DOES PROVIDING SERVICE-LEARNING GRANTS AFFECT SCHOOL DISTRICTS’ HIGH SCHOOL DROPOUT RATES?

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By

Carolyn D. Trager, B.A.

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Carolyn D. Trager, B.A.

Thesis Advisor: Christopher M. Toppe, Ph.D.

ABSTRACT

This thesis provides an empirical analysis of the impact service-learning has on high school dropout rates. Specifically, it examines whether school districts that receive Learn and Serve America grants to support service-learning have statistically different high school dropout rates than do districts that do not. The paper is based on the hypothesis that districts that receive grants have lower dropout rates than do socioeconomically, racially, and ethnically comparable school districts that do not. The relationship between service-learning and high school dropout rate was examined through ordinary least squares regression to assess whether there was a statistically significant relationship between the two variables and whether this relationship remains robust across all three models employed. Data from both the California Department of Education and Learn and Serve America were utilized in the ordinary least squares regression analysis.

The analyses revealed that districts receiving grants for service-learning programs, on average, had lower district-wide dropout rates. However, the difference between grant recipients and non-recipients was not statistically significant. Similar to previous research, my analysis revealed that districts with larger proportions of minority students and federal free and reduced lunch recipients, on average, had higher district-wide dropout rates than did comparable districts with lower proportions of students with these characteristics. Conversely, districts with higher

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percentages of students scoring proficient or above on English Language Arts (ELA) exams had lower dropout rates, on average.

Based on this research, dropout prevention efforts ought to continue to focus on minority and low income students. Special attention should be placed on the acquisition of ELA skills. Additionally, due to the negative relationship between the serving-learning and dropout rate variables, districts ought to consider incorporating service-learning programs into curriculum. However, future research that controls for the quality of the service-learning programs and the caliber of the district leadership is needed to assess whether there is a statistically significant difference between the dropout rates of districts that provide service-learning, through Learn and Serve America grants, and those that do not.
ACKNOWLEDGMENTS

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Many thanks,
Carolyn D. Trager
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INTRODUCTION

The United States high school dropout rate threatens the future employability of American citizens and the strength of the U.S. economy. Currently, one quarter of high school students fail to graduate with their class and 40% of African American, Hispanic, and Native American students will not graduate on time (Balfanz, 2010). Further, half of America’s dropouts come from only 15% of America’s public high schools, making the dropout epidemic more rampant among specific demographic groups and certain urban and rural communities (Balfanz, 2009). According to the Center for Labor Market Studies, those who fail to graduate from high school are twice as likely as high school graduates and three times more likely than college graduates to slip into poverty, be in poor health, engage in criminal activities, and receive welfare payments (Sum, 2009). Those who do graduate from high school enjoy 36.2% higher earnings than do those who do not (Gates Foundation, 2011). Should the national dropout rate remain the same for the next ten years, the United States will face increased social services expenditures and decreased tax revenues, resulting in a $3 trillion loss (Balfanz, 2009).

Given the devastating impact the current dropout rate poses, researchers and policy analysts have started examining the causes of dropout and searching for means of alleviating this problem. Preliminary research suggests that service-learning, “a method of teaching and learning that connects classroom lessons with meaningful service to the community,” could effectively re-engage struggling students who are at risk of dropping out of high school (Billig, 2003). As our nation combats the dropout epidemic that affects our most vulnerable communities, it would be wise to consider all mechanisms providing some hope of re-engaging at-risk youth, and preventing the fiscal hemorrhaging that is associated with a consistently high national dropout rate.
This paper examines current efforts to prevent dropout, utilizes data from fourteen counties in California to conduct regression analysis that investigates whether service-learning is a viable dropout prevention tool, and presents the policy implications of the regression analysis results.

**LITERATURE REVIEW**

**Dropout**

*Which Students are most Likely to Drop out of High School?*

More than 25% of first-year high school students fail to receive their diploma in four years. (Kuenzi, 2007) The likelihood of dropping out varies significantly by gender, race, ethnicity, English language proficiency, socioeconomic status, and prior academic achievement. Research reveals that dropout rates are higher for males than for females, greater for blacks, Hispanics, and immigrants than for whites and Asians, and higher for students who are not proficient in English. (Rumberger and Lim, 2008; Silver, 2008)

These statistics have motivated researchers to examine the characteristics of our nation’s high school dropouts. An analysis of 203 published studies concluded that family income and structure affect the likelihood of a student dropping out of school. Students of higher socioeconomic levels or two-parent homes are less likely to drop out than peers from differently structured or lower income homes. (Rumberger and Lim, 2008) Academic achievement in the lower and middle grades can predict the likelihood of a student’s dropping out of high school. In an analysis of 48,561 Los Angeles students, Silver discovered that students who failed to graduate failed on average four times as many middle school classes as did those who graduated on time. Further, failing one academic high school course was associated with a 64% increase in the likelihood of dropping out, and each additional failure was predictive of a 10% increase. (Silver, 2008) Similarly, poor performers on standardized tests were more likely (54%) to drop
out of school than were students who scored “proficient” or “advanced” (29%). (Silver, 2008)

Although these individual characteristics do increase the likelihood of dropping out, school environment also contributes to the likelihood that a student will not graduate.

