IT TAKES A VILLAGE:
COMMUNITY IMPACTS ON SCHOOL ACHIEVEMENT

A Thesis

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MASTER OF PUBLIC POLICY AND ADMINISTRATION

by

Devin Matthew Schulz Lavelle

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Department of Public Policy and Administration

Abstract

of

IT TAKES A VILLAGE:
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Devin Matthew Schulz Lavelle

Improving California's schools is a top priority of voters and policymakers alike. Evaluating students, schools, and teachers, through standardized testing, while controversial, has become central to modern state and federal education policies. Context is critical in evaluating these scores. A vast array of literature shows that students with less educated, poorer parents present a far greater challenge to teachers and their schools. An emerging body of literature points to the importance of the surrounding community to school performance as well. This thesis uses regression analysis to determine what community factors have a significant impact on school performance.

I found that community poverty is the most significant driver for API test scores in California's elementary schools, more even than the poverty of the students themselves. The

educational achievement of the community also plays a significant role in the success of their local schools.

Overcoming the impact of poverty on schools lies at the heart of improving the performance of low performing schools. Policies that attack the problem head-on, either by lowering poverty levels or by giving more challenging schools the resources to provide their students the extra support they need, could likely succeed, but they would be extremely costly and are likely politically unpalatable.

The importance of community factors suggests that the entire community can play a role in improving school performance. Community groups, churches, and local government can play a significant role in overcoming the effects of poverty, especially in the areas of health care and healthy living, stable and safe housing, and in providing positive role models for children.

Perhaps the most important lesson is that the critics of America's schools are badly missing the mark. After accounting for poverty, American school test scores are among the best in the world. The overall scores fall short because America has a much higher high poverty rate than other affluent nations. With 21.6% of America's children living in poverty, schools are not failing children, our society is.

_______________________, Committee Chair
Robert Wassmer, Ph.D.

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Date

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I would like to dedicate this thesis to my mother, who for nearly four decades has been under paid, over worked, and endlessly dedicated to educating her students and to all of the teachers who prove that teaching is not a job, it is a life choice. Thank you to both of my parents, for oh so many things. Thank you to Rob Wassmer and Su Jin Jez for your support and insight. Thank you also to Mary Kirlin for reminding us all to get it done. Thank you to Justin Lane for help navigating the sometimes circuitous Department of Education website, Laura Kerr for bouncing ideas, and Julia Bishop and Robin Finnestead for being my consistent classmate chums. And a very special thank you to Fiona Young for the endless support and encouragement that got me through every challenge.

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CHAPTER 1: INTRODUCTION

OVERVIEW

California's K-12 public education system enrolls over 6 million children across the state in ten thousand schools, spread across 960 districts (National Center for Education Statistics). Education is California's largest budget item (Taylor, 2011) at 52% of the total budget. Improving education is a "high priority" or "very high priority" for 74% of California's voters, however, 53% believe California's public schools do a "not so good" or "poor" job of preparing students for college, but are split on increasing taxes to fund it (Baldassare, Bonner, Petek, & Willcoxon, Californians & Education, 2010). Not surprisingly, given the public's dissatisfaction with school performance, policymakers in Sacramento and Washington D.C. have pushed numerous reform proposals, most notably, President George W. Bush's *No Child Left Behind* and President Barack Obama's *Race to the Top*.

Central to both policies is using test scores to assess and measure performance and identify high and low performing schools. In California, the Los Angeles Times has controversially (Strauss, 2011) begun releasing test scores for children of individual teachers (Los Angeles Times, 2011), bringing test scores to the center of the debate. Critics contend, though, that current assessment programs pervert education by narrowing the focus of teachers to areas covered by the tests, punish schools and teachers in poorer, more challenging neighborhoods, and waste money that could be spent in the class room (Neill, 2003).

As has proven typical, these programs have focused on structural reform – changing the way administrators interact with and assess teachers, but only indirectly impacting the way teachers interact with students and having little or no impact on students once they leave the classroom. Prior research has repeatedly shown that factors outside the classroom have a significant impact on performance in the classroom. This study will attempt to expand on that body of knowledge, building on the emerging body of research on community impacts on student performance.

RESEARCH QUESTION

While a large volume of research exists on the impact of school and student factors on test scores, study on community factors is far more limited. Existing work suggests that these factors may also play a significant role in determining school performance, beyond their correlation with student factors. This study will attempt to shed further light on the impacts of community factors on school performance through a regression analysis. Academic Performance Index (API) Scores for California's elementary schools will serve as the dependent variable. A variety of Census measures serve as the key explanatory variables. Finally, the study will identify strategies for effectively addressing local community conditions and make policy recommendations.

In making policy recommendations it is essential to understand the policy and historical context in which we operate. While there is relatively little precedent for analyzing community factors' impact on test scores, education has received immense amount of attention by researchers, policymakers, activists, and the media. The following sections help to set the historical, demographic, policy, and research context for the policy recommendations that this study will develop.

A BRIEF HISTORY OF EDUCATION IN CALIFORNIA

Policymakers in California and across the nation have long made education a high priority for public funding and policy attention. Education has been the recipient of both tremendous public investment and policy tinkering. The lasting impacts and traditions that come from this play a significant role in today's policy environment.

American public education has its roots in the earliest days of the colonies, but began to grow as a formal system across the young nation in the first half of the nineteenth century. Several New England states were leaders in the early days of public education. Pennsylvania established free public education for the poor in its constitution. New York businessmen formed public schools that focused on preparing students as a regimented workforce. Massachusetts established that all schools would be free to all students in 1827 and passed the first compulsory education law in 1851. This era of substantial growth in public education laid the backdrop for California's formation.

The Foresight of California's Founders Laid the Foundation for Public Education

California's founders envisioned a public school system to "provide means for the diffusion of knowledge and the progress of enlightened principles." (Wood, 1925) More than an idealistic vision, the founders had the foresight to write into California's first constitution a provision to set aside public lands to be sold to establish a permanent public school fund. California's school system grew slowly until Loyalist Union Party member John Swett won election as State Superintendant of Education in 1862. Over his first year in office, Swett abolished tuition in public schools, professionalized teachers, improved school facilities, and lengthened the school year. Over the next four years he created the precursor to the California Teachers' Association and persuaded the Legislature to establish a newly empowered and expanded Board of Education. By the summer of 1867, California's modern school system was born (Wood, 1925; California Department of Education, 2007). ()

Growth in the Progressive Era Led to a Central State Bureaucracy

Progressive era reforms created the Department of Education, a centralized agency better able to tackle the challenges of a growing system. Although generally acting under the guidance of the *Report of the Special Legislative Committee on Education, 1920* (*Jones Report*), the Legislature chose to disregard the recommendation to consolidate authority that was split between the Superintendant of Public Instruction and the Board of Education, a two-headed system that continues today (California Department of Education, 2007). During this period, total enrollment grew to over one million (Wood, 1925).

The Great Depression and World War II Increased Federal Involvement

The Great Depression brought a substantial increase in the federal government's role in funding education. The establishment of the National Youth Administration and Works Progress Administration to support workforce development contributed to school funding and began to establish the important precedent that federal funding for education be tied to local policy changes. Perhaps more importantly, rejected legislation to have the federal government play a direct role in education funding laid the groundwork for future enacted policies. Soon federal funding opportunities would lead to expanded school meal programs, including mandating schools purchase surplus crops and milk; expanded nursery schools, needed to help care for children of mother's involved in the war effort; and support construction and maintenance of school facilities for children of parents in federal employment, generally near military bases. Although President Dwight Eisenhower expressed concern about expanded federal involvement in education as an avenue for expansion of socialism before being elected president, his administration and nearly every president since has expanded federal involvement in public schools (States' Impact on Federal Education Policy Project, 2009).

Reorganization and Consolidation Followed World War II

Following World War II, the California Legislature undertook reforms to streamline the Department of Education and to address inequities among local schools. Following the recommendations of the Strayer Report (Strayer, Deutsch, & Douglas, 1948), the Department of Education was restructured into six divisions and seven additional groups. Proposals to professionalize the State Superintendent or otherwise re-imagine its relationship with the Board of Education were repeatedly defeated. The structure established in these years largely remains in place today.

In addition to reorganizing the Department of Education, California began a process to restructure school districts. These reforms were aimed at leveling the funding bases for California's school districts. Prior to restructuring, California's students were distributed among 2,568 local school districts, with widely varied tax bases. Districts were often drawn by affluent neighborhoods to direct their higher tax base into their own schools. Over the next several years consolidation lowered this number to 2,111. Consolidation continues to this today, with half as many districts as existed fifty years ago (Ed-Data, 2009-2010). To help further equalize financial support of school districts, the state instituted equalization aid to ensure that all districts received a minimum adequate funding level (California Department of Education, 2007; States' Impact on Federal Education Policy Project, 2009).

Increased State and Federal Influence from Eisenhower through Johnson

Despite President Eisenhower's earlier concerns, he used the rise of the Cold War to interject an unprecedented amount of federal involvement in local education. While local educators would have preferred new funding for school construction and teacher salaries to deal with the infusion of new students from the Baby Boom generation, funds from the National

Defense Education Act were earmarked for science, math, engineering, and foreign languages, especially for gifted students. President Kennedy attempted to fulfill a major campaign promise, pushing a general aid package. Southern Democrats opposed it, fearful it could be used to force desegregation. Instead, Kennedy focused on the development of Special Education programs and increasing support for poor, inner-city schools. President Johnson's Elementary and Secondary Education Act provided numerous grants with the goal of improving education for low income students. The largest portion, 'Title 1' remains at the heart of federal funding of public education (Jolly, 2009; States' Impact on Federal Education Policy Project, 2009).

As intended, these changes in federal law and the new state policies they inspired had a dramatic impact on educators at the local level. The Little Reports (Little, 1967) of the 1960s found that as the state and federal governments continued to take larger roles in determining educational policy and as text book publishers expanded exponentially, change was being forced upon local schools at the whims of more powerful bodies, without consultation with local educators or adherence to meaningful research. The Little Reports led to bureaucratic changes at the Department of Education but curriculum and other important aspects of education continue to be determined by the state (California Department of Education, 2008). By the end of the 1960s, statewide enrollment reached nearly five million (Department of Education, 1970).

Serrano v Priest and Proposition 13 Reshape California's Public Schools

Tackling one of the core issues at heart of the post World War II changes, the California Supreme Court struck down the prevailing school funding model with *Serrano v Priest (1971)*. Previously, even as state and federal funding share expanded, schools were primarily funded through local property taxes. Reliance on local revenues led to wide variation in resources (California Department of Education, 2008). Districts with a high ratio of property value to school age children generally enjoyed better funded schools than poorer communities with less valuable property and more children.

Beyond the intended consequence of leveling school funding, some argue that *Serrano* led to Proposition 13. *Serrano* offered disincentives to tax payers in wealthy communities. Voter who were happy to tax themselves to fund their own local schools were unwilling to pay the same level of taxes to fund schools around the state (Martin, 2006). Proposition 13 sharply reduced property taxes, state-wide and locally, and severely limited the government's ability to increase any taxes by reducing property tax rates, limiting their growth to a low fixed rate, and mandating a two-thirds majority vote for new taxes. Collectively, *Serrano* and Proposition 13 flattened funding levels between districts and lowered spending overall, relative to other states, falling from 11th nationally in 1970 to 47th in 2010 (Kaplan, 2011). While *Serrano* decreased the disparity in funding between wealthy communities and their poorer neighbors, it handcuffed policymakers' ability to adjust funding to address local challenges. This has made it particularly challenging for California's poor urban and rural districts to address the unique challenges related to poverty, parental education, and language ability that they face (Wickert, 1985; McKinley, 1984), leading Glenn & Picus (2007) to discuss how education shortfalls could lead to court challenges seeking an adequacy standard to allow the funding flexibility to address localities with particularly difficult challenges. *Robles-Wong v California* seeks to address this issue and is currently working its way through the state courts. In addition, 'excess tax' provisions and provisions that favor non-unified districts allow some disparity to remain, without addressing worthwhile policy goals (Weston, 2010).

UNIQUE CHALLENGES

Despite having an above average median income, California has nearly triple the population living in poverty (14.2%) relative to the national average (5.2%) (National Center for Education Statistics, 2000). California also boasts a far more diverse population than the rest of the country. Minority students make up 70% of California's k-12 enrollment, second only to Hawaii (80%) and far more than the national average (44%). California's enrolment is half the national average for black students, but over double the national average among Hispanic and Asian students, many of whom are immigrants or whose parents are immigrants and speak limited English (National Center for Education Statistics, 2006-2007). English language learners, poor, and minority students have proven a greater challenge to educate, typically scoring significantly below average on standardized tests (National Assesment of Education Progress, 2011).

This represents a dramatic change over the past several decades. The 1970 Census showed the state's population was 76 percent white. Over the last forty years, California's white population has declined slightly, from 15.2 million to 14.9 million. The minority population, though, grew from 4.7 million to 22.3 million, now making up 60% of the state's population (United States Census Bureau, 1970-2010).

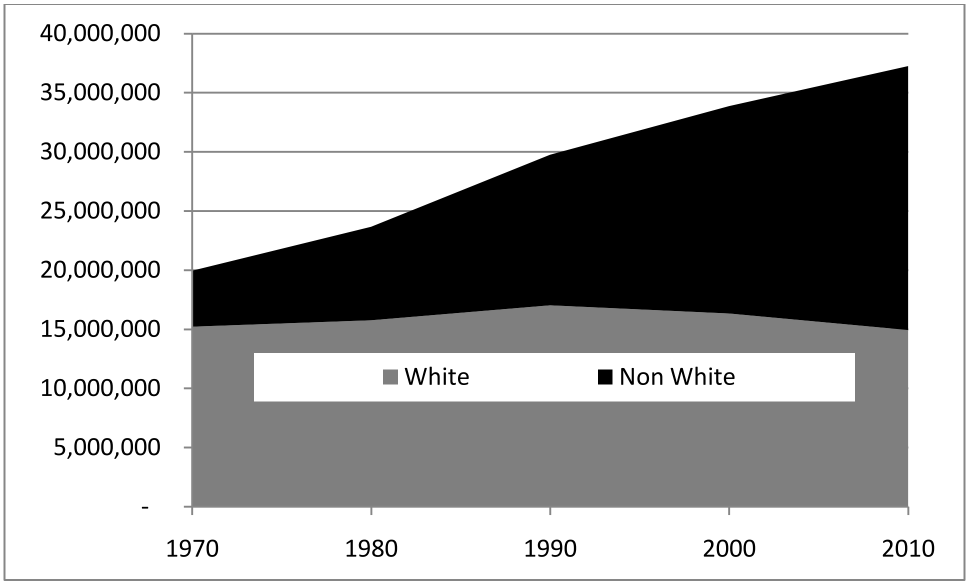

Figure 1: California's Population by Decade

Source US Census, 1970-2010

COMPARATIVE PERFORMANCE

California ranks near the bottom of the National Assessment of Educational Progress (NAEP) in both Math and Reading for 4th grade and 8th graders (National Assesment of Education Progress, 2011). The NAEP is a project of the U.S. Department of Education. It tests students from across the nation, using common tests and

Figure 2: NAEP Rankings

	Grade	Math		Reading	
All	4th	46th	-	49th	-
	8th	47th	-	50th	-
White	4th	23rd	=	31st	=
	8th	35th	=	32nd	=
Black	4th	37th	-	36th	=
	8th	41st	-	32nd	=
Hispanic	4th	45th	-	46th	-
	8th	45th	-	42nd	-
Lunch	4th	40th	-	49th	-
	8th	48th	-	50th	-

standards to provide a common metric for all states and select urban school districts.

While California ranks near the bottom of the nation overall on the NAEP, it scores much higher among certain groups. For white students, in both grades and in both subjects, California is statistically no different from average. Black students score close to average in reading as well. For Hispanic students and students that are eligible for free lunch, however, California ranks near the bottom of the nation in each group. A major factor contributing to this is that a large portion of these students are immigrants or the children of immigrants who disproportionately have little or no formal education (Johnson, 2011). Not only is California's overall score weighed down by the poor performance of these groups, but they represent a much larger portion of California's student body than the norm with 49 percent and 52 percent, respectively.

As noted in the previous section, this represents a dramatic change over the last forty years. If California's student demographic groups performed in the manner they do today, but were distributed as they were forty years ago, California's overall score would be approximately average, rather than among the worst in the country. In addition to other factors, Hispanics, who make up the plurality of California and its schools, are the group where parents are least likely to have a high school degree, a college degree, or speak English. Additionally, Hispanic students are the most likely to attend low performing schools and overcrowded schools. Clearly, while there is room for growth among white and more affluent students, the key to large scale improvements in California's performance lies in better serving low income and minority students (Reed, 2005).

MAJOR ATTEMPTS AT IMPROVED PERFORMANCE

Since the establishment of public education in California, policymakers and activists have been working to improve performance and reform the system. Reformers have worked to expand bureaucracy and to shrink it, to give local schools more flexibility and to limit it, to desegregate classrooms and to segregate them. Whatever policies advocates prefer, they agree that schools can and should do better. The History section outlined major changes throughout California's history. This section outlines recent major policies changes, many of which have focused on accountability through testing and expanded use of charter schools.

No Child Left Behind Dramatically Increased Stakes of Standardized Testing

President George W. Bush passed his signature education initiative in his first year in office. It requires states to implement statewide accountability programs, flagging differences in performance by race and class; expands 'school choice' opportunities; and mandates universal teacher credentialing. Perhaps most central, it mandated that all students must be performing at the "proficient" level by 2014, that schools make "adequate yearly progress" to achieve this goal, and that "adequate yearly progress" apply to disaggregated groups including income, race, gender, English language status, and special education status. Schools that fail to make "adequate yearly progress" are put at risk of closure or restructuring. (Department of Education, 2004; States' Impact on Federal Education Policy Project, 2009). Critics contend that its focus on standardized tests leads schools to teach to the test, limits school flexibility to enact productive reforms, fails to address the underlying problems that lead to poor performance, and punishes schools most in need of help (Darling-Hammond, 2007). Further, the National Education Association (2010) argues that loopholes in flexibility provisions undermine efforts to support the most vulnerable populations.

Race to the Top Expands Testing and Charter Schools

As part of the American Recovery and Reinvestment Act of 2009, President Barrack Obama established the Race to the Top Fund. Race to the Top is a competitive grant program to encourage and reward states "that are creating the conditions for education innovation and reform; achieving significant improvement in student outcomes, including making substantial gains in student achievement, closing achievement gaps, improving high school graduation rates, and ensuring student preparation for success in college and careers; and implementing ambitious plans in four core education reform areas." (Department of Education, 2009) In exchange for changing state policies, states could compete for multi-million dollar grants. Central to these changes are expanding the use of statistical assessment and support for charter schools (States' Impact on Federal Education Policy Project, 2009). Critics argue these reforms have no basis in research (Ravitch, 2009); instead being a continuation of President Bush's No Child Left Behind (Staul, 2009). California's application was rejected (Department of Education, 2010), leaving it without funding for the policy changes it enacted.

Proposition 98 Fixes Statewide Funding

In response to decreasing funding for education largely due to Proposition 13, California passed Proposition 98 in 1988. Through a complex set of formulas, Proposition 98 was intended to set a floor, a minimum portion of state spending that must be directed to education, set at approximately 40% of state revenues. While the Legislative Analyst's Office asserts that funding has kept up with growth (Legislative Anayst's Office, 2009), California's per-pupil education spending has continued to fall, relative to other states, since passage of Proposition 98. Critics argue that since increases in spending are added into future years' base funding Proposition 98 has acted as a ceiling, rather than a floor, because legislators are wary of committing the state to long term spending increases. Further, they argue the system is too complex and nearly impossible to understand, making it difficult to effectively improve policy (Nichols, 2010; Weston, 2010).

SB 1777, Class Size Reduction

In 1996, California passed SB 1777, the popular (Baldassare, Bonner, Petek, & Shrestha, Californians and Education, 2011) class size reduction program for early elementary school students. Initial results appeared to be mixed, with gains being offset by a decline in teacher quality, especially in low income communities (PPIC, 2002). Beyond simple efficacy, whether the benefits justify the cost of this expensive program is questionable (Chingos M. M., 2011).

California Longitudinal Pupil Achievement Data System Expands Testing in California

CalPADS is California's response to statistical accountability mandates in No Child Left Behind and Race to the Top. It is a longitudinal database that tracks students from their first day of enrollment to their exit from California schools, allowing policymakers and researchers to track achievement and progress of individual students, rather than in aggregate. It is set to come online in 2012 (California Department of Education). Critics contend that it places too much faith in impersonal statistical analysis and is a waste of limited funding (Fensterwald, 2011).

RESEARCH OVERVIEW

There is a significant body of research into the impact of student characteristics and their family backgrounds. Issues like race, socio-economic status, and parental education have been repeatedly shown to have a significant impact, starting with Coleman's (1966) seminal study, which additionally made the controversial finding that school environments account for a relatively small portion of student achievement. Subsequent studies, including reevaluations of Coleman's data with more modern methods and improved models, have found that school factors do have a significant impact on student achievement (Borman & Dowling, 2010; Jargowsky & El Komi, 2009; Levine & Painter, 2008; Whipple, Evans, Barry, & Maxwell, 2010). Recent research on neighborhood context has been more limited and has brought inconsistent results (Ainsworth, 2010; Whipple, Evans, Barry, & Maxwell, 2010; Jargowsky & El Komi, 2009; Montoya, 2010; Drukker, Feron, Mengelers, & Van Os, 2009).

This paper and the bulk of research to date focuses on student test scores. This is by no means the only or the best method for evaluating student performance. In fact, it very pointedly raises the question of what we want education to be. Should it focus on accumulation of knowledge with right or wrong answers? Perhaps specific skill development that best translates to the workplace is more worthwhile? Others prefer focusing on critical thinking skills that allow schools to develop engaged, informed citizens, responsible for good decisions in the voting booth. Yet others prefer a more holistic approach that develops the whole child and helps them grow into well-balanced, thoughtful, happy adults. How we measure outcomes strongly influences what direction schools take (Grubb, 2009).

What test scores do provide is the evaluation method with far and away the most readily available data. It is also the area which has received the most attention by education 'reformers' in terms of school funding, as well as potentially affecting a school's ongoing existence and teacher salaries. In a major shift, the National Education Association's (2011) policy statement on evaluation "calls for regular evaluations of all teachers based on multiple indicators – including the limited use of standardized test scores in evaluation plans based on tests that are valid, reliable and high quality measures of student learning and growth." When approved by the General Assembly in July, this represented a major concession and make standardized test scores, like the API, even more important.

ORGANIZATION OF THIS STUDY

Chapter 1 is an overview of the paper, including an introduction of the topic. Chapter 2 describes prior research on this topic. The following four chapters include the regression analysis at the heart of this study. Chapter 3 offers an overview of the regression model used in this study. Chapter 4 details the variables included in the model. Chapter 5 compares the various regression models included, covers possible errors and corrections, and analyzes the results. Chapter 6 discusses the implications of this research and provides policy recommendations.

CHAPTER 2: PRIOR RESEARCH

This section provides a review of prior research on the impacts of student socioeconomic background and community factors on school standardized test scores. A significant amount of research exists on student factors and school factors with well-defined, significant results for a number of measures. Prior research on community impacts on achievement, however, is far more limited with mixed results. The section concludes with a summary of key findings, identifies limitations in prior research, and suggests opportunity for further study.

This literature review is divided into three sections. The first two sections outline prior research on important school-based factors and student-based factors, respectively. These factors generally already have received a significant amount of prior research attention and are included to inform control variables as this study explores the neighborhood-based variables that have been the subject of relatively little research to date. This prior research on neighborhood variables is covered in the third section.

SCHOOL FACTORS GENERALLY HAVE A LIMITED IMPACT ON TEST SCORES

Numerous school factors, especially class size, teacher pay, teacher credentialing and qualifications, and charter schools have received significant attention from policymakers. The research, however, suggests that many of these have limited, and, in some cases, counterintuitive impacts on standardized test scores.

Class Size Has Unclear Effects

Angrist & Pischke (2010) found that there is a consensus among researchers that class size reduction achieves modest gains, approximately .2 to .3 standard deviations for a ten student decrease. Hoxby (2000) and Grubb (2009), however, found no significant impact from smaller classes on test scores, although Grubb did find an impact on other measures. Ding & Lehrer (2011) found that smaller class size showed a more substantial benefit for high achieving students than their less successful peers.

The state of Tennessee added significantly to the body of knowledge with its STAR experiment. The state set up an experimental model, allowing standardized comparisons between students with smaller and larger class size. The experiment showed significant positive impacts of smaller class size (Finn, Gerber, Achilles, & Boyd-Zafarias, 2011) but Hanushek (1999) notes that problems with the research model biased the results upward and that the results only support the benefits of extremely small class sizes.

