Local Revenue: Making a Difference in College Readiness

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This research project collects demographic, fiscal, and assessment data from Idaho school districts that have a high school and that report senior ACT scores. Analysis of the data indicates statewide correlations between local economic revenue indicators (local revenue per student, household median income, and percentage of local funding per student) and Idaho high school graduating seniors' composite ACT scores. This research project indicates: (1) A strong relationship between Idaho school districts' local revenues and their seniors composite ACT scores; (2) A strong relationship between Idaho high schools amount of local revenue per student and minimal ACT benchmarks not met by graduating seniors; and (3) A strong relationship between local revenues, ACT scores, and the percentage of college prep/advanced placement courses taught in Idaho high schools.

Introduction

The Secretary of Education's Commission on the Future of Higher Education reported a nationwide increase in "expectations gaps": inadequate high school preparation compounded by poor alignment between high schools and colleges, resulting in high levels of remediation in higher education (2006). Expectation gaps have created a new reality for the 21st century in higher education and in our nation's workforce. Thomas J. Tierney, an influential businessman forewarns, "If our nation and our states cannot assure employers a large growing labor pool of people with competencies beyond those taught in high school, other nations will" (Hunt & Tierney, 2006).

Insuring America's high school graduates are adequately prepared for college-level curriculum has been an uphill battle. Just over a third (34%) of students who entered the ninth grade in public schools graduated high school with both a regular diploma and the abilities required to apply to a four-year college (Greene & Winters 2005). Many public officials and parents are surprised when high school graduates, their sons and daughters, do not succeed in college. Research indicates college admission requirements are no longer the challenge faced by high school graduates; the challenge is academic readiness (Callen, Finney, Kirst, Usdam, Venezia, 2006).

When comparing graduation rates, Idaho ranks 13th with a 77% success rate; this is 9% higher than the national average of 68%. However, Idaho is below the national average when looking at high school graduates' success in attaining a postsecondary degree. Only 34% of Idaho high school graduates immediately enter college; the national average is 40%. 22% of Idaho graduates return for their sophomore year; the national average is 27%. Finally, a mere 14% of Idaho high school students graduate from college on time (Achieve, 2006).

High school graduates not only need the opportunity to attend college, but more importantly they need the basic academic knowledge required for success in obtaining a higher level of education. Nationwide, universities and colleges have increased the amount of remedial courses costing taxpayers over a billion dollars a year (Saxton and Boylan, 2001). In the fall of 2004, Idaho's State Board of Education reported more than half of all remedial courses—proven to be costly and ineffective—offered at Idaho public universities and colleges were filled with traditional freshmen just out of high school, and that 41% of Idaho's college freshmen took remedial courses, accumulating 12,118 credit hours. The price tag of this remediation totaled $1,873,365 paid for by student fees and the State of Idaho (State Board of Education, 2004).

Measuring high school graduates' potential for success in college is no simple task, nor is there a single absolute predictor. The majority of colleges in the United States rely on high school grade point

averages (HSGPA) and curriculum college-based entrance exams like the ACT and SAT. Both HSGPA and college entrance exam results are effective predictors of achieving a 2.0 or higher GPA in a student's first year of college (Noble & Sawyer, 2004). Factors other than academic preparedness: socioeconomic status, first generation student, motivation, for example, cannot be measured by conventional means and are not accounted for in this study.

This research project focuses on ACT assessment scores' relationship to local funding in Idaho school districts. Due to the overwhelming amount of rural school districts in Idaho, SAT results and HSGPA are not reliable markers for measuring college readiness in Idaho school districts. A low percentage of Idaho high school graduates complete the SAT college entrance examination, while a large percentage of rural Idaho high schools do not report graduating seniors' HSGPA. Research shows an advantage to using composite ACT scores as a predictor for college readiness. The ACT college entrance exam is a standardized measure that sustains meaning across schools, and is designed to measure academic skills taught in college-preparatory curriculum and basic knowledge needed for success in the first year of college (Allen & Sconing, 2005).

Method

RQ: Do local revenue sources influence an Idaho high school's ability to adequately prepare its graduates for success in college?