*Which Schools Struggle Most with High Dropout Rates?*

Student demographics are not the sole predictor of dropout rate. In his study of Los Angeles students, Silver found that school characteristics played a larger role in accounting for the dropout rate than did student demographics. Schools working with similar student populations exhibited vastly different incidences of dropout. (Silver, 2008) Access to high quality educators (both in middle and in high school), school structure (magnet, charter or public), course offerings, and the pupil to teacher ratio were all shown to have a significant impact on a school’s graduation rate. Nearly 42% of the between-school variance in graduation rate could be attributed to the percentage of qualified teachers and magnet or charter school status. (Silver, 2008) Researchers found a higher percentage of qualified teachers in a given school to be associated with a higher level of student achievement. Similarly, smaller student to teacher ratios were correlated with superior student performance. And status as a charter or magnet school allowed schools to offer a wider array of courses, including courses with real world applications, such as work place internships and service-learning opportunities. This curricular flexibility was associated with lower dropout rates. After identifying the student and school characteristics most closely associated with a high likelihood of dropping out of high school, researchers sought to examine what causes students to leave school.

*Why do Students Drop Out of High School?*

Two recent reports present survey data collected from high school dropouts and current high school students to ascertain what causes students to leave school. In preparing the first
researchers conducted interviews with 467 ethnically and racially diverse students ages 16 through 25 who dropped out of public high schools in 25 different locations, including large cities, suburbs and small towns with high dropout rates. (Bridgeland, 2006) The second report, Engaged for Success, summarizes survey data collected from a nationally representative sample of 807 current high school students. (Bridgeland, 2008)

According to both reports, the chief causes of dropout include: gradual disengagement from school perpetuated by a lack of interest in classroom study, a failure to see the real-world applications of school work, and not feeling challenged by classroom work. In fact, 70% of dropouts reported that they could have graduated from high school, but were driven from school by a lack of interest in the courses they were taking. (Bridgeland, 2006) According to 81% of the students surveyed, if schools offered more real-world learning experiences, such as internships and service-learning, students would be more likely to stay in school. Further, 79% of students said that making academic classes more interesting would have had a very or fairly big effect on helping students make the most of their high school experiences. (Bridgeland, 2008)

Research conducted by the Government Accountability Office echoes these sentiments. Interviews with 39 directors of programs working with at-risk youth revealed that “dropping out of school is a long-term process of disengagement,” which can be prevented by including experiential, hands-on learning opportunities in academic contexts to re-engage disconnected students. (GAO, 2008) Given the enhanced understanding of which students are most likely to drop out, which schools are most likely to struggle with high dropout rates, and increased appreciation for the causes of dropout, many school districts have implemented innovative ways to combat the dropout crisis.
What are School Districts doing to Prevent Students from Dropping Out?

Many school districts have experimented with different methods of preventing students from dropping out of school. Of the plethora of programs tried, three have successfully increased the educational outcomes for youth at-risk of dropping out.

The first successful program is New York City’s Academically-Themed, Small High Schools. Each small school provides students with a rigorous instructional program, personalized instruction, and, through the effective use of technology, continuous assessment of each student’s academic progress. Teachers receive needs-based professional development and opportunities for collaboration. In just six years, New York has started 200 of these small schools. Compared to high schools within the same district, these small schools’ graduation rates are 6.8 percentage points higher, and 58.5% of students, as opposed to 48.5% of students, are on track to graduate within four years. (Bloom, 2010)

Career Academies have demonstrated similar success. Most Career Academies serve between 150 and 200 students in grades 9 through 12. Each Academy prepares students for college and career readiness by connecting curriculum and work-place internships to a single or multiple career themes. With more than 7,000 Career Academies operating throughout the United States, MDRC conducted a random assignment study to evaluate the effectiveness of these programs. (Brand, 2009) Researchers discovered that Academy attendees are more likely to attain higher levels of secondary education, enjoy a 17% increase in wages over the eight years following graduation, and maintain an average of an 11% increase in sustained earnings. (Kemple, 2008)

Finally, Talent Development High Schools have effectively decreased the number of students dropping out in grades nine and ten. (Kemple, 2005) Each Talent Development High
School divides students into groups of 100 to 125 students who are taught by the same four or five teachers. Classes run for 80 to 90 minutes each to ensure that all students understand the topics discussed before the end of class. The schools boast special courses designed to engage low performing students and help them to achieve grade-level proficiency. Teachers receive continuous professional development from curriculum coaches. Currently, there are 40 Talent Development High Schools operating throughout the United States. Although the schools have produced substantial gains in attendance, academic course credits earned, and promotion rates during students’ first two years of high school, the schools did not show significant progress in terms of on-time graduation. (Kemple, 2005) Thus, Talent Development High Schools have proven effective in keeping students in school through tenth grade, but it is unclear whether they have a significant impact on students’ chances of dropping out in grades 11 and 12.

