades 9 through 12)



In terms of gender differences, female students tend to have a lower Annual Dropout Rate—and therefore a higher graduation rate—than males. The Annual Dropout Rate for males is slightly above the 2 percent benchmark, while the rate for females is slightly below (see Appendix 3). Observed differences in Annual Dropout Rates across ethnicities are more pronounced (see Appendix 4). White and Asian students have an Annual Dropout Rate of about 1 percent, while the rate for Hispanic students is three times higher. During the last ten years the dropout rate for African American students in California has fluctuated between 3.5 and 4 percent, the highest of any minority group. When we analyze the differences across ethnicities using the graduation rate (see Appendix 5), two clear clusters are observable: a) White and Asian students appear to have the highest graduation rate, at about 96 percent, and b) the rate for Hispanic and African American students is about 10 percentage points lower, at around 80 percent (for 2005-06).

Finally, there are important differences in graduation rates across counties (see Appendix 6). At the high end of the distribution are Nevada and Madera, with an Annual Dropout Rate of more than 10 percent. Yet, several counties (Sierra, Placer, and Mariposa) which are geographically located next to these high dropout rate counties have extremely low dropout rates (less than 2 percent). Without further analyses, it is not possible to determine the source of these differences. For example, the geographic distribution of dropouts does not reveal simple north versus south or coastland versus central valley differences. In addition, some of the high dropout counties may house special schools that focus on potential dropouts for a multi-county region.

IV. Identifying Beating-the-Odds High Schools

A. Challenges

Identifying BTO high schools is a difficult task for two reasons. First, there are several ways to measure the graduation/dropout phenomenon. This diverse set of measures enriches the analysis but, at the same time, complicates the selection of BTO schools if the degree of consistency across measures is relatively low. In other words, some high schools may appear as exceptionally effective in limiting dropouts on one measure while performing only at an average or even below average standard on another measure. In this section we delve into this issue of across-index consistency.

The second difficulty relates to *statistical noise*. Depending on how each index is constructed it may be more subject to cohort or year-specific shocks. For instance, given that the graduation rate follows a specific cohort of students over time it is, by definition, extremely sensitive to cohort shocks. Therefore, significant differences across cohorts introduce instability over time in this index, making schools look exceptionally effective in some specific years but less so in others. On the other hand, indicators that use data of one particular year are extremely sensitive to "year-specific effects." As Chay, McEwan, and Urquiola (2004) point out, dealing with statistical noise is extremely important in any identification of schools based on performance. We also address within-index-over-time consistency in this section.

Exhibit 4 shows the across-index consistency of nine indicators for the 2005-06 school year, using simple correlation coefficients. Out of 36 cross-index correlations, only nine of them are higher than 0.7 in absolute terms.[10] Indices that tend to move relatively closely together are the California Graduation Rate, the Derived Four-Year Dropout Rate (in opposite direction given their purpose), and the Synthetic Four-Year Dropout Rate; the Annual Dropout Rate and the Synthetic Four-Year Dropout Rate (Versions 1 and 2); and Swanson's CPI and the 9th Grade Cohort Rate. Of course, both versions of the Synthetic Four-Year Dropout Rate are almost identical.

[10] Note that positive correlations range between 0 and 1. A value close to 1 means that two variables move closely together.

The lack of consistency across indicators, at least in linear terms, can be quite striking. For instance, the correlation between the California Graduation Rate and the Annual Dropout Rate, the two indices used in Section III was just −0.54 in 2005-06. There seems to be almost no consistency between the California Graduation Rate and the 9th Grade Cohort Rate (correlation equal to 0.03) or Swanson's CPI (correlation equal to 0.05). In fact, these two indices are not strongly correlated with any other indicator. Another example of low consistency is found between the Annual Dropout Rate and the Non-Persistency Rate. In summary, besides the three groups of indicators mentioned above, the overall consistency across GCD indicators is relatively modest. Appendix 7 presents this correlation matrix for the school year 2004-05 showing that this is not just a one-year phenomenon.

This relatively low consistency across GCD rates indicates that high schools that may look strong based on one graduation or dropout measure will not necessarily look strong when based on other measures. Therefore, for policy purposes, measures matter, and are what ultimately determine—to a large degree—the final sample of BTO schools identified in this report.

Exhibit 4: Across-Index Consistency. Correlation Matrix of Graduation and Dropout Indicators
(Includes Regular Public High Schools and Charters, 2005-06)

	California Graduation Rate	Derived Four-Year Dropout Rate	Non-Persistence Rate	9th Grade Cohort Rate	9th Grade Cohort Rate, Adjusted	Annual Dropout Rate	Synthetic Four-Year Dropout Rate, Version 1	Synthetic Four-Year Dropout Rate, Version 2	Swanson's CPI
California Graduation Rate	1.00								
Derived Four-Year Dropout Rate	-0.94	1.00							
Non-Persistence Rate	-0.39	0.35	1.00						
9th Grade Cohort Rate	0.03	0.02	-0.03	1.00					
9th Grade Cohort Rate, Adjusted	0.55	-0.45	-0.37	0.51	1.00				
Annual Dropout Rate	-0.54	0.58	0.13	-0.02	-0.24	1.00			
Synthetic Four-Year Dropout Rate, Version 1	-0.85	0.80	0.30	-0.04	-0.46	0.71	1.00		
Synthetic Four-Year Dropout Rate, Version 2	-0.80	0.76	0.24	-0.03	-0.43	0.72	0.98	1.00	
Swanson's CPI	0.05	-0.03	-0.03	0.99	0.50	-0.02	-0.05	-0.05	1.00

As mentioned above, the second issue that complicates identifying BTO schools is statistical noise. Note that a desirable characteristic of any measure used to rank schools in terms of their graduation and dropout performance is that it should not be sensitive to specific year "shocks". Imagine, for instance, that we want to rank schools using the California Graduation Rate. A school could look promising under this indicator if the cohort of students graduating in a particular year was especially strong, even if students in younger cohorts dropped out that year at very high rates. In this case, the school would perform poorly the following year, showing high variation in performance over time.

In the case of the Annual Dropout Rate, another problem arises. Imagine that a school had a particularly hard year (e.g., a school intervention program was suspended, several teachers retired, the average poverty rate at the school

dramatically increased, etc.). That "year-specific effect" will severely impact the performance of that school under the Annual Dropout Rate. Given that no historical data are used to construct this indicator, there is no "smoothing out" of this shock. Again, there will be high variation in the performance of that school over time.

Variations in performance over time introduce challenges in selecting beating-the-odds schools. When there is high variation, should we select schools based on their average performance over a number of years, or should we pick those that in a particular year (e.g. the latest year available) performed extremely well? Or should we create a threshold, a la Klitgaard and Hall (1975), and count the number of times the performance of each school is/was above that threshold? The answers to these questions must be subjectively determined, which affect which schools are selected. Therefore, it is very important to analyze the stability over time of the different graduation and dropout measures, and see how robust they are to cohort- and year-specific shocks. We then use this information to determine the set of indicators used to identify beating-the-odds schools.

As with the across-index analysis, we now evaluate how stable the different GCD measures are over time. Exhibit 5 shows the correlation of each GCD indicator with its previous year's value.[11] As this value gets closer to 1, there is less change between an indicator's value in one year and the next. These results show that the California Graduation Rate tends to be the most stable indicator of this set, and for this reason it is an important component of the BTO analysis featured in this paper.

Exhibit 5: Within-Index Consistency. Correlation with Previous Year's Value
(Includes Regular Public High Schools and Charters)

	Correlation Coefficient
California Graduation Rate	0.92
Derived Four-Year Dropout Rate	0.91
Non-Persistence Rate	0.54
9th Grade Cohort Rate	0.08
9th Grade Cohort Rate, Adjusted	0.80
Annual Dropout Rate	0.70
Synthetic Four-Year Dropout Rate, Version 1	0.76
Synthetic Four-Year Dropout Rate, Version 2	0.75
Swanson's CPI	0.52

In the next section we briefly analyze the general relationship that exists between graduation/dropout rates and academic achievement.