This research project studies the influence local tax revenue has on an Idaho high school's ability to prepare its graduating seniors for success in college. This study provides a cross-correlation comparison of 85 Idaho school districts, analyzing the probability of correlation with graduating senior ACT scores (dependent variable), and local revenue indicators (independent variables). This study also provides an in-depth breakdown of six Idaho school districts by composite ACT scores, local fiscal data, percentage/local funding per student, median household income, fall 2004 enrollment, average daily attendance (ADA), and property market value per student. Finally in this study, local fiscal data, percentage/local funding per student, and median household income are provided in comparison with ACT assessment results for six Idaho high schools, compiled with an in-depth breakdown of classes offered for the 2003 spring semester, calculating the percentage of college prep/advanced courses, core courses, and elective courses offered.

The selected sample size consists of 85 Idaho school districts. In particular, this study examines six separate school districts and six Idaho high schools. Two criteria were set for choosing Idaho school districts: (1) The school district needed to have a high school; and (2) The high school needed to have reported ACT scores for their graduating senior class of 2003-2004. A total of 85 Idaho school districts met both criteria. A cross-correlation of two random variables: districts' composite ACT scores and local revenue per student, along with a cross-correlation of district composite ACT scores and percentage of local revenue. The cross-correlation indicates the strength and direction of a linear relationship between local revenue and Idaho school district composite ACT scores for all 85 school districts.

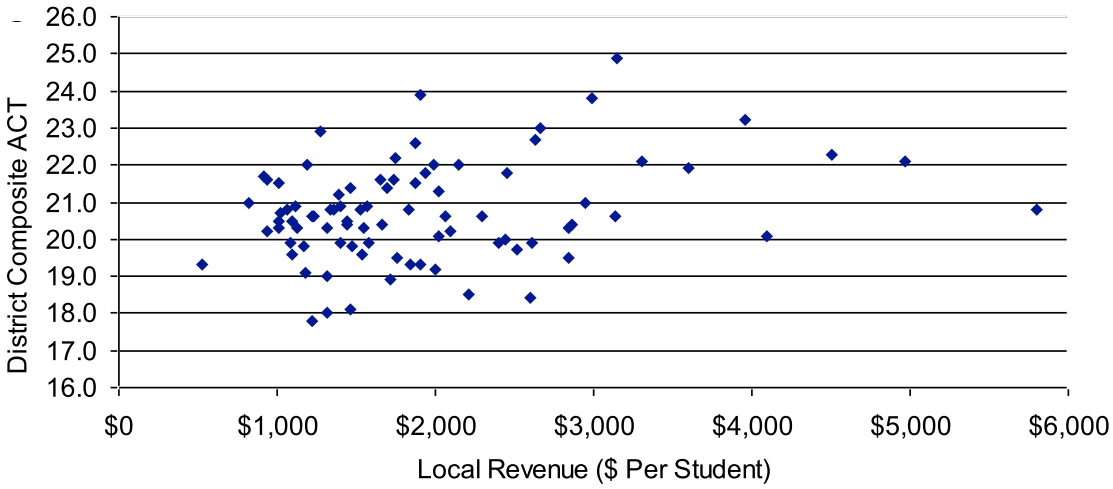
The Idaho State Department of Education geographically divides Idaho into six separate regions. One school district from each region was chosen for this study based on two criteria: (1) The district that best represents the population density (peoples per square mile); and (2) The average student body size per ADA. This study also looks at one high school from each district. For four out of the six chosen school districts, one high school from each school district was chosen based on their ADA ranking (ranked by Idaho Department of Education); the final two school districts only have one high school. The data regarding the six districts and high schools were collected and organized from preexisting secondhand data for the purpose of comparing local revenue indicators with college readiness predictors to indicate a relationship between the two variables, not to imply causation.

The Idaho school districts' data (composite ACT scores, percentage of local funding, local funding per student, median household income, and percentage of economically disadvantaged students) were collected from Standard & Poor's SchoolMatters online research database (www.schoolmatters.com). Data regarding the six districts' and individual schools' (composite ACT scores, attendance per ADA, and property market value per ADA) were collected from the Idaho State Department of Education website (www.sde.state.id.us/dept). The data for the 6 high schools (composite and subject area ACT assessment results, the high schools' master schedules, the high schools' percentage of electives, and college prep/ advance placement courses) was collected from appropriate high school personnel.

Results

The calculated data for the 85 school districts indicates a significant probability of occurrence with composite ACT scores (dependent variable) and local revenue indicators (independent variable). Figure 1.1 illustrates a correlation coefficient of .257 ($p<.05$) for the cross-correlation of the 85 school districts' composite ACT scores and the amount of local tax revenue per student.