Even though the New York City Small Schools, the Career Academies, and the Talent Development high schools have improved the educational outcomes for students, there is still much work to be done. As such, researchers and policy analysts have begun to explore other methods of increasing student engagement in school in hopes of reducing the United States dropout rate.

Service-Learning

One method currently being considered is service-learning. Service-learning is an educational tool that integrates volunteering into academic curriculum. Effective service-learning programs are implemented by schools working in partnership with the community to address specific community needs. Students are able to see the connection between their academic studies and the community work they are doing. Additionally, service-learning provides students with an opportunity to see how their academic studies directly connect to what is going on in the
Participants in service-learning are given an opportunity to reflect on their experiences. In the United States, most service-learning programs are sponsored by Learn and Serve America grants. These grants are provided to State Educational Agencies who distribute the funds to school districts to implement service-learning opportunities for their students. Currently, service-learning programs are provided to 4.2 million students annually. (Spring, 2008)

Benefits

Initial research regarding the affect of student participation in school-based service-learning programs indicates that involvement in service-learning is associated with increased engagement in school. (Spring, 2008; Billig, 2003; Furco, 2001) A 2002 study of California high school students revealed that those engaged in service-learning programs reported more positive attitudes towards school than did their nonparticipating peers. (Ammon, Furco, Chi & Middaugh, 2001) In reviewing panel data from the National Education Longitudinal Study of 1988, Davalia and Moora (2007) found that among the 6,000 female and 5,900 male subjects, participation in service-learning programs enhanced academic progress and improved academic achievement from between 3.3% to 6.7% depending on the subject area. Additionally, a 2003 study of 1,988 Michigan students compared students engaged in service-learning to a matched group of non-participating students. Seventh through twelfth grade participants demonstrated increased engagement in classes, showing statistically significant differences in the effort they expended to complete homework assignments, their engagement in classroom lessons, and their willingness to share what they learned with others. (Billig & Klute, 2003) Lastly, Scales et al (2000) examined the relationship between participation in service-learning and academic outcomes among a group of racially, ethnically, and socioeconomically diverse sixth through eighth grade
students at three disparate middle schools. When compared to peers, students engaging in substantial hours of service-learning, meaningful service projects, and intensive project reflection: pursued better grades; believed in the connection between school attendance and personal growth; and, showed a greater commitment to academic pursuits. (Scales et al, 2000) Thus, preliminary analysis suggests that participation in service-learning is associated with increased academic achievement and increased school engagement.

Challenges

Despite these benefits, many schools struggle to effectively implement service-learning programs. (Kielsmeier, 2004) A 2008 survey of over 1,800 elementary and secondary school principals concluded that lack of time due to state curriculum requirements, limited funding, and insufficient staff capacity prevented schools from implementing service-learning programs. (Spring, 2008) Another barrier to program implementation is, as with other instructional techniques, service-learning must be well-executed, meaning it must meet a real community need, allow participants to measure the impact of their work, be well-resourced, and involve students in the planning process. (Billig, 2010) For school leaders already struggling to meet requirements, this can appear overwhelming and impossible to implement.

Prevalence

Some educators have successfully overcome these challenges. During the 2007 – 2008 school year, approximately 20,400 schools offered service-learning activities to an estimated 4.2 million elementary, middle, and high school students. (Spring, 2008) Schools that created the structures needed to implement service-learning programs demonstrated strong dedication to maintaining or increasing these activities. A 2008 survey conducted by the Corporation for National and Community Service revealed that 96% of schools with service-learning programs
had maintained or increased the reach of service programs during the past five years. (Spring, 2008) Additionally, having witnessed the greatest increases in academic achievement and student engagement, schools serving low-income populations were less likely to curtail service-learning programs than were other schools. (Spring, 2008)

**Service-Learning as a Dropout Prevention Tool**

Given the impact of service-learning programs on academic achievement and student engagement, it is logical to consider service-learning as a dropout prevention tool. As Duckenfield and Swanson (1992) suggest, when properly executed, service-learning can be a “potentially powerful dropout prevention tool.” Through service-learning projects, students can experience, “personal growth; social growth; intellectual growth; citizenship; and preparation for the world of work,” which can be especially beneficial to at-risk youth for whom experiential, real-world learning can decrease the likelihood of dropping out of school. (Duckenfield & Swanson, 1992; GAO, 2008) An evaluation of three hundred urban high school students, attending traditional public high schools supports these claims. By asking three hundred students to participate in a test assessing academic engagement and comparing results to a post test completed by 262 students, Luchs (1980) revealed the relationship between participation in service programs and increased engagement in school. When the 136 participating students’ post test results were compared with those of their 126 nonparticipating peers, participants demonstrated superior classroom behavior and school attendance. The difference between the two groups was statistically significant. These findings indicate that participation in service programs could rescue at-risk youth from the long process of disengagement from school, which can culminate in dropping out.
Certain schools have started to experiment with using service-learning as a dropout prevention tool. A middle school in Minneapolis, MN successfully incorporated service-learning into its dropout prevention program. Through the “First Opportunity” program, 11 to 15 year old Minnesota youth who were at risk of dropping out were trained to be peer mediators, developed a theatrical production highlighting conflict resolution techniques, assisted residents at a senior center, and participated in a community beautification day. These experiences equipped participating youth with the sense of responsibility and leadership skills needed to become successful, engaged students. (RMC Research Corporation)