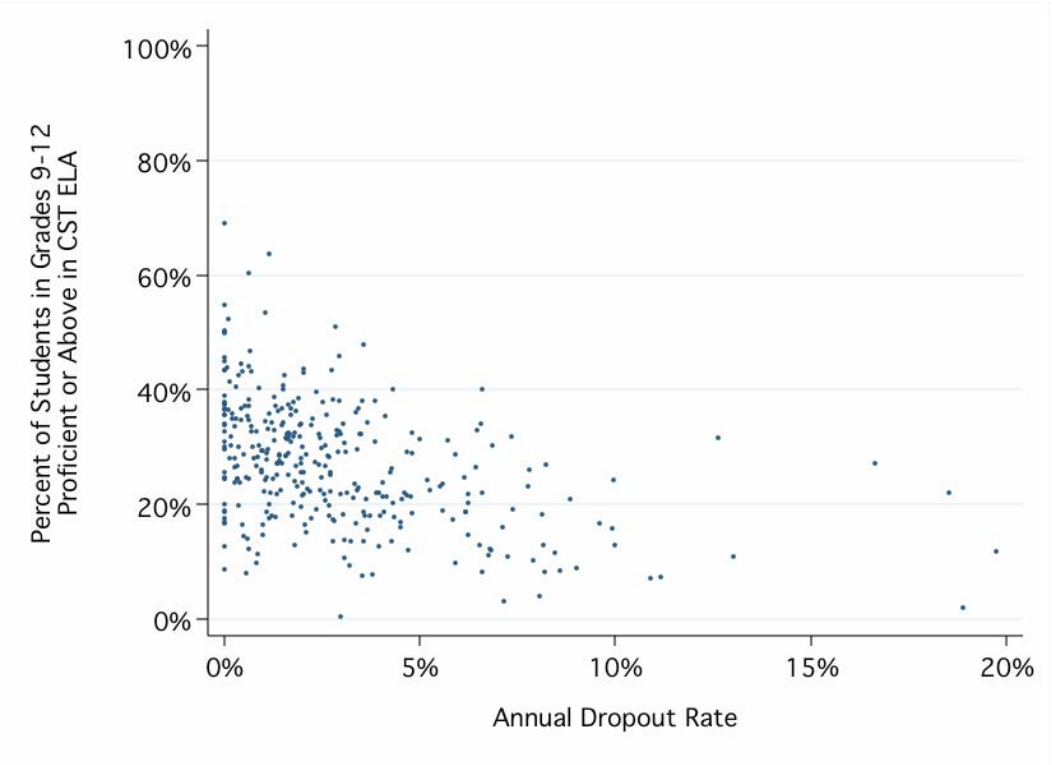
B. Graduation and Dropout Rates and Academic Achievement

The expected relationship between graduation and dropout rates and academic achievement is not immediately clear. On one hand, schools could have incentives to improve their academic achievement figures by simply forcing low-performing students to drop out. This incentive would introduce a negative (positive) relationship between graduation (dropout) rates and academic achievement. On the other hand, we should expect that schools that are effective at generating knowledge for all their students may have high graduation and low dropout rates as a byproduct, as students enjoy the benefits of their high academic performance.

[11] For this, we run a simple time series autoregression with just one lag for each indicator. In other words, we estimate the following equation: where I_t is the value of the indicator in year t, and I_{t-1} is its previous year's value. There are two variables of interest in this type of analysis. The first is the correlation coefficient of the previous year's value (i.e., α_1). See Appendix 8 for the results of the OLS regression.

Exhibit 6 shows the relationship between the dropout rate and academic achievement for schools with at least 50 percent of students eligible for free or reduced price lunch. Note that achievement is measured in this exhibit by the percent of students performing at the proficient and advanced levels in the California Standards Test (CST) in English Language Arts (ELA) in 2005-06. The relationship tends to be negative; that is, high dropout rates tend to be associated with lower percentages of proficient or advanced students in CST ELA. But this exhibit also indicates that this relationship is not linear. As we get closer to a dropout rate of zero the percent of students at the top academic performance levels increases exponentially for a large number of schools.

Exhibit 6: Annual Dropout Rates and Academic Achievement for California High School in 2005-06 (Includes Regular Public High Schools and Charters)



NOTE: Regular public high schools (excluding charters) with at least 50% of the students eligible for free or reduced price lunch (N=245)

3. Criteria for Selecting Beating-the-Odds High Schools

The final criteria used to select the beating-the-odds high schools to contact for potential case study analysis in the qualitative component of this study were the following:

- At least 50 percent of students eligible for free or reduced price lunch.
- Identified as BTO by the California Graduation Rate
- Identified as BTO by the Annual Dropout Rate
- Academic Performance Index (API) Similar School Rank of 8, 9, or 10

The identification of BTO schools using the California Graduation Rate and the Annual Dropout Rate is as follows (see Appendix 9 for detail): a) estimate an expected graduation and dropout rate for each high school in the state for each school year from 2002-03 through 2005-06, controlling for the percent of students eligible for free or reduced

price lunch, percent of Asian, Hispanic, and African-American students, percent of students receiving special education services, percent of female students, and the percent of English learners at the school, and then b) count the number of times across the four years that each school performs better than expected. A school is identified as BTO using the California Graduation Rate if it performs better than expected in every year since 2002-03. The same is applicable for the Annual Dropout Rate.

As previously mentioned, the California Graduation Rate was selected for its much greater stability over time. The Annual Dropout Rate was selected because of its widespread use by federal and state education agencies. And since a major objective of this study is to attempt to identify practices employed in high schools that are beating-the-odds with some of the state's most challenging students, schools of relative high poverty (i.e. 50 percent or more) were of greatest interest to the case study component of this work.

Finally, because this case study analysis is designed to focus on exemplars, only schools with API Similar School Ranks of 8 or higher made the final cut as potential case study schools. The API Similar Schools Rank is designed to reflect academic performance in relation to like schools. Of the six high schools described below, only half show API rankings above 5, which indicates that only about half of these schools are above the state average in academic performance, and half are below. However, given the "beating-the-odds" nature of our approach, we are seeking schools that show graduation rates and academic achievement at a substantially higher rate than their peers with similar student populations. This, and the fact that we purposely feature relatively high poverty schools, leads to some schools that are below average in state academic performance being selected, even though they test much better than their counterparts with similar student populations.

The application of these four criteria resulted in 22 California high schools selected as potential case study candidates. Of these, six unusual schools are featured in regard to their high graduation and high academic accomplishments. All of these final six show API Similar Schools Ranks of 9 or above.

V. Profiles of Beating-The-Odds High Schools

We attempted to contact all 22 of the California high schools selected as potential case study candidates to better understand 1) the context in which their schools were able to appear so strong in regard to limiting dropouts, and 2) the extent to which this evidence of success, as indicated in the data, reflected strategies and structures locally developed and implemented specifically for this purpose.

Our interview process began by contacting the districts in which the BTO schools were located to confirm that our sample only included open enrollment high schools, i.e. schools without any form of selectivity in admissions (e.g. application process, pre-testing of students). Another reason we contact districts and schools is to try and sort out instances in which the data may be misleading in regard to pointing to schools with particularly effective strategies for limiting dropouts. In other words, when the data indicate that a school is "beating-the-odds" in terms of its reported number of dropouts, is it because of a well implemented strategy or plan that has led to these results, is it because the school is selective and only enrolls more academically-oriented students, or is it as a result of some other practice within the district that does not reflect the development of locally effective strategies?

As an example of the latter, one of the districts we contacted responded to our questions by openly admitting that their schools' high graduation rates were misleading. For example, one district with several schools that came up in our statistical analysis as "beating-the-odds" said that these schools appear strong because they transfer struggling students, particularly Hispanic students, to alternative schools. The district said that many students who transfer to these alternative schools drop out, thereby keeping the traditional schools' dropout rates low. The superintendent noted that this is an issue the district is trying to work on, though he felt that the schools we had identified as beating-the-odds within his district were not strategically combating the issue. For this reason, we did not subsequently interview the heads of these schools.

However, through the processes described above we were able to find a set of high schools to profile in this study that clearly had designed structures and supports and were implementing strategies to encourage high graduation and low dropout rates. While we attempted to interview all of the 22 BTO schools in our sample, three districts (with a total of seven BTO schools) did not approve our request to interview the identified schools. Of the remaining 15 schools, nine did not return our calls or emails requesting to schedule an interview with the principal. The six interviewed schools, however, were not only receptive to our requests, but through open-ended questions the principals were able to describe specific processes that support students at-risk of dropping out.

Below we profile these six exemplary schools that are systematically addressing the dropout problems through a variety of innovative strategies. In each case rather than pointing to a single strategy which accounts for their low dropout rates, the principals interviewed for this study described integrated systems that support student achievement and graduation.