Charter Schools Generally Perform No Better than Public Schools

Stanford's Center for Research on Education Outcomes found that the plurality of charter schools performed the same as similar public schools, while a larger share performed worse (37%) than performed better (17%) (Center for Research on Education Outcomes, 2009). Other studies, however, found limited positive impacts. Lauen (2009) found that a school choice program, including charter schools as well as magnet schools and a voucher program, in Chicago had a small correlation with improved graduation rates. Their work agreed with other studies, that charter schools perform no better than comparable public schools.

STUDENT FACTORS SHOW STRONG CORRELATION WITH STUDENT OUTCOMES

Race and socioeconomic status have a significant impact on student achievement. Beginning with the groundbreaking Coleman (1966) study, virtually every significant study has found significant impacts from race, economics, and family education. While significance is well established, these variables have a strong correlation, so it is difficult to distinguish their relative importance.

Student Race Plays a Strong Role in Determining Outcomes

African American students consistently score lower than their peers, holding socio-economic status, parental education, minority status, and other factors constant. Perhaps most strikingly, African American students generally score far lower than their Asian American and Hispanic counterparts, holding other factors constant. Similarly, students from poorer families consistently score lower than their peers, holding other factors constant (Ainsworth, 2010; Borman & Dowling, 2010; Montoya, 2010; Jargowsky & El Komi, 2009; Deluca & Rosenblatt, 2010). There remains some uncertainty in regards to how much of this variation is attributable directly to economics and how much is due to other socio-economic factors with a high correlation to poverty and affluence, especially education.

The impact of race is well established in the research. Future study should focus on why, after controlling for parental education, socio-economic status, and other important factors, African American and Hispanic students persistently display statistically significant lower test scores and other measures of achievement. Identifying the underlying factors that cause this trend is critical to developing strategies to close the achievement gap. Numerous theories for poor performance have been advanced, including culture, family structure, parental involvement and emphasis on education, and a deeply embedded cyclical poverty trap. It is generally accepted that the cause is not genetic. This study will attempt to shed light on community factors that impact student achievement and help to identify strategies to overcome the special challenges that lower performing schools often face.

Economic Factors

Orr (2003) found that a more complex view of economics, focusing on race, improves our understanding of student achievement. Adding family wealth to income, education, and other factors showed a significant correlation with achievement on math standardized tests (.34 coefficient, a student with 10% higher family net worth is expected to score 3.4 points higher).

CLASSMATES MATTER

Numerous studies have shown that a given student's classmates have a significant impact on her academic achievement. To varying degrees, race, socio-economic status, and the success of classmates all have a significant impact on achievement (Levine & Painter, 2008; Borman & Dowling, 2010; Ainsworth, 2010; Montoya, 2010). Several studies have shown that peer effects are strongest at one or both extremes. The lowest quintile scores are significantly lower than the adjacent quintile (Summers & Wolfe, 1977; Montoya, 2010).

Levine & Painter (2008) suggest, though, that much of the impact of socio-economic classroom context may be accounted for by its correlation with classmates' academic success, suggesting that intellectually positive peer interactions and role models may be more significant than economics: .817 coefficient without family controls (meaning a one point increase in classmate test scores correlates with a .817 increase in a given student's test scores), .606 with minimal controls, and .557 with rich controls available in the NELS data set. On the other hand, contrasting most other research, Borman & Dowling (2010) found that school ethnic makeup has a much stronger impact (-12.32 coefficient – a student in a school with 100% African American students would be expected to score 12.32 points worse than one in a school with no African American students) on a given student's achievement than her own ethnicity (-5.36 coefficient –

an African American student would be expected to score 5.36 points worse than a White student, holding all other factors constant).

MIXED EVIDENCE ON NEIGHBORHOOD IMPACTS

While the background of a given student has a clear impact on her ability to perform in school and the classmates they interact with on a daily basis can directly support and encourage their learning or disrupt and disincentive academic achievement, neighborhood impacts have a less direct, but, theoretically, profound impact on school performance. An interested and able neighbor might teach a child the science of their vegetable garden, tutor him when he struggles with math, or simply inquire as to his progress and congratulate him for positive achievement. Conversely they may speak down on learning, look askance as their child bullies higher achieving children, or simply be too busy with work or too poorly educated to offer support to their own children or other children in the neighborhood.

Jargowski and El Komi (2009) observed that prior research has tended to focus on school effects or neighborhood effects, failing to differentiate between these two highly correlated factors. Families of a certain race, education background, English language ability, and economic status tend to live among families with similar traits. Their regression based work begins to bring the two factors together but suffers from several shortcomings and challenges. Their dependent variable, 5th and 8th grade math and reading test scores from Texas Assessment of Academic Skills, was designed primarily to identify failing schools and teachers and was far more sensitive to skill differentiation at the lower levels, creating a ceiling effect. This resulted in a non-normal distribution with significant grouping at the high end. In addition, their study included only three neighborhood variables (poverty rate, percent of children in married households, and percent of adults who are college graduates), leaving numerous factors unconsidered. A wide range of other factors may also be important and area readily available. The U.S. Census collects a wide range of information beyond poverty rate, percentage of married parents, and percent college graduates. Beyond more nuanced consideration of these general areas, factors like race, English language ability, housing characteristics, and immigration status may also prove significant. Like Drukker, et al (2009) Jargowski and El Komi study suggested that neighborhood context had very minor impacts.

Other recent studies have found that neighborhood factors have an important impact. Whipple, et al (2010) found that neighborhood context accounted for 30% of variance in test scores, holding school context constant, but that school factors have a larger impact. The study suggests that neighborhood impacts are very real and warrant further research. Ainsworth (2010) found non-significant impacts for most neighborhood factors, but the presence of high status (educated), white residents showed a strong, significant positive impact on student achievement (4.48 coefficient – students in a neighborhood with 100% high status, white residents would be expected to score 4.48 points higher than students in a neighborhood with no high status, white residents).

Montoya (2010) found that community affluence has a positive impact on achievement, but found that neighborhood poverty has an even stronger negative impact. After controlling for student factors, Lee and Madyun (2009) found that white students living in low crime/low poverty neighborhoods scored 10 pounds higher than those living in high crime/high poverty neighborhoods. Surprisingly, though, it found that black students in high crime/high poverty neighborhoods score 7 points higher in math and 8 points higher in reading than those in low crime/low poverty neighborhoods. They suggest that the varying differences may have to do with the change between which group is in the majority in each kind of neighborhood.

Johnson (2010) found a diverse mix of results, depending on how studies looked at socio economic status. His review found only four of eighteen studies showed significant results, when considering a simple measure, like poverty rate or income. However, eight of the ten studies that considered a ‘composite’ measure were significant, indicating that the impacts of socio economic status are more complex than simple dollars and cents. Perhaps related, he found that only two of eight studies showed joblessness to have a significant impact on educational achievement for African American students, but one of those showed that it increased the likelihood that students stay in school (Rivkin, 1995). Johnson (2010) further found that African Americans performed more poorly in both largely African American and White communities: that their performance was likely to be highest in communities that are largely made up of other minority groups.

Figure 3: Significant Studies Included in Johnson (2010)

Study	Sample Size and Source	Contextual Predictors	Outcomes	Significant Findings
Caughy, Nettles, O’Campo, and Lohrfink (2006)	241 African Americans in first grade in Baltimore	Census measures: · Deprivation	K-BIT (Intelligence) Peabody Picture Vocabulary Test (PPVT)	Neighborhood deprivation (–) K-BIT
Caughy and O’Campo (2006)	200 African American children	Census measures: · Poverty	K-ABC cognitive battery	Poverty (–) K-ABC
Duncan (1994)	3,439 individuals from the PSID	Census tract measures: · Black American	Years of schooling School completion College decisions	Percentage Black (–) college attendance for Black males Low-income (–) college attendance for African American males
Duncan, Connell, and Klebanov (1997)	1,246 individuals from the PSID	Census tract measures: · Ethnic Diversity	Completed schooling	Ethnic diversity (+) completed schooling for Black females
Gonzales, Cauce, Friedman, and Mason (1996)	120 Black junior high students in Seattle	Individual reports of: · Neighborhood risk	GPA	Neighborhood risk (–) GPA of African Americans
Halpern-Felsher et al. (1997)	1,040 children ages 8–11 in New York; 3,406	Census tract measures: · Male joblessness	Educational risk composite	Male joblessness (+) educational risk for Black males in middle childhood

	adolescents ages 10–16 in New York; 346 adolescents in Atlanta; 669 adolescents in New York, Baltimore, D.C.; 1,797 older adolescents ages 15–20 in New York			and early adolescence Ethnic diversity (+) completed schooling for Black females and males Neighborhood composite (+) educational risk for all racial subgroups in early and middle adolescence
Harding (2003)	2,403 individuals from the PSID	Census tract measures: · Poverty split into three categories of low, moderate, and high	Dropping out of high school	Moderate and high poverty (+) high school dropout for African Americans more than Whites
Jackson and Mare (2006)	2,112 children ages 9–10 in Los Angeles (LA FANS) 2,865 children age 11 from the Panel Study of Income Dynamics, Child Development Supplement	Census tract measure: · Poverty · Regional poverty	Math scores	Insignificant interaction between neighborhood poverty and African American children
Klebanov, Brooks-Gunn, Chase-Lansdale, and Gordon (1997)	793 low-birth-weight babies ages 3–4 of the IHDP	Census tract measures: · Ethnic diversity	PPVT ages 3–6 IQ at ages 3–6	Ethnic diversity (–) IQ and PPVT scores at ages 5 and 6
Lauen (2007)	18,477 children grades K–8 from the Chicago Public Schools administrative data	Census tract measures: · Percentage Black residents	Attendance at: · Non-neighborhood elementary or high schools · Private schools · Selective public schools	Percentage Black (–) attending private or elite public high schools Disadvantage (–) attending private or elite public high schools
Madyun and Lee (2008)	2,769 students from an upper Midwest school district	Census tract measure: · Proportion Black · Proportion White	Mathematics test scores for students with emotional or Behavioral disorders	Proportion Black (+) Black Slope in mathematics performance
Mello and Swanson (2007)	352 urban African American adolescents of the Promotion of Academic Competence	Individual perceptions of: · Neighborhood quality	Educational attainment expectations	Males who perceived their neighborhoods poorer in quality (–) educational attainment expectations than females

	Study			
Rivkin (1995)	17,979 high school students from the High School and Beyond survey	Census zip code measures: ·Unemployment	Continuing schooling	Unemployment (+) continuing schooling for African Americans Welfare receipt (–) continuing schooling for African Americans
Sampson, Sharkey, and Raudenbush (2008)	780 children in the Project on Human Development in Chicago Neighborhoods	Census tract measures: · Residency or non-residency in neighborhoods that are in the bottom quartile of concentrated disadvantage scale	Composite measure of verbal ability	Disadvantage (–) verbal ability
Spencer, McDermott, Burton, and Kochman (1997)	416 Black youth from Atlanta	Census tract measure: · Neighborhood risk composite	National percentile rankings from Iowa Test of Basic Skills	Neighborhood risk (–) reading, vocabulary and mathematics
Williams, Davis, Miller-Cribbs, Saunders, and Williams (2002)	231 ninth grade students in a large Midwest city	Individual perceptions of: · Neighborhood deterioration	Intentions to complete school Suspensions	Neighborhood deterioration (–) intention to complete school and (+) suspensions

Increasing Community Segregation Drives Educational Opportunities

Whether through personal preference or limited opportunities, Californians tend to live in communities of similar ethnic backgrounds as themselves and go to schools that are heavily populated by people of similar ethnic backgrounds. Parisi, et al (2011) find that while racial segregation is decreasing slightly in central cities, it appears to be increasing slightly overall, with blacks far more likely to live in segregated communities. Borjas (1998) found that lesser educational attainment has a strong correlation with the choice to live in a segregated community. Teranishi, et al (2004) found that two thirds of white students attend majority white high schools schools, despite those schools only making up 45% of California's high schools. More to the point, only 11% of California's white high school students attend a school that has a majority of a race other than white. Similarly, 25% of California's high school have a Hispanic majority but they educate 56% of the state's Hispanic population. Additionally, black and Hispanic students make up 95% of the population at majority Hispanic schools.

Summary

The study of neighborhood impacts on student achievement is still developing. Recent studies have shown inconsistent results and have covered fewer variables than ideal. This potentially important factor deserves significant further study. Improvements could include larger, more diverse samples and richer community variable data sets. One significant challenge is matching non-like data sets on a large scale, matching a school's typical student body to often geographically dissimilar datasets. Jargowsky and El Komi (2009), for example, match schools with the census tract they fall in. While this inevitably has some overlap with the school's attendance area, the significance of that overlap can vary tremendously.

An ongoing issue in considering potential policies is the persistence of sorting and selection effects (Jargowsky & El Komi, 2009). Deluca & Rosenblatt (2010) considered this issue, focusing on neighborhood choice. Given the opportunity to move, many students did not move to as different of circumstances as would be expected. Most that moved chose neighborhoods that were ethnically and socio-economically similar to their previous homes. Identifying strategies to close neighborhood-based achievement gaps will have to overcome society's normal tendency to choose communities of socio-economically and ethnically similar people, either due to personal preference or economic necessity.

In an interesting note, Delucca and Rosenblatt (2010) found that, while many low income African American families chose to move to neighborhoods with better schools under a housing voucher program, their children did not score significantly better than children whose families did not participate.

WRAP-UP

Issues affecting student achievement have received a significant amount of research attention. The research has shown a clear and consistent correlation with race. African Americans consistently perform more poorly than their counterparts from other races, holding other factors constant. Apparent shortcomings among Hispanics and some Asian Americans appear largely attributable to socio-economic and language factors. Socio-economic status has also shown a strong correlation with achievement. Some question remains as to how much of this is better attributed to correlating factors, such as education and race.

School context also has an impact on performance. Students with higher performing classmates and classmates of higher socio-economic and education backgrounds tend to perform better, as do students with more white classmates and/or fewer African-American classmates. Questions remain about how much of these factors are attributable to sorting with classmates of similar background and status.

Recent studies have shown inconsistent results on the impact neighborhood context has on student achievement. Some have shown a significant impact, while others have shown very little. Studies to date, however, have tended to have significant shortcomings. Some use more limited data sets, others too few variables, and others employ data sets with problematic testing methodology for this purpose.

As educators and elected officials work in earnest to improve public schools, better determining the causes of perceived shortcomings and success will both allow for fairer, realistic assessment and more effective strategies for improvement.

CHAPTER 3: MODEL

DEPENDENT VARIABLE

This study will consider the effects of various factors on school level API Test Scores for the 2008-2009 school year. API Test Scores are a controversial but readily available measure of school performance. Standardized test scores, like the API, are the focus of numerous 'reform' policymakers and activists in improving public schools across the nation. API Test Scores are by no means the only measure of school performance and may not be the best, or even a good measure. The amount of attention they receive from policymakers, the media, and the public, however, as well as the increasingly high stakes involved for teachers, schools, and school districts make better understanding of the factors that influence test scores critical. In addition, while there is significant criticism and controversy surrounding the use of test scores in general, there appears to be little criticism of the API in particular. The API covers grades 2 through 12. It is used to assess the effectiveness of schools in meeting specific core standards.

Figure 4: What is the API?

The API (Academic Performance Index) is calculated by converting a student's performance on statewide assessments across multiple content areas into points on the API scale. These points are then averaged across all students and all tests. The result is the API.

The API is a single number, ranging from a low of 200 to a high of 1000 that reflects a school's performance level, based on the results of statewide testing.

How API is Calculated
Each student's STAR results is converted to a numeric value that can be interpreted based on the below:

Advanced:	1000
Proficient:	875
Basic:	700
Below Basic:	500
Far Below Basic:	200

These scores are weighted by subject to calculate a composite score:

English/Language Arts:	56.5%
Mathematics:	37.6%
Science:	5.9%

Finally, the score is adjusted by the Scale Calibration Factor (SCF), which accounts for students with disabilities.

(California Department of Education, 2009)

FACTORS

This study considers three broad categories for factors that appear to impact test scores. As discussed in Chapter 2, there is a significant amount of research that shows the makeup of a school's student body has a significant impact on test scores. This is a central factor to consider in any model assessing school performance. Public policy can most directly affect school factors, such as class size, school size, or charter status. Numerous policy changes have attempted to influence these factors, so they are important to consider in the model. Additionally, policymakers can exercise a significant amount of influence on teacher factors. Many district policies explicitly favor experienced teachers over less experienced teachers through increased pay and enhanced job security. Most also encourage higher education, offering increased pay. Finally, the key variables this study will focus on are community factors. How does the neighborhood around the school, where the majority of its students presumably live, affect the school's performance? In addition to the basic community factors, I will explore a number of interaction variables and whether 'tipping points' play a significant role, beyond linear effects. By identifying these impacts, we will be better able to measure policy variables and assess effectiveness.

REGRESSION MODEL

The theoretical model includes established school and student factors that impact student performance, as well as community factors that are hypothesized to impact performance. This model seeks to begin to answer the question of what community factors correlate with student performance.

This model is expressed in the general form: API Test Scores = f (School Factors, Student Factors, Community Factors)

In order to assess the impact of these broad factors, I need to assign specific measurable proxies for these factors. “School Policies” is not an independently measurable variable. There are, however, many different variables that can collectively be defined as “School Policies” and together as proxy for the broad cause. The table below outlines the variables that I include as proxies for broad causes.

Figure 5: Proxies for Broad Factors

School Factors	Exp Sign	Justification
Charter Status dummies	?	The research on charter schools has shown mixed results
Set of 9 Region dummies *Northern California* *Northern Sacramento Valley* *Greater Sacramento* *Bay Area* *Central Coast* *San Joaquin Valley* *Central Sierra* *Southern California* *So. Border (omitted)*	?	Different social factors by region may or may not have an impact
Set of # District dummies *(Every district in California with at least 3 elementary schools, excluding San Diego Unified School District)*	?	Different policy factors by district may or may not have an impact
Enrollment	?	School size may have an impact on performance, but the impact may be non-linear
Very Small Enrollment *(Dummy variable – bottom 10% of schools)*	?	The smallest schools may give students extra attention or lack resources and economies of scale
Very Large Enrollment *(Dummy variable – top 10% of schools)*	?	Very large schools may have more resources and benefit from diversity and economies of scale, but students may get lost in the crowd.
Percent Tested	?	It is unclear what impact this factor will have
Percent Continuously Enrolled in School	+	Student stability should improve outcomes
Average Class Size	-	Smaller classes should allow for more individual attention
Percent of Faculty Fully Credentialed	+	More qualified faculty should lead to higher test scores
Percent of Teachers Female	?	It is unclear what impact this factor will have
Percent of Teachers with a Masters or higher degree	+	Better educated teachers should lead to higher test scores

Percent of Teachers who are African American	?	Ethnicity of teachers may have an impact, just as race of students does. This study will additionally consider how diversity and ethnic fit of faculty impacts student achievement.
Percent of Teachers who are Hispanic	?	Ethnicity of teachers may have an impact, just as race of students does. This study will additionally consider how diversity and ethnic fit of faculty impacts student achievement.
Percent of Teachers who are Asian	?	Ethnicity of teachers may have an impact, just as race of students does. This study will additionally consider how diversity and ethnic fit of faculty impacts student achievement.
Percent of Teachers with 2 years or less of experience	-	Research suggests that less experienced teachers will produce poorer results.
Percent of Teachers with 3 to 5 years of experience	?	Research suggests that less experienced teachers will produce poorer results but it is unclear where the tipping point is.
Percent of Teachers with 6 to 10 years of experience	?	Research suggests that less experienced teachers will produce poorer results but it is unclear where the tipping point is.
Percent of Teachers with 10-20 years of experience	+	Research suggests that more experienced teachers will produce better results.

Student Factors	Exp Sign	Justification
% GATE	+	Students enrolled in advanced programs should achieve higher scores
% English Learner	-	Students with limited English skills will likely receive lower score
% Reclassified English-Proficient	+	Schools that are more successful in reclassifying English learners will likely achieve higher test scores
% Migrant Education	-	Students enrolled in migrant education programs should achieve lower scores
% Students with Disabilities	-	Learning disabled students will likely receive lower scores
% Parents with Some College	-	Students with more educated parents will likely receive higher scores
% Parents with College Degree	-	Students with more educated parents will likely receive higher scores
% African American	-	The research suggests that African American students will likely receive lower scores
% Asian	+	The research suggests that Asian students will likely receive higher scores
% Hispanic	-	The research suggests that Hispanic students will likely receive lower scores
% Free/Reduced Lunch	-	The research suggests that economically deprived students will likely receive lower scores

Community Factors = f(	Exp Sign	Justification
% Comm Entered Since 2000	-	Recent immigrants may correlate with decreased social capital and effective community support
% Comm Language Isolation	-	Poor English skills among student's role-models may hurt their own language development
% Comm Married with Children	+	May contribute to more stable, supportive home life, also may indicate a large portion of families with children in the community
% Comm Some College	+	More educated community members may lead to more positive relationships and role models
% Comm College Graduate	+	More educated community members may lead to more positive relationships and role models

% Comm African American	?	May exacerbate issues that cause achievement gap or provide additional community support
% Comm Asian	?	May indicate a more immigrant, lower educated community or provide additional community support
% Comm Hispanic	?	May exacerbate issues that cause achievement gap or provide additional community support
% Comm Receiving Food Stamps	-	Proxy for extremely poor families
% Comm Own Home	+	Creates stability and proxies for various factors of a supportive home-life
% Comm Moved in Since 2005	-	Indicates instability in student's home life

By school's census tract

SAMPLE

Figure 6: Schools Included in Sample

Schools Included
5,998 schools included in AP database
5,821 successfully connected to census tract (177 schools lost)
4,525 of schools' census tracts included in census dataset (1,296 schools lost)
3,838 of schools' with complete data available (687 schools lost) and included in final dataset

The sample considered in this study includes 3,838 of the 5,998 elementary schools across California. This omits 177 schools for which a connection to a Census tract could not be created, 1,296 for which the census dataset did not provide data for that tract, and 687 schools which did not report data in every category. The great majority omitted were due to a lack of census data. This could potentially create bias if the schools excluded had significant common characteristics. The schools were spread among 51 of the 58 counties, with by far the largest share (21%, compared to 22% statewide) in Los Angeles County, 56% in Southern California (55% statewide), and an average enrollment of 394 (363 statewide). However, 61% of schools were in rural counties, compared to 46% of all elementary schools statewide. I do not believe there is bias overall; however the large portion of missing schools from rural counties may limit its application to those areas.

The large share of omitted schools in rural counties only has a minimal impact on the final dataset, however. The geographic distribution of the sample is reasonably close to the actual distribution with 1,618 of the 3,838 schools (42%) included in the final dataset in rural counties, while 46% of all elementary schools in California that are in rural counties. The large size of this sample should allow for reliable, statistically significant results, despite minor concerns over bias due to omitted rural schools.

CHAPTER 4: DATA

This section provides an overview of the data included in this study. The tables referenced in the previous chapter are divided into three sections covering each of the general factors included in this study. The data comes from four sources. The first source is the California Department of Education's 2009 API Growth Dataset (http://www.cde.ca.gov/ta/ac/ap/apidatafiles.asp). The second source is the California Department of Education's 2009 CBEDS Professional Assignment Information Form (PAIF) Report (http://www.cde.ca.gov/ds/sd/df/filespaif.asp). The third source is the United States Census, 2005-2009 American Community Survey (http://factfinder.census.gov/servlet/DatasetMainPageServlet). All three data sets are publicly available on the department websites. The fourth source is the California Economic Strategy Panel (http://www.labor.ca.gov/panel/), which divides the state into nine economic regions. The regions included are: Northern California, Northern Sacramento Valley, Greater Sacramento, Bay Area, Central Coast, San Joaquin Valley, Central Sierra, Southern California, and Southern Border. Different regions may address differing cultural norms and more subtle family background differences that are not identified in the socio-economic factors controlled for. For example, Hispanic students in the San Joaquin Valley are often in communities of migrant farm workers, while those in Southern California likely live a more stable life. I created dummy variables for each school based on this system. Table 1(in Appendix) provides basic summary statistics for each of these variables. The primary model includes 370 independent variables including 336 school variables (319 being school district dummy variables and 8 being region dummy variables), ten teacher variables, thirteen student variables, and eleven community variables. Additional variables are considered in alternative socio-economic models. Forty three

(43) of the variables included are percentage variables. Three hundred twenty seven (327) are dummy variables that take on either a zero (0), indicating the absence of the particular condition, or one (1), indicating the presence of that condition.

In running the regression analysis I needed to omit several variables to create a basis for comparison. For the regional dummy variables, I omitted the “Southern Border” region. For the district dummy variables, I include the 319 school districts with at least three elementary schools, omitting San Diego Unified School District, the largest district in the Southern Border region. For both student and community race/ethnicity I omitted white. For both student and community education I omitted high school graduates/non high school graduates.