In a similar program, a high school in Madison, WI incorporated service-learning into all aspects of the curriculum offered to at-risk youth. Participants in the “Stress Challenge” program, engaged in team building activities, mentored elementary school students, and wrote reflections on their experiences. Preliminary analysis indicated that the program provided high school students with greater self-esteem and increased awareness that their actions, such as leaving school, influenced those around them. (RMC Research Corporation)

A third program is in the early stages of implementation in Boston. 140 diverse young leaders from the City Year Boston corps are currently incorporating service-learning into academic curriculum in ten Boston public schools. The goal of the program is to improve attendance, enhance student behavior and increase course performance in math and English. Students who struggle in any of these areas are more likely to drop out of school than are peers. The results of this program remain to be seen, but City Year is currently planning to expand the program nationwide with support from the Department of Education and Diplomas Now. (City Year, 2010)
These three programs illustrate the initial efforts to incorporate service-learning into dropout prevention programs. Whether or not they will be effective in the long term remains to be seen.

Summary

As stated in the research and reports outlined above, certain racial, ethnic, and socioeconomic groups are at greater risk of dropping out of high school, and suffering the long term consequences of that decision. Those who do drop out cite lack of engagement in school precipitated by, among numerous other factors, seemingly irrelevant coursework. Service-learning has been posited as a means of emphasizing the real world implications of classroom work. Research indicates that participation in service-learning can lead to not only increased engagement, but also improved academic performance.

Research Question and Hypothesis

Research Question

In light of the previous research described above, I examined the relationship between availability of service-learning through Learn and Serve America grants and districts’ high school dropout rates. For my analysis, I designated the district dropout rate as the dependent variable and whether the school district received a Learn and Serve America grant as the independent variable of interest. Student characteristics such as the percent minority students, percent English language learners, percentage of students qualifying for the federal free and reduced lunch program, and school characteristics including, the percentage of fully credentialed teachers, the percentage of student scoring proficient or above on standardized tests, and average class size were used as control variables.
Hypothesis

My analysis was based on the hypothesis that participation in service-learning programs is associated with a decreased likelihood of dropping out of high school. That is, school districts that receive Learn and Serve America grants to provide service-learning programs will have lower dropout rates than will similar school districts which do not receive these grants. Therefore, my null hypothesis was:

Ho: Receiving a Learn and Serve America grant to provide service-learning has no affect on a school district’s dropout rate.

While my alternative hypothesis was:

H1: Districts that receive Learn and Serve America grants to provide service-learning have statistically lower dropout rates from similar districts that do not receive grants.

Although the impact of participation in service-learning may be minimal, any change could inform whether or not service-learning ought to be utilized as a widespread, dropout prevention tool.

Data

In order to examine the relationship between participation in service-learning programs and the likelihood of dropping out of high school, I used data collected by the California Department of Education regarding the 2007 – 2008 school year. The data originated from fourteen counties in California, representing 147 school districts within those counties. Districts composed entirely of charter schools, elementary or middle schools, or specialty schools were eliminated from this data set due to possible bias or lack of dropout information. Each district’s racial, ethnic, and socioeconomic make up were provided. Statistics regarding the percentage of English language learners versus those proficient in English, and the percentage of students
scoring “proficient” or above on English language arts (ELA) and math were also available. Information about the schools within each district including the percentage of fully credentialed teachers, average class size, and dropout rate in a given year was also garnered from this data set.

I created four additional variables based on the information provided in the data set. First, due to the skew of the dropout rate, which can be seen in Table 1, I took the log of that variable. Second, I created a minority variable by adding the percent of African American, Hispanic, and American Indian/Alaskan Native students. Third, due to the likelihood that being a minority student has a disparate effect on students who receive federal free or reduced lunch (FRL) than it does on those who do not receive this subsidy, I created an interaction variable (fminority) by multiplying minority and FRL. Fourth, I generated an interaction (fELL) between English language learners (ELL) and FRL because being an ELL may have a disparate effect on students who receive FRL than it does on those who do not receive FRL.

To effectively assess the impact of service-learning programs, I compared districts that offer service-learning to those that do not. A districts’ ability to offer service-learning is based on whether or not that district received a grant from Learn and Serve America. Learn and Serve America, one part of the Corporation for National and Community Service, provides grants to State Education Agencies and State Commissions on National and Community Service. These state organizations then disseminate funds to individual school districts to support school-based, service-learning initiatives. School districts receive grants through either a statutory formula or a competitive grant process. The state of California awards grants in three year cycles, with an opportunity for a district to renew its grant for an additional three years. Since the dropout data pertained to the 2007-2008 school year, I examined districts that received Learn and Serve America grants during the 2002 – 2005 and 2005 – 2008 grant cycles.
In order to combine the information from the California Department of Education and Learn and Serve America, I consolidated the data into a single Excel spreadsheet. Next, I converted the Excel spreadsheet into a STATA dataset using the Stat-Transfer program. The STATA dataset allowed me to conduct the regression analysis on which I based my findings.