It is important to note that all but one of these six schools are in unified school districts where they are the only high school. Of the 22 schools we chose to pursue for interviews, through the steps listed above, 11 are in single high school districts. Thus, while we found BTO high schools that are not the only high school in their district, these larger districts were either unresponsive to our requests for an interview or as mentioned above in one case said they were not in fact exemplars. This is of potential interest to this study, as four of the five principals interviewed for this study from single high school districts said that they felt this status was actually a component in their success. That is, being in a small district where they were the only high school allowed them to engage more with the community and to receive more flexibility from their district offices. All five interviewed principals in these single-high-school districts stated that they had autonomy with respect to hiring teachers, designing programs, or organizing the school to support student achievement. This status may or may not affect the dropout and graduation rates in the schools, but this autonomy was cited as important and provides important context to understanding the schools' strategies.

A. The California Beating-the-Odds Case Study High Schools

Data profiles of each of the six high schools which are substantially "beating-the-odds" in regard to their dropout and graduation rates, and which are featured in this section, are shown in Exhibit 7 below. Narrative descriptions of what was reported for each school follow.

Exhibit 7: Profiles of BTO Case Study High Schools (2005-06)

High School	District	County	Students Eligible for Free or Reduced Price Lunch	Minority Students	Total Enrollment*	State API Rank 2006	Similar Schools Rank 2006	Annual Dropout Rate	Graduation Rate
Bassett	Bassett Unified	Los Angeles	68%	98%	1,444	3	9	1.4%	96.6%
Duarte	Duarte Unified	Los Angeles	54%	85%	1,207	5	10	0.0%	96.7%
Riverdale	Riverdale Joint Unified	Fresno	73%	79%	548	6	10	0.0%	100%
Sanger	Sanger Unified	Fresno	64%	82%	2,224	6	9	0.6%	95.9%
Selma	Selma Unified	Fresno	69%	88%	1,673	6	10	0.6%	93.4%
Valley	Elk Grove Unified	Sacramento	73%	94%	1,940	4	9	3.0%	84.5%

** SOURCE: Dataquest. Retrieved December 10, 2007, from http://data1.cde.ca.gov/dataquest/*

1. Riverdale High School

Riverdale High School, a small rural school in Fresno County, shows an estimated graduation rate of 100%. The principal, Pete Faragia, cited teacher quality, district support, and diversity of course offerings as the main factors in its success. Faragia indicated that teacher quality was the single most important factor in the school's success. He stated, "It all comes down to people. You have to put the right people in your school that believe in kids and have high expectations." He said that he works hard to hire the right staff, to provide ample support (e.g., he makes daily classroom visits), and to foster collaboration to ensure teacher quality. Faragia reported that the district and school board support the school by providing an integrated K-12 instructional plan and a stable superintendent.

Faragia also cited efforts to maintain and support a diversity of course offerings specifically to incite student engagement and encourage students to stay in school. In addition to core courses, Riverdale offers vocational courses in areas such as technology, automotive, mechanics, and agriculture, and plans to offer additional electives in health and criminal justice in the near future. These courses provide students additional opportunities to be successful in school beyond the traditional course offerings.

It is also interesting to note that Riverdale has not reduced its graduation requirements to attain such a high completion rate. Rather, it has increased them to include proof of admission to a post-secondary educational institution, admission to a vocational institute, acceptance into the military or ongoing job interviews. Faragia and what he describes as "his team of teacher leaders" have intentionally designed a system to prevent dropouts based on high expectations for all students.

2. Duarte High School

Duarte High School, located about twenty miles east of Los Angeles, has an estimated graduation rate of 97%, and was named a California Distinguished School by the California Department of Education.[12] The principal, Bill Martinez, reported that the main factors that have contributed to their success with respect to low dropout rates are early intervention and support through their outreach consultant (ORC) and an after-school program targeted to at-risk students. Using multiple sources of data, including test scores and teacher recommendations, staff identify low achieving students who may be at-risk of dropping out and refer them to the ORC. The ORC serves as a liaison between the student and their teachers to determine what assignments students need to catch up on so that students can stay on track toward credit completion. Duarte also offers after-school intervention classes for tutoring and CAHSEE preparation. Martinez explained that students are motivated to attend after-school tutoring because they want to graduate.

Martinez also said that Duarte staff encourage the idea that every student will graduate by "establishing a connection between the school and the student" through personal relationships, and providing support based on each student's needs. Last year, the school's outreach consultant worked with students who did not meet graduation requirements by the end of the school year by making phone calls to their parents and sometimes visiting their homes. With her assistance, 11 of the 12 students who did not graduate enrolled in a summer program that allowed them to make up missing units and graduate by the end of the summer. Martinez stated that the school's attitude is that every child is important and the students know that the school values their success. Martinez reported that district officials set the clear expectation that every student should graduate and support the staff at Duarte in ensuring that this happens.

3. Sanger High School

Sanger is located in a suburban community a few miles from Fresno. The principal, Dan Chacon, attributes Sanger's success in achieving an estimated 96% graduation rate to maintaining a high quality school staff, a strong instructional program, and high expectations. Chacon emphasized that hiring is the principal's most important job and that he focuses on finding the best staff to meet the needs of the students at Sanger. To ensure that newly hired teachers

[12] For more information about the California School Recognition Program, see: http://www.cde.ca.gov/ta/sr/cs/proginfo08.asp

will fit into the school culture and instructional program, Chacon asserts that principals should go to hiring fairs themselves and not send a representative in their place. He credits the high quality teaching staff with "leading the charge" to ensuring the low dropout rates at Sanger.

The instructional program, the second factor cited by Chacon as key to his school's success, focuses on supporting students by assessing student progress and providing intervention programs for students falling behind. One such program is targeted at students who are several grade levels behind in reading. The principal reported that the reading program has impacted graduation rates because "when kids can read, high school isn't so intimidating." Teachers are on board with the curriculum and instructional focus at Sanger and hold students to high expectations—the third factor to which Chacon attributes his school's success.

About five years ago Sanger restructured its master schedule to provide college preparatory courses for all students instead of tracking some students into vocational courses. Chacon explained that the transition to having high expectations for all students was initially challenging for some Sanger teachers. However, Chacon and several key staff focused on ensuring that all students were held to equally high standards and provided extra supports for students, such as the reading program, to ensure students were prepared for more challenging courses. The principal reported that the majority of current students at Sanger complete the A-G requirements to qualify them to attend a four-year university. He stated, "If student achievement is lacking, then kids don't want to be at school." Sanger tries to build a culture of positive peer pressure to encourage students to achieve and be confident in their abilities.

4. Selma High School

Selma is located in a suburban community of Fresno County and was named a 2007 California Distinguished School. Selma has an estimated 93% graduation rate. Principal Mark Barbiarz underscores that Selma's success is not due to one particular program; rather, the school offers a "support package" to students. The three main factors Barbiarz credits for Selma's success in obtaining low dropout rates are communication, school culture, and district and community support.

Communication, he reports, is highly emphasized through interactions between staff members, between staff and students, and between staff and parents. Selma staff communicate frequently with students regarding their academic progress through grade reports and parent meetings. In partnership with a local university, Selma offers a parent empowerment class focused on providing parents with information about college requirements and admissions.

Barbiarz further reports that Selma tries to build a school culture that fosters a positive learning environment that students want to be a part of, and that the staff always "look for ways to connect with all students." The principal described the culture at Selma as holding both students and teachers to high expectations. Barbiarz said that teachers hold each other to account for quality teaching through peer observation, department benchmarks, and weekly meetings. He stated, because "the single most important factor is the teacher in the classroom" the administrative staff provide supports to teachers to ensure high quality teaching.

The final element that Barbiarz cited as key to Selma's success is district and community support. He explained that since they are the only high school in the district he feels that the community is very supportive and invested in the success of Selma students. The school, Barbiarz said, "is the hub of the community" and several community organizations are in partnership with the school to provide additional support and opportunities for students. The principal, dean of instruction, vice principals, counselors, and teachers at Selma High School focus on providing a comprehensive support package to foster students' academic growth.

5. Bassett High School

Located in Los Angeles County, Bassett graduates an estimated 97% of its students. The principal, Carolyn Pruitt, attributes the school's success to early intervention, support classes and an advisory system. Bassett provides early intervention by identifying students who are falling behind in credits. As soon as a student falls ten course credits

behind, one of Bassett's four counselors begins working with the student to provide extra support and guidance. When students fall thirty credits behind they are transferred to the district's continuation school, but have the opportunity to make up credits and return to Bassett. Pruitt explained that the school focuses on 10th graders to identify students in need of extra support since that is the age where students are eligible to go to continuation school to make up credits as needed. She emphasized, "early interventions, which come through the personal relationships approach of knowing what the kids are going through … if you find a kid's failing three months before graduation you're not going to be able to do a whole lot to help them."