CHAPTER 5: RESULTS

In this section I consider the results of the regression analysis. I compare log-lin, linear, and quadratic functional forms to determine which form is most appropriate. Next, I check for and, when appropriate, correct for multicolinearity and heteroskedasticity. Then I discuss the results and consider possible interaction variable models. Finally, I discuss the findings, considering the quality of fit for the primary model and how it confirms or rejects expectations.

Ordinary Least Squares (OLS) is the econometric tool of choice for this analysis. It estimates coefficients for each variable in the model so as to minimize the sum of the squared residual variation not explained by the included variables. OLS has many benefits. It is both the simplest and the most commonly accepted regression technique and is the best linear unbiased estimator for this analysis, where the classical assumptions are met.

In specifying the equation for the regression, I consider three functional forms. The linear form is the most straightforward. It assumes each the relationship between the various independent variables and the dependent variable follows a linear path. The double log form employs the natural log of both dependent and independent variables to generate elasticity of the relationship. The semi-log form uses the natural log of the dependent variable but the unadjusted value of the independent variables. Finally, the quadratic form employs the square of a key explanatory variable. It assumes that the relationship is not constant, increasing or decreasing as the value changes. Since most of the independent variables and all of the key explanatory variables are expressed as percentages the double log form is not appropriate for this model. I will consider the linear form, semi-log form, and quadratic form for best fit.

OLS RESULTS

The linear form proved the most significant

The regression results across the various functional forms were fairly similar. The mixed log form yielded 132 variables that are statistically significant at the 90% confidence level. The linear form yielded 137 significant variables, with Percent Owner Occupied very narrowly losing significance, but six district variables gaining significance. Because of this higher level of significance, I will focus on the linear functional form as the primary model for the balance of this study. Table 2(in Appendix) details these results.

The quadratic form did not produce significant results

After deciding on the linear form, I considered whether certain variables would produce better results in quadratic form. I first consider two community variables that were significant in the primary model with very large coefficients, Percent of Community College Graduates and Percent of Community Receive Foodstamps. Neither model produced statistically significant results. In Quadratic Model 1, adding a quadratic Percent of Community College Graduates, the Percent of Community College Graduates maintained significance, but only at the 95% level, but the quadratic variable was not significant. In Quadratic Model 2, adding a quadratic % Percent of Community Receive Foodstamps variable, the Percent of Community Receive Foodstamps variable lost significance entirely and the quadratic variable was not significant.

Next I considered quadratic variables for each of the community ethnicity variables. While only Percent of Community Hispanic was significant in the primary model, the relationship may not be linear. This does not appear to be the case, however. None of the quadratic ethnicity variables were significant. The quadratic models are outlined in Table 3(in Appendix).

Linear Models

In order to consider how the addition of this study's key variables affected the outcome, I considered nine different linear models, detailed in Figure 7. Model 1 is limited to the school variables included in the API data set. Model 2 adds additional teacher variables. Model 3 considers the student variables included in the API data set. Model 4 combines the school variables, including the full set of teacher variables, and student variables. Model 5 considers community variables from the Census data set. Model 6 combines school, student, and community variables. Models 7 and 8 add school districts and regions, respectively. Model 10 adds both school districts and regions to school, student, and community variables.

Model 1, limited to school variables, achieved a modest adjusted R-squared with ten of eleven variables significant. Model 2, adding the full set of teacher variables to school variables, achieved an adjusted R-squared of .464 with fourteen of twenty variables significant. Model 3, student variables, yielded an adjusted R-squared of .710 and 10 of 11 variables were significant. Model 4, which combines school and student variables, increases the adjusted R-squared slight to .762. In addition, 17 of 31 variables were significant. Among school factors, both charter variables, Year Round Dummy, Percent Fully Credentialed, Average Class Size K-3, and each of the teacher ethnicity variables lose significance. All student

Figure 7: Linear Model Comparison

Model	*adj-r^2*	*Sig Variables*
1: School	*.283*	*10 / 11*
2: School w Teachers	*.464*	*14 / 20*
3: Students	*.710*	*10 / 11*
4: School +Students	*.762*	*17 / 31*
5: Community	*.495*	*12/13*
6: Schl+Stud+Comm	*.768*	*24 / 44*
7: Add Districts	*.813*	*137 / 363*
8: Add Regions	*.774*	*30/52*
9: Add District+Regions	*.815*	*117 / 371*

variables, except percent Hispanic maintain significance. It appears that many of the school variables were acting as proxies for student factors. For example, the teacher ethnicity variables were likely acting as proxies for student ethnicity. As the research has clearly shown, school and student factors explain a tremendous amount of the variation in API scores.

Model 5 considers community factors. It returned an adjusted R-squared of .495 with twelve of thirteen variables significant. Model 6 adds the community factors to school and student variables. This model has an adjusted R-squared of .768 and twenty four of forty four variables significant. Not surprisingly, most of the community variables lost significance, as they were likely acting as proxies for significant student variables, all of which maintained significance. Model 7 adds a dummy variable for each of the school districts with at least three schools in the sample. It yields an adjusted R-squared of .813 with 137 of 363 variables significant. Three of the original forty four variables gained significance, while three others lost significance, leaving twenty four of forty four significant. Model 8 considers regions instead of districts. It yields an adjusted R-squared of only .774 with thirty of fifty two variables significant. Model 9 considers both regions and districts. It produces an adjusted R-squared of .815 but only 117 of 371 variables are significant. Regions and districts likely suffer from multicolinearity, causing the loss of significance. Because of its high number significant variables and high adjusted R-squared, model 7 will continue as my primary model. Clearly, as indicated in the research, student factors appear to have the most impact on API scores. This analysis suggests that community factors have a meaningful impact as well. Tables 4a and 4b provide the full data (in Appendix).

REGRESSION DIAGNOSTICS

In this section I explore the possibility that common regression errors exist in the primary model, correct for any errors I find, and discuss the results.

Heteroskedasticity

Heteroskedasticity is a violation of Classical Assumption V, that the error term has a constant variance. In a cross sectional model, such as the models considered in this study, there is a strong likelihood for heteroskedasticity. Heteroskedasticity will not bias the results but may lead to lower standard errors, making non-significant variables appear significant.

I applied the Breusch-Pagan / Cook-Weisberg Test for heteroskedasticity, a variant of the White Test. The test runs a regression using the squared residuals as the dependent variable, including the original independent variables, the squares of those variables and the cross products of the variables with each other as independent variables. The test returns a chi^2 and the probability that the test statistic is greater than the chi^2. A probability under .1 suggests there is an insignificant chance the test statistic is greater than the chi^2, suggesting the presence of heteroskedasticity.

The probability returned for the primary model is 0.0000. This suggests that there is virtually no chance that heteroskedasticity does not exist. To correct for this error, I reran the regression using robust standard errors. This does not affect the coefficients, only the standard errors – changing the likelihood that the variable will be statistically significant. This generally increases standard errors but may lower them as well.

Changing to robust standard errors produced an unexpected result. One student variable and seven district dummies lost significance. The Percent of Students Enrolled in Migrant education lost significance, increasing from .071 to .234. On the other hand, fifty six district dummies gained significance. While curious, this has little impact on the research since the district dummies are control variables and not meant to explain the variation. Going forward, I will focus on the results of this regression, with robust standard errors, and further regressions will be run with robust standard errors. Table 2 (in Appendix) shows the regression with robust standard errors.

Multicolinearity

Multicolinearity is a violation of Classical Assumption VI, wherein two variables are, in effect moving so closely together that regression analysis cannot separate their independent influences. While this does not lead to bias, it will increase the standard error and lead to a lower level of significance. Two variables produced large correlation coefficients of .80 or higher. Not surprisingly, there is a strong correlation between the ethnicity of students in a school and the race of the surrounding community. Figure 8 presents the two sets of significant correlations. At least one of the variables in each pair was statistically significant in the primary model. Since the variables involved generally achieve strong significance, corrections are not necessary.

Figure 8: Significant Correlation Coefficients

Var 1	Var 2	Corr Coef	Sig
Pct Community Black	*Pct Students Black*	.800	.00
Pct Community Hispanic	*Pct Students Hispanic*	.863	.00

Variables in *italics* are significant in the primary model

Second, I test for the Variance Inflation Factor (VIF). VIF detects how much a given explanatory variable can be explained by all other explanatory variables. It is expressed as an index of how much multicolinearity may increase variance. Variables with VIFs over five may suffer from multicolinearity (Studenmund, 2011). This test returns similar results. Each of the student ethnicity variables, as well as two of the community ethnicity variables (Hispanic and

Asian), both community and parent college graduates, students that are English Learners and community that is language isolated, and students that are eligible for free or reduced price meals returned VIFs over 5. Table 5 (in Appendix) provides VIFs for all variables.

These tests suggest the major factors in play for multicolinearity are the matched community and student variables. Both among student and community factors, economic deprivation, a lack of education, a lack of English language skills, and Asian and Hispanic groups appear to have a strong mutual correlation. Since virtually all of these factors were significant in the primary model, it is not a significant concern and no corrections are necessary.

LINEAR MODEL DISCUSSION

Several variables stood out as deserving a closer look. In this section, I first consider different variables as proxies for economic deprivation. I then look at whether alternate models for including teacher experience would yield improved results. I then consider interaction models to identify whether interactions between community and student variables may better account for the impact of community variables.

Poverty rate proved the most effective proxy for economic deprivation

As discussed in the earlier literature review, the prior research suggests that community income or poverty may be a significant factor in academic achievement. The Census, however, includes numerous measures for this general factor. Because of problems with multicolinearity, it would be ineffective to include multiple measures. This could lead to high standard errors and a loss of significance.

Table 8 (in Appendix) explores different possible variables to consider effects of income/poverty. Model A uses food stamp recipients as a proxy for economic deprivation. Model B focuses on the neighborhood’s poverty rate. Model C considers household income.

Figure 9: Deprivation Models

Model	*Coefficient*	*Sig*	*Elasticity*
A: Foodstamps	*-0.59*	*99%*	*-0.43%*
B: Poverty	*-0.35*	*99%*	*-3.36%*
C: Income	*-0.15*	*NS*	*na*

The three models returned the same R-squared of .832. More importantly, Model A and B's key variables were significant at 99% confidence, while Models C's was insignificant. Though model A's key variable has a higher coefficient than Model B's, Model B's key variable is much more elastic. Because of these results, I believe Model B (poverty) is the best proxy for economic deprivation. The poverty rate variable offers far more variation than foodstamps, causing its smaller coefficient to have a greater real world impact. Moving forward, Model B will replace Model A as the primary model. Every significant variable in the original model remained significant. In addition, Percent Community Own Home gained significance at the 90% confidence level. Additionally, I created a quadratic variable for the community poverty rate. It was not significant.

Experience Tiers Prove Most Relevant

Immense controversy persists about the importance of teacher experience. Unions claim that teacher experience lies at the heart of teacher quality, while reformers worry that older teachers lack the energy and ingenuity that could make a younger teacher more successful. With districts across the country facing funding shortfalls and the threat of ongoing layoffs and efforts to encourage early retirement an ongoing reality, understanding the impact of experience is all the more critical.

Average teacher experience is included in the API data set. This did not prove significant in a previous unpublished study I conducted, however. This stands to reason, as any assumed benefits or difficulties from experience might not be linear.

I consider three possible models for including teacher experience. The first is a set of categorical variables. This model operates under the theory that there is a certain tipping point were young teachers break through and becoming roughly on par with more experienced teachers. The second is simply the average experience for teachers in the school. The third model offers experience as a quadratic variable.

Only one of the experience variables in the categorical model was significant. The portion of teachers with 2 years or less of experience has a significant negative correlation with test scores. The other categories were non-significant with coefficients very close to zero. Neither of the other models returned any significant results, however. The first model appears to be the most significant of the three. Very inexperienced teachers have a significant correlation with lower test scores, but there is not a discernable difference between other experience levels. Table 9 (in Appendix) outlines these results. I will continue using the categorical variables in the primary model.

Interesting Implications for Charter Schools

Employing less experienced teachers in smaller schools is often a deliberate strategy for charter schools. Some schools specifically seek out less experienced teachers, believing they offer more energy and enthusiasm and can be better molded to the school's model, while others choose compensation policies that are relatively less favorable to experienced teachers and this plays out in the numbers. The average directly funded charter school in this sample has an enrollment of 344, while the average non-charter school has an enrollment of 370. Directly funded charter schools are nearly three times as likely to be Very Small, among the bottom ten percent in enrollment, as traditional schools. Twenty three percent of directly funded charter schools are among the bottom ten percent. The Very Small dummy has a coefficient of -15.6 and is significant at the 99% confidence level.

Additionally, directly funded charter school teachers have an average of 8.2 years of experience, while teachers at traditional schools have an average of 13.8 years of experience. More importantly, given the results of this study, 21.2% of directly funded charter school teachers have two or fewer years of experience, while only 8.6% of teachers in traditional schools are similarly inexperienced. The coefficient for this group is -.32 and also significant at the 99% confidence level. Based on these coefficients, the strategies that tend to be employed by charter schools correlate with lower average test scores of 5.6 points at directly funded charter schools.

The regression bears this out. When teacher factors and school size are accounted for in the model, directly funded charter schools have a significant positive relationship with API test scores. When teacher factors and school size are excluded, directly funded charter schools no longer have a statistically significant positive correlation with API test scores. It seems that charter schools, on average, are doing some things right, increasing expected test scores, after accounting for student, community, and some school factors. These positive results seem to be undercut, however, by the extreme lack of experience of their teachers and extremely small enrollment many have. Additionally, it is worth noting that critics contend that the basic demographic traits included in these datasets are inadequate to account for differences in charter and traditional school enrollment. They argue that the selection bias inherent in charter schools and school strategies to council out more challenging students is missed by the data.

The alternate model discussed in this section is included in Table 9 (In appendix).

INTERACTION MODELS DISCUSSION

In order to help better understand the factors that impact school performance, I considered several variable interaction models. The first section considers whether there is either a positive or negative impact for students in challenging demographic groups among communities with similar demographic traits. The second section notes that Hispanics appear to perform better in the Southern California region and attempts to better understand the underlying reasons for this. The third section considers whether minority students are more impacted by schools in high poverty communities.

Community-School Variable Interaction Models

One interesting factor to consider is whether the presence or absence of similar traits in a community affects student performance. Do African American students in a heavily African American neighborhood tend to perform better than African American students in a neighborhood with few African American students, accounting for other factors like education and affluence? This effect could hypothetically be positive or negative. The presence of a large number of community members from the same race, education, or poverty level could either exacerbate the issues which lead to the respective achievement gaps or provide higher levels of community support while people who "look like me" might prove to be more effective role models.

The answer, for the most part, appears to be no. Having a surrounding community that is similar or disparate from the student body appears to have little added significance beyond the basic factors themselves. There were two exceptions, the Asian/Asian interaction variable and the College/College interaction variable.

I considered interactions for each of the race/ethnic student variables and their community counterparts, for Percent Students Eligible for Free/Reduced Price Meals and Percent Community Receive Food Stamps, and for Percent Parents and Percent Community College

Graduates. All of the student and parent variables considered were significant in the primary model, which includes the full range of school variables, student variables, and community variables, as well as district variables. The Hispanic, College, and Poverty community variables were also significant but the Asian and Black community variables were not. Only two of the interaction variables proved significant. The College/College interaction variable is significant with a .41 coefficient. These means that when both the community and parent College variables increase by one percent, expected test scores increase by .41 points in addition to the impact of each of the College variables. While attending school in a community with many college graduates is beneficial for all students, it appears to be particularly beneficial for students whose parents are also college graduates. Similarly, the Asian/Asian interaction variable is significant with a .53 coefficient. Since the Percent Community Asian variable is not significant, this suggest that a largely Asian community is beneficial for Asian students, but not for non-Asian students.

Next I hypothesize that the impact of minority communities may be seen in the collective, rather than in individual ethnicities. I created a variable for Percent Community Minority and interaction variables with each of the student ethnicity variables. Neither the Percent Community Minority variable nor its corresponding interaction variables proved significant, however. The Minority/Hispanic variable, though, was nearly significant. By far the greatest share of Hispanic students live in the Southern California region. Unlike the other heavily Hispanic regions, this region has a large portion of other minority groups in addition to Hispanics.

Hispanics Excel in Southern California Region

Based on the distribution of Hispanic students, I created an interaction variable looking at the performance of Hispanic students in Southern California. (As defined by the California Economic Strategic Panel. This region does not include San Diego or Imperial counties, which make up the Southern Border region.) The Southern California region is not significant when added to the primary model. The interaction variable, though, is highly significant at the 99% confidence level with a .21 coefficient. The Percent Student Hispanic variable is significant with a coefficient of -.46, meaning Hispanic students in the Southern California region overcome nearly half of the gap experienced by Hispanics statewide.

In order to discern if this is a matter of public policy or a variation in the community, I also created interaction variables for the largest districts in the Southern California region (Los Angeles USD, Long Beach USD, Garden Grove USD, Santa Ana USD, and Orange USD) with Percent Students Hispanic. None of these variables returned significant results, however. It appears that higher performance of Hispanic students in Southern California, relative to the rest of the state, has more to do with differences in the community than specific policy distinctions.

Ethnicity and Deprivation Interactions Do Not Show Significance

The final set of interactions I considered is Student Ethnicity with Percent Community in Poverty. Challenges due to economic deprivation and ethnicity may exacerbate one another, causing poor minorities to fall behind more than their white counterparts. None of the interaction variables proved significant.

Tables 10a-e (in Appendix) display the complete set of interaction outcomes.

Summary

The regression results confirm prior research emphasizing the importance of student factors, all but one of which shows significance. Many of the school variables are also significant. In addition, four community variables prove significant, Hispanic, College Graduates, Poverty, and Percent Community Own Home. Interaction variables with Community/Parent College Graduates and Community/Student Asians are significant as well. Finally, Hispanic students in the Southern California region do significantly better than their counterparts statewide, though this distinction does not correlate particularly with any of the region's largest districts.

ELASTICITIES AND CONFIDENCE INTERVALS

Coefficients do not necessarily provide for effective comparisons of the relative impacts of different variables. A variable may return significant results, but the size of the coefficient, relative to the potential variation for the variable, may be quite minimal. This would indicate the variable represents little real world impact. Elasticities' value is that they are not unit dependent. They allow for meaningful comparisons across variables, regardless of the unit measure in which variables are expressed. I calculated elasticities for continuous variables using the equation: (Independent Variable's Coefficient) * (Independent Variable's Mean) / (Dependent Variable's Mean). Elasticities are not meaningful for dummy variables, since they are binary variables. Dummy variables do not have a range of possible values. They either are or are not and, thus, there is no multiplier for the coefficient.

In this model, for example, the Percent Student Black variable has the largest coefficient of any of the student ethnicity variables (-.71) It is nearly twice as large as the smallest, Percent Student Hispanic (-.38). Both coefficients are significant at the 99% confidence level. When translated to elasticities, though, Percent Students Black's elasticity is only -.59%, while Percent Students Hispanic is a much larger -2.34%. This is because the coefficient is multiplied by the variable's value. Percent Students Black has a mean of only 6.64. When the coefficient is multiplied by the value, the average school is only expected to score 4.7 points worse on the API, relative to a hypothetical school with no Black students, holding all other factors constant. On the other hand, Percent Students Hispanic has a much larger mean of 48.8. When multiplied by the coefficient, a school with an average number of Hispanic students is expected to score 18.7 points worse than a hypothetical school with no Hispanic students.

School Variables

The variables with the largest elasticities are Percent of Students Tested (36.03%), Percent Continuously Enrolled in School (24.36%), Percent Teachers Female (3.47%), Average Class Size – 4-6 (2.94%), and Enrollment (-1.45%). Notable in their absence from this list are the teacher variables, other than gender. While several additional teacher variables are significant, their actual impact appears to be minimal due to very small elasticities. These include Percent Teachers with Masters or Better (.57%), Percent Teachers with 2 Years or Less of Experience (-.35%), and Percent Teachers Hispanic (-.27%).

Student Variables

Every student variable except one considered in the model was significant with 90% confidence. Not all, however, produced large elasticities. The largest are Percent Students Eligible for Free/Reduced Price Meals (-3.31%), Percent Students Hispanic (-2.34%), Percent Students English Learner (-2.22%), Percent Parents College Graduate (2.18%), Percent Students with Disabilities (-1.27%), and Percent Students GATE (1.26%). Most student variables have relatively large elasticities, confirming prior research showing that various student socio economic factors have an extremely high correlation with test scores.

Community Variables

Only three Community variables showed significant returns. Of those, two show relatively large elasticities as well. Percent Community in Poverty (-3.36%) has the largest elasticity, larger than the student variables. Percent Community College Graduate (1.45%) is also elastic. Percent Community Hispanic (.99%) and Percent Community Home Owner (-.78%) produced more modest elasticities. The latter also returned an unexpected sign.

DISCUSSION OF FINDINGS

This section considers the quality of fit this model achieves. It then explores how the results confirm or refute my expectations.

Model Fit

Before evaluating the meaning of a regression study, it is critical to consider how well it accounts for variations in the dependent variable. The standard evaluation measure is the coefficient of determination, or R-squared calculates the portion of the total variation accounted for in the model. R-squared reports a value between 0 and 1, with values closer to 1 indicating a better fit.

As discussed in the comparison of the possible linear models, the primary model achieves an R-squared of .8317. This means the model accounts for slightly more than four fifths of the variation observed in API scores. This model does a very good job of accounting for most of the variation. While it could surely be refined, increasing the R-squared significantly will likely require far more sensitive data than is generally available in statewide data sets. The shift from model 4 to model 6 illustrates this concept. Model 6 proved more refined than Model 4, introducing several new significant variables, however it only increased the R-squared by .006.

Expectations and Results

Most significant factors included in the regression returned the expected sign. Two factors defied expectations, though. For the first, Average Class Size – 4-6, the conventional wisdom is that lower class sizes lead to better results and has been the goal of significant legislation in California and across the country. Prior research has shown mixed results, generally with minimal impact (Jepsen & Rivkin, 2009) (Chingos, 2010) (Shin & Raudenbush, 2010) (Graue & Rauscher, 2009). The Tennessee STAR experiment did show significant positive impacts of smaller class size (Finn, Gerber, Achilles, & Boyd-Zafarias, 2011) but Hanushek (1999) notes that problems with the research model biased the results upward and that the results only support the benefits of extremely small class sizes. The second is Percent Community Own Home. This may be acting as a proxy for another community factor. For example, lower income rural communities with substantially lower property values may allow for greater rates of home ownership. In addition, several other high profile variables proved insignificant. Indirectly funded charter schools did not appear to significantly impact test scores. Directly funded charter schools only showed significance after accounting for apparently unsuccessful strategies. The percentage of faculty that is fully credentialed does not have a significant impact. This was a major thrust of President Bush’s No Child Left Behind legislation. Teacher experience, beyond the first two years, also does not have a significant impact, despite being a major thrust of teachers’ unions and their allies.

Most Community Factors squared with the theory. Some surprising factors were not significant, however. Neither immigration, nor language isolation proved significant. This may be in part due to relatively high correlation between the two variables, as well as the Not High School Graduate and possible race/ethnic variables; however dropping one of the variables did not lead to the other gaining significance. Figure 10 details the expected and actual signs for each of the variables.

Figure 10: Expected and Actual Signs of Explanatory Variables

Variable	Exp	Act
School Variables		
Charter - Directly Funded	?	+
Charter - Indirectly Funded	?	NS
Enrollment	?	-
Very Small School Dummy	?	-
Very Large School Dummy	?	NS
Year Round Dummy	?	NS
Pct Tested	+	+
Pct Fully Credentialed	+	NS
Pct Continuously Enrolled	+	+
Average Class Size K-3	-	NS
Average Class Size 4-6	-	+
Pct Tchrs Female	?	+
Pct Tchrs Masters plus	+	+
Pct Tchrs Black	?	NS
Pct Tchrs Asian	?	NS
Pct Tchrs Hispanic	?	-
Pct Tchrs 0-2 Years Experience	-	-
Pct Tchrs 3-5 Years Experience	?	NS
Pct Tchrs 6-10 Years Experience	?	NS
Pct Tchrs 10-20 Years Experience	?	NS
Student Variables		
Pct Stu Black	-	-
Pct Stu Asian	+	+
Pct Stu Hispanic	-	-
Pct Eligible Meals	-	-
Pct GATE	+	+
Pct Migrant Ed	-	-
Pct English Learner	-	-
Pct Reclassified English Proficient	+	+
Pct Disabled	-	-
Pct Prnt Some College	+	+
Pct Prnt College Grad	+	+
Community Variables		
Pct Com Black	?	NS
Pct Com Asian	?	NS
Pct Com Hispanic	?	+
Pct Com Entered Since 2000	-	NS
Pct Com Married w Children	+	NS
Pct Com Single Father	-	NS
Pct Com Single Mother	-	NS
Pct Com Some College	+	NS
Pct Com College Grad	+	+
Pct Com Poverty	-	-
Pct Com Own Home	+	-
Pct Com Moved in 2005 or later	-	NS
Pct Com Language Isolated	-	NS

CHAPTER 6: IMPLICATIONS

In the final chapter I evaluate the research question and offer policy recommendations on how the results could lead to improved real world school performance.