METHODS

Using the data described in the previous section, I conducted three regressions to examine the relationship between receiving a Learn and Serve America grant and the districts’ dropout rates. The three equations listed below are analyzed as ordinary least squares regressions. For all three regressions, a single school district represents one observation – a district is the unit of analysis.

**Student Characteristics:** \( \text{Log District Dropout Rate} = a + b \ (% \text{ minority students}) + c \ (% \text{ fminority students}) + d \ (% \text{ English Language Learners}) + f \ (% \text{ fELL students}) + g \ (% \text{ receiving Federal Free Lunch program}) + h \ (\text{receipt of Learn and Serve America grant}) + \mu \)

**District Characteristics:** \( \text{Log District Dropout Rate} = a + b \ (% \text{ students scoring at or above proficient on ELA}) + c \ (% \text{ students scoring at or above proficient on math}) + d \ (% \text{ fully credentialed teachers}) + f \ (\text{district average, class size}) + g \ (\text{receipt of Learn and Serve America grant}) + \mu \)

**Complete Model:** \( \text{Log District Dropout Rate} = a + b \ (% \text{ minority students}) + c \ (% \text{ fminority students}) + d \ (% \text{ English Language Learners}) + f \ (% \text{ fELL students}) + g \ (% \text{ receiving Federal Free Lunch program}) + \mu \%
\text{ students scoring proficient on ELA}) + h \ (\text{students scoring proficient on math}) + i \ (% \text{ fully credentialed teachers}) + j \ (\text{district average, class size}) + k \ (\text{receipt of Learn and Serve America grant}) + \mu \)

After I ran these three regressions, I ran the student characteristics model and the district characteristics model only looking at the 48 districts that received Learn and Serve America grants. Next, I ran each of these two regressions only including the 99 districts that did not receive Learn and Serve America grants.
**Dependent Variable: District Dropout Rate**

The dependent variable, *district dropout rate*, is calculated for each district in each county in California by dividing the total number of dropouts, in grades 9 – 12, during the school year, by the total number of students enrolled. These calculations occur in June, at the end of each school year so as to ensure the accuracy of the data (ca.gov). Due to the skew of the *district dropout rate*, which can be seen in Table 1, I took the log of the *district dropout rate*. The distribution of Log *district dropout rate* can be seen in Table 2.

**Table 1: Distribution of District Average Dropout Rate**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR</td>
<td>District Average Dropout Rate</td>
<td>147</td>
<td>3.888435</td>
<td>5.142071</td>
<td>0</td>
<td>37.1</td>
</tr>
</tbody>
</table>

**Table 2: Distribution of Log District Average Dropout Rate**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log_DR</td>
<td>Log of District Average Dropout Rate</td>
<td>144</td>
<td>0.942796</td>
<td>0.918964</td>
<td>-2.3023</td>
<td>3.614</td>
</tr>
</tbody>
</table>

**Independent Variable of Interest: Service-Learning**

Receipt of a Learn and Serve America grant is represented in the *service-learning variable*. This is the independent variable of interest, and is constructed using information from Learn and Serve America. Districts that have received grants are recorded as participating in service-learning, while those that lack funding are categorized as not providing service-learning with funds from a Learn and Serve America grant. This variable was coded as a 0 – 1 variable with “0” representing an absence of Learn and Serve America-funded service-learning in the school district and a “1” signifying the presence of such service-learning in the district’s schools. The distribution of this variable can be reviewed in Table 3.
Table 3: Distribution of Participation in Service-Learning

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL</td>
<td>Learn and Serve America Grant</td>
<td>147</td>
<td>0.306122</td>
<td>0.462457</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Control Variables: Student and School Characteristics**

A thorough review of the literature revealed that both student and school characteristics influence a school district’s dropout rate. Table 4 illustrates the anticipated effect of each characteristic on the dependent variable, district dropout rate.

Table 4: Anticipated Effects of School and Student Characteristics on Dropout Rate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted Effect on District Dropout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropout Rate</td>
<td>-</td>
</tr>
<tr>
<td>% of students scoring “proficient”</td>
<td>Negative</td>
</tr>
<tr>
<td>% fully credentialed teachers</td>
<td>Negative</td>
</tr>
<tr>
<td>Average class size</td>
<td>Positive</td>
</tr>
<tr>
<td>% minority students</td>
<td>Positive</td>
</tr>
<tr>
<td>% English language learners</td>
<td>Positive</td>
</tr>
<tr>
<td>% qualifying for Federal Free Lunch</td>
<td>Positive</td>
</tr>
<tr>
<td>Participation in Service-Learning</td>
<td>Negative</td>
</tr>
</tbody>
</table>

**RESULTS**

Table 5 provides my descriptive results, while Table 6 illustrates my regression results.