Pruitt said that she and the staff work hard to provide students with support classes to bolster their academic performance, which is the second key factor she cited in Bassett's success. The school offers preparation classes for the CAHSEE and CST exams as well as English Language Development courses for English Learners (EL). The school is working on improving the performance of EL's to meet Adequate Yearly Progress (AYP) goals.

In addition to support classes, the third factor Pruitt credits for the school's success is a student advisory system. The school pairs a staff member with a small group of students to ensure that all students receive individualized support. Since putting the advisory system into place last year Pruitt reported that discipline problems have decreased by 60%. She credits the advisory system with creating a connection to students that is beyond academic and helps students feel more comfortable at school. Pruitt explained that Bassett offers several supports to prevent students from dropping out of school and connect with fellow students and staff.

6. Valley High School

Valley High School is in an urban community in south Sacramento and has an estimated graduation rate of 84%. Although Principal Chris Evans notes that due to high student mobility there have been many challenges to maintaining low dropout rates, he cites three factors as enabling Valley's success: a common focus on increased student achievement, providing professional learning for staff, and leadership development.

Several years ago, Elk Grove Unified District established three specific goals for all schools, and Evans indicates that aligning all of Valley's work to these goals has been a key component of their success. He stated, "It gave us a common vocabulary so that we could start talking to each other – teachers, administrators, students, parents, English department to math department." Evans credits this common focus with helping to create a culture of high expectations for all students. For example, Valley has open enrollment for honors and Advanced Placement (AP) courses to encourage all students to participate in these courses. Counselors and teachers actively recruit underrepresented students for honors and AP courses, and all seniors at Valley have mandatory enrollment in courses that allow them to meet the A-G college requirements.

The second and third factors that Evans attributes to their success, professional learning and leadership development, provide the support for the common focus that Evans believes leads to increased student achievement. Professional learning for staff is offered on school-wide and subject area team levels. Evans recalls that when the district began providing site-based professional learning five years ago through a district-wide "Trainer of Trainers" model, they focused on student engagement and monitoring student learning and progress. In recent years, professional learning has become more site-specific and is based on staff recommendations. Evans also asserts that subject area teams, which are groups of three or four teachers teaching the same subject and grade level, provide valuable opportunities for professional development tailored to the team's specific needs. Subject area teams develop instructional calendars and common assessments to evaluate students' progress and discuss instructional practices. Subject area teams have a retreat about once a month where they are given eight hours of release time to meet in their team and with an administrator to focus on team-building and teaching and learning.

Evans also emphasizes the role of administrators as instructional leaders and supports his administrative team by providing leadership development opportunities. For example, Valley uses a "Partnering for Performance" model where an administrator partners with subject area team leaders and department chairs to lead meetings, identify instructional needs, and provide teacher support. Evans and his team reported a common focus of providing a rigorous education for all of Valley's students to encourage strong student performance and retention.

B. Themes Across Exemplar Schools

Although all six of the principals interviewed for the school profiles above emphasized that there is no one formula for success in ensuring that students graduate, four over-arching themes emerged across these interviews: 1) connecting with students; 2) engaging parents and community members to support school efforts; 3) providing interventions and supports to students at risk of dropping out; and 4) creating a culture of accountability and high expectations.

1. Connecting With and Engaging Students

All interviewed schools reported a conscious effort to encourage students to stay engaged in school by providing connections between the student and the school. As the Selma principal states, "School has to be a place where students want to come." Riverdale, for example, tries to involve students in decisions about which elective courses to offer at the school to ensure they have access to the kind of classes they want to take. Bassett and Sanger use an advisory system to provide a staff/student mentoring relationship to encourage and support students. Similarly, the principal and administrative leaders at Duarte High School and Valley High School try to establish connections with each student and encourage teachers to connect with students to provide mentoring and support.

The schools indicated that these personal relationships help teachers know if a student is struggling and in need of interventions. The Bassett principal stated, "Kids drop out when they don't have a connection with school." She further asserts that when students are engaged in the school and feel comfortable they are less likely to drop out. Bassett also offers 9th grade small learning communities to help ease the transition to high school and provide students with a personal connection to the school and their classmates. Selma and Bassett High Schools cited the importance of extracurricular activities such as clubs and sport teams as ways to connect students with each other and increase their desire to stay in school.

2. Engaging Parents and Community Members to Support School Efforts

Five of the six interviewed schools cited parent and community involvement as a way to encourage low dropout rates. Duarte High School, for example, holds night meetings for parents at all grade levels, including a night with parents of 12th grade students to explain the college application and financial aid process, and a meeting and individual conferences with 8th grade parents to help them prepare for their child's transition into high school. Though Riverdale High School already cited strong parental involvement, they also said they continue to work toward improving parent engagement. Riverdale devotes a section of the school's website to increasing community and parental communication. Similarly, the Selma principal noted that the school's website plays a crucial role in keeping parents informed of upcoming events and important resources. Selma High School also provides student progress reports to parents every three weeks to keep parents updated and aware of their child's credits, grades, and behavior.

Two high schools, Selma and Sanger, host programs in partnership with local universities to educate parents about college options. These programs are offered in both English and Spanish two times a year in eight week sessions. The schools reported that the parents who attend the program are not typically college graduates and may be intimidated by the college process. After successful completion of the program, parents receive a diploma and participate in a graduation ceremony. Both principals said that the program helps parents feel less intimidated by high school, especially parents who did not finish high school themselves. As the Sanger principal noted, "There are more opportunities in the world than they can imagine for their children. They just need to know how to access them."

Three principals stated the importance of being active in the broader community. The Selma principal reaches out to community organizations such as the Rotary, Kiwanis, and local churches to encourage community buy in and support for the school. The Valley principal said that he focuses on the perception of the school throughout the community. Every spring, Valley hosts a regional open house with student performances and presentations given by students from all schools in the region. The principal noted that this open house has helped foster strong relationships with other schools in the community and parents "see what's great about our school and [it helps] the young kids envision attending here." Similarly, the principal at Sanger says that he stays connected to the community so "people see that you have the same investment they have in the school here."

3. Providing Interventions and Supports to Students At Risk of Dropping Out

All six schools indicated that they use data including grades, credit hours, and attendance to identify students at risk of dropping out, and offer students interventions and supports to stay in school. In fact, Duarte and Sanger identify 8th grade students who may have difficulties, in order to begin targeted interventions with these students as soon as they enter the 9th grade. While all six schools reported using counselors to support students, two schools (Duarte, and Selma) have counselors dedicated to students at risk of dropping out, while one school (Valley) has a full time career and college counselor. According to Valley's principal, the college and career counselor has played a critical role in encouraging students to consider post-graduation options and decreasing dropout rates. For example, the counselor has helped implement a program where admission counselors from a local university and community college come for a day to review student applications and admit qualified students on the spot. All six schools reported having counselors who provide individualized support to students to guide their instructional plan, serve as a liaison between students and teachers, and closely follow student progress.

In addition to providing counseling staff to support students, Valley's principal emphasized the importance of matching teacher resources and skills with students' needs. "We have made the conscious choice here," Valley's principal explained, "to put our best teachers with our neediest students, and that makes all the difference."

The Bassett principal emphasized the importance of identifying students at risk of dropping out early in the process. "Early intervention offers the greatest opportunity to get to students with a game plan and with a timeline of what they need in order to graduate." Duarte, Bassett, Selma, and Valley also offer after-school programs to help students make up course credits, catch up on work in their current classes, or receive tutoring services.

At Duarte and Selma, the counselor assigned to work with at-risk students supervises the after-school program and monitors student work. Bassett, Selma, Sanger, and Valley offer CAHSEE preparation classes and tutoring either during or after school. Two schools (Duarte, Bassett) offer summer school to help students make up course credits. Riverdale and Selma also offer independent study courses and adult education programs to offer alternative methods for course completion.

4. Creating a Culture of Accountability and High Expectations

All six schools said that they have worked to create a culture that supports graduation and college attendance. For example, Riverdale, Sanger, and Valley enroll all of their students in college preparatory courses. As the Riverdale principal stated, "We need to have a belief that all kids can achieve and that expectations shouldn't waiver depending on what a student's goals are…they all need to have opportunities and choices." Additionally, Duarte, Bassett, and Valley offer Advanced Placement courses in which any student can enroll.