RESEARCH QUESTION EVALUATION

This study confirms prior research, showing that student variables play a very significant role in predicting school achievement. Parental education, economic deprivation, race/ethnicity, English language skills, students with disabilities, and students enrolled in GATE appear to have very significant impacts on student achievement. Although relative importance of this various traits is unclear in the prior research, this study tends to confirm Levine & Painter's (2008) finding that economics are more impactful than parental education, although education is also quite significant.

It expands on prior research, showing that socio-economically deprived communities are harmful for school performance. The communities surrounding a school appear to have a real impact on that school's performance. In particular, the economic deprivation (poverty rate) of the surrounding community has just as strong of an impact as the economic deprivation (eligible for free or reduced price meals) of the students themselves and has a stronger impact than any other student factor.

POLICY RECOMMENDATIONS

While this study focused on API scores, which are specific to California, critics often focus on America's standing in international Organisation for Economic Co-operation and Development (OECD) rankings as the justification for their dissatisfaction. In 2009, U.S. students ranked in the middle of the pack, not significantly different from average, in Reading and

Science, while being below average in Math (OECD, 2009), which contrasts disfavorably with America's assumptions of its own excellence. Adding context to the raw data, National Association of Secondary School Principals Executive Director, Dr. Gerald N. Tirozzi analyzed the results based on the portion of students in poverty. He found that America's schools compare very favorably to nations with comparable poverty levels. American schools with under 10% poverty, score higher than any country in the world, while those with 10-20% poverty score only below Korea and Finland (Riddile, 2010). Despite high achieving schools, the United States yields mediocre results overall because of its high poverty rate, with the fourth most children living in poverty according to the Bertelsmann Stiftung Foundation (Blow, 2011). While Tirozzi's study was not comprehensive, looking at simple correlation, without accounting for various other possible factors, it does clearly indicate that critics should take a more nuanced look at international education data.

Perhaps the most important potential policy development would be simply helping policymakers, critics, and activists to better understand the various factors that impact school performance. Economic deprivation, both among students and their surrounding communities, has an extremely high correlation with lower API scores. Making unadjusted comparisons between America's test scores and those of smaller, low poverty European and Asian nations, while perhaps important for America's future economic competitiveness, does not accurately gauge the effectiveness of our schools.

Structural changes, such as lowering class size, focusing on teacher credentialing, or expanding flexibility through the use of charter schools are simple to argue for and offer straightforward implementation, but the evidence suggests they would have a minimal impact on school performance. Addressing issues behind student and community poverty holds the most potential for improving school performance. Policymakers should seek to identify and address the more specific impacts of economic deprivation and lack of education. This presents an exciting opportunity for policymakers not directly involved in education. Countless elected officials in city or county government express an inclination to improve local education on their campaign but are unable to do much once in office. Building city or county programs to support quality early childhood education, health care, housing, recreation, and mentorship could help to overcome the challenges faced by children in poorer communities.

In the longer term, addressing poverty in America broadly, as well as housing segregation specifically is at the heart of improving education outcomes. While from a civil rights/equality perspective, this may seem like putting the cart before the horse, from a broader, economic efficiency perspective, it is critical that policymakers understand that economic inequality leads to diminished economic achievement, and, presumably, a less capable future workforce. Additionally, this suggests a multiplier effect for policies aimed at reducing poverty. A policy that successfully lowers the poverty rate in a given community will likely improve educational achievement of the children in that community, increasing the likelihood that these children will be lifted out of poverty in the short term, by these programs, and in the long term, but their higher academic achievement.

Logically, there are three basic avenues through which policymakers could seek to overcome the educational shortcomings associated with poverty. The first is to simply lower or eliminate poverty. If poverty does not exist, it cannot impede educational progress. Most European nations manage much lower poverty levels, despite less overall wealth. The second is to improve schools whose students and community suffer the effects of poverty sufficiently such that the advantages they impart overcome the disadvantages with which the students start. In recent years there has been a push for policies of equality to be replaced with policies of adequacy, arguing that disadvantaged communities should not have schools that are equal to advantaged communities, but rather schools that are superior so as to be adequate to overcome their disadvantages and meet established goals. The third strategy is to further evaluate how specifically poverty impedes educational success and to combat those specific symptoms with programs in the communities.

Lowering Poverty

The most direct strategy for mitigating the impacts of poverty is lowering or eliminating the existence of poverty. If communities and families are not in poverty, the students that emerge from them will not be negatively impacted by coming from impoverished situations. While this is certainly a truism at its core, it may still be a guiding strategy. America's relatively high poverty rate is not inevitable. While America's poverty rate is 54% higher than the OECD average (U.S.A.: 17.1%, OECD Average: 11.1%), ranking 32^{nd} out of 35 countries (OECD, 2011), it is among the highest in the world in per capita Gross Domestic Product, ranking 11^{th}, however, among the top ten only Norway is not a small city-state or principality (CIA World Fact Book, 2010). Changing the way America's great wealth is distributed among its citizens could dramatically lower poverty and improve education performance in poor low performing schools.

While fundamentally restructuring American economic society is unlikely in the foreseeable future, numerous programs have been implemented in recent years to alleviate poverty or avoid its increase during the recent recession. Programs that successfully lower poverty will likely also improve school performance. For example, based on the coefficients in this study, eliminating poverty altogether would increase the average elementary school's API score by 26 points, from 796 to 822, with 65% of schools meeting their goal of 800. Lowering poverty to come in line with the average OECD country would increase the average API score by a smaller, but still meaningful 9 points, with 53% of schools scoring at least 800.

Adequacy Policies

The movement towards judging schools based on adequacy, rather than equality began in 1989 when *Rose v Council for Better Education* forced Kentucky to rework its entire educational funding system, leading to dramatically higher spending, which decreased, but did not eliminate the achievement gap seen by high poverty schools. *Williams v State (1999)* brought the issue to California. Plaintiffs argued that, despite equal funding guaranteed by *Serrano*, many students were subjected to substandard schools with inadequate, unsafe, unhealthy facilities, under qualified teachers, inadequate instructional materials, and overcrowded schools. The plaintiffs ultimately settled in exchange for nearly one billion dollars of investments in facilities and materials and the establishment of standards and procedures for intervention when schools fail to meet established standards. A pending lawsuit, *Robles-Wong v California,* challenges that the funding system violates children's fundamental rights because it is insufficient, irrational, and unstable. To date it has not fared well in the courts (Fensterwald, 2011).

During this period the legislature established the California Quality Education Commission to develop a Quality Education Model and establish what adequacy would cost. After taking office following Governor Davis' recall, Governor Schwarzenegger withdrew Davis' appointments and chose not to replace them with his own, leaving the commission unable to proceed (National Education Access Network, 2011).

Shortly thereafter, though, the Institute for Research on Education Policy & Research at Stanford University undertook a research project named "Getting Down to the Facts". Paid for with private foundation funding, it employed researchers around the nation who conducted twenty two different studies covering virtually every aspect of education in California.

Four studies focus on what level of spending would be necessary to achieve adequacy statewide. Chambers, et al (2006) estimated that California would need to increase spending by $24.14 billion to $32.01 billion, an increase of 53-71%, in order to achieve educational adequacy in all schools. Sonstelie (2007) found similar results. His study estimated that approaching school adequacy would cost the state at least $60 billion total. Under this model, however, fully half of California's schools would not meet state benchmarks, although they would come much closer. Imazeki's (2006) study produced more varied results, estimating a necessary increase of between $5.7 billion and $1.5 trillion, depending on the model employed. Differing starting points account for the dramatic difference. The more modest difference found by the cost-function model essentially assumes that the only difference in higher performing schools is funding and student demographic makeup, not other strategies or policies. In reality, higher performing schools are likely spending money more effectively, in addition to slightly higher funding. Chambers and Sonstelie echoed this principal, noting that unknown policy efficiency variables could increase these costs dramatically. Additionally, Perez, et al (2007) did not produce an estimate because it found that the effectiveness of increased funding is too closely tied to the effectiveness of other policies to be studied individually.

The research suggests that achieving educational adequacy through increasing funding for more challenging schools is possible, but extremely costly. While estimates vary, it appears that achieving adequacy would likely require an increase of state education spending of at least fifty percent and perhaps much more.

It is worth noting that one of the key recommendations "Getting Down to the Facts" produced, reducing restrictions for the use of categorical funding, was implemented under legislative changes enacted in 2009. It is too soon to know what impact this will have on school performance, but it offers hope that some of the policy changes to encourage more efficient use of resources may have already occurred. The policy sunsets after the 2014-2015 school year, so research to assess its impact and, if justified, policymaker action to extend the program is warranted.

Community Engagement

David Seeley (2011) has advocated for increased community engagement in schools for decades. He sees growing momentum in schools and districts seeking to engage the community as policymakers realize that structural changes do not give children the missing support they need. His optimism is tempered by the warning that efforts in community engagement are disincentivized by high stakes testing policies that lead educators to focus on policies with a more linear relationship with test scores.

Harlem Children's Zone

A strong model for community engagement is the Harlem Children's Zone (HCZ). HCZ operates a charter school, but the great majority of its participants are children in public schools and adult community members. In addition to education programs, HCZ operates Community Pride, which engages community members to improve social services, tenant organizing, and community redevelopment, Family Support Center, which works to support families going through difficult challenges, and health programs to address asthma and physical fitness. The program has generated significant attention from President Obama, 60 Minutes, Stephen Colbert, and others. It has also inspired similar programs in other cities. There remains far more potential for local and regional governments to adopt these strategies and leverage existing programs and resources, in conjunction with charitable support, to build more comprehensive community support programs.

Henig & Reville (2011) point out that effective poverty intervention programs, especially public-health and housing, in addition to the direct benefits, increase children's ability to learn and perform well in school. These payoffs are important in evaluating the success of these programs and in conducting cost-benefit analyses. Local governments and community organizations can offer real support to schools by expanding these programs and targeting them to strengthen communities with large at-risk student populations.

Counselors Can Facilitate Community Partnerships

Griffin & Steen (2010) notes the research shows there are numerous strategies through which school counselors can facilitate school-community partnerships. They offer a number of examples of counselors engaging the community to intervene in problematic situations, helping students and families access available community resources, and engaging the community in school-sponsored events. In their survey of school counselors, Griffin & Steen found that while most counselors see community-school partnerships as being beneficial (73%) and believe they have the ability to facilitate them (55%), most did not report participating in community-school partnerships (58%). Griffin & Steen's observations are not local to California and California likely offers fewer opportunities for counselors to engage the community. California's schools have roughly half the number of counselors per student, relative to the national average and they are often asked to perform administrative duties in place of their core responsibilities (Education, 2011).

While not addressed in their work, I presume that Griffin & Steen focus on counselors' role in community-school partnerships because of their general research focus, not because counselors are uniquely capable of performing these critical services. In California, where counselors are less common, others could step up to fill the void. Within the school, teachers, coaches, administrators, and parent groups can and sometimes do play the role. More beneficial still, since they bring outside resources into schools, local government officials, community organizations, and charitable groups could take leadership in driving needed engagement.

Community Expectations and Support

One critical factor community engagement efforts should focus on is raising student expectations. Perez & Anand, et al (2007) conducted an American Institute for Research study of successful California schools. They found that, in addition to a number of school factors, setting high expectations is a factor that distinguishes the most successful schools. This squares with Vargas (2010) who found that students who have personal connections with supportive family or community members that model good behavior and set high expectations achieve higher graduation rates.

FINAL THOUGHTS

Given the reality of stagnant state funding for the foreseeable future, the ongoing unwillingness of voters to significantly increase revenue for schools, and the apparent stalemate between teachers' unions and their critics, local communities should not expect new state programs to overcome the impact of poverty on California's schools. Whether or not the presumed increase in student performance justifies the investment, it is extremely unlikely California will approve of the $25-$40 billion increase in spending that would facilitate every school becoming an adequate school. It is even more unlikely that state or federal policymakers will enact policies that significantly diminish the amount of poverty in the immediate future.

This situation offers non-traditional actors the opportunity to play a significant role in students' educational success. Leaders in all aspects of local communities, including government, businesses, community groups, recreational organizers, and religious leaders should help to facilitate community engagement in schools. Communicating with the community about the needs and issues that impact their schools, the importance of setting high standards and being a positive role model, and offering opportunities to get involved in the schools by volunteering, mentoring, or simply attending campus events holds the potential to make an immense difference in school success. By engaging the public's great desire to improve schools and activating existing resources, communities can help to overcome the effects of poverty on their local schools.

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TABLE 1: SUMMARY STATISTICS

Variable	Observations	Mean	Std. Dev.	Min	Max
API 2009	3751	796.39	78.80	372.00	998.00
Charter - Directly Funded	3838	0.02	0.13	0.00	1.00
Charter - Indirectly Funded	3838	0.02	0.14	0.00	1.00
Enrollment	3819	368.49	177.62	1.00	2119.00
Very Small School Dummy	3819	0.09	0.28	0.00	1.00
Very Large School Dummy	3819	0.10	0.31	0.00	1.00
Year Round Dummy	3757	0.04	0.20	0.00	1.00
Pct Tested	3819	99.62	2.45	6.67	100.00
Pct Fully Credentialed	3757	98.28	4.55	27.00	100.00
Pct Continuously Enrolled	3819	92.86	6.99	0.00	100.00
Average Class Size K-3	3709	19.58	2.33	3.00	40.00
Average Class Size 4-6	3610	28.04	4.54	1.00	40.00
Pct Stu Black	3819	6.64	10.60	0.00	99.00
Pct Stu Asian	3819	8.28	13.63	0.00	96.00
Pct Stu Hispanic	3819	48.82	30.39	0.00	100.00
Pct Eligible Meals	3819	58.26	30.73	0.00	100.00
Pct GATE	3819	7.70	8.52	0.00	100.00
Pct Migrant Ed	3819	2.18	5.54	0.00	84.00
Pct English Learner	3819	29.61	22.03	0.00	100.00
Pct Reclassified English Proficient	3819	6.96	6.45	0.00	57.00

Pct Disabled	3819	11.63	10.20	0.00	100.00
Pct Prnt Some College	3819	23.35	12.02	0.00	100.00
Pct Prnt College Grad	3819	28.95	24.47	0.00	100.00
Pct Com Black	3838	4.90	9.26	0.00	89.73
Pct Com Asian	3838	10.83	13.86	0.00	89.34
Pct Com Hispanic	3838	36.83	26.63	0.00	100.00
Pct Com Entered Since 2000	3838	5.34	4.66	0.00	34.40
Pct Com Married w Children	3838	37.63	9.72	0.00	100.00
Pct Com Single Father	3838	4.98	3.81	0.00	28.80
Pct Com Single Mother	3838	12.58	8.02	0.00	78.33
Pct Com Some College	3838	29.11	8.62	2.57	58.97
Pct Com College Grad	3838	26.18	18.60	0.00	88.85
Pct Com Earn $30k or less	3838	30.28	15.49	0.87	85.96
Pct Com Earn $30-50k	3838	44.00	9.74	5.45	82.13
Pct Com Receive Foodstamps	3838	5.83	6.51	0.00	55.64
Pct Com Own Home	3838	61.47	20.72	0.00	100.00
Pct Com Moved in 2005 or later	3838	16.03	5.52	2.52	49.71
Pct Com Language Isolated	3838	11.23	10.87	0.00	83.93
Pct Com in Poverty	3838	0.13	0.10	0.00	0.77
Pct Tchrs Female	3838	86.29	10.75	0.00	100.00
Pct Tchrs Masters plus	3838	35.68	21.20	0.00	100.00
Pct Tchrs Black	3838	3.13	7.90	0.00	85.71
Pct Tchrs Asian	3838	5.62	8.48	0.00	76.00

Pct Tchrs Hispanic	3838	16.94	18.81	0.00	95.83
Pct Tchrs 0-2 Years Experience	3838	8.91	10.61	0.00	100.00
Pct Tchrs 3-5 Years Experience	3838	12.85	10.66	0.00	100.00
Pct Tchrs 6-10 Years Experience	3838	21.39	12.28	0.00	100.00
Pct Tchrs 10-20 Years Experience	3838	38.58	15.12	0.00	100.00
Average Years Teaching	3838	13.71	3.80	1.00	33.00
Los Angeles	3838	0.09	0.29	0.00	1.00
San Francisco	3838	0.01	0.12	0.00	1.00
Long Beach	3838	0.01	0.12	0.00	1.00
Sacramento	3838	0.01	0.11	0.00	1.00
Fresno	3838	0.01	0.11	0.00	1.00
Garden Grove	3838	0.01	0.11	0.00	1.00
San Juan	3838	0.01	0.11	0.00	1.00
Chula Vista	3838	0.01	0.10	0.00	1.00
Santa Ana	3838	0.01	0.10	0.00	1.00
Capistrano	3838	0.01	0.09	0.00	1.00
Bakersfield	3838	0.01	0.09	0.00	1.00
Twin Rivers	3838	0.01	0.09	0.00	1.00
San Bernardino	3838	0.01	0.09	0.00	1.00
Orange	3838	0.01	0.08	0.00	1.00
Elk Grove	3838	0.01	0.08	0.00	1.00
San Jose	3838	0.01	0.08	0.00	1.00

Stockton	3838	0.01	0.08	0.00	1.00
Saddleback	3838	0.01	0.08	0.00	1.00
Compton	3838	0.01	0.08	0.00	1.00
Lodi	3838	0.01	0.08	0.00	1.00
Pomona	3838	0.01	0.08	0.00	1.00
New Port	3838	0.01	0.08	0.00	1.00
Anaheim City	3838	0.01	0.08	0.00	1.00
Irvine	3838	0.01	0.08	0.00	1.00
Modesto	3838	0.01	0.07	0.00	1.00
Riverside	3838	0.01	0.07	0.00	1.00
Visalia	3838	0.01	0.07	0.00	1.00
Cajon Valley	3838	0.01	0.07	0.00	1.00
Placentia	3838	0.01	0.07	0.00	1.00
Simi Valley	3838	0.00	0.07	0.00	1.00
Cupertino	3838	0.00	0.07	0.00	1.00
ABC	3838	0.00	0.07	0.00	1.00
Oakland	3838	0.00	0.07	0.00	1.00
Clovis	3838	0.00	0.07	0.00	1.00
Montebello	3838	0.00	0.07	0.00	1.00
Ventura	3838	0.00	0.07	0.00	1.00
Pasadena	3838	0.00	0.07	0.00	1.00
Hacienda	3838	0.00	0.07	0.00	1.00
Poway	3838	0.00	0.07	0.00	1.00

Tustin	3838	0.00	0.07	0.00	1.00
San Mateo	3838	0.00	0.06	0.00	1.00
Fullerton	3838	0.00	0.06	0.00	1.00
Moreno Valley	3838	0.00	0.06	0.00	1.00
Santa Clara	3838	0.00	0.06	0.00	1.00
Oceanside	3838	0.00	0.06	0.00	1.00
Corona-Norco	3838	0.00	0.06	0.00	1.00
Pajaro Valley	3838	0.00	0.06	0.00	1.00
La Mesa Spring Valley	3838	0.00	0.06	0.00	1.00
Norwalk	3838	0.00	0.06	0.00	1.00
South Bay	3838	0.00	0.06	0.00	1.00
Torrance	3838	0.00	0.06	0.00	1.00
Redwood City	3838	0.00	0.06	0.00	1.00
Manteca	3838	0.00	0.06	0.00	1.00
Conejo Valley	3838	0.00	0.06	0.00	1.00
Alum Rock	3838	0.00	0.06	0.00	1.00
Panama Buena Vista	3838	0.00	0.06	0.00	1.00
Fontana	3838	0.00	0.06	0.00	1.00
Escondido	3838	0.00	0.06	0.00	1.00
Vista	3838	0.00	0.06	0.00	1.00
Jurupa	3838	0.00	0.06	0.00	1.00
Baldwin Park	3838	0.00	0.06	0.00	1.00
Westminster	3838	0.00	0.06	0.00	1.00

Inglewood	3838	0.00	0.06	0.00	1.00
Oak Grove	3838	0.00	0.06	0.00	1.00
Hesperian	3838	0.00	0.06	0.00	1.00
Marysville	3838	0.00	0.06	0.00	1.00
Glendale	3838	0.00	0.06	0.00	1.00
Santa Maria	3838	0.00	0.06	0.00	1.00
Merced City	3838	0.00	0.06	0.00	1.00
Folsom Cordova	3838	0.00	0.06	0.00	1.00
Lancaster	3838	0.00	0.06	0.00	1.00
Madera	3838	0.00	0.05	0.00	1.00
Fairfield	3838	0.00	0.05	0.00	1.00
Saugus Union	3838	0.00	0.05	0.00	1.00
Oceanview	3838	0.00	0.05	0.00	1.00
Alhambra	3838	0.00	0.05	0.00	1.00
El Monte	3838	0.00	0.05	0.00	1.00
Palo Alto	3838	0.00	0.05	0.00	1.00
Vallejo City	3838	0.00	0.05	0.00	1.00
Woodland	3838	0.00	0.05	0.00	1.00
Salinas City	3838	0.00	0.05	0.00	1.00
Lynwood	3838	0.00	0.05	0.00	1.00
Berryessa	3838	0.00	0.05	0.00	1.00
Palmdale	3838	0.00	0.05	0.00	1.00
Jefferson	3838	0.00	0.05	0.00	1.00

Franklin-McKinley	3838	0.00	0.05	0.00	1.00
Redlands	3838	0.00	0.05	0.00	1.00
Paramount	3838	0.00	0.05	0.00	1.00
Santee	3838	0.00	0.05	0.00	1.00
El Centro	3838	0.00	0.05	0.00	1.00
Monterey	3838	0.00	0.05	0.00	1.00
Milpitas	3838	0.00	0.05	0.00	1.00
Covina	3838	0.00	0.05	0.00	1.00
National	3838	0.00	0.05	0.00	1.00
Downey	3838	0.00	0.05	0.00	1.00
Garvey	3838	0.00	0.05	0.00	1.00
Walnut Valley	3838	0.00	0.05	0.00	1.00
Magnolia	3838	0.00	0.05	0.00	1.00
Ontario-Montclair	3838	0.00	0.05	0.00	1.00
Pleasant Valley	3838	0.00	0.05	0.00	1.00
Lakeside	3838	0.00	0.05	0.00	1.00
Bellflower	3838	0.00	0.05	0.00	1.00
Redondo Beach	3838	0.00	0.05	0.00	1.00
San Marcos	3838	0.00	0.05	0.00	1.00
San Luis Coastal	3838	0.00	0.05	0.00	1.00
Porterville	3838	0.00	0.05	0.00	1.00
Campbell	3838	0.00	0.05	0.00	1.00
Burbank	3838	0.00	0.05	0.00	1.00

Selma	3838	0.00	0.05	0.00	1.00
Bonita	3838	0.00	0.05	0.00	1.00
Evergreen	3838	0.00	0.05	0.00	1.00
Carlsbad	3838	0.00	0.05	0.00	1.00
Centralia	3838	0.00	0.05	0.00	1.00
Lincoln	3838	0.00	0.05	0.00	1.00
Sunnyvale	3838	0.00	0.05	0.00	1.00
Sulfur Springs	3838	0.00	0.05	0.00	1.00
Hemet	3838	0.00	0.05	0.00	1.00
Novato	3838	0.00	0.05	0.00	1.00
Hanford	3838	0.00	0.05	0.00	1.00
Fountain Valley	3838	0.00	0.05	0.00	1.00
Sylvan	3838	0.00	0.05	0.00	1.00
Coachella	3838	0.00	0.05	0.00	1.00
Oxnard	3838	0.00	0.05	0.00	1.00
East Whittier	3838	0.00	0.05	0.00	1.00
Lucia Mar	3838	0.00	0.05	0.00	1.00
Palm Springs	3838	0.00	0.05	0.00	1.00
South San Francisco	3838	0.00	0.05	0.00	1.00
Yuba City	3838	0.00	0.05	0.00	1.00
El Rancho	3838	0.00	0.04	0.00	1.00
Atwater	3838	0.00	0.04	0.00	1.00
Santa Barbara	3838	0.00	0.04	0.00	1.00