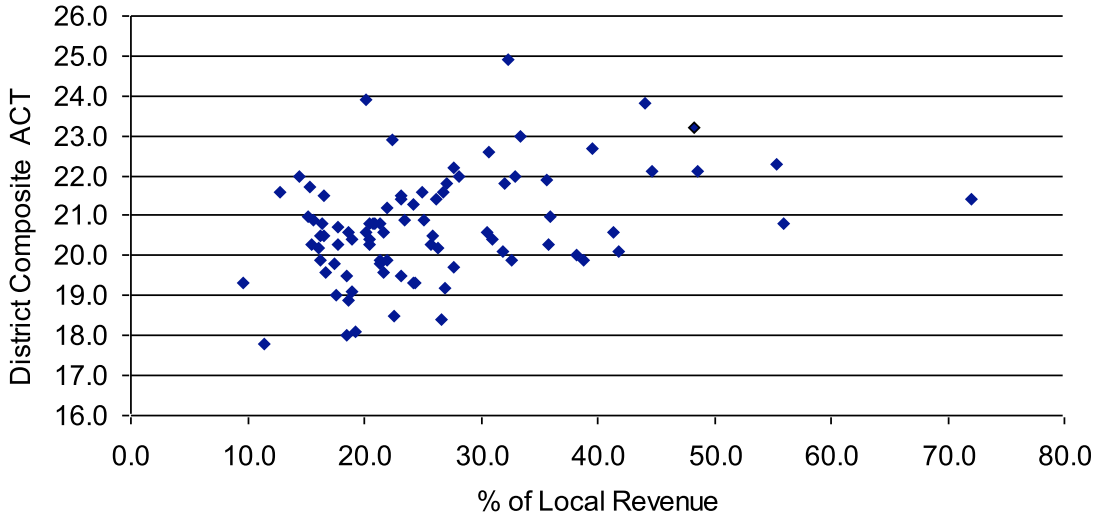
Figure 1.1. Scatter Plot of Composite ACT Scores and Local Revenue Per Student



Note: Correlation Coefficient .257 ($p<.05$).
Source: Standard & Poor's

Figure 1.2 shows a correlation coefficient of .376 ($p<.01$) for the 85 school districts' composite ACT scores and percentage of revenue derived from local sources. These data indicate that percentage of local revenue compared to the revenue collected from state and federal sources is a strong indicator for college readiness rates in the state of Idaho.

Figure 1.2. Scatter Plot of Composite ACT Scores and % of Local Revenue.



Note: Correlation Coefficient .376 ($p<.01$)
Source: Standard & Poor's

The data on the six school districts indicate a strong relationship between the districts' composite ACT scores and local revenue indicators. Figure 2.1 provides four local fiscal indicators for the six school districts: (1) The median household income (MHI) for the county the district is located in; (2) The average property market value (PMV) for the county the district is located in; (3) The district's average daily attendance (ADA); and (4) The county's property market value divided by the district's average daily attendance (PMV/ADA). This figure indicates clear differences in the amount of local revenue available for each Idaho school district.

Figure 2.1. All Six School Districts

	Local Revenue Indicators			
School Districts	MHI	PMV	ADA	PMV/ADA
Moscow	$ 32,306	$ 777,809,655	2,392	$ 325,171
Boise	$ 45,159	$12,860,409,048	24,556	$ 523,718
Kellogg	$ 30,706	$ 291,933,943	1,337	$ 218,350
Valley	$ 32,898	$ 132,151,733	590	$ 223,986
Blackfoot	$ 37,266	$ 478,616,150	3,938	$ 121,538
Rockland	$ 37,539	$ 26,668,730	144	$ 185,200

Source: State Department of Education and Standard & Poor's

Figure 2.2 compares district composite ACT scores with three fiscal indicators: (1) The amount of local revenue per student (LRS) each school district receives; (2) The percentage of local revenue (% LR) each school district receives compared to state and federal sources; and (3) The percentage of economically disadvantaged students (% EDS) in each school district.

Figure 2.2. All Six School Districts

	Composite	Local Revenue Data		
School Districts	ACT	LRS	% LR	% EDS
Moscow	23.2	$ 3,953	48.3%	19.0%
Boise	22.3	$ 4,508	55.3%	31.5%
Kellogg	20.9	$ 2,098	26.3%	45.6%
Valley	20.8	$ 1,828	21.3%	54.3%
Blackfoot	19.9	$ 1,087	16.3%	47.2%
Rockland	19.5	$ 2,846	23.1%	62.2%

Note: (EDS) eligible to receive free or reduced-priced lunches under the National School Lunch Program.
Source: Standard & Poor's

Figure 2.3.A illustrates an in-depth breakdown of six Idaho high schools' composite and subject areas ACT assessment results.