Two schools (Riverdale, Selma) increased their requirements for graduation or participation in the graduation ceremony. Riverdale students, for example, must include proof of admission to a post-secondary educational institution, admission to a vocational institute, acceptance into the military, or evidence of ongoing job interviews to qualify for graduation. Selma recently implemented a four-year attendance policy stating that students have no more than 10 absences per year or 40 over four years to participate in the graduation ceremony. This reinforces Selma's philoso-

phy as described by the principal that “if you have the students more in class, chances are they’re going to do better academically and stay engaged in the school.”

Bassett creates an atmosphere of high expectations by providing summer enrichment opportunities for students to prepare for college. They offer an on-campus College Summer School taught by instructors from a local community college. The principal reported that students gain advanced high school credit for these courses and become motivated to pursue higher education.

Two schools (Riverdale, Selma) also explicitly stated that they work to promote accountability and professionalism through peer observations and mentor teachers. The Riverdale principal explained, “Every kid can learn ... when kids don’t learn we don’t point fingers back at kids, we point fingers at ourselves and try to figure out how to get better.”

VI. Conclusions

This has been one of a collection of studies examining issues related to children dropping out of school conducted through the California Dropout Research Project at the University of California, Santa Barbara. Its major objective is to examine alternative methods in local schools that appear efficacious in keeping children in school through graduation. Rather than starting with a specific program or intervention and testing to see if it seems to make a difference, the “beating-the-odds” approach featured in this paper attempts to identify schools that appear to be achieving the desired effect.

There are several major objectives of this exercise. First, are there high schools in California that enroll high percentages of traditionally challenged students and yet still show strong, consistent performance in terms of low dropout rates, high graduation rates, and relatively high academic achievement? How many such schools can be so identified, where are they located, and what are their characteristics? For example, it may be that success on these measures is much more possible in smaller, more rural settings with a high degree of stability, than in urban settings with higher transiency, and perhaps fewer strong bonds to the community. Second, to what extent are the leaders of these BTO schools able to articulate the methods they believe have contributed to these results? Third, are there clear strategies that other school leaders might follow, and/or over-arching themes from which they might learn?

As described earlier, the broad array of approaches for measuring dropouts creates one of the difficulties in attempting to identify “beating-the-odds” schools. Schools that appear strong on one measure may appear weak on another. Recognizing this, we made determinations that are based on stability of results, but which are also ultimately somewhat subjective. That is, using different measures, other researchers may come up with a different list of BTO schools than derived through this study. Nevertheless, we feel the criteria we used were quite stringent, and that we were able to identify a strong set of BTO schools. Furthermore, the leaders of these schools were able to describe in detail some of the specific strategies they had employed which they attributed to affecting these results.

However, through the initial round of phone interviews we did find schools we considered to be “false positives.” That is, one respondent from a district in which three of the 22 BTO schools identified through this process are located indicated that the statistics we were observing resulted from transferring problematic students out of these schools rather than working with them to stay enrolled in their original school. This problem is noted in a 2007 Legislative Analyst Office study, which suggests that schools often encounter pressure to push low-performing students into alternative schools to evade responsibility for their progress (Hill, 2007). Alternative schools often have much higher dropout rates than the state average and account for a significant portion of California’s dropouts (Timar, Biag, Lawson, 2007).

At least one large urban district with several statistically strong BTO schools was unwilling to take the time to participate in this study, and so we do not know to what extent the schools identified as BTO in this district were employing exemplary practices. Most of the six high schools we feature in the narrative above are in smaller school districts. In

five of the six cases they are the only high school in their district. This likely offers the advantages that smaller, more cohesive communities can bring in supporting children to stay in school. However, they also attributed their success to factors that could conceivably be employed in larger districts choosing to do so. For example, they cited the fact that the district administration was very focused and dedicated to their needs. The leaders of these schools also cited their ability to exercise considerable discretion over who was hired. These principals said their districts allowed them considerable autonomy to set priorities for their schools and to introduce and/or alter programs as needed to achieve high standards. The principal of the BTO school located in a large district cited similar factors. These factors—district support (Datnow and Stringfield, 2000; Edmonds, 1979; Fuller, Loeb, Arshan, Chen, and Yi, 2007; McLaughlin and Talbert, 2003; Parrish, Perez, Merickel, and Liquianti, 2006), enhanced control over hiring (Fuller et al., 2007; Parrish et al., 2006; Perez et al. 2007; Purkey and Smith, 1983; Rosenholtz, 1985), and a certain degree of independence and autonomy (Marsh, 2000; Parrish et al., 2006; Purkey and Smith, 1983) —have also been found by other researchers as important in attempting to understand vastly different levels of achievement across schools with similar student populations.

In addition, given this context, several over-arching themes across respondents regarding what was done within these schools were identified: connecting with students, engaging parents and community, providing specific supports for students at risk, and creating a culture of accountability and high expectations. Again, these over-arching themes are neither surprising nor new. A recent publication from the Education Commission of the States cites early intervention, engagement, challenging courses, and smaller school size as organizational factors that can influence students to stay enrolled in high school (2007). In addition, high school reform literature indicates that addressing these issues can lead to higher student achievement and graduation rates (Quint, 2006; Herlihy and Quint, 2006). Timar, Biag and Lawson (2007) suggest that dropping out can also be defined as a “professional problem” due to a lack of adequate training and time for teachers to identify students who may be at risk of dropping out. Accordingly, in this study we find that identified BTO schools have been able to maintain a high quality teaching staff through professional development and hiring practices. Further, improving instructional content and practice through curriculum design and professional development is also noted as a key strategy of effective schools (Herlihy & Quint, 2006).

Creating a personalized school climate where staff provide support for students’ academic and personal growth is crucial for student achievement (Quint, 2006). Through counseling programs and extracurricular activities, the schools highlighted in this study provide numerous opportunities for students to build relationships with staff and connect students to the school. Many of the schools included in this study provide vocational courses to prepare students for postsecondary options. Quint (2006) argues that this helps increase student engagement thus motivating students to graduate. Timar, Biag, and Lawson (2007) also support utilizing targeted programs to provide additional support for students at risk of dropping out, but emphasize that further evaluation is needed to identify the most effective programs.

We consider these findings to be encouraging. Schools that are producing exemplary results with challenging student populations can be found. The relative consistency of findings in regard to the elements and strategies that are attributed to this success are also encouraging. While this does not indicate a clear prescription for success, it does suggest that what these schools are doing can be identified, and that it may be possible for others to learn from their success.

Thus, while all of these elements may not necessarily be replicated elsewhere (e.g. size and community context are outside a principal’s control), we believe it is possible to learn from what others are doing. For this reason, we considered it very important to name specific schools and to attempt to describe what they are doing in their own terms to the greatest extent possible. While far from full descriptions, what is included in this paper has been reviewed by each of these schools in an attempt to ensure fidelity with actual practice.

In summary, this study offers useful insights into what can be done to address California's dropout crisis. Specific schools can be found that are beating the odds on these vital outcomes and are creating explicit structures and supports to encourage high graduation rates. These practices can be adopted by other schools and should inform future policy deliberations.

References

Balfanz, R., and Legters, N. (2004). Locating the Dropout Crisis. Baltimore, MD and Washington DC: CRESPAR Report #70. Center for Research on the Education of Students Placed at Risk.

Belfield, C.R., and Levin, H.M. (2007). The Economic Losses from High School Dropouts in California. California Dropout Research Project. University of California Linguistic Minority Research Institute, University of California, Santa Barbara.

Catterall, J.S., and Stern, D. (1986). The Effects of Alternative School Programs on High School Completion and Labor Market Outcomes. *Educational Evaluation and Policy Analysis,* 8(1), 77-86.

Datnow, A., and Stringfield, S. (2000). Working Together for Reliable School Reform. *Journal of Education for Students Placed At-Risk*, 5, 183-204.

Edmonds, R. (1979). Effective Schools for the Urban Poor. *Educational Leadership,* 37(1), 15-18, 20-24.

Education Commission of the United States. (2007). Dropout Prevention. The Progress of Education Reform 2007, 8(1).

Fuller, B., Loeb, S., Arshan, N., Chen, A. and Yi, S. (2007). California Principals' Resources: Acquisition, Deployment, and Barriers. Berkeley, CA: Policy Analysis for California Education (PACE).

Goldschmidt, P., and Wang, J. (1999). When Can Schools Affect Dropout Behavior? A Longitudinal Multilevel Analysis. *American Educational Research Journa*l, 36(4), 715-738.