Vacaville	3838	0.00	0.04	0.00	1.00
Tulare	3838	0.00	0.04	0.00	1.00
Huntington Beach	3838	0.00	0.04	0.00	1.00
Lompoc	3838	0.00	0.04	0.00	1.00
La Habra	3838	0.00	0.04	0.00	1.00
Encinitas	3838	0.00	0.04	0.00	1.00
Chino Valley	3838	0.00	0.04	0.00	1.00
Central	3838	0.00	0.04	0.00	1.00
Rincon Valley	3838	0.00	0.04	0.00	1.00
Goleta	3838	0.00	0.04	0.00	1.00
Alisal	3838	0.00	0.04	0.00	1.00
Fallbrook	3838	0.00	0.04	0.00	1.00
Rowland	3838	0.00	0.04	0.00	1.00
Los Altos	3838	0.00	0.04	0.00	1.00
Azusa	3838	0.00	0.04	0.00	1.00
Gilroy	3838	0.00	0.04	0.00	1.00
Alvord	3838	0.00	0.04	0.00	1.00
Cypress	3838	0.00	0.04	0.00	1.00
Morgan Hill	3838	0.00	0.04	0.00	1.00
Whittier City	3838	0.00	0.04	0.00	1.00
Mountain	3838	0.00	0.04	0.00	1.00
Apple Valley	3838	0.00	0.04	0.00	1.00
Arcadia	3838	0.00	0.04	0.00	1.00

Desert Sands	3838	0.00	0.04	0.00	1.00
Rosedale	3838	0.00	0.04	0.00	1.00
Davis	3838	0.00	0.04	0.00	1.00
Cotati-Rohnert Park	3838	0.00	0.04	0.00	1.00
Mountainview	3838	0.00	0.04	0.00	1.00
Orcutt	3838	0.00	0.04	0.00	1.00
Claremont	3838	0.00	0.04	0.00	1.00
Kings Canyon	3838	0.00	0.04	0.00	1.00
Perris	3838	0.00	0.04	0.00	1.00
Sierra Sands	3838	0.00	0.04	0.00	1.00
Lemon Grove	3838	0.00	0.04	0.00	1.00
Los Banos	3838	0.00	0.04	0.00	1.00
Ceres	3838	0.00	0.04	0.00	1.00
Lake Elsinore	3838	0.00	0.04	0.00	1.00
Buena Park	3838	0.00	0.04	0.00	1.00
Ravenswood	3838	0.00	0.04	0.00	1.00
Colton	3838	0.00	0.04	0.00	1.00
Los Alamitos	3838	0.00	0.04	0.00	1.00
Palos Verde	3838	0.00	0.04	0.00	1.00
Barstow	3838	0.00	0.04	0.00	1.00
Brea Olinda	3838	0.00	0.04	0.00	1.00
Yucaipa	3838	0.00	0.04	0.00	1.00
Ukiah	3838	0.00	0.04	0.00	1.00

Ojai	3838	0.00	0.04	0.00	1.00
Union	3838	0.00	0.04	0.00	1.00
Lowell	3838	0.00	0.04	0.00	1.00
Robla	3838	0.00	0.04	0.00	1.00
Newhall	3838	0.00	0.04	0.00	1.00
Redding	3838	0.00	0.04	0.00	1.00
Delano	3838	0.00	0.04	0.00	1.00
Del Mar	3838	0.00	0.04	0.00	1.00
Moreland	3838	0.00	0.04	0.00	1.00
Monrovia	3838	0.00	0.04	0.00	1.00
Napa Valley	3838	0.00	0.04	0.00	1.00
Charter Oaks	3838	0.00	0.04	0.00	1.00
Culver City	3838	0.00	0.04	0.00	1.00
Dinuba	3838	0.00	0.04	0.00	1.00
Pacifica	3838	0.00	0.04	0.00	1.00
San Ysidro	3838	0.00	0.04	0.00	1.00
San Gabriel	3838	0.00	0.04	0.00	1.00
San Carlos	3838	0.00	0.04	0.00	1.00
Santa Monica	3838	0.00	0.04	0.00	1.00
Mill Valley	3838	0.00	0.04	0.00	1.00
West Covina	3838	0.00	0.04	0.00	1.00
San Rafael	3838	0.00	0.04	0.00	1.00
Hawthorne	3838	0.00	0.04	0.00	1.00

Burlingame	3838	0.00	0.04	0.00	1.00
Greenfield	3838	0.00	0.04	0.00	1.00
Atascadero	3838	0.00	0.04	0.00	1.00
Solana Beach	3838	0.00	0.04	0.00	1.00
Hueneme	3838	0.00	0.04	0.00	1.00
Turlock	3838	0.00	0.04	0.00	1.00
Sanger	3838	0.00	0.04	0.00	1.00
Westside	3838	0.00	0.04	0.00	1.00
Santa Cruz	3838	0.00	0.04	0.00	1.00
Belmont	3838	0.00	0.04	0.00	1.00
Taft City	3838	0.00	0.04	0.00	1.00
Savanna	3838	0.00	0.03	0.00	1.00
Eureka City	3838	0.00	0.03	0.00	1.00
Benicia	3838	0.00	0.03	0.00	1.00
Brawley	3838	0.00	0.03	0.00	1.00
Cutler-Orosi	3838	0.00	0.03	0.00	1.00
Mountain Pleasant	3838	0.00	0.03	0.00	1.00
Central Union	3838	0.00	0.03	0.00	1.00
Fruitvale	3838	0.00	0.03	0.00	1.00
Plumas	3838	0.00	0.03	0.00	1.00
Washington	3838	0.00	0.03	0.00	1.00
Shoreline	3838	0.00	0.03	0.00	1.00
Kingsburg	3838	0.00	0.03	0.00	1.00

Los Gatos	3838	0.00	0.03	0.00	1.00
Fall River	3838	0.00	0.03	0.00	1.00
Tracy	3838	0.00	0.03	0.00	1.00
San Bruno	3838	0.00	0.03	0.00	1.00
Stanislaus	3838	0.00	0.03	0.00	1.00
Temple City	3838	0.00	0.03	0.00	1.00
Scott Valley	3838	0.00	0.03	0.00	1.00
Grass Valley	3838	0.00	0.03	0.00	1.00
Golden Plains	3838	0.00	0.03	0.00	1.00
Santa Paula	3838	0.00	0.03	0.00	1.00
Ripon	3838	0.00	0.03	0.00	1.00
Empire	3838	0.00	0.03	0.00	1.00
Calexico	3838	0.00	0.03	0.00	1.00
Lennox	3838	0.00	0.03	0.00	1.00
Glendora	3838	0.00	0.03	0.00	1.00
Cabrillo	3838	0.00	0.03	0.00	1.00
Cambrian	3838	0.00	0.03	0.00	1.00
Lemoore	3838	0.00	0.03	0.00	1.00
Little Lake	3838	0.00	0.03	0.00	1.00
Escalon	3838	0.00	0.03	0.00	1.00
Reef Sunset	3838	0.00	0.03	0.00	1.00
Millbrae	3838	0.00	0.03	0.00	1.00
Live Oak	3838	0.00	0.03	0.00	1.00

Ramona	3838	0.00	0.03	0.00	1.00
Middletown	3838	0.00	0.03	0.00	1.00
Morongo	3838	0.00	0.03	0.00	1.00
Rosemead	3838	0.00	0.03	0.00	1.00
Hope	3838	0.00	0.03	0.00	1.00
Coring	3838	0.00	0.03	0.00	1.00
Mariposa County	3838	0.00	0.03	0.00	1.00
Wright	3838	0.00	0.03	0.00	1.00
Fowler	3838	0.00	0.03	0.00	1.00
Bear Valley	3838	0.00	0.03	0.00	1.00
Fort Bragg	3838	0.00	0.03	0.00	1.00
Banning	3838	0.00	0.03	0.00	1.00
Temecula	3838	0.00	0.03	0.00	1.00
Imperial	3838	0.00	0.03	0.00	1.00
North Monte	3838	0.00	0.03	0.00	1.00
Manhattan Beach	3838	0.00	0.03	0.00	1.00
Oakdale	3838	0.00	0.03	0.00	1.00
Nevada City	3838	0.00	0.03	0.00	1.00
Wheatland	3838	0.00	0.03	0.00	1.00
Willits	3838	0.00	0.03	0.00	1.00
Mountainview	3838	0.00	0.03	0.00	1.00
Moorpark	3838	0.00	0.03	0.00	1.00
College	3838	0.00	0.03	0.00	1.00

Menlo Park	3838	0.00	0.03	0.00	1.00
Alpine	3838	0.00	0.03	0.00	1.00
Wasco	3838	0.00	0.03	0.00	1.00
Hillsborough	3838	0.00	0.03	0.00	1.00
Duarte	3838	0.00	0.03	0.00	1.00
Mark West	3838	0.00	0.03	0.00	1.00
Mattole	3838	0.00	0.03	0.00	1.00
Valley Center	3838	0.00	0.03	0.00	1.00
Wiseburn	3838	0.00	0.03	0.00	1.00
Valverde	3838	0.00	0.03	0.00	1.00
Dixie	3838	0.00	0.03	0.00	1.00
Hollister	3838	0.00	0.03	0.00	1.00
Modoc	3838	0.00	0.03	0.00	1.00
Norris	3838	0.00	0.03	0.00	1.00
Natomas	3838	0.00	0.03	0.00	1.00
Red Bluff	3838	0.00	0.03	0.00	1.00
Paso Robles	3838	0.00	0.03	0.00	1.00
Patterson	3838	0.00	0.03	0.00	1.00
Chico	3838	0.00	0.03	0.00	1.00
Jamal Duzura	3838	0.00	0.03	0.00	1.00
Sebastopol	3838	0.00	0.03	0.00	1.00
Pleasant Ridge	3838	0.00	0.03	0.00	1.00
Eureka Union	3838	0.00	0.03	0.00	1.00

Cascade	3838	0.00	0.03	0.00	1.00
Saratoga	3838	0.00	0.03	0.00	1.00
Soledad	3838	0.00	0.03	0.00	1.00
Livingston	3838	0.00	0.03	0.00	1.00
La Canada	3838	0.00	0.03	0.00	1.00
Enterprise	3838	0.00	0.03	0.00	1.00
Rialto	3838	0.00	0.03	0.00	1.00
Lindsay	3838	0.00	0.03	0.00	1.00
Linden	3838	0.00	0.03	0.00	1.00
Las Virgenes	3838	0.00	0.03	0.00	1.00
Round Valley	3838	0.00	0.03	0.00	1.00
Lawndale	3838	0.00	0.03	0.00	1.00
Rocklin	3838	0.00	0.03	0.00	1.00
Ross Valley	3838	0.00	0.03	0.00	1.00
Laytonville	3838	0.00	0.03	0.00	1.00
Carmel	3838	0.00	0.03	0.00	1.00
Beverly Hills	3838	0.00	0.03	0.00	1.00
Coalinga	3838	0.00	0.03	0.00	1.00
Bellevue	3838	0.00	0.03	0.00	1.00
Stony Creek	3838	0.00	0.03	0.00	1.00
Standard	3838	0.00	0.03	0.00	1.00
South Whittier	3838	0.00	0.03	0.00	1.00
South Pasadena	3838	0.00	0.03	0.00	1.00

Soquel	3838	0.00	0.03	0.00	1.00
Los Nietos	3838	0.00	0.03	0.00	1.00
Palo Verde	3838	0.00	0.03	0.00	1.00
Filmore	3838	0.00	0.03	0.00	1.00

TABLE 2: REGRESSION FUNCTIONAL FORMS

Variable	Log-Lin	Linear	Robust
School Variables			
Charter - Directly Funded	0.0213***	15.65***	15.65*
Charter - Indirectly Funded	0.0023	1.77	1.77
Enrollment	0***	-0.03***	-0.03***
Very Small School Dummy	-0.0232***	-15.58***	-15.58***
Very Large School Dummy	-0.0035	-2.83	-2.83
Year Round Dummy	0.0033	1.63	1.63
Pct Tested	0.004**	2.92**	2.92*
Pct Fully Credentialed	0	-0.01	-0.01
Pct Continuously Enrolled	0.0032***	2.08***	2.08***
Average Class Size K-3	-0.0004	-0.59	-0.59
Average Class Size 4-6	0.0011***	0.83***	0.83***
Pct Tchrs Female	0.0005***	0.34***	0.34***
Pct Tchrs Masters plus	0.0001**	0.12**	0.12**
Pct Tchrs Black	-0.0001	-0.11	-0.11
Pct Tchrs Asian	0	-0.02	-0.02
Pct Tchrs Hispanic	-0.0002***	-0.13**	-0.13*
Pct Tchrs 0-2 Years Experience	-0.0004***	-0.32***	-0.32***
Pct Tchrs 3-5 Years Experience	0	0.01	0.01
Pct Tchrs 6-10 Years Experience	0	0.01	0.01
Pct Tchrs 10-20 Years Experience	0	0.04	0.04

Student Variables			
Pct Stu Black	-0.0009***	-0.72***	-0.72***
Pct Stu Asian	0.0008***	0.71***	0.71***
Pct Stu Hispanic	-0.0005***	-0.38***	-0.38***
Pct Eligible Meals	-0.0005***	-0.45***	-0.45***
Pct GATE	0.0016***	1.3***	1.3***
Pct Migrant Ed	-0.0005**	-0.29*	-0.29
Pct English Learner	-0.0008***	-0.61***	-0.61***
Pct Reclassified English Proficient	0.001***	0.65***	0.65***
Pct Disabled	-0.0011***	-0.86***	-0.86***
Pct Prnt Some College	0.0004***	0.18**	0.18*
Pct Prnt College Grad	0.0007***	0.61***	0.61***
Community Variables			
Pct Com Black	-0.0003	-0.11	-0.11
Pct Com Asian	-0.0001	-0.07	-0.07
Pct Com Hispanic	0.0003**	0.22**	0.22**
Pct Com Entered Since 2000	0.0002	0.11	0.11
Pct Com Married w Children	0.0001	0.12	0.12
Pct Com Single Father	-0.0003	-0.21	-0.21
Pct Com Single Mother	0.0002	0.21	0.21
Pct Com Some College	0.0003	0.2	0.2
Pct Com College Grad	0.0005***	0.44***	0.44***
Pct Com Receive Foodstamps	-0.0009***	-0.59***	-0.59***

Pct Com Own Home	-0.0001*	-0.08	-0.08
Pct Com Moved in 2005 or later	-0.0002	-0.15	-0.15
Pct Com Language Isolated	0.0002	0.14	0.14
District Variables			
Los Angeles	0.0073	6.63*	6.63
San Francisco	-0.0338***	-21.76***	-21.76**
Long Beach	0.0205***	16.59***	16.59***
Sacramento	-0.0021	-1.42	-1.42
Fresno	-0.0016	-0.62	-0.62
Garden Grove	0.018**	13.49**	13.49**
San Juan	-0.0103	-7.63	-7.63
Chula Vista	0.0459***	31.38***	31.38***
Santa Ana	0.0471***	35.89***	35.89***
Capistrano	0.0105	9.14	9.14
Bakersfield	-0.0068	-5.14	-5.14
Twin Rivers	0.0211**	16.1**	16.1**
San Bernardino	-0.023**	-14.3*	-14.3
Orange	0.0057	6.18	6.18
Elk Grove	0.0173	14.37*	14.37**
San Jose	-0.0164	-13.84*	-13.84*
Stockton	-0.0699***	-51.55***	-51.55***
Saddleback	0.0161	12.52*	12.52**
Compton	0.0479***	33.46***	33.46***

Lodi	-0.0237**	-18.8**	-18.8*
Pomona	0.0159	12.03	12.03
New Port	0.0211*	18.19**	18.19**
Anaheim City	0.0063	4.93	4.93
Irvine	0.0724***	61.67***	61.67***
Modesto	0.0209**	17.84**	17.84***
Riverside	0.0211**	13.68*	13.68**
Visalia	-0.0437***	-32.91***	-32.91***
Cajon Valley	-0.0073	-5.06	-5.06
Placentia	0.021*	18.37**	18.37**
Simi Valley	0.0138	13.33	13.33**
Cupertino	-0.0148	-6.56	-6.56
ABC	-0.0202*	-16.17*	-16.17**
Oakland	-0.0169	-11.64	-11.64
Clovis	0.059***	48.95***	48.95***
Montebello	0.0133	9.36	9.36
Ventura	-0.0055	-4.3	-4.3
Pasadena	0.0108	8.29	8.29
Hacienda	0.0241*	18.04*	18.04**
Poway	0.0214*	17.93**	17.93***
Tustin	0.0203*	17.42**	17.42**
San Mateo	-0.0199*	-16.01*	-16.01**
Fullerton	0.0155	11.89	11.89

Moreno Valley	0.0241**	15.18*	15.18*
Santa Clara	0.0019	1.02	1.02
Oceanside	-0.0001	-0.33	-0.33
Corona-Norco	0.0155	10.87	10.87
Pajaro Valley	-0.0367***	-27.02***	-27.02***
La Mesa Spring Valley	0.0224*	17.89**	17.89***
Norwalk	0.0135	9.5	9.5
South Bay	0.0105	7.1	7.1
Torrance	-0.0114	-8.08	-8.08
Redwood City	0.0062	7.15	7.15
Manteca	0.0135	7.6	7.6
Conejo Valley	-0.0042	-2.6	-2.6
Alum Rock	0.0063	2.51	2.51
Panama Buena Vista	0.0356***	24.92**	24.92***
Fontana	0.0514***	37.53***	37.53***
Escondido	-0.0169	-12.25	-12.25
Vista	0.013	8.4	8.4
Jurupa	0.0521***	35.2***	35.2***
Baldwin Park	0.0065	2.82	2.82
Westminster	-0.0499***	-40.69***	-40.69***
Inglewood	0.0453***	33.22***	33.22***
Oak Grove	-0.0346**	-29.07***	-29.07***
Hesperian	0.0489***	35.64***	35.64***

Marysville	0.0259*	20.4**	20.4
Glendale	0.0362**	26.11**	26.11*
Santa Maria	-0.0088	-4.14	-4.14
Merced City	-0.002	-3.9	-3.9
Folsom Cordova	-0.0057	-1.98	-1.98
Lancaster	-0.0516***	-31.64***	-31.64***
Madera	0.0578***	40.65***	40.65***
Fairfield	-0.0133	-9.65	-9.65
Saugus Union	-0.0033	-3.38	-3.38
Oceanview	-0.0014	-0.24	-0.24
Alhambra	0.0047	2.98	2.98
El Monte	0.0261*	19.17*	19.17**
Palo Alto	0.0237	19.19	19.19**
Vallejo City	0.0146	10	10
Woodland	-0.0155	-12.97	-12.97
Salinas City	-0.018	-14.51	-14.51
Lynwood	0.0187	11.89	11.89
Berryessa	-0.0355**	-29.44**	-29.44***
Palmdale	0.0214	16.26	16.26
Jefferson	-0.0557***	-43.13***	-43.13***
Franklin-McKinley	-0.0268*	-22.29**	-22.29***
Redlands	0.0196	14.94	14.94*
Paramount	0.0164	11.89	11.89

Santee	0.0237	20.96*	20.96***
El Centro	0.0363**	23.75**	23.75**
Monterey	-0.0291*	-19.15	-19.15
Milpitas	-0.022	-16.86	-16.86*
Covina	-0.0156	-12.11	-12.11
National	0.123***	86.37***	86.37***
Downey	0.0362*	27.16*	27.16*
Garvey	-0.0476***	-38.8***	-38.8***
Walnut Valley	-0.0261	-20.34	-20.34***
Magnolia	0.0318**	25.55**	25.55***
Ontario-Montclair	0.0485***	36.39***	36.39***
Pleasant Valley	0.0055	3.9	3.9
Lakeside	-0.0243	-18.56	-18.56
Bellflower	0.0309*	24.37**	24.37***
Redondo Beach	0.0193	17.99	17.99**
San Marcos	0.0776***	60.71***	60.71***
San Luis Coastal	0.0016	0.13	0.13
Porterville	0.0256	18.53	18.53*
Campbell	-0.0169	-13.8	-13.8
Burbank	0.0107	7.82	7.82
Selma	0.0566***	41.82***	41.82***
Bonita	0.019	18.05	18.05**
Evergreen	0.0014	-0.39	-0.39

Carlsbad	0.0153	14.15	14.15**
Centralia	0.0019	2.59	2.59
Lincoln	-0.0057	-5.21	-5.21
Sunnyvale	-0.0291*	-23.7*	-23.7***
Sulfur Springs	0.0102	5.92	5.92
Hemet	0.0401**	31.79**	31.79***
Novato	0.0189	15.88	15.88
Hanford	0.0142	10.03	10.03
Fountain Valley	0.0173	19.98	19.98**
Sylvan	0.0293*	22.68*	22.68**
Coachella	-0.0011	-1	-1
Oxnard	-0.016	-10.75	-10.75
East Whittier	0.0299*	23.07*	23.07**
Lucia Mar	0.0027	2.46	2.46
Palm Springs	0.0346**	28.09**	28.09***
South San Francisco	0.0126	11.61	11.61
Yuba City	0.0259	20.61*	20.61**
El Rancho	0.0011	-2.46	-2.46
Atwater	0.0133	7.8	7.8
Santa Barbara	-0.0141	-13.71	-13.71
Vacaville	-0.014	-10.3	-10.3*
Tulare	0.0323*	23.43*	23.43**
Huntington Beach	-0.0122	-7.19	-7.19

Lompoc	-0.0568***	-42.34***	-42.34***
La Habra	0.0398	33.06	33.06*
Encinitas	-0.0029	-5.04	-5.04
Chino Valley	0.0125	10.07	10.07
Central	-0.0307*	-25.61**	-25.61***
Rincon Valley	0.045**	39.9***	39.9***
Goleta	-0.0346*	-28.67**	-28.67**
Alisal	-0.0274	-19.68	-19.68
Fallbrook	0.0341	25.67	25.67**
Rowland	0.0115	8.62	8.62
Los Altos	0.0249	26.1*	26.1***
Azusa	-0.0344*	-26.86**	-26.86***
Gilroy	-0.0103	-10.22	-10.22
Alvord	0.0288	18.71	18.71**
Cypress	0.0115	11.58	11.58
Morgan Hill	-0.0179	-17.64	-17.64
Whittier City	-0.0003	-2.73	-2.73
Mountain	0.0479**	34.78**	34.78**
Apple Valley	0.0342*	25.25*	25.25
Arcadia	0.0036	4.59	4.59
Desert Sands	0.0308	22.17	22.17
Rosedale	-0.0322*	-28.89**	-28.89***
Davis	-0.0132	-12.77	-12.77*

Cotati-Rohnert Park	-0.0256	-19.37	-19.37***
Mountainview	0.0075	3.97	3.97
Orcutt	0.0118	10.68	10.68*
Claremont	0.0382**	28.88**	28.88
Kings Canyon	0.0245	16.47	16.47
Perris	0.0197	14.1	14.1
Sierra Sands	0.0175	13.81	13.81**
Lemon Grove	-0.0075	-5.32	-5.32
Los Banos	-0.0045	-2.58	-2.58
Ceres	0.0738***	55.6***	55.6***
Lake Elsinore	0.1192***	84.96***	84.96***
Buena Park	0.0511***	38.4***	38.4***
Ravenswood	-0.0201	-10.72	-10.72
Colton	0.0062	2.86	2.86
Los Alamitos	0.0174	18.45	18.45**
Palos Verde	0.0171	17.94	17.94**
Barstow	0.0783***	57.78***	57.78***
Brea Olinda	0.0026	4.7	4.7
Yucaipa	-0.0389**	-30.29**	-30.29***
Ukiah	-0.0734***	-55.34***	-55.34***
Ojai	-0.0202	-19.02	-19.02*
Union	0.0174	14.75	14.75***
Lowell	0.0326	29.79*	29.79***

Robla	-0.0226	-17.25	-17.25
Newhall	0.0486**	38.79**	38.79***
Redding	0.0049	0.23	0.23
Delano	0.0282	16.98	16.98
Del Mar	0.048**	40.21**	40.21***
Moreland	0.0106	6.98	6.98
Monrovia	0.0257	19.33	19.33**
Napa Valley	0.01	8.87	8.87
Charter Oaks	0.0155	12.6	12.6
Culver City	0.0039	2.74	2.74
Dinuba	-0.0256	-21.55	-21.55
Pacifica	-0.0304	-25.02	-25.02***
San Ysidro	0.0924***	68.89***	68.89***
San Gabriel	0.0196	14.93	14.93**
San Carlos	0.0008	0.9	0.9
Santa Monica	0.035*	27.19*	27.19***
Mill Valley	0.0284	25.34	25.34***
West Covina	0.0282	22.6	22.6**
San Rafael	-0.0015	-0.82	-0.82
Hawthorne	0.0379*	30.15*	30.15***
Burlingame	0.0182	15.35	15.35
Greenfield	0.0314	22.28	22.28*
Atascadero	-0.0261	-20.09	-20.09**