Figure 2.3. College Readiness Rates Per High School

A. ACT Composite and Subject Area Scores By School

	Composite	ACT Subject Area Scores			
Schools	ACT	English	Math	Reading	Science
Boise H.S.	23.3	22.3	23.7	24	23.3
Moscow H.S.	23.2	21.9	23.3	24.1	22.9
Valley H.S.	20.8	n.a.	n.a.	n.a.	n.a.
Kellogg H.S.	20.6	19.2	20.3	21.8	20.5
Blackfoot H.S.	19.9	17.9	18.9	19.8	19.8
Rockland H.S.	19.5	18.3	19.2	20.3	20.2

Note: Valley High School did not provide accurate data for subject area ACT section.

B. State and National ACT Composite and Subject Area Scores

	Composite	ACT Subject Area Scores			
	ACT	English	Math	Reading	Science
Idaho	21.3	20.4	20.9	22	21.2
Nation	20.9	20.4	20.7	21.3	20.9

Note: ACT scores for 2004.

Source: ACT Measuring College Readiness 2004.

C. Minimal Benchmarks for College Readiness

English	Math	Reading	Science
18	22	21	24

Source: ACT Research Report 2005.

Figure 2.3.C illustrates minimal benchmark ACT assessment results by subject area needed to indicate a .50 likelihood of college readiness (Allen & Sconing, 2005). Idaho high schools with higher local revenue, Boise and Moscow, met 4 out of 5 minimal benchmarks. The high schools with lower local revenue, Blackfoot and Rockland, only met 1 or 2 minimal benchmarks. Figure 2.3.B provides state and national average ACT assessment results, indicating low scores and minimal benchmarks not met in math and science.

Figure 2.4 illustrates the percentage of core courses versus the percentage of elective courses (C/E) offered in the six Idaho high schools.

Figure 2.4. College Prep/Advanced Placement Courses Per School

Schools	Composite Scores ACT	Spring 2004 Classes % of CPAP	% of C/E
Boise H.S.	23.3	15.1%	60/40
Moscow H.S.	23.2	27.4%	72/28
Valley H.S.	20.8	7.9%	48/55
Kellogg H.S.	20.6	10.8%	64/36
Blackfoot H.S.	19.9	12.3%	57/43
Rockland H.S.	19.5	5.1%	38/62

Source: Individual school's master schedules for spring 2004.

Figure 2.2 and 2.4 indicate a relationship exists between the amounts of local revenue generated by an Idaho school district, college entrance exam results, and the percentage of college prep/advanced placement. High schools such as Boise and Moscow with higher levels of local revenue have the funds to support the extra expenditures related to effectively implementing college prep/and advanced placement courses (CPAP). High schools like Valley and Rockland have lower levels of local revenue and do not offer a sufficient amount CPAP courses.

Discussion

The amount of local revenue allocated to an Idaho high school can influence its ability to prepare its graduates for success in college. Idaho high schools with higher levels of local revenue offer substantially more college preparation and core courses, which help build the foundation of knowledge needed for success with college level curriculum. In particular, this research report found a strong relationship exists between Idaho communities which invest more in their high schools, and their high school's ability to prepare its graduates for success in college.

The cross-correlation of the 85 school districts indicated a correlation between Idaho school districts' college readiness rates and local revenue indicators. The strength of these correlation coefficients indicates a strong relationship between local communities which invest more in their school districts and the local community's graduating seniors scoring higher on college entrance exams. For rural school districts in Idaho the ability to generate local revenue can be challenging. Plagued by low property values, rural districts are dependent on alternative revenue sources like the agriculture equipment replacement tax, lottery revenues, and technology grants. This study found lower levels of local revenue can inhibit Idaho communities in their ability to adequately support their local high schools and to invest in education capital —college graduates.

A broader significance of this study is that the collected data reinforce existing studies (Hall & Kennedy, 2006) that indicate a shortage of qualified graduates in the fields of Math and Science, and Idaho's shortage of qualified math and science teachers. As a result, Idaho's universities and colleges are finding acute achievement gaps in traditional freshmen college students, predominately in the fields of Math and Science, and investing