Herlihy, C. and Quint, J. (2006). Emerging Evidence on Improving High School Student Achievement and Graduation Rates: The Effects of Four Popular Improvement Programs. National High School Center.

Hill, E. (2007). Improving Alternative Education in California. Sacramento, CA: Legislative Analyst's Office.

Klitgaard, R.E., and Hall, G. R. (1975). Are There Unusually Effective Schools? Journal of Human Resources, 10(1), 90-106.

Lehr, C.A., Johnson, D.R., Bremer, C.D., Cosio, A., & Thompson, M. (2004). Increasing Rates of School Completion: Moving From Policy and Research to Practice A Manual for Policymakers, Administrators, and Educators. Minneapolis: National Center on Secondary Education and Transition.

Marsh, J. (2000). Connecting Districts to the Policy Dialogue: A review of literature on the relationship of districts with states, schools, and communities. Washington: Center for the Study of Teaching and Policy, University of Washington.

McLaughlin, M. and Talbert, J. (2003). Reforming Districts: How Districts Support School Reform. Washington: Center for the Study of Teaching and Policy, University of Washington.

Mishel, L., and Roy, J. (2006). Rethinking High School Graduation Rates and Trends. Washington, DC: Economic Policy Institute.

National Institute of Statistical Sciences and Education Statistics Services Institute. (2004). National Institute of Statistical Sciences/Education Statistics Services Institute Task Force on Graduation, Completion, and Dropout Indicators (NCES 2005-105). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Parrish, T., Perez, M., Merickel, A., and Linquanti, R. (2006). Effects of the Implementation of Proposition 227 on the Education of English Learners, K-12 Findings from a Five-Year Evaluation: Final Report. Palo Alto, CA: American Institutes for Research and WestEd.

Perez, M., Anand, P., Speroni, C., Parrish, T., Esra, P., Socias, M., and Gubbins, P. (2007). Successful California Schools in the Context of Educational Adequacy. Palo Alto, CA: American Institutes for Research.

Purkey, S., and Smith, Marshall (1983). Effective Schools: A Review. *Elementary School Journal*, 83(4), 427-52.

Quint, J. (2006). Meeting Five Critical Challenges of High School Reform: Lessons from Research on Three Reform Models. New York: MDRC.

Rosenholtz, S. (1985). Effective Schools: Interpreting the Evidence. *American Journal of Education*, 93, 352-88.

Rumberger, R. (2004). Why students drop out of school. In Dropouts in America: Confronting the Graduation Rate Crisis, edited by Gary Orfield. Cambridge, MA: Harvard Education Press, 131-155.

Rumberger, R.W. (1983). Dropping Out of High School: The Influence of Race, Sex, and Family Background. *American Educational Research Journal*, 20(2), 199-220.

Rumberger, R.W. (1995). Dropping Out of Middle School: A Multi-level Analysis of Students and Schools. American Educational Research Journal, 32(3), 583-625.

Rumberger, R.W., and Larson, K.A. (1998). Student Mobility and the Increased Risk of High School Dropout. *American Journal of Education*, 107, pp. 1-35.

Seastrom, M., Chapman, C., Stillwell, R., McGrath, D., Peltola, P., Dinkes, R., and Xu, Z. (2006). User's Guide to Computing High School Graduation Rates, Volume 1: Review of Current and Proposed Graduation Indicators. U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Seastrom, M., Chapman, C., Stillwell, R., McGrath, D., Peltola, P., Dinkes, R., and Xu, Z. (2006). User's Guide to Computing High School Graduation Rates, Volume 2: Technical Evaluation of Proxy Graduation Indicators. U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Swanson, C. B. (2004). High School Graduation, Completion, and Dropout (GCD) Indicators: A Primer and Catalog. Washington, D.C.: The Urban Institute.

Timar, T., Biag, M. and Lawson, M. (2007). Does State Policy Help or Hurt the Dropout Problem in California? California Dropout Research Project. University of California Linguistic Minority Research Institute, University of California, Santa Barbara.

Appendix 1

GCD Indicators

1. California Graduation Rate:

	Year			
Grade	t	t+1	t+2	t+3
9	D9,t			
10		D10,t+1		
11			D11,t+2	
12				D12,t+3
Graduates				Gt+3

$$\frac{G_{t+3}}{G_{t+3} + D_{12,t+3} + D_{11,t+2} + D_{10,t+1} + D_{9,t}}$$

2. Derived Four-Year Dropout Rate:

	Year			
Grade	t	t+1	t+2	t+3
9	D9,t			
10		D10,t+1		
11			D11,t+2	
12				D12,t+3
9	E9,t			
10		E10,t+1		
11			E11,t+2	
12				E12,t+3

$$1 - [(1 - \frac{D_{12,t+3}}{E_{12,t+3}}) * (1 - \frac{D_{11,t+2}}{E_{11,t+2}}) * (1 - \frac{D_{10,t+1}}{E_{10,t+1}}) * (1 - \frac{D_{9,t}}{E_{9,t}})]$$

3. Non-Persistence Rate:

	Year			
Grade	t	t+1	t+2	t+3
9				
10				
11			E11,t+2	
12				E12,t+3

$$1 - (\frac{E_{12,t+3}}{E_{11,t+2}})$$

4. 9th Grade Cohort Rate:

	Year			
Grade	t	t+1	t+2	t+3
9	E9,t			
10				
11				
12				
Graduates				Gt+3

$$\frac{G_{t+3}}{E_{9,t}}$$

5. 9th Grade Cohort Rate:, Adjusted:

	Year			
Grade	t	t+1	t+2	t+3
9	E9,t			
10				
11				
12				
9				
10		M10,t+1		
11			M11,t+2	
12				M12,t+3
Graduates				Gt+3

$$\frac{G_{t+3}}{E_{9,t} + M_{10,t+1} + M_{11,t+2} + M_{12,t+3}}$$

6. Annual Dropout Rate:

	Year			
Grade	t	t+1	t+2	t+3
9				D9,t+3
10				D10,t+3
11				D11,t+3
12				D12,t+3
9				E9,t+3
10				E10,t+3
11				E11,t+3
12				E12,t+3

$$\frac{D_{12,t+3} + D_{11,t+3} + D_{10,t+3} + D_{9,t+3}}{E_{12,t+3} + E_{11,t+3} + E_{10,t+3} + E_{9,t+3}}$$

7. Four-Year Dropout Rate, Version 1:

	Year			
Grade	t	t+1	t+2	t+3
9				D9,t+3
10				D10,t+3
11				D11,t+3
12				D12,t+3
9				E9,t+3
10				E10,t+3
11				E11,t+3
12				E12,t+3

$$1 - [(1 - \frac{D_{12,t+3}}{E_{12,t+3}}) * (1 - \frac{D_{11,t+3}}{E_{11,t+3}}) * (1 - \frac{D_{10,t+3}}{E_{10,t+3}}) * (1 - \frac{D_{9,t+3}}{E_{9,t+3}})]$$

8. Four-Year Dropout Rate, Version 2:

	Year			
Grade	t	t+1	t+2	t+3
9				D9,t+3
10				D10,t+3
11				D11,t+3
12				D12,t+3
9				E9,t+3
10				E10,t+3
11				E11,t+3
12				E12,t+3

$$1 - [(1 - \frac{D_{12,t+3} + D_{11,t+3} + D_{10,t+3} + D_{9,t+3}}{E_{12,t+3} + E_{11,t+3} + E_{10,t+3} + E_{9,t+3}})^4]$$

9. Swanson's CPI:

	Year				
Grade	t	t+1	t+2	t+3	t+4
9				E9,t+3	
10				E10,t+3	E10,t+4
11				E11,t+3	E11,t+4
12				E12,t+3	E12,t+4
Graduates				Gt+3	