Solana Beach	0.041*	33.29*	33.29***
Hueneme	-0.0136	-12.05	-12.05
Turlock	-0.0449**	-33.74**	-33.74***
Sanger	0.0948***	74.67***	74.67***
Westside	0.0304	24.45	24.45***
Santa Cruz	-0.0164	-13.79	-13.79
Belmont	-0.0081	-6.1	-6.1
Taft City	[omitted]	[omitted]	[omitted]
Savanna	0.011	7.39	7.39
Eureka City	-0.083***	-61.17***	-61.17***
Benicia	0.0278	24.33	24.33***
Brawley	0.0178	7.67	7.67
Cutler-Orosi	0.045*	32.48	32.48***
Mountain Pleasant	0.0103	6.79	6.79
Central Union	0.0134	13.66	13.66
Fruitvale	0.0161	13.77	13.77
Plumas	0.0038	6.8	6.8
Washington	-0.0676**	-47.23**	-47.23***
Shoreline	0.0597*	41.68*	41.68***
Kingsburg	[omitted]	[omitted]	[omitted]
Los Gatos	0.0065	8.52	8.52
Fall River	-0.0133	-9.59	-9.59
Tracy	-0.0298	-25.37	-25.37*

San Bruno	-0.0159	-12.9	-12.9
Stanislaus	0.005	4.47	4.47
Temple City	0.0175	17.39	17.39*
Scott Valley	0.0315	28.01	28.01***
Grass Valley	-0.0277	-19.59	-19.59
Golden Plains	0.0316	19.93	19.93
Santa Paula	0.1745***	121.31***	121.31***
Ripon	0.0282	21.58	21.58***
Empire	0.0391*	29.56*	29.56**
Calexico	-0.0197	-15.73	-15.73
Lennox	0.06**	44.07**	44.07***
Glendora	0.02	20.85	20.85
Cabrillo	0.0042	1.24	1.24
Cambrian	0.0131	12.4	12.4
Lemoore	-0.0073	-6.75	-6.75
Little Lake	0.0387*	29.8*	29.8***
Escalon	0.0054	-1.21	-1.21
Reef Sunset	-0.1046***	-68.54***	-68.54***
Millbrae	0.0067	3.92	3.92
Live Oak	-0.0545**	-41.56**	-41.56***
Ramona	0.0002	0.34	0.34
Middletown	-0.0041	-3.03	-3.03
Morongo	0.0117	8.64	8.64

Rosemead	0.0232	18.2	18.2
Hope	-0.0113	-8.54	-8.54
Coring	0.0218	16.41	16.41
Mariposa County	0.0239	18.92	18.92
Wright	0.0834***	67***	67***
Fowler	0.0452	35.11	35.11
Bear Valley	0.0346	25.21	25.21*
Fort Bragg	-0.0174	-11.77	-11.77**
Banning	0.0537**	40.16**	40.16
Temecula	0.0542**	43.13**	43.13***
Imperial	0.0562**	42.76**	42.76
North Monte	-0.08***	-59.48***	-59.48**
Manhattan Beach	0.0401	38.26*	38.26***
Oakdale	0.0384	31.49	31.49***
Nevada City	0.0621*	37.33	37.33***
Wheatland	-0.0037	-4.82	-4.82
Willits	-0.045	-33.67	-33.67***
Mountainview	0.0135	9.6	9.6
Moorpark	0.0275	19.57	19.57**
College	0.0423	33.49	33.49***
Menlo Park	0.0385	30.73	30.73***
Alpine	0.0328	27.06	27.06***
Wasco	-0.035	-26.48	-26.48

Hillsborough	0.0518*	49.45**	49.45***
Duarte	-0.0005	-0.48	-0.48
Mark West	0.007	4.65	4.65
Mattole	0.0275	12.62	12.62
Valley Center	-0.0016	-2.26	-2.26
Wiseburn	0.0406	33.35	33.35***
Valverde	0.1126***	82.9***	82.9***
Dixie	0.014	10.92	10.92
Hollister	0.0172	8.91	8.91
Modoc	-0.0364	-27.97	-27.97
Norris	0.0103	7.18	7.18
Natomas	-0.0148	-11.81	-11.81
Red Bluff	0.0343	26.69	26.69***
Paso Robles	0.0039	2.39	2.39
Patterson	0.0159	11.51	11.51
Chico	-0.0088	-16.47	-16.47
Jamal Duzura	-0.0198	-25.69	-25.69
Sebastopol	-0.0369	-31.7	-31.7***
Pleasant Ridge	0.0089	9.9	9.9
Eureka Union	[omitted]	[omitted]	[omitted]
Cascade	0.034	28.41	28.41***
Saratoga	-0.1417***	-113.52***	-113.52***
Soledad	-0.068**	-49.58**	-49.58***

Livingston	0.0897***	65.36***	65.36***
La Canada	0.0313	30.05	30.05***
Enterprise	0.0519*	44.11**	44.11***
Rialto	-0.0152	-17.17	-17.17**
Lindsay	-0.069**	-49.69**	-49.69***
Linden	0.0171	11.36	11.36
Las Virgenes	0.0201	16.04	16.04**
Round Valley	-0.2007***	-137.79***	-137.79***
Lawndale	0.038	32.23	32.23***
Rocklin	-0.0049	-4.14	-4.14
Ross Valley	0.0308	26.12	26.12***
Laytonville	-0.0625	-48.2	-48.2***
Carmel	0.0913***	74.02***	74.02***
Beverly Hills	0.0231	16.91	16.91*
Coalinga	[omitted]	[omitted]	[omitted]
Bellevue	-0.0152	-11.13	-11.13
Stony Creek	-0.2216***	-159.9***	-159.9***
Standard	-0.021	-20.55	-20.55
South Whittier	0.0082	6.48	6.48
South Pasadena	-0.0032	-2.41	-2.41
Soquel	-0.0062	-5.13	-5.13
Los Nietos	0.0876***	66.39***	66.39***
Palo Verde	-0.0712***	-51.28**	-51.28***

Filmore	-0.0171	-12.77	-12.77
Constant	5.9356	292.04	292.04

TABLE 3: REGRESSION, QUADRATIC FORM

Variable	College	Foodstamps	Black	Asian	Hispanic
School Variables					
Charter - Directly Funded	15.66*	15.74*	15.59*	15.88*	15.67*
Charter - Indirectly Funded	1.83	1.74	1.77	1.73	1.72
Enrollment	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
Very Small School Dummy	-15.54***	-15.53***	-15.54***	-15.63***	-15.45***
Very Large School Dummy	-2.86	-2.82	-2.84	-2.87	-2.85
Year Round Dummy	1.64	1.62	1.56	1.61	1.65
Pct Tested	2.93*	2.9*	2.91*	2.93*	2.93*
Pct Fully Credentialed	-0.01	-0.01	-0.01	-0.01	-0.01
Pct Continuously Enrolled	2.08***	2.08***	2.08***	2.08***	2.08***
Average Class Size K-3	-0.58	-0.59	-0.59	-0.6	-0.6
Average Class Size 4-6	0.82***	0.83***	0.83***	0.84***	0.82***
Pct Tchrs Female	0.33***	0.34***	0.34***	0.34***	0.33***
Pct Tchrs Masters plus	0.12**	0.12**	0.12**	0.12**	0.12**
Pct Tchrs Black	-0.11	-0.1	-0.11	-0.12	-0.11
Pct Tchrs Asian	-0.02	-0.02	-0.02	-0.02	-0.03
Pct Tchrs Hispanic	-0.13*	-0.13*	-0.13*	-0.13*	-0.11
Pct Tchrs 0-2 Years Experience	-0.32***	-0.32***	-0.32***	-0.32***	-0.32***
Pct Tchrs 3-5 Years Experience	0.02	0.02	0.01	0.02	0.01
Pct Tchrs 6-10 Years Experience	0.01	0.01	0.01	0.01	0

Pct Tchrs 10-20 Years Experience	0.04	0.04	0.04	0.04	0.04
Student Variables					
Pct Stu Black	-0.72***	-0.71***	-0.71***	-0.71***	-0.72***
Pct Stu Asian	0.71***	0.71***	0.71***	0.69***	0.71***
Pct Stu Hispanic	-0.38***	-0.38***	-0.38***	-0.37***	-0.41***
Pct Eligible Meals	-0.45***	-0.46***	-0.45***	-0.46***	-0.45***
Pct GATE	1.3***	1.3***	1.29***	1.31***	1.29***
Pct Migrant Ed	-0.29	-0.28	-0.29	-0.3	-0.29
Pct English Learner	-0.61***	-0.6***	-0.61***	-0.61***	-0.6***
Pct Reclassified English Proficient	0.64***	0.65***	0.65***	0.64***	0.66***
Pct Disabled	-0.87***	-0.86***	-0.86***	-0.86***	-0.86***
Pct Prnt Some College	0.18*	0.19*	0.18*	0.18*	0.18*
Pct Prnt College Grad	0.61***	0.61***	0.61***	0.61***	0.61***
Community Variables					
Pct Com Entered Since 2000	0.1	0.1	0.11	0.11	0.09
Pct Com Married w Children	0.13	0.13	0.12	0.13	0.12
Pct Com Single Father	-0.2	-0.21	-0.21	-0.21	-0.21
Pct Com Single Mother	0.21	0.21	0.2	0.21	0.21
Pct Com Some College	0.19	0.2	0.2	0.21	0.18
Pct Com Own Home	-0.08	-0.07	-0.07	-0.08	-0.07
Pct Com Moved in 2005 or later	-0.15	-0.16	-0.16	-0.15	-0.16
Pct Com Language Isolated	0.14	0.14	0.14	0.12	0.17

District variables suppressed for space.

Quadratic					
Pct Com College Grad	0.5**	0.45***	0.44***	0.46***	0.46***
College Quadratic	0.00				
Pct Com Receive Foodstamps	-0.58***	-0.39	-0.6***	-0.58***	-0.58***
Foodstamps Quadratic		-0.01			
Pct Com Black	-0.11	-0.11	-0.04	-0.1	-0.12
Black Quadratic			0.00		
Pct Com Asian	-0.08	-0.07	-0.08	-0.23	-0.1
Asian Quadratic				0.00	
Pct Com Hispanic	0.22**	0.22**	0.22**	0.23**	0.36**
Hispanic Quadratic					0.00
Constant	290.61	292.97	292.39	290.82	290.66

TABLE 4: REGRESSIONS, LINEAR MODELS A

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
School Variables					
Charter - Directly Funded	21.68**	29.98***		4.68	
Charter - Indirectly Funded	18.63**	20.68***		-1.54	
Enrollment	-0.03***	0.01		-0.03***	
Very Small School Dummy	16.83***	-0.77		-16.63***	
Very Large School Dummy	-2.94	-4.14		0.36	
Year Round Dummy	-25.43***	-10.11*		-4.42	
Pct Tested	-6.89***	-4.04**		3.36***	
Pct Fully Credentialed	2.46***	0.73***		0.18	
Pct Continuously Enrolled	7.06***	5.76***		1.58***	
Average Class Size K-3	-1.12*	-1.72***		-0.44	
Average Class Size 4-6	3.86***	1.54***		0.85***	
Pct Tchrs Female		0.92***		0.33***	
Pct Tchrs Masters plus		0.5***		0.23***	
Pct Tchrs Black		-1.44***		-0.03	
Pct Tchrs Asian		0.47***		-0.16	
Pct Tchrs Hispanic		-1.48***		-0.02	
Pct Tchrs 0-2 Years Experience		-0.63***		-0.42***	
Pct Tchrs 3-5 Years Experience		0.02		-0.01	
Pct Tchrs 6-10 Years Experience		-0.08		0.05	

Pct Tchrs 10-20 Years Experience	0.06		0	
Student Variables				
Pct Stu Black		-0.67***	-0.72***	
Pct Stu Asian		0.84***	0.66***	
Pct Stu Hispanic		0.18***	-0.08	
Pct Eligible Meals		-1.09***	-0.82***	
Pct GATE		1.04***	0.99***	
Pct Migrant Ed		-1.37***	-1.05***	
Pct English Learner		-0.43***	-0.56***	
Pct Reclassified English Proficient		0.3**	0.5***	
Pct Disabled		-0.99***	-0.66***	
Pct Prnt Some College		0.08	-0.03	
Pct Prnt College Grad		0.81***	0.65***	
Community Variables				
Pct Com Black				-1.18***
Pct Com Asian				0.27***
Pct Com Hispanic				-0.39***
Pct Com Entered Since 2000				-0.72**
Pct Com Married w Children				0.98***
Pct Com Single Father				-0.46
Pct Com Single Mother				0.88***

Pct Com Some College					1.06***
Pct Com College Grad					2.15***
Pct Com Receive Foodstamps					-1.05***
Pct Com Own Home					0.3***
Pct Com Moved in 2005 or later					-0.45***
Pct Com Language Isolated					0.59***
District variables suppressed for space.					
Constant	509.72	513.05	840.28	308.86	672.52

TABLE 5: REGRESSIONS, LINEAR MODELS B

Variable	Model 6	Model 7	Model 8	Model 9
School Variables				
Charter - Directly Funded	6.86	15.65***	6.18	15.07***
Charter - Indirectly Funded	-1.7	1.77	1.35	1.92
Enrollment	-0.03***	-0.03***	-0.03***	-0.03***
Very Small School Dummy	-16.82***	-15.58***	-16.41***	-14.38***
Very Large School Dummy	0.56	-2.83	1.14	-2.09
Year Round Dummy	-4.37	1.63	-4.59	2.08
Pct Tested	3.58***	2.92**	2.92**	3.01**
Pct Fully Credentialed	0.17	-0.01	0.13	0.02
Pct Continuously Enrolled	1.35***	2.08***	1.49***	2.12***
Average Class Size K-3	-0.45	-0.59	-0.6*	-0.78*
Average Class Size 4-6	0.93***	0.83***	0.77***	0.76***
Pct Tchrs Female	0.35***	0.34***	0.3***	0.31***
Pct Tchrs Masters plus	0.18***	0.12**	0.05	0.03
Pct Tchrs Black	0.03	-0.11	-0.07	-0.14
Pct Tchrs Asian	-0.19*	-0.02	-0.19*	-0.04
Pct Tchrs Hispanic	-0.08	-0.13**	-0.15***	-0.16***
Pct Tchrs 0-2 Years Experience	-0.43***	-0.32***	-0.41***	-0.33***
Pct Tchrs 3-5 Years Experience	-0.01	0.01	-0.05	-0.01
Pct Tchrs 6-10 Years Experience	0.04	0.01	0.01	0.01
Pct Tchrs 10-20 Years Experience	-0.01	0.04	-0.05	0.04

Student Variables				
Pct Stu Black	-0.9***	-0.72***	-1.01***	-0.85***
Pct Stu Asian	0.75***	0.71***	0.68***	0.68***
Pct Stu Hispanic	-0.31***	-0.38***	-0.44***	-0.48***
Pct Eligible Meals	-0.66***	-0.45***	-0.61***	-0.37***
Pct GATE	0.93***	1.3***	0.86***	1.21***
Pct Migrant Ed	-0.92***	-0.29*	-0.64***	-0.14
Pct English Learner	-0.6***	-0.61***	-0.53***	-0.65***
Pct Reclassified English Proficient	0.44***	0.65***	0.51***	0.62***
Pct Disabled	-0.75***	-0.86***	-0.89***	-0.93***
Pct Prnt Some College	0.09	0.18**	0.11	0.16**
Pct Prnt College Grad	0.54***	0.61***	0.53***	0.6***
Community Variables				
Pct Com Black	0.11	-0.11	0.15	-0.1
Pct Com Asian	-0.2**	-0.07	-0.16*	-0.11
Pct Com Hispanic	0.36***	0.22**	0.38***	0.19**
Pct Com Entered Since 2000	0.19	0.11	0.26	0.11
Pct Com Married w Children	0.14	0.12	0.11	0.11
Pct Com Single Father	-0.34*	-0.21	-0.25	-0.13
Pct Com Single Mother	0.14	0.21	0.15	0.19
Pct Com Some College	0.21	0.2	0.14	0.19
Pct Com College Grad	0.55***	0.44***	0.59***	0.41***
Pct Com Receive Foodstamps	-0.66***	-0.59***	-0.59***	-0.5***

Pct Com Own Home	-0.08	-0.08	-0.07	-0.07
Pct Com Moved in 2005 or later	-0.07	-0.15	-0.05	-0.16
Pct Com Language Isolated	0.15	0.14	0	0.11
District variables suppressed for space.				
Constant	283.15	292.04	375.02	303.92

TABLE 6: VIFS

Variable	VIF	1/VIF
pct_hi	23.18	0.043144
Hispanic	18.29	0.05467
meals	13.83	0.07232
p_el	12.15	0.082295
com_col	10.76	0.092911
prnt_col	9.43	0.106023
pct_as	8.13	0.12307
languageis~d	6.51	0.153693
pct_aa	5.95	0.167971
asian	5.58	0.179083
black	4.74	0.211125
com_some_col	4.34	0.230662
tchrsblack	4	0.249807
losangeles~d	3.89	0.257352
foodstamps	3.86	0.259378
enroll	3.74	0.267492
tchrshispa~c	3.69	0.271263
singlemother	3.65	0.273987
p_rfep	3.54	0.282731
tchrsmaste~s	3.24	0.308272
entered~2000	3.15	0.317248
owner	3.02	0.331322
tchrsasian	2.86	0.349225
some_col	2.72	0.368016
acs_46	2.66	0.3756
acs_k3	2.51	0.397719
p_miged	2.38	0.420626
verylarge	2.36	0.423432
p_gate	2.27	0.439645
cbmob	2.23	0.448402
tchrsexp2l~s	2.21	0.451679
marriedwch~n	2.2	0.453759
verysmall	2.09	0.479155
tchrsexp1~20	2.06	0.485455
irvineunif~d	1.9	0.526288
sanfrancis~d	1.88	0.531956
yr_rnd	1.85	0.540521
tchrsexp3to5	1.8	0.554104
full	1.71	0.585864
cupertinou~n	1.63	0.612657
tchrsexp6~10	1.62	0.617765
gardengrov~d	1.62	0.617788
singlefather	1.61	0.619967

charterdir~t	1.51	0.664075
charterind~t	1.5	0.668797
tchrsfemale	1.49	0.673369
p_di	1.46	0.685542
sacramento~d	1.45	0.691725
tested	1.44	0.694864
movedin200~r	1.44	0.696732
fresnounif~d	1.43	0.697401
comptonuni~d	1.43	0.70058
anaheimcity	1.42	0.705621
elkgroveun~d	1.4	0.71177
santaanaun~d	1.4	0.712095
longbeachu~d	1.37	0.731111
chulavista~y	1.36	0.733392
inglewoodu~d	1.33	0.751343
oaklanduni~d	1.32	0.758941
sanbernard~d	1.32	0.760036
montebello~d	1.32	0.760272
alhambraun~d	1.3	0.768525
capistrano~d	1.28	0.784213
garveyelem~y	1.27	0.787056
sanjuanuni~d	1.27	0.787673
haciendala~d	1.27	0.788561
bakersfiel~y	1.26	0.790801

abcunified	1.26	0.796603
campbellun~y	1.25	0.800269
pomonaunif~d	1.24	0.804253
walnutvall~d	1.23	0.811388
nationalel~y	1.23	0.813093
saratogaun~y	1.23	0.813322
paloaltoun~d	1.22	0.816957
orangeunif~d	1.22	0.822523
palmdaleel~y	1.21	0.825469
twinrivers~d	1.21	0.825834
baldwinpar~d	1.21	0.826894
westminste~y	1.2	0.831392
berryessau~y	1.2	0.832661
pasadenaun~d	1.2	0.835886
jeffersone~y	1.19	0.842467
coronanorc~d	1.18	0.844531
saddleback~d	1.18	0.845921
lancastere~y	1.18	0.84671
lynwooduni~d	1.18	0.847192
arcadiauni~d	1.18	0.847534
glendaleun~d	1.18	0.848145
stocktonun~d	1.17	0.851638
riversideu~d	1.17	0.853391
santaclara~d	1.17	0.854916

jurupaunif~d	1.17	0.856979
montereype~d	1.16	0.858486
torranceun~d	1.16	0.860002
fontanauni~d	1.16	0.862719
milpitasun~d	1.16	0.863447
sanjoseuni~d	1.16	0.863509
elranchoun~d	1.15	0.868039
cajonvalle~y	1.15	0.869785
folsomcord~d	1.15	0.869793
norwalklam~d	1.15	0.869808
newportmes~d	1.15	0.871978
alumrockun~y	1.15	0.872126
visaliauni~d	1.14	0.873372
lakeelsino~d	1.14	0.874431
panamabuen~n	1.14	0.874528
elcentroel~y	1.14	0.876648
morenovall~d	1.14	0.878401
powayunified	1.14	0.87896
covinavall~d	1.14	0.88032
modestocit~y	1.14	0.880386
evergreene~y	1.14	0.880455
placentiay~d	1.13	0.881162
tustinunif~d	1.13	0.881951
elmontecit~y	1.13	0.882281

rowlanduni~d	1.13	0.882318
eastwhitti~y	1.13	0.883985
clovisunif~d	1.13	0.884364
sancarlose~y	1.13	0.884437
simivalley~d	1.13	0.886082
jamuldulzu~y	1.13	0.886532
oceanview	1.12	0.890945
nevadacity~y	1.12	0.893503
hesperiaun~d	1.12	0.894688
fullertone~y	1.12	0.894778
paramountu~d	1.12	0.894818
vallejocit~d	1.12	0.89503
oakgroveel~y	1.12	0.895991
magnoliael~y	1.12	0.896078
mantecauni~d	1.12	0.89614
chicounified	1.12	0.896262
redwoodcit~y	1.11	0.896983
santapaula~y	1.11	0.897121
losaltosel~y	1.11	0.898356
coachellav~d	1.11	0.900354
whittierci~y	1.11	0.900485
sanmateofo~a	1.11	0.902186
southbayun~y	1.11	0.90283
southsanfr~d	1.11	0.903168

franklinmc~y	1.11	0.903332
mattoleuni~d	1.11	0.903555
santamaria~a	1.11	0.903909
pajarovall~d	1.1	0.905091
calexicoun~d	1.1	0.905213
westsideun~y	1.1	0.905976
alisalunion	1.1	0.908579
rosemeadel~y	1.1	0.909494
escondidou~y	1.1	0.910253
mercedcity~y	1.1	0.910364
fountainva~y	1.1	0.910642
glendoraun~d	1.1	0.912293
lodiunified	1.1	0.912494
maderaunif~d	1.1	0.912588
santeeelem~y	1.09	0.913795
lamesaspri~y	1.09	0.913949
sunnyvale	1.09	0.91651
palosverde~d	1.09	0.916524
lahabracit~y	1.09	0.916662
centraliae~y	1.09	0.91739
sangabriel~d	1.09	0.918518
chinovalle~d	1.09	0.919005
portervill~d	1.09	0.919356
fairfields~d	1.09	0.919458

goldenplai~d	1.09	0.91973
marysville~d	1.09	0.919831
venturauni~d	1.09	0.920148
losbanosun~d	1.09	0.921166
millvalley~y	1.09	0.921442
delmarunio~y	1.08	0.921746
vistaunified	1.08	0.922244
saugusunio~y	1.08	0.922329
westcovina~d	1.08	0.922543
claremontu~d	1.08	0.922565
santabarba~y	1.08	0.922824
atwaterele~y	1.08	0.924979
hemetunified	1.08	0.925254
oxnardelem~y	1.08	0.925684
azusaunified	1.08	0.926251
sangerunif~d	1.08	0.927681
sanmarcosu~d	1.08	0.928742
delanounio~y	1.08	0.929511
davisjoint~d	1.08	0.929621
oceansideu~d	1.08	0.92992
valverdeun~d	1.08	0.930016
alvordunif~d	1.08	0.930094
salinascit~y	1.08	0.930131
conejovall~d	1.07	0.930385

redlandsun~d	1.07	0.930456
ravenswood~y	1.07	0.930778
ontariomon~y	1.07	0.931335
rialtounif~d	1.07	0.933595
palmspring~d	1.07	0.933852
huntington~a	1.07	0.933917
roundvalle~d	1.07	0.934212
mountainvi~n	1.07	0.934427
littlelake~y	1.07	0.934627
hollister	1.07	0.934654
lowelljoint	1.07	0.934783
bonitaunif~d	1.07	0.934996
escalonuni~d	1.07	0.935154
cambrian	1.07	0.935212
downeyunif~d	1.07	0.935684
cypressele~y	1.07	0.936516
losnietos	1.07	0.936523
hanfordele~y	1.07	0.936583
lennoxelem~y	1.07	0.936597
burlingame~y	1.07	0.938044
greenfield~n	1.07	0.938346
standardel~y	1.07	0.938955
breaolinda~d	1.06	0.939352
lincolnuni~d	1.06	0.939396