As can be seen in Table 6, all three models - student characteristics, district characteristics and the complete model - yielded significant results. This held true even when looking at the 48 districts that received grants and the 99 districts that did not receive grants separately.

**Student Characteristics**

The first model illustrated the effect student characteristics have on a district’s dropout rate. As can be seen in the second column of Table Six, a one percentage point increase in the percent of minority students in a district is associated with a 2.5% increase in the district dropout
rate. Similarly, a one percentage point increase in the percent of students receiving federal free or reduced lunch (FRL) is associated with a 3.5 percent increase in a district’s dropout rate.

Additionally, a one percentage point increase in the percent of English Language Learners (ELL), holding all else constant, is predictive of a 5.6 percent decrease in dropout rate. This stands in opposition to previous research and may be explained by two factors. First, much of the variation in ELL may be captured by FRL. The interaction variable, fELL, shows that as the proportion of ELL’s grows, the effect of receiving FRL on district dropout rate increases. Therefore, the increase in the dropout rate that we would expect to see as the proportion of ELL’s increases is actually captured by FRL in models (1) and (3). (Silver, 2008) Additionally, California has an unusually large ELL population. As such, districts in the state may be better equipped to serve ELL’s unique needs than are districts in states with smaller ELL populations.

Interestingly, for districts that did receive Learn and Serve America grants none of the variables in the student characteristics model were statistically significantly related to the district dropout rate. And all variables had a positive relationship to the district dropout rate with the exception of the percent of ELL students (see column three in Table Six). In contrast, for districts that did not receive a Learn and Serve America grant, all of the variables in the student characteristics model had a statistically significant relationship to the district dropout rate. However, similar to districts that did receive Learn and Serve America grants, the percent of ELL students was the only variable that had a negative relationship to the district dropout rate (see column four of Table Six).

District Characteristics

Model (2) explored how district characteristics impact a district’s dropout rate (see column 5 in Table Six). The analysis showed that districts with larger percentages of fully
credentialed teachers, on average, have lower district dropout rates than do comparable districts with smaller percentages of fully credentialed teachers; however, this difference was not statistically significant at any of the standard levels of significance. Dissimilarly, the proportion of students scoring proficient or above on English Language Acquisition (ELA) standardized tests had a statistically significant relationship to a district’s dropout rate ($P > t = 0.001$). Specifically, a one percentage point increase in the percentage of students scoring at or above proficient is associated with a 4.5 percent decrease in the district dropout rate. When I looked at districts that receive Learn and Serve America grants only, I found similar results (see column 6 in Table Six). Analogously, in districts that did not receive Learn and Serve America grants, the percent of students scoring proficient or above on ELA tests had a negative, statistically significant relationship to the district’s dropout rate (see column 7 in Table Six).

**Complete Model**

As can be seen in column 8 of Table Six, when the two previous models were combined, the analysis revealed that the proportion of students scoring at or above proficient on ELA standardized tests was negatively associated with the district dropout rate across models (2) and (3). Similarly, the relationship between the proportion of ELL’s and dropout rate remained negative across models, meaning that as the percentage of ELL’s increased, the dropout rate decreased holding all else constant. It is important to remember the relationship between the $ELL$ and $FRL$ variables discussed in the Student Characteristics portion of this section.

Interestingly, a one percentage point increase in the percent of students scoring proficient on math standardized tests is associated with a 2.1 percent increase in the district dropout rate. This relationship is only statistically significant in the final model, indicating that the relationship between the percentage of students scoring proficient or above on math tests and district dropout...
rate is less robust than is the one between the proportion of students scoring proficient or above on ELA tests and district dropout rate, which was a negative, statistically significant relationship in models (2) and (3).