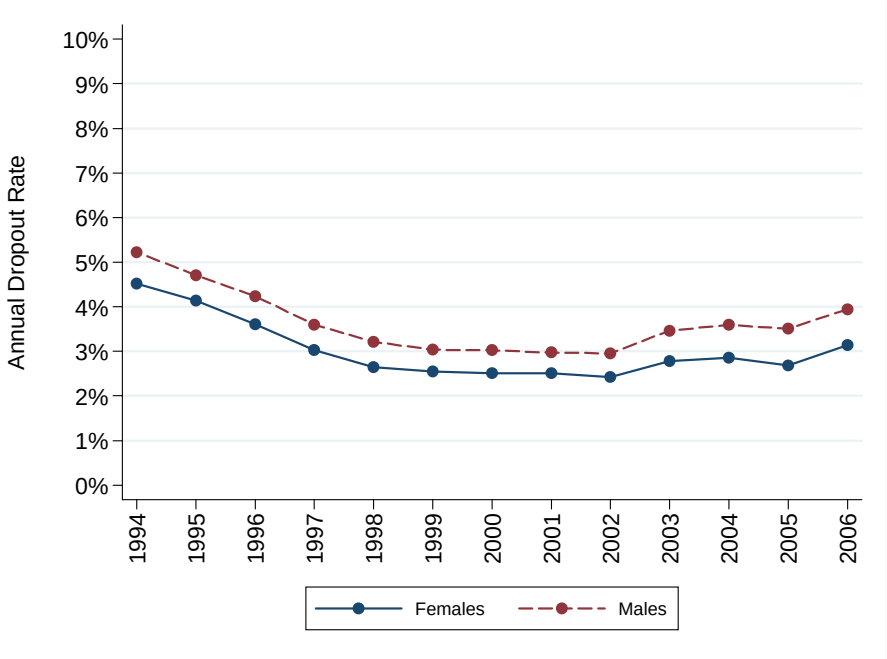
$$\frac{G_{t+3}}{E_{12,t+3}} * \frac{E_{12,t+4}}{E_{11,t+3}} * \frac{E_{11,t+4}}{E_{10,t+3}} * \frac{E_{10.t+4}}{E_{9,t+3}}$$

Appendix 2

Annual Dropout Rate of Regular Public High Schools		
School Year	With Enrollment in Grades 9 through 12	All
1996-97	2.45%	2.46%
1997-98	2.09%	2.13%
1998-99	1.95%	2.01%
1999-00	1.88%	1.93%
2000-01	1.83%	1.88%
2001-02	1.73%	1.80%
2002-03	1.99%	2.05%
2003-04	1.87%	1.91%
2004-05	1.73%	1.77%
2005-06	2.03%	2.06%

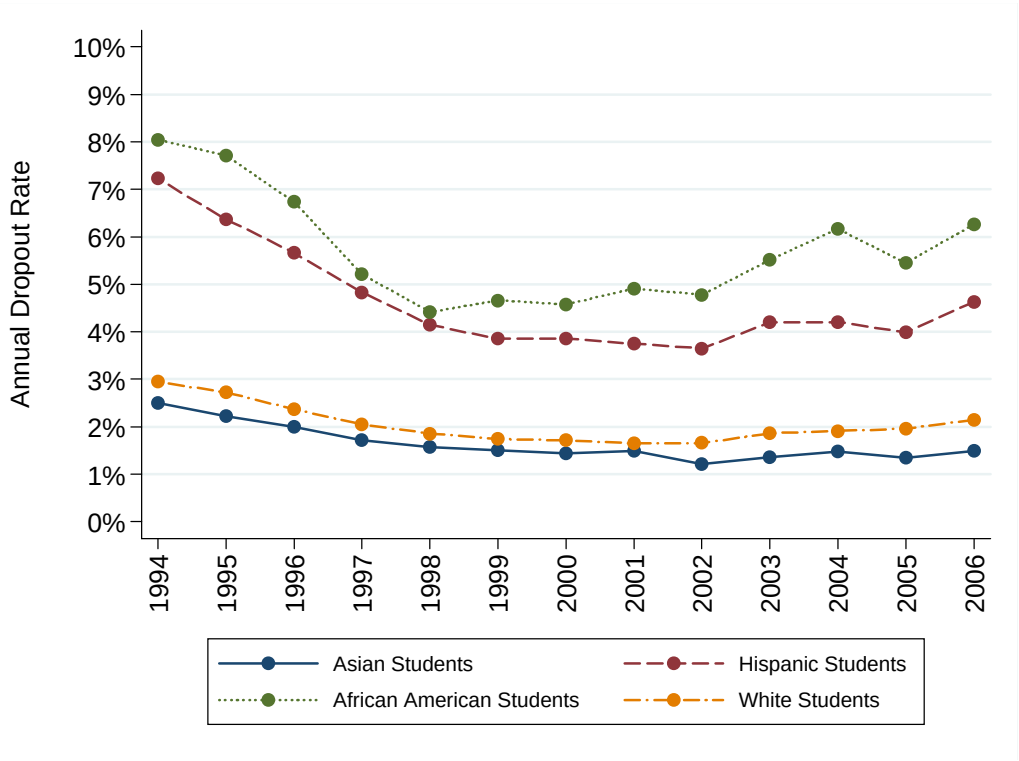
Appendix 3

Annual Dropout Rate for Female and Male Students in California
(Regular Public High Schools with Enrollments in Grades 9 through 12)



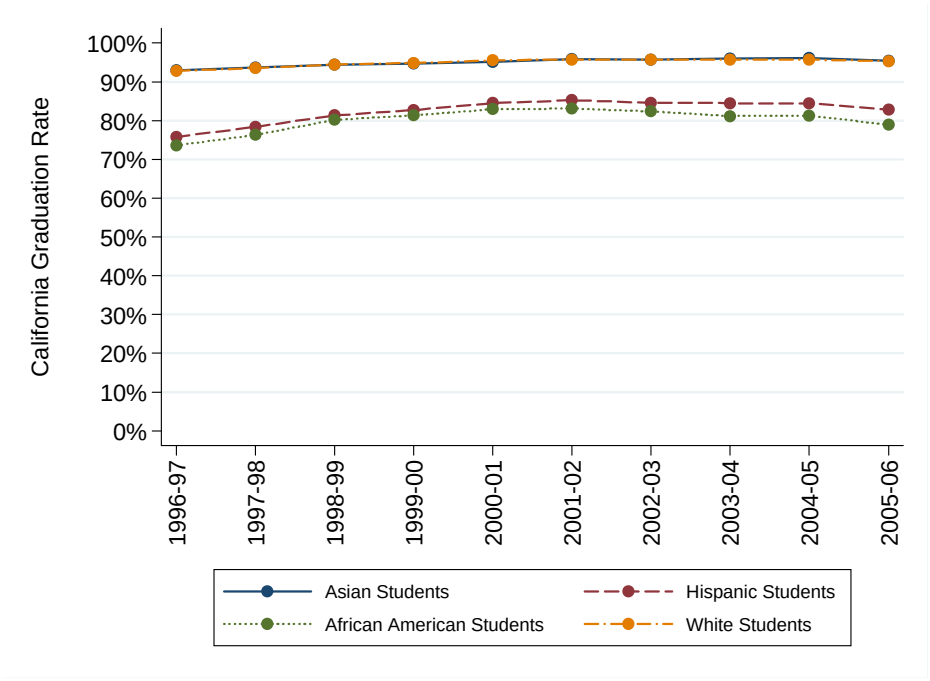
Appendix 4

Annual Dropout Rate by Ethnicity in California
(Regular Public High Schools with Enrollments in Grades 9 through 12)