bellflower~d	1.06	0.940579
coltonjoin~d	1.06	0.940732
buenaparke~y	1.06	0.940796
sierrasand~d	1.06	0.941145
millbraeel~y	1.06	0.941393
desertsand~d	1.06	0.941516
redondobea~d	1.06	0.941875
wheatland	1.06	0.941923
belmontred~t	1.06	0.942003
solanabeac~y	1.06	0.94289
hawthorne	1.06	0.943958
perriselem~y	1.06	0.944344
morelandel~y	1.06	0.944569
goletaunio~y	1.06	0.944877
Sulfurspr~a	1.06	0.944956
culvercity~d	1.06	0.945512
sanrafaelc~y	1.06	0.94561
selmaunified	1.06	0.946045
sylvanunio~y	1.06	0.946295
encinitasu~y	1.06	0.947176
dinubaunif~d	1.06	0.947193
huenemeele~y	1.06	0.947276
savannaele~y	1.06	0.947416
barstowuni~d	1.06	0.947789

mountainvi~y	1.05	0.948212
sanluiscoa~d	1.05	0.94854
templecity~d	1.05	0.949123
yubacityun~d	1.05	0.949145
southpasad~d	1.05	0.949572
rosedaleun~y	1.05	0.949793
hillsborou~y	1.05	0.949858
tularecity~y	1.05	0.949987
santamonic~d	1.05	0.951082
novatounif~d	1.05	0.951163
sanbrunopa~y	1.05	0.951935
mtpleasant~y	1.05	0.952013
paloverdeu~d	1.05	0.952477
lakesideun~y	1.05	0.952612
ukiahunified	1.05	0.953197
southwhitt~y	1.05	0.953241
woodlandjo~d	1.05	0.953623
wascounion~y	1.05	0.953958
centraluni~d	1.05	0.954483
brawleyele~y	1.05	0.95466
manhattanb~d	1.05	0.954677
pleasantva~y	1.05	0.954837
losalamito~d	1.05	0.955278
rossvalley~y	1.05	0.955448

carlsbadun~d	1.05	0.955579
morongouni~d	1.05	0.955793
roblaeleme~y	1.05	0.956063
ceresunified	1.05	0.956214
eurekacity~d	1.05	0.956342
burbankuni~d	1.05	0.956635
mariposaco~d	1.05	0.956782
applevalle~d	1.04	0.957075
lacanadaun~d	1.04	0.957129
yucaipacal~d	1.04	0.957359
lompocunif~d	1.04	0.958405
lemongrove	1.04	0.9586
ojaiunified	1.04	0.959004
collegeele~y	1.04	0.959362
modocjoint~d	1.04	0.959489
imperialun~d	1.04	0.960015
lindsayuni~d	1.04	0.960187
vacavilleu~d	1.04	0.960349
pattersonj~d	1.04	0.960363
menloparkc~y	1.04	0.960644
tracyjoint~d	1.04	0.960767
napavalley~d	1.04	0.96126
fillmoreun~d	1.04	0.961318
unioneleme~y	1.04	0.961464

gilroyunif~d	1.04	0.961776
cutleroros~d	1.04	0.962093
orcuttunio~y	1.04	0.96226
monroviaun~d	1.04	0.962309
charteroak~d	1.04	0.96243
morganhill~d	1.04	0.963123
kingscanyo~d	1.04	0.963165
cotatirohn~d	1.04	0.963502
rinconvall~y	1.04	0.963646
newhallele~y	1.04	0.963934
reddingele~y	1.04	0.963936
enterprise~y	1.04	0.963964
fallbrooku~y	1.04	0.964452
lasvirgene~d	1.04	0.964985
natomasuni~d	1.04	0.96513
carmelunif~d	1.04	0.965325
mountainem~d	1.04	0.965433
bellevueun~y	1.04	0.965532
sanysidroe~y	1.04	0.96562
duarteunif~d	1.04	0.966002
plumasunif~d	1.04	0.966002
beverlyhil~d	1.03	0.96651
luciamarun~d	1.03	0.966635
redbluffun~y	1.03	0.966968

lindenunif~d	1.03	0.967376
northmonte~d	1.03	0.967386
sebastopol~y	1.03	0.96802
banninguni~d	1.03	0.968182
lawndaleel~y	1.03	0.968334
fruitvalee~y	1.03	0.96851
turlockuni~d	1.03	0.968858
beniciauni~d	1.03	0.968919
stonycreek~d	1.03	0.969112
corninguni~y	1.03	0.969928
livingston~n	1.03	0.970056
lemooreuni~y	1.03	0.970226
grassvalle~y	1.03	0.970308
willitsuni~d	1.03	0.970921
centraluni~y	1.03	0.970973
washington~d	1.03	0.97098
cabrilloun~d	1.03	0.97104
cascadeuni~y	1.03	0.971112
empireunio~y	1.03	0.971305
dixieeleme~y	1.03	0.971343
pacifica	1.03	0.971508
stanislaus~y	1.03	0.971513
moorparkun~d	1.03	0.972516
markwestun~y	1.03	0.972984

norriselem~y	1.03	0.973164
reefsunset~d	1.03	0.973166
losgatosun~y	1.03	0.973223
shorelineu~d	1.03	0.973405
riponunified	1.03	0.973512
temeculava~d	1.03	0.973693
soledaduni~d	1.03	0.973821
santacruzc~y	1.03	0.974712
middletown~d	1.03	0.974723
valleycent~d	1.03	0.975149
oakdalejoi~d	1.02	0.975707
Pleasant Ridge	1.02	0.976316
liveoakele~y	1.02	0.976361
fowlerunif~d	1.02	0.977068

atascadero~d	1.02	0.977664
wrightelem~y	1.02	0.978694
bearvalley~d	1.02	0.979169
wiseburnel~y	1.02	0.979186
scottvalle~d	1.02	0.979772
ramonacity~d	1.02	0.979797
fallriverj~d	1.02	0.980258
laytonvill~d	1.02	0.981984
soquelunio~y	1.02	0.982065
hopeelemen~y	1.02	0.982086
rocklinuni~d	1.02	0.982989
pasorobles~d	1.02	0.983182
alpineunio~y	1.02	0.985011
fortbraggu~d	1.01	0.985994

TABLE 7: SZROETER TEST FOR HOMOSKEDASTICITY

Szroeter's test for homoskedasticity

Ho: variance constant

Ha: variance monotonic in variab

Variable	chi2	df	p
Charter - Directly Funded	68.39	1	0
Charter - Indirectly Funded	17.91	1	0
Enrollment	344.9	1	0
Very Small School Dummy	592.9	1	0
Very Large School Dummy	20.72	1	0
Year Round Dummy	2.48	1	0.115
Pct Tested	0.02	1	0.8911
Pct Fully Credentialed	13.75	1	0.0002
Pct Continuously Enrolled	51.39	1	0
Average Class Size K-3	94.77	1	0
Average Class Size 4-6	266.42	1	0
Pct Stu Black	0.04	1	0.8515
Pct Stu Asian	222.43	1	0
Pct Stu Hispanic	11.51	1	0.0007
Pct Eligible Meals	118.67	1	0
Pct GATE	150.52	1	0
Pct Migrant Ed	7.55	1	0.006
Pct English Learner	3	1	0.0832
Pct Reclassified English Proficient	43.86	1	0
Pct Disabled	0.55	1	0.458
Pct Prnt Some College	5.53	1	0.0187
Pct Prnt College Grad	142.01	1	0
Pct Com Black	22.71	1	0
Pct Com Asian	73.81	1	0

Pct Com Hispanic	6.84	1	0.0089
Pct Com Entered Since 2000	2.63	1	0.1046
Pct Com Married w Children	66.26	1	0
Pct Com Single Father	63.98	1	0
Pct Com Single Mother	36.41	1	0
Pct Com Some College	4.82	1	0.0282
Pct Com College Grad	74.5	1	0
Pct Com Receive Foodstamps	99.41	1	0
Pct Com Own Home	62.2	1	0
Pct Com Moved in 2005 or later	0.2	1	0.6511
Pct Com Language Isolated	0.87	1	0.3497
Pct Tchrs Female	50.23	1	0
Pct Tchrs Masters	65.33	1	0

plus			
Pct Tchrs Black	3.69	1	0.0546
Pct Tchrs Asian	62.14	1	0
Pct Tchrs Hispanic	0.26	1	0.6099
Pct Tchrs 0-2 Years Experience	20.49	1	0
Pct Tchrs 3-5 Years Experience	19.02	1	0
Pct Tchrs 6-10 Years Experience	0.13	1	0.7221
Pct Tchrs 10-20 Years Experience	71.67	1	0
Los Angeles	4.27	1	0.0388
San Francisco	62.17	1	0
Long Beach	2.04	1	0.1535
Sacramento	3.08	1	0.0794
Fresno	0.68	1	0.409
Garden Grove	1.33	1	0.2493
San Juan	3.74	1	0.053
Chula Vista	0.14	1	0.7094
Santa Ana	0.35	1	0.5559
Capistrano	0.13	1	0.7213
Bakersfield	0.69	1	0.4048

Twin Rivers	0.08	1	0.7787
San Bernardino	7.22	1	0.0072
Orange	0.15	1	0.7001
Elk Grove	3.41	1	0.0648
San Jose	0.48	1	0.4871
Stockton	0.07	1	0.7904
Saddleback	2.4	1	0.1216
Compton	11.85	1	0.0006
Lodi	5.34	1	0.0208
Pomona	1.45	1	0.2282
New Port	0.99	1	0.32
Anaheim City	2.22	1	0.1364
Irvine	3.94	1	0.0471
Modesto	2.25	1	0.1332
Riverside	4.76	1	0.0292
Visalia	0.78	1	0.3776
Cajon Valley	3.13	1	0.0767
Placentia	0.74	1	0.3889
Simi Valley	3.11	1	0.0778
Cupertino	5.86	1	0.0155
ABC	2.81	1	0.0934
Oakland	56.53	1	0
Clovis	5.39	1	0.0202

Montebello	0.35	1	0.5531
Ventura	0.03	1	0.8578
Pasadena	1.8	1	0.1793
Hacienda	2.63	1	0.1047
Poway	2.35	1	0.125
Tustin	1.58	1	0.2094
San Mateo	2.22	1	0.1365
Fullerton	0.12	1	0.7311
Moreno Valley	0.13	1	0.7236
Santa Clara	0.27	1	0.6026
Oceanside	0.72	1	0.3964
Corona-Norco	1.22	1	0.2687
Pajaro Valley	0.26	1	0.6119
La Mesa Spring Valley	2.27	1	0.1323
Norwalk	0.41	1	0.5242
South Bay	1.2	1	0.2731
Torrance	1.77	1	0.1839
Redwood City	2.98	1	0.0844
Manteca	1.71	1	0.1914
Conejo Valley	2.7	1	0.1002
Alum Rock	1.29	1	0.2556
Panama Buena	1.07	1	0.302

Vista			
Fontana	1	1	0.3183
Escondido	0.85	1	0.3564
Vista	2.58	1	0.1084
Jurupa	1.14	1	0.2859
Baldwin Park	0.09	1	0.7586
Westminster	2.06	1	0.1514
Inglewood	0.84	1	0.36
Oak Grove	2.94	1	0.0864
Hesperian	0.9	1	0.342
Marysville	2.64	1	0.1042
Glendale	2.31	1	0.1286
Santa Maria	1.06	1	0.3025
Merced City	2.19	1	0.1389
Folsom Cordova	0.86	1	0.3538
Lancaster	1.31	1	0.2515
Madera	0.89	1	0.3447
Fairfield	0.33	1	0.5629
Saugus Union	2.35	1	0.1256
Oceanview	1.44	1	0.2303
Alhambra	2.7	1	0.1003
El Monte	2.71	1	0.0997
Palo Alto	2.43	1	0.1193

Vallejo City	0.02	1	0.9011
Woodland	0.15	1	0.6966
Salinas City	0.6	1	0.4372
Lynwood	1.45	1	0.2293
Berryessa	0.83	1	0.3637
Palmdale	0	1	0.9455
Jefferson	3.25	1	0.0713
Franklin-McKinley	1.51	1	0.2193
Redlands	1.57	1	0.2098
Paramount	1.49	1	0.2227
Santee	3.36	1	0.0666
El Centro	0.38	1	0.5389
Monterey	1.78	1	0.1817
Milpitas	0.67	1	0.4126
Covina	0.22	1	0.6426
National	1.61	1	0.2043
Downey	0.14	1	0.7133
Garvey	1.71	1	0.1905
Walnut Valley	3.86	1	0.0493
Magnolia	3.28	1	0.0703
Ontario-Montclair	1.1	1	0.2933
Pleasant Valley	1.93	1	0.1648
Lakeside	1.03	1	0.3109

Bellflower	1.62	1	0.2026
Redondo Beach	1.98	1	0.1589
San Marcos	0.4	1	0.529
San Luis Coastal	0.24	1	0.627
Porterville	0.3	1	0.5822
Campbell	1.89	1	0.1688
Burbank	1.25	1	0.2639
Selma	0.1	1	0.75
Bonita	1.05	1	0.3051
Evergreen	2.31	1	0.1285
Carlsbad	2.59	1	0.1077
Centralia	0.65	1	0.4213
Lincoln	0.71	1	0.4002
Sunnyvale	1.34	1	0.2466
Sulfur Springs	3.33	1	0.0679
Hemet	0.38	1	0.5374
Novato	0.37	1	0.5421
Hanford	0.03	1	0.8678
Fountain Valley	1.75	1	0.1854
Sylvan	0.71	1	0.4009
Coachella	0.41	1	0.5223
Oxnard	0.49	1	0.482
East Whittier	0.62	1	0.4298
Lucia Mar	0.54	1	0.4631
Palm Springs	1.21	1	0.2712
South San Francisco	0.07	1	0.7947
Yuba City	0.62	1	0.4304
El Rancho	0.7	1	0.4044
Atwater	0.9	1	0.3434
Santa Barbara	0.06	1	0.8076
Vacaville	2.8	1	0.0944
Tulare	0.67	1	0.4123
Huntington Beach	0.46	1	0.4956
Lompoc	0.63	1	0.4271
La Habra	0.12	1	0.7282
Encinitas	1.87	1	0.1715
Chino Valley	2.61	1	0.1062
Central	2.37	1	0.1234
Rincon Valley	0.51	1	0.4749
Goleta	0.22	1	0.638
Alisal	3.39	1	0.0654
Fallbrook	0.78	1	0.3775
Rowland	1.36	1	0.243
Los Altos	2.66	1	0.1028
Azusa	1.27	1	0.2596

Gilroy	1.88	1	0.1704
Alvord	1.41	1	0.2353
Cypress	1.53	1	0.216
Morgan Hill	0.51	1	0.4752
Whittier City	2.37	1	0.1237
Mountain	0.01	1	0.9248
Apple Valley	0.45	1	0.5024
Arcadia	1.89	1	0.1691
Desert Sands	0.04	1	0.8469
Rosedale	2.4	1	0.121
Davis	2.06	1	0.1513
Cotati-Rohnert	2.26	1	0.1324
Park			
Mountainview	1.93	1	0.1648
Orcutt	2.21	1	0.1374
Claremont	85.37	1	0
Kings Canyon	0.04	1	0.8329
Perris	0.84	1	0.3588
Sierra Sands	2.5	1	0.114
Lemon Grove	2.03	1	0.1541
Los Banos	1.24	1	0.2658
Ceres	1.78	1	0.1818
Lake Elsinore	0.82	1	0.3666

Buena Park	2.22	1	0.1367
Ravenswood	6.94	1	0.0084
Colton	0.72	1	0.3977
Los Alamitos	1.68	1	0.1943
Palos Verde	1.73	1	0.1885
Barstow	0.03	1	0.8698
Brea Olinda	0.25	1	0.6185
Yucaipa	2.45	1	0.1175
Ukiah	0.14	1	0.7113
Ojai	1.06	1	0.303
Union	2.54	1	0.1106
Lowell	2.25	1	0.1334
Robla	0.05	1	0.815
Newhall	0.53	1	0.466
Redding	0.01	1	0.9084
Delano	1.04	1	0.3084
Del Mar	2.17	1	0.1404
Moreland	0.27	1	0.6056
Monrovia	1.08	1	0.2981
Napa Valley	0.91	1	0.3391
Charter Oaks	0.26	1	0.6106
Culver City	2.16	1	0.1415
Dinuba	0.13	1	0.7233

Pacifica	1.74	1	0.1874
San Ysidro	0.77	1	0.3811
San Gabriel	2.31	1	0.1282
San Carlos	1.54	1	0.2145
Santa Monica	1.64	1	0.1999
Mill Valley	2.26	1	0.1326
West Covina	1	1	0.3185
San Rafael	1.25	1	0.2644
Hawthorne	0.86	1	0.3542
Burlingame	0.62	1	0.4309
Greenfield	0.6	1	0.4379
Atascadero	1.08	1	0.2979
Solana Beach	1.5	1	0.2205
Hueneme	0	1	0.9889
Turlock	0.88	1	0.3479
Sanger	1.01	1	0.3148
Westside	1.86	1	0.1732
Santa Cruz	0.44	1	0.5051
Belmont	1.03	1	0.3104
Savanna	1.65	1	0.1987
Eureka City	0	1	0.9564
Benicia	1.5	1	0.2201
Brawley	0.37	1	0.5413

Cutler-Orosi	0.71	1	0.398
Mountain	1.51	1	0.2198
Pleasant			
Central Union	67.45	1	0
Fruitvale	0.77	1	0.3806
Plumas	1.83	1	0.1765
Washington	0.07	1	0.7866
Shoreline	0.82	1	0.3656
Los Gatos	1.04	1	0.3083
Fall River	0.56	1	0.4541
Tracy	0.15	1	0.6949
San Bruno	1.21	1	0.2719
Stanislaus	1.62	1	0.2034
Temple City	0.82	1	0.3658
Scott Valley	0.78	1	0.3784
Grass Valley	0.35	1	0.5553
Golden Plains	0.01	1	0.9182
Santa Paula	0.03	1	0.8606
Ripon	1.58	1	0.2084
Empire	0.28	1	0.5945
Calexico	1.28	1	0.2574
Lennox	1.67	1	0.1963
Glendora	0.41	1	0.5227

Cabrillo	0.19	1	0.6656
Cambrian	1.69	1	0.1936
Lemoore	0.1	1	0.7516
Little Lake	0.97	1	0.3251
Escalon	1.63	1	0.2022
Reef Sunset	0.6	1	0.4379
Millbrae	0.01	1	0.9146
Live Oak	1.3	1	0.255
Ramona	0.02	1	0.8975
Middletown	1.69	1	0.1938
Morongo	0.72	1	0.3947
Rosemead	1.02	1	0.3119
Hope	0.02	1	0.8779
Coring	1.44	1	0.2299
Mariposa County	0.01	1	0.924
Wright	0.16	1	0.6896
Fowler	0.36	1	0.5479
Bear Valley	0.46	1	0.4967
Fort Bragg	0.5	1	0.4794
Banning	4.14	1	0.0418
Temecula	0.19	1	0.6621
Imperial	4.07	1	0.0438
North Monte	0.37	1	0.5423

Manhattan Beach	1.47	1	0.2255
Oakdale	1.37	1	0.241
Nevada City	0.98	1	0.3234
Wheatland	0.51	1	0.4772
Willits	0.96	1	0.3259
Mountainview	1.25	1	0.2634
Moorpark	0.95	1	0.3289
College	0.77	1	0.3791
Menlo Park	0.71	1	0.3986
Alpine	0.5	1	0.4794
Wasco	2.54	1	0.111
Hillsborough	1.13	1	0.2881
Duarte	1.19	1	0.2752
Mark West	0.99	1	0.3196
Mattole	6.19	1	0.0129
Valley Center	0.73	1	0.3943
Wiseburn	0.81	1	0.3691
Valverde	0.07	1	0.7873
Dixie	0.4	1	0.5284
Hollister	0.96	1	0.3272
Modoc	0.02	1	0.8954
Norris	1.46	1	0.2264
Natomas	10.14	1	0.0014

Red Bluff	1.36	1	0.244
Paso Robles	1.12	1	0.2901
Patterson	0.01	1	0.9364
Chico	0.81	1	0.3692
Jamal Duzura	0.5	1	0.4794
Sebastopol	1.45	1	0.2289
Pleasant Ridge	1.21	1	0.2704
Cascade	1	1	0.3176
Saratoga	0.71	1	0.401
Soledad	0.48	1	0.4898
Livingston	1.06	1	0.3039
La Canada	1.31	1	0.2516
Enterprise	0.82	1	0.3648
Rialto	1.47	1	0.2251
Lindsay	0.87	1	0.351
Linden	0.96	1	0.3269
Las Virgenes	1.15	1	0.2829
Round Valley	0.13	1	0.7226
Lawndale	1.2	1	0.2742
Rocklin	1.13	1	0.2884
Ross Valley	1.01	1	0.3152
Laytonville	0.5	1	0.4794
Carmel	0	1	0.948

Beverly Hills	0.93	1	0.3345
Bellevue	0.3	1	0.5812
Stony Creek	0.5	1	0.4794
Standard	0.62	1	0.431
South Whittier	0.55	1	0.4594
South Pasadena	0.51	1	0.4739
Soquel	0.23	1	0.6349
Los Nietos	0.8	1	0.3704
Palo Verde	1.03	1	0.3108
Filmore	0.24	1	0.6273

TABLE 8: BREUSCH-PAGAN / COOK-WEISBERG TEST

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance Variables: fitted values of api09 chi2(1) = 263.72 Prob > chi2 = 0.0000

TABLE 9: REGRESSION, ALTERNATE ECONOMIC MODELS

Variable	Foodstamps	Poverty	Income
School Variables			
Charter - Directly Funded	15.65*	15.74*	15.73*
Charter - Indirectly Funded	1.77	2.26	2.16
Enrollment	-0.03***	-0.03***	-0.03***
Very Small School Dummy	-15.58***	- 15.59***	- 15.38***
Very Large School Dummy	-2.83	-2.45	-2.6
Year Round Dummy	1.63	1.33	1.27
Pct Tested	2.92*	2.88*	2.96*
Pct Fully Credentialed	-0.01	-0.01	-0.02
Pct Continuously Enrolled	2.08***	2.09***	2.09***
Average Class Size K-3	-0.59	-0.59	-0.58
Average Class Size 4-6	0.83***	0.84***	0.83***
Pct Tchrs Female	0.34***	0.32***	0.32***
Pct Tchrs Masters plus	0.12**	0.13**	0.13**
Pct Tchrs Black	-0.11	-0.12	-0.12
Pct Tchrs Asian	-0.02	-0.03	-0.03
Pct Tchrs Hispanic	-0.13*	-0.13*	-0.12
Pct Tchrs 0-2 Years Experies	-0.32***	-0.32***	-0.31***
Pct Tchrs 3-5 Years Experies	0.01	0.01	0.01
Pct Tchrs 6-10 Years Experies	0.01	0.01	0.01
Pct Tchrs 10-20 Years Experies	0.04	0.04	0.04

Student Variables			
Pct Stu Black	-0.72***	-0.71***	-0.74***
Pct Stu Asian	0.71***	0.71***	0.71***
Pct Stu Hispanic	-0.38***	-0.38***	-0.38***
Pct Eligible Meals	-0.45***	-0.45***	-0.45***
Pct GATE	1.3***	1.31***	1.3***
Pct Migrant Ed	-0.29	-0.33	-0.33
Pct English Learner	-0.61***	-0.6***	-0.61***
Pct Reclassified English Proficient	0.65***	0.68***	0.66***
Pct Disabled	-0.86***	-0.87***	-0.87***
Pct Prnt Some College	0.18*	0.18*	0.18*
Pct Prnt College Grad	0.61***	0.6***	0.61***
Community Variables			
Pct Com Black	-0.11	-0.11	-0.1
Pct Com Asian	-0.07	-0.09	-0.11
Pct Com Hispanic	0.22**	0.21**	0.19*
Pct Com Entered Since 2000	0.11	0.16	0.13
Pct Com Married w Children	0.12	0.09	0.09
Pct Com Single Father	-0.21	-0.21	-0.24
Pct Com Single Mother	0.21	0.14	0.12
Pct Com Some College	0.2	0.22	0.23
Pct Com College Grad	0.44***	0.46***	0.49***
Pct Com Receive Foodstamps	-0.59***		
Pct Com Own Home	-0.08	-0.1*	-0.09

Pct Com Moved in 2005 or later	-0.15	-0.16	-0.18
Pct Com Language Isolated	0.14	0.16	0.2
District variables suppressed for space.			
Alternates			
Pct Com Receive Foodstamps	-0.59***		
Community Poverty Rate		-0.35***	
Community $30k or less			-0.15
Community $30k-$50k			0.14
Constant	292.04	300.85	285.98