**Service-Learning**

Although the difference in district dropout rates between districts that received Learn and Serve America grants to implement service-learning programs and those that did not was not statistically significant, in any of the three models, there was a negative relationship between receipt of the grant and district dropout rate in all three models. Additionally, the coefficient on the *service-learning* variable was relatively large in all three models. In model (1), receiving a service-learning grant was associated with a 12.7 percent decrease in the district dropout rate holding all else constant. Similarly, districts that received grants had, on average, a 6.6 percent lower dropout rate than did districts that did not receive the grant according to model (2). Finally, model (3) showed that receiving a grant was associated with a 9 percent decrease in the district dropout rate when all other variables were held constant. Thus, although there was not a statistically significant difference between the dropout rates of districts that received grants to implement service-learning and those that did not, districts that did receive grants had, on average, lower dropout rates than do comparable districts that were not given grants.
### Table 5: Descriptive Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log DR</td>
<td>Log of District Dropout Rate</td>
<td>144</td>
<td>0.943</td>
<td>0.919</td>
<td>-2.3023</td>
<td>3.614</td>
</tr>
<tr>
<td>AA</td>
<td>% African American</td>
<td>147</td>
<td>6.665</td>
<td>8.903</td>
<td>0</td>
<td>60.9</td>
</tr>
<tr>
<td>AI</td>
<td>% American Indian / Alaska Native</td>
<td>147</td>
<td>1.427</td>
<td>6.703</td>
<td>0</td>
<td>79.1</td>
</tr>
<tr>
<td>HISP</td>
<td>% Hispanic or Latino</td>
<td>147</td>
<td>39.726</td>
<td>27.639</td>
<td>2.7</td>
<td>96.3</td>
</tr>
<tr>
<td>Minority</td>
<td>% African American + % American Indian / Alaska Native + % Hispanic or Latino</td>
<td>147</td>
<td>47.818</td>
<td>28.501</td>
<td>3.6</td>
<td>98.9</td>
</tr>
<tr>
<td>FRL</td>
<td>% qualifying for Federal Free &amp; Reduced Lunch</td>
<td>147</td>
<td>44.702</td>
<td>26.068</td>
<td>0.3</td>
<td>100</td>
</tr>
<tr>
<td>fMinority</td>
<td>% qualifying for Federal Free &amp; Reduced Lunch * % Minority</td>
<td>147</td>
<td>2733.64</td>
<td>2535.1</td>
<td>1.44</td>
<td>9630</td>
</tr>
<tr>
<td>ELL</td>
<td>% English Language Learners</td>
<td>147</td>
<td>19.634</td>
<td>14.267</td>
<td>0</td>
<td>64.1</td>
</tr>
<tr>
<td>fELL</td>
<td>% qualifying for Federal Free &amp; Reduced Lunch * % ELL</td>
<td>147</td>
<td>1148.08</td>
<td>1240.68</td>
<td>0</td>
<td>5884</td>
</tr>
<tr>
<td>FCT</td>
<td>% Fully Credentialed Teachers</td>
<td>147</td>
<td>90.982</td>
<td>18.364</td>
<td>17.9</td>
<td>100</td>
</tr>
<tr>
<td>ACS</td>
<td>Average Class Size</td>
<td>147</td>
<td>24.917</td>
<td>3.2141</td>
<td>0</td>
<td>8.3</td>
</tr>
<tr>
<td>ELA</td>
<td>% scoring proficient or above in English Language Arts</td>
<td>147</td>
<td>49.619</td>
<td>15.699</td>
<td>19</td>
<td>89</td>
</tr>
<tr>
<td>Math</td>
<td>% scoring proficient or above on math tests</td>
<td>147</td>
<td>42.694</td>
<td>15.773</td>
<td>2</td>
<td>86</td>
</tr>
<tr>
<td>SL</td>
<td>Learn and Serve America Grant Recipient (2002-2002, 2005 – 2008 cycles)</td>
<td>147</td>
<td>0.306</td>
<td>0.462</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 6: Regression Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model (1) SL = 1</th>
<th>Model (1) SL = 0</th>
<th>Model (2) SL = 1</th>
<th>Model (2) SL = 0</th>
<th>Model (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log (dropout rate)</td>
<td>Coefficient (S.E.)</td>
<td>Coefficient (S.E.)</td>
<td>Coefficient (S.E.)</td>
<td>Coefficient (S.E.)</td>
<td>Coefficient (S.E.)</td>
</tr>
<tr>
<td>_cons</td>
<td>-0.189 (0.209)</td>
<td>0.838 (0.601)</td>
<td>-0.455** (0.209)</td>
<td>3.587*** (0.587)</td>
<td>1.818 (1.60)</td>
</tr>
<tr>
<td>Minority</td>
<td>0.025** (0.01)</td>
<td>-0.012 (0.024)</td>
<td>0.037*** (0.112)</td>
<td>0.001 (0.011)</td>
<td></td>
</tr>
<tr>
<td>FRL</td>
<td>0.035*** (0.006)</td>
<td>0.012 (0.017)</td>
<td>0.041*** (0.006)</td>
<td>0.005 (0.009)</td>
<td></td>
</tr>
<tr>
<td>ELL</td>
<td>-0.056*** (0.021)</td>
<td>-0.023 (0.046)</td>
<td>-0.066** (0.027)</td>
<td>-0.049** (0.021)</td>
<td></td>
</tr>
<tr>
<td>FRL*Minority</td>
<td>-0.001*** (0.0002)</td>
<td>0 (0)</td>
<td>-0.001*** (0.000)</td>
<td>-0.0003 (0.0002)</td>
<td></td>
</tr>
<tr>
<td>FRL*ELL</td>
<td>0.0009*** (0.0003)</td>
<td>0 (0.001)</td>
<td>0.001** (0.000)</td>
<td>0.0007** (0.0003)</td>
<td></td>
</tr>
<tr>
<td>Service-Learning</td>
<td>-0.127 (0.143)</td>
<td>-0.066 (0.135)</td>
<td>-0.005 (0.003)</td>
<td>-0.004 (0.009)</td>
<td>-0.003 (0.003)</td>
</tr>
<tr>
<td>Fully Cred. Teachers</td>
<td>-0.005 (0.003)</td>
<td>-0.048*** (0.016)</td>
<td>-0.045*** (0.009)</td>
<td>-0.072*** (0.016)</td>
<td></td>
</tr>
<tr>
<td>ELA</td>
<td>-0.045*** (0.008)</td>
<td>0.017 (0.008)</td>
<td>0.008 (0.016)</td>
<td>0.021** (0.010)</td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td>0.010 (0.008)</td>
<td>0.017 (0.016)</td>
<td>0.008 (0.009)</td>
<td>0.019 (0.019)</td>
<td></td>
</tr>
<tr>
<td>Avg. Class Size</td>
<td>-0.017 (0.019)</td>
<td>0.044 (0.055)</td>
<td>-0.031 (0.019)</td>
<td>0.019 (0.023)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>144</td>
<td>144</td>
<td>144</td>
<td>144</td>
<td>144</td>
</tr>
<tr>
<td>R^2 (Adjusted)</td>
<td>0.355 (0.327)</td>
<td>0.228 (0.129)</td>
<td>0.467 (0.438)</td>
<td>0.396 (0.379)</td>
<td>0.248 (0.173)</td>
</tr>
</tbody>
</table>