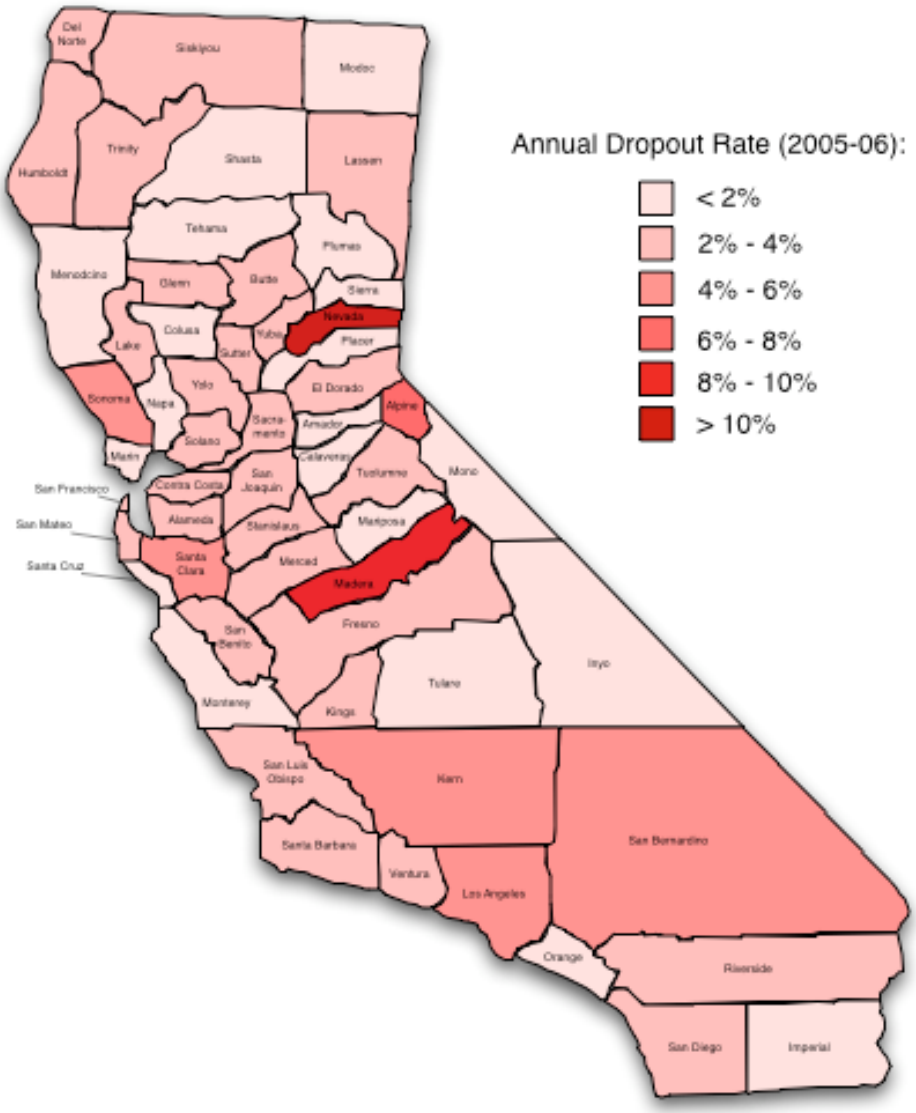
Appendix 5

Annual Dropout Rate by Ethnicity in California
(Regular Public High Schools with Enrollments in Grades 9 through 12)



Appendix 6

County-Level Annual Dropout Rates (including all schools in 2005-06)



Appendix 7

Correlation Matrix of Graduation and Dropout Indicators
(Includes Regular Public High Schools and Charters, 2004-05)

	California Graduation Rate	Derived Four-Year Dropout Rate	Non-Persistence Rate	9th Grade Cohort Rate	9th Grade Cohort Rate, Adjusted	Annual Dropout Rate
California Graduation Rate	1.00					
Derived Four-Year Dropout Rate	-0.96	1.00				
Non-Persistence Rate	-0.23	0.19	1.00			
9th Grade Cohort Rate	0.04	0.11	-0.03	1.00		
9th Grade Cohort Rate, Adjusted	0.56	-0.48	-0.4	0.13	1.00	
Annual Dropout Rate	-0.79	0.80	0.16	-0.03	-0.44	1.00
Synthetic Four-Year Dropout Rate, Version 1	-0.84	0.84	0.19	-0.03	-0.47	0.99
Synthetic Four-Year Dropout Rate, Version 2	-0.80	0.81	0.17	-0.03	-0.45	1.00
Swanson's CPI	0.04	0.08	-0.02	0.90	0.15	-0.03

(Continued)

	Synthetic Four-Year Dropout Rate, Version 1	Synthetic Four-Year Dropout Rate, Version 2	Swanson's CPI
Synthetic Four-Year Dropout Rate, Version 1	1.00		
Synthetic Four-Year Dropout Rate, Version 2	0.99	1.00	
Swanson's CPI	-0.04	-0.03	1.00

Appendix 8

Time-Series OLS Autoregression (Includes Regular Public High Schools and Charters)

	Previous Year's Value	Constant	Observations	R-Squared
California Graduation Rate	0.92**	0.07**	3,470	0.81
Derived Four-Year Dropout Rate	0.91**	0.01**	3,470	0.78
Non-Persistence Rate	0.54**	0.05**	3,470	0.30
9th Grade Cohort Rate	0.08**	0.65**	3,470	0.01
9th Grade Cohort Rate, Adjusted	0.80**	0.11**	3,470	0.62
Annual Dropout Rate	0.70**	0.01**	3,470	0.47
Synthetic Four-Year Dropout Rate, Version 1	0.76**	0.02**	3,470	0.53
Synthetic Four-Year Dropout Rate, Version 2	0.75**	0.02**	3,470	0.53
Swanson's CPI	0.52**	0.35**	3,470	0.23

Appendix 9

BTO Identification

Beating-the-odds high schools are identified using the following approach. First, we estimate an expected graduation and dropout rate for each high school in California given the characteristics of its student population. We do this by regressing (using Ordinary Least Squares) each of the nine GCD indices on the percent of students eligible for free or reduced price lunch, percent of Asian, Hispanic, and African-American students, percent of students receiving special education services, percent of female students, and the percent of English learners at the school. We estimate these expected graduation and/or dropout rates for each academic year from 2002-03 through 2005-06. The estimated equation is the following:

$$\text{Rate}_t = \beta_{0t} + \beta_{1t}\,\%\text{FRPL} + \beta_{2t}\,\%\text{Asian} + \beta_{3t}\,\%\text{Hispanic} + \beta_{4t}\,\%\text{African-American} + \beta_{5t}\,\%\text{Special Ed} + \beta_{6t}\,\%\text{Female} + \beta_{7t}\,\%\text{ELs} + \epsilon_t$$

This provides four expected values for each of the nine graduation and dropout indices. Based on these data, a school is identified as a BTO school under a specific index if its performance on that measure was better than expected in every year from 2002-03 through 2005-06. In other words, if:

$$\sum_{t=2003}^{2006} D_t = 4$$

where D_t is defined as:

$$D_t = \begin{cases} 1 & \text{if } \epsilon_t > 0 \\ 0 & \text{otherwise} \end{cases}$$

Given that the different GCD indices differ in terms of their structure, there is no guarantee that schools identified as beating-the-odds under one index will also have a better than expected performance under another. The following exhibit shows the number of schools identified as BTO under each of the nine graduation and dropout indices mentioned above. This table focuses on high schools with at least 50 percent of their students eligible for free or reduced price lunch. We chose to focus on higher poverty high schools given their propensity towards serving more at-risk students.

This exhibit shows that there are 71 high schools with at least 50 percent of their students eligible for free or reduced price lunch that perform better than expected in terms of their California Graduation Rate every year from 2002-03 through 2005-06. Out of these, 70 are also identified as BTO by the Derived Four-Year Dropout Rate. The consistency of this identification across indices depends directly on the correlation coefficients presented in Exhibit 4. Therefore, the overlap of BTO schools between the California Graduation Rate and the 9th Grade Cohort Rate is, as expected, very low. Only 4 schools of the 70 identified as BTO under the California Graduation Rate are also identified as such under the 9th Grade Cohort Rate.

Another interesting aspect of this Exhibit is that, overall, some graduation and/or dropout indices identify a lower number of BTO schools than others. The California Graduation Rate, the Derived Four-Year Dropout Rate, the Annual Dropout Rate, and the Synthetic Four Year Dropout Rates yield the highest numbers of BTO high schools. In the other extreme are the Non-Persistence Rate, the 9th Grade Cohort Rate, and Swanson's CPI, with just 28, 11, and 7 high schools identified as BTO, respectively. These differences in BTO identification numbers are a function of how stable these indices are over time. As shown in Exhibit 5, these last three indicators are the least stable, and therefore few schools perform above the expected threshold each and every year from 2002-03 through 2005-06.

	California Graduation Rate	Derived Four-Year Dropout Rate	Non-Persistence Rate	9th Grade Cohort Rate	9th Grade Cohort Rate, Adjusted	Annual Dropout Rate
California Graduation Rate	71					
Derived Four-Year Dropout Rate	70	87				
Non-Persistence Rate	15	16	28			
9th Grade Cohort Rate	4	5	1	11		
9th Grade Cohort Rate, Adjusted	24	26	7	4	41	
Annual Dropout Rate	57	69	17	3	24	85
Synthetic Four-Year Dropout Rate, Version 1	57	69	16	4	25	77
Synthetic Four-Year Dropout Rate, Version 2	54	66	17	3	23	79
Swanson's CPI	4	5	2	3	4	3

(Continued)

	Synthetic Four-Year Dropout Rate, Version 1	Synthetic Four-Year Dropout Rate, Version 2	Swanson's CPI
Synthetic Four-Year Dropout Rate, Version 1	81		
Synthetic Four-Year Dropout Rate, Version 2	74	79	
Swanson's CPI	4	3	7