TABLE 10: REGRESSION, ALTERNATE EXPERIENCE MODELS

Variable	Original	Avg Years	Avg Quad	wo Tchr and School Size
School Variables				
Charter - Directly Funded	15.65*	16.24*	16.1*	8.98
Charter - Indirectly Funded	1.77	0.94	0.89	1.01
Enrollment	-0.03***	-0.03***	-0.03***	
Very Small School Dummy	-15.58***	-15.74***	-15.79***	
Very Large School Dummy	-2.83	-3.03	-3.05	
Year Round Dummy	1.63	1.79	1.78	-5.9
Pct Tested	2.92*	2.83*	2.83*	2.74*
Pct Fully Credentialed	-0.01	0.18	0.18	
Pct Continuously Enrolled	2.08***	2.08***	2.08***	2.12***
Average Class Size K-3	-0.59	-0.62	-0.62	-0.36
Average Class Size 4-6	0.83***	0.86***	0.87***	1.03***
Pct Tchrs Female	0.34***	0.32***	0.32***	
Pct Tchrs Masters plus	0.12**	0.13**	0.13**	
Pct Tchrs Black	-0.11	-0.14	-0.14	
Pct Tchrs Asian	-0.02	-0.04	-0.04	
Pct Tchrs Hispanic	-0.13*	-0.13*	-0.13*	
Pct Tchrs 0-2 Years Experies	-0.32***			
Pct Tchrs 3-5 Years Experies	0.01			
Pct Tchrs 6-10 Years Experies	0.01			

Pct Tchrs 10-20 Years Experies	0.04			
Student Variables				
Pct Stu Black	-0.72***	-0.73***	-0.73***	-0.7***
Pct Stu Asian	0.71***	0.7***	0.7***	0.76***
Pct Stu Hispanic	-0.38***	-0.39***	-0.39***	-0.36***
Pct Eligible Meals	-0.45***	-0.44***	-0.44***	-0.48***
Pct GATE	1.3***	1.29***	1.29***	1.31***
Pct Migrant Ed	-0.29	-0.31	-0.31	-0.37
Pct English Learner	-0.61***	-0.6***	-0.6***	-0.58***
Pct Reclassified English Proficient	0.65***	0.66***	0.65***	0.47*
Pct Disabled	-0.86***	-0.88***	-0.88***	-0.7***
Pct Prnt Some College	0.18*	0.19*	0.19*	0.21**
Pct Prnt College Grad	0.61***	0.63***	0.63***	0.6***
Community Variables				
Pct Com Black	-0.11	-0.08	-0.08	-0.12
Pct Com Asian	-0.07	-0.06	-0.06	-0.03
Pct Com Hispanic	0.22**	0.24**	0.24**	0.21**
Pct Com Entered Since 2000	0.11	0.09	0.09	0.05
Pct Com Married w Children	0.12	0.13	0.13	0.06
Pct Com Single Father	-0.21	-0.22	-0.23	-0.29
Pct Com Single Mother	0.21	0.19	0.19	0.15
Pct Com Some College	0.2	0.2	0.2	0.26*
Pct Com College Grad	0.44***	0.44***	0.44***	0.49***
Pct Com Receive Foodstamps	-0.59***	-0.6***	-0.6***	-0.61***

Pct Com Own Home	-0.08	-0.08	-0.08	-0.11**
Pct Com Moved in 2005 or later	-0.15	-0.16	-0.16	-0.17
Pct Com Language Isolated	0.14	0.13	0.13	0.09
District variables suppressed for space.				
Alternates				
Pct Tchrs 0-2 Years Experience	-0.32***			
Pct Tchrs 3-5 Years Experience	0.01			
Pct Tchrs 6-10 Years Experience	0.01			
Pct Tchrs 10-20 Years Experience	0.04			
Average Years Teaching		0.35	0.16	
Avg Years Quadratic			0.01	
Constant	292.04	276.05	276.51	315.42

TABLE 11: REGRESSION, INTERACTION MODELS A

Variable	Primary	Col/Col	Meal/Pov	Black	Asian	Hispanic
School Variables						
Charter - Directly Funded	15.74*	16.16*	15.64*	15.75*	15.86*	15.53*
Charter - Indirectly Funded	2.26	2.62	2.06	2.34	2.25	2.43
Enrollment	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
Very Small School Dummy	-15.59***	-15.4***	-	-15.7***	-	-
			15.58***		15.84***	15.69***
Very Large School Dummy	-2.45	-2.18	-2.46	-2.43	-2.51	-2.39
Year Round Dummy	1.33	1.22	1.38	1.51	1.27	1.2
Pct Tested	2.88*	2.87*	2.9*	2.91*	2.92*	2.88*
Pct Fully Credentialed	-0.01	-0.01	0	-0.01	-0.01	-0.01
Pct Continuously Enrolled	2.09***	2.12***	2.08***	2.08***	2.09***	2.09***
Average Class Size K-3	-0.59	-0.62	-0.59	-0.59	-0.61	-0.57
Average Class Size 4-6	0.84***	0.85***	0.83***	0.84***	0.85***	0.84***
Pct Tchrs Female	0.32***	0.32***	0.32***	0.32***	0.32***	0.32***
Pct Tchrs Masters plus	0.13**	0.12**	0.13**	0.13**	0.13**	0.13**
Pct Tchrs Black	-0.12	-0.13	-0.12	-0.14	-0.14	-0.13
Pct Tchrs Asian	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02
Pct Tchrs Hispanic	-0.13*	-0.13*	-0.13	-0.13*	-0.14*	-0.15*
Pct Tchrs 0-2 Years Experience	-0.32***	-0.32***	-0.32***	-0.31***	-0.32***	-0.31**
Pct Tchrs 3-5 Years Experience	0.01	0.01	0.01	0.02	0.02	0.02
Pct Tchrs 6-10 Years Experience	0.01	0.01	0.01	0.01	0.01	0.01
Pct Tchrs 10-20 Years Experience	0.04	0.04	0.04	0.04	0.04	0.04

Student Variables						
Pct Stu Black	-0.71***	-0.69***	-0.72***	-0.78***	-0.7***	-0.69***
Pct Stu Asian	0.71***	0.69***	0.71***	0.71***	0.5***	0.71***
Pct Stu Hispanic	-0.38***	-0.36***	-0.39***	-0.38***	-0.38***	-0.4***
Pct Eligible Meals	-0.45***	-0.47***	-0.43***	-0.45***	-0.46***	-0.46***
Pct GATE	1.31***	1.31***	1.3***	1.31***	1.33***	1.31***
Pct Migrant Ed	-0.33	-0.36	-0.33	-0.35	-0.33	-0.35
Pct English Learner	-0.6***	-0.59***	-0.6***	-0.6***	-0.6***	-0.6***
Pct Reclassified English Proficient	0.68***	0.71***	0.68***	0.68***	0.67***	0.68***
Pct Disabled	-0.87***	-0.86***	-0.87***	-0.86***	-0.87***	-0.87***
Pct Prnt Some College	0.18*	0.23**	0.17	0.18*	0.18*	0.19*
Pct Prnt College Grad	0.6***	0.45***	0.6***	0.6***	0.6***	0.6***
Community Variables						
Pct Com Black	-0.11	-0.13	-0.11	-0.21	-0.11	-0.11
Pct Com Asian	-0.09	-0.08	-0.1	-0.09	-0.17	-0.07
Pct Com Hispanic	0.21**	0.2**	0.21**	0.21**	0.23**	0.1
Pct Com Entered Since 2000	0.16	0.15	0.15	0.16	0.16	0.16
Pct Com Married w Children	0.09	0.07	0.1	0.1	0.1	0.09
Pct Com Single Father	-0.21	-0.22	-0.21	-0.2	-0.22	-0.21
Pct Com Single Mother	0.14	0.11	0.15	0.16	0.14	0.14
Pct Com Some College	0.22	0.27*	0.21	0.22	0.23	0.23
Pct Com College Grad	0.46***	0.3**	0.46***	0.46***	0.48***	0.44***
Pct Com Poverty	-0.35***	-0.36***	-0.22	-0.35***	-0.34***	-0.35***
Pct Com Own Home	-0.1*	-0.12**	-0.1*	-0.11*	-0.11*	-0.11*

Pct Com Moved in 2005 or later	-0.16	-0.15	-0.16	-0.15	-0.15	-0.15
Pct Com Language Isolated	0.16	0.15	0.17	0.15	0.14	0.14
District variables suppressed for space.						
Interactions						
College/College		0.41*				
Poverty/Meals			0.17			
Black/Black				0.27		
Asian/Asian					0.53**	
Hispanic/Hispanic						0.16
Constant	300.85	303.41	297.22	298.42	296.66	302.36

TABLE 12: REGRESSION, INTERACTION MODELS B

Variable	Primary	Blk/Pov	As/Pov	Hi/Pov
School Variables				
Charter - Directly Funded	15.74*	15.43*	15.73*	15.62*
Charter - Indirectly Funded	2.26	2.34	2.26	2.12
Enrollment	-0.03***	-0.03***	-0.03***	-0.03***
Very Small School Dummy	-15.59***	-15.52***	-15.48***	-15.56***
Very Large School Dummy	-2.45	-2.48	-2.52	-2.47
Year Round Dummy	1.33	1.39	1.42	1.39
Pct Tested	2.88*	2.89*	2.89*	2.89*
Pct Fully Credentialed	-0.01	-0.01	-0.01	-0.01
Pct Continuously Enrolled	2.09***	2.11***	2.08***	2.09***
Average Class Size K-3	-0.59	-0.59	-0.59	-0.59
Average Class Size 4-6	0.84***	0.84***	0.83***	0.84***
Pct Tchrs Female	0.32***	0.32***	0.32***	0.32***
Pct Tchrs Masters plus	0.13**	0.12**	0.13**	0.13**
Pct Tchrs Black	-0.12	-0.14	-0.12	-0.12
Pct Tchrs Asian	-0.03	-0.03	-0.04	-0.03
Pct Tchrs Hispanic	-0.13*	-0.13	-0.13	-0.12
Pct Tchrs 0-2 Years Experience	-0.32***	-0.32***	-0.31***	-0.32***
Pct Tchrs 3-5 Years Experience	0.01	0.01	0.01	0.01
Pct Tchrs 6-10 Years Experience	0.01	0.01	0.01	0.01
Pct Tchrs 10-20 Years Experience	0.04	0.03	0.04	0.04

Student Variables				
Pct Stu Black	-0.71***	-0.81***	-0.71***	-0.72***
Pct Stu Asian	0.71***	0.71***	0.64***	0.7***
Pct Stu Hispanic	-0.38***	-0.38***	-0.38***	-0.36***
Pct Eligible Meals	-0.45***	-0.45***	-0.46***	-0.46***
Pct GATE	1.31***	1.3***	1.31***	1.3***
Pct Migrant Ed	-0.33	-0.33	-0.33	-0.33
Pct English Learner	-0.6***	-0.6***	-0.6***	-0.59***
Pct Reclassified English Proficient	0.68***	0.68***	0.68***	0.69***
Pct Disabled	-0.87***	-0.87***	-0.87***	-0.87***
Pct Prnt Some College	0.18*	0.18*	0.17	0.17
Pct Prnt College Grad	0.6***	0.6***	0.6***	0.6***
Community Variables				
Pct Com Black	-0.11	-0.11	-0.11	-0.11
Pct Com Asian	-0.09	-0.09	-0.1	-0.1
Pct Com Hispanic	0.21**	0.22**	0.22**	0.22**
Pct Com Entered Since 2000	0.16	0.17	0.15	0.15
Pct Com Married w Children	0.09	0.08	0.1	0.1
Pct Com Single Father	-0.21	-0.22	-0.2	-0.21
Pct Com Single Mother	0.14	0.11	0.15	0.14
Pct Com Some College	0.22	0.23	0.22	0.22
Pct Com College Grad	0.46***	0.47***	0.47***	0.47***
Pct Com Poverty	-0.35***	-0.42***	-0.39***	-0.23
Pct Com Own Home	-0.1*	-0.1*	-0.1*	-0.1*

Pct Com Moved in 2005 or later	-0.16	-0.16	-0.16	-0.16
Pct Com Language Isolated	0.16	0.19	0.16	0.18
District variables suppressed for space.				
Interactions				
Poverty/Black		0.82		
Poverty/Asian			0.69	
Poverty/Hispanic				0.38
Constant	300.85	298.61	300.54	297.63

TABLE 13: REGRESSION, INTERACTION MODELS C

Variable	Primary	Minority	Min/Blk	Min/As	Min/Hi
School Variables					
Charter - Directly Funded	15.74*	15.58*	15.59*	15.58*	15.25*
Charter - Indirectly Funded	2.26	2.5	2.51	2.49	2.61
Enrollment	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
Very Small School Dummy	-15.59***	-15.2***	-15.19***	-15.2***	-15.48***
Very Large School Dummy	-2.45	-2.64	-2.64	-2.64	-2.6
Year Round Dummy	1.33	1.27	1.27	1.26	1.06
Pct Tested	2.88*	2.9*	2.9*	2.9*	2.87*
Pct Fully Credentialed	-0.01	-0.01	-0.01	-0.01	-0.01
Pct Continuously Enrolled	2.09***	2.1***	2.1***	2.1***	2.11***
Average Class Size K-3	-0.59	-0.57	-0.57	-0.57	-0.55
Average Class Size 4-6	0.84***	0.84***	0.84***	0.84***	0.85***
Pct Tchrs Female	0.32***	0.32***	0.32***	0.32***	0.32***
Pct Tchrs Masters plus	0.13**	0.13**	0.13**	0.13**	0.13**
Pct Tchrs Black	-0.12	-0.18	-0.19	-0.18	-0.19
Pct Tchrs Asian	-0.03	-0.04	-0.04	-0.04	-0.04
Pct Tchrs Hispanic	-0.13*	-0.12	-0.12	-0.12	-0.14*
Pct Tchrs 0-2 Years Experience	-0.32***	-0.32***	-0.32***	-0.32***	-0.31**
Pct Tchrs 3-5 Years Experience	0.01	0.01	0.01	0.01	0.02
Pct Tchrs 6-10 Years Experience	0.01	0	0	0	0.01
Pct Tchrs 10-20 Years Experience	0.04	0.03	0.03	0.03	0.04

Student Variables					
Pct Stu Black	-0.71***	-0.76***	-0.78***	-0.76***	-0.68***
Pct Stu Asian	0.71***	0.64***	0.64***	0.64***	0.72***
Pct Stu Hispanic	-0.38***	-0.28**	-0.28**	-0.28**	-0.36***
Pct Eligible Meals	-0.45***	-0.47***	-0.47***	-0.47***	-0.48***
Pct GATE	1.31***	1.32***	1.32***	1.32***	1.31***
Pct Migrant Ed	-0.33	-0.31	-0.31	-0.31	-0.31
Pct English Learner	-0.6***	-0.65***	-0.65***	-0.65***	-0.65***
Pct Reclassified English Proficient	0.68***	0.64***	0.64**	0.64***	0.65***
Pct Disabled	-0.87***	-0.87***	-0.87***	-0.87***	-0.88***
Pct Prnt Some College	0.18*	0.17	0.17	0.17	0.19*
Pct Prnt College Grad	0.6***	0.62***	0.62***	0.62***	0.61***
Community Variables					
Pct Com Black	-0.11				
Pct Com Asian	-0.09				
Pct Com Hispanic	0.21**				
Pct Com Entered Since 2000	0.16	0.11	0.11	0.11	0.13
Pct Com Married w Children	0.09	0.13	0.14	0.13	0.13
Pct Com Single Father	-0.21	-0.19	-0.19	-0.19	-0.2
Pct Com Single Mother	0.14	0.16	0.16	0.16	0.14
Pct Com Some College	0.22	0.05	0.05	0.05	0.11
Pct Com College Grad	0.46***	0.32***	0.32***	0.32***	0.33***
Pct Com Poverty	-0.35***	-0.37***	-0.37***	-0.37***	-0.37***
Pct Com Own Home	-0.1*	-0.11*	-0.11*	-0.11*	-0.12**

Pct Com Moved in 2005 or later	-0.16	-0.15	-0.15	-0.15	-0.14
Pct Com Language Isolated	0.16	0.22	0.22	0.22	0.18
District variables suppressed for space.					
Interactions					
Minority		0.02	0.02	0.02	-0.09
Minority/Black			0.03		
Minority/Asian				0.01	
Minority/Hispanic					0.24
Constant	300.85	307.46	307.35	307.5	310.22

TABLE 14: REGRESSION, INTERACTION MODELS D

Variable	Primary	SoCal	Hi/SoCal	Hi/LAUSD	HI/LBUSD
School Variables					
Charter - Directly Funded	15.74*	16.04*	14.88*	15.8*	15.75*
Charter - Indirectly Funded	2.26	2.35	2.87	1.87	2.25
Enrollment	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
Very Small School Dummy	-	-	-	-15.53***	-15.57***
	15.59***	15.62***	16.38***		
Very Large School Dummy	-2.45	-2.28	-2.18	-2.45	-2.44
Year Round Dummy	1.33	1.44	0.87	1.76	1.29
Pct Tested	2.88*	2.85*	2.87*	2.86*	2.87*
Pct Fully Credentialed	-0.01	-0.01	-0.04	-0.01	-0.01
Pct Continuously Enrolled	2.09***	2.11***	2.1***	2.09***	2.09***
Average Class Size K-3	-0.59	-0.62	-0.63	-0.59	-0.59
Average Class Size 4-6	0.84***	0.82***	0.83***	0.83***	0.83***
Pct Tchrs Female	0.32***	0.32***	0.32***	0.32***	0.32***
Pct Tchrs Masters plus	0.13**	0.12**	0.12**	0.13**	0.13**
Pct Tchrs Black	-0.12	-0.12	-0.13	-0.12	-0.13
Pct Tchrs Asian	-0.03	-0.02	-0.02	-0.03	-0.02
Pct Tchrs Hispanic	-0.13*	-0.13*	-0.14*	-0.12	-0.13*
Pct Tchrs 0-2 Years Experience	-0.32***	-0.32***	-0.3**	-0.32***	-0.32***
Pct Tchrs 3-5 Years Experience	0.01	0.01	0.02	0.01	0.01
Pct Tchrs 6-10 Years Experience	0.01	0.01	0.02	0.01	0.01
Pct Tchrs 10-20 Years Experience	0.04	0.04	0.04	0.03	0.04

Student Variables					
Pct Stu Black	-0.71***	-0.72***	-0.64***	-0.74***	-0.71***
Pct Stu Asian	0.71***	0.69***	0.73***	0.71***	0.71***
Pct Stu Hispanic	-0.38***	-0.4***	-0.46***	-0.38***	-0.38***
Pct Eligible Meals	-0.45***	-0.45***	-0.48***	-0.45***	-0.45***
Pct GATE	1.31***	1.32***	1.34***	1.29***	1.31***
Pct Migrant Ed	-0.33	-0.32	-0.16	-0.35	-0.34
Pct English Learner	-0.6***	-0.58***	-0.55***	-0.61***	-0.6***
Pct Reclassified English Proficient	0.68***	0.7***	0.67***	0.69***	0.69***
Pct Disabled	-0.87***	-0.87***	-0.88***	-0.87***	-0.87***
Pct Prnt Some College	0.18*	0.18*	0.19*	0.18*	0.18*
Pct Prnt College Grad	0.6***	0.6***	0.61***	0.6***	0.6***
Community Variables					
Pct Com Black	-0.11	-0.11	-0.1	-0.11	-0.11
Pct Com Asian	-0.09	-0.09	-0.1	-0.09	-0.09
Pct Com Hispanic	0.21**	0.21**	0.2**	0.22**	0.21**
Pct Com Entered Since 2000	0.16	0.14	0.16	0.14	0.15
Pct Com Married w Children	0.09	0.09	0.09	0.09	0.09
Pct Com Single Father	-0.21	-0.21	-0.23	-0.21	-0.21
Pct Com Single Mother	0.14	0.14	0.14	0.14	0.14
Pct Com Some College	0.22	0.21	0.21	0.22	0.22
Pct Com College Grad	0.46***	0.46***	0.46***	0.46***	0.46***
Pct Com Poverty	-0.35***	-0.36***	-0.35***	-0.35***	-0.35***
Pct Com Own Home	-0.1*	-0.11*	-0.1*	-0.1*	-0.1*

Pct Com Moved in 2005 or later	-0.16	-0.16	-0.15	-0.16	-0.16
Pct Com Language Isolated	0.16	0.17	0.17	0.17	0.16
District variables suppressed for space.					
Interactions					
Southern California		8.69	0.14		
Pct Student Hispanic		-0.4***	-0.46***	-0.38***	-0.38***
Hispanic/SoCal			.21***		
Hispanic/LAUSD				-0.06	
Hispanic/LBUSD					-0.04
Constant	300.85	303.23	306.1	303.12	301.45

TABLE 15: REGRESSION, INTERACTION MODELS E

Variable	Primary	HI/SAUSD	HI/OrUSD	HI/GGUSD
School Variables				
Charter - Directly Funded	15.74*	15.73*	15.77*	15.66*
Charter - Indirectly Funded	2.26	2.26	2.28	2.21
Enrollment	-0.03***	-0.03***	-0.03***	-0.03***
Very Small School Dummy	-15.59***	-15.58***	-15.56***	-15.68***
Very Large School Dummy	-2.45	-2.42	-2.48	-2.34
Year Round Dummy	1.33	1.32	1.32	1.4
Pct Tested	2.88*	2.88*	2.88*	2.88*
Pct Fully Credentialed	-0.01	-0.01	-0.01	-0.01
Pct Continuously Enrolled	2.09***	2.09***	2.09***	2.1***
Average Class Size K-3	-0.59	-0.59	-0.59	-0.59
Average Class Size 4-6	0.84***	0.84***	0.84***	0.84***
Pct Tchrs Female	0.32***	0.32***	0.32***	0.32***
Pct Tchrs Masters plus	0.13**	0.13**	0.13**	0.13**
Pct Tchrs Black	-0.12	-0.12	-0.12	-0.12
Pct Tchrs Asian	-0.03	-0.03	-0.02	-0.03
Pct Tchrs Hispanic	-0.13*	-0.13*	-0.13*	-0.12
Pct Tchrs 0-2 Years Experience	-0.32***	-0.32***	-0.32***	-0.31***
Pct Tchrs 3-5 Years Experience	0.01	0.01	0.01	0.02
Pct Tchrs 6-10 Years Experience	0.01	0.01	0.01	0.01
Pct Tchrs 10-20 Years Experience	0.04	0.04	0.04	0.04
Student Variables				

Pct Stu Black	-0.71***	-0.71***	-0.71***	-0.71***
Pct Stu Asian	0.71***	0.71***	0.71***	0.73***
Pct Stu Hispanic	-0.38***	-0.38***	-0.38***	-0.39***
Pct Eligible Meals	-0.45***	-0.45***	-0.45***	-0.45***
Pct GATE	1.31***	1.31***	1.31***	1.3***
Pct Migrant Ed	-0.33	-0.33	-0.34	-0.33
Pct English Learner	-0.6***	-0.6***	-0.6***	-0.6***
Pct Reclassified English Proficient	0.68***	0.68***	0.68***	0.7***
Pct Disabled	-0.87***	-0.87***	-0.87***	-0.86***
Pct Prnt Some College	0.18*	0.18*	0.18*	0.18*
Pct Prnt College Grad	0.6***	0.6***	0.6***	0.6***
Community Variables				
Pct Com Black	-0.11	-0.11	-0.11	-0.12
Pct Com Asian	-0.09	-0.09	-0.09	-0.1
Pct Com Hispanic	0.21**	0.21**	0.21**	0.21**
Pct Com Entered Since 2000	0.16	0.16	0.16	0.16
Pct Com Married w Children	0.09	0.09	0.09	0.09
Pct Com Single Father	-0.21	-0.22	-0.22	-0.21
Pct Com Single Mother	0.14	0.14	0.14	0.14
Pct Com Some College	0.22	0.22	0.22	0.22
Pct Com College Grad	0.46***	0.46***	0.45***	0.45***
Pct Com Poverty	-0.35***	-0.35***	-0.35***	-0.35***
Pct Com Own Home	-0.1*	-0.1*	-0.1*	-0.1*
Pct Com Moved in 2005 or later	-0.16	-0.16	-0.16	-0.16

Pct Com Language Isolated	0.16	0.16	0.16	0.16
District variables suppressed for space.				
Interactions				
Pct Student Hispanic		-0.38***	-0.38***	-0.39***
Hispanic/LAUSD				
Hispanic/LBUSD				
Hispanic/SAUSD		0.18		
Hispanic/OrUSD			-0.08	
Hispanic/GGUSD				0.29
Constant	300.85	300.93	300.87	299.58