*Statistically significant at the 10% level
**Statistically significant at the 5% level
***Statistically significant at the 1% level
DISCUSSION AND POLICY IMPLICATIONS

Similar to previous research, my analysis revealed a statistically significant relationship between socioeconomic status and dropout rate. Additionally, my regression results indicate that ethnicity is significantly associated with dropout rate. As such, dropout prevention programs ought to continue to try to meet the unique needs of lower income, minority youth.

The statistically significant relationship between English Language Arts (ELA) scores and dropout rate, in models (2) and (3), echoes what previous researchers have found. Since ELA scores are averaged across grade levels in this data set, ELA scores at all grade levels are related to dropout rate. Specifically, districts that have a higher proportion of students scoring proficient on ELA tests, on average, have lower dropout rates than do comparable districts with a smaller percentage of student scoring proficient on ELA tests. Thus, early indicator warning systems, that identify students who perform poorly on standardized ELA tests, should be implemented so that these students can receive support to raise these scores. Select school districts use early indicator warning systems to identify struggling students. However, not all early indicator systems include ELA scores. This research shows that such systems should be included in all school districts and that special attention ought to be paid to ELA scores so that districts can accurately identify students who are at risk of dropping out of high school.

The negative relationship, across all three models, between district dropout rate and receipt of a Learn and Serve America grant may be attributed to two factors. First, it is possible that the service-learning funded by Learn and Serve America grants increased student engagement, thereby decreasing the district dropout rate. Alternatively, districts that received grants may have superior leadership to those that did not receive grants. Grants are distributed either by formula or on a competitive basis. As such, district leadership either has to complete
the paper work required in order to receive the grant according to a formula or has to submit a
superior application to win the grant through a competitive process. Thus, whether the district
received the grant according to a formula or through a competitive process, the district leadership
had to be organized enough to submit all of the necessary application materials.

The lack of a statistically significant relationship between service-learning and district
dropout rate may be attributed to three factors. First, this dataset did not allow the researcher to
control for the quality of the service-learning programs. As Billig (2010) notes, only high quality
service-learning has been shown to increase student engagement. Thus, Learn and Serve
America ought to take steps to evaluate the quality of the service-learning programs their grants
are funding. Once this data is available, researchers will be able to control for the quality of the
service-learning programs, and may find a statistically significant difference between the dropout
rates of districts that receive Learn and Serve America grants and those that do not. Second, this
dataset does not contain the information needed to control for the quality of the district
leadership. Therefore, it is impossible to discern whether the quality of the district leadership
contributes to the large, negative coefficients on the service-learning variable in all three models.
In the future, researchers may want to work with the State of California to develop a system to
evaluate district leadership - it is worth noting that an evaluation system has started in the State
but is not yet fully implemented. That way, they can control for the quality of district leadership
in their analysis. Third, the large, negative coefficient on the service-learning variable in all three
models indicates that with a larger sample size, there could be a statistically significant
relationship between district dropout rate and service-learning.

Interestingly, when looking at districts that did receive Learn and Serve America grants,
the regression results showed that only the proportion of students scoring proficient or above on
ELA tests had a statistically significant, negative relationship to the district dropout rate. In contrast, when looking at districts that did not receive grants, student characteristics, such as socioeconomic status, race, and ethnicity as well as proficiency on standardized ELA tests were statistically significantly associated with the district’s dropout rate. This difference between districts that received grants and those that did not indicates that service-learning programs may mitigate the effects of socioeconomic status, race, and ethnicity on dropout rate. This finding supports previous research that service-learning programs are particularly beneficial in low income, minority school districts. (Spring, 2008)

Overall, this research draws attention to the need to continue to focus on serving minority and poor youth, to incorporate ELA scores into systems designed to identify struggling students, and to perform thorough evaluations of Learn and Serve America grantees so that researchers can control for quality in future research. With a larger data set, the ability to control for the quality of the service-learning programs, and the ability of district leadership, future researchers will be able to assess whether providing Learn and Serve America grants to districts has a statistically significant affect on district dropout rates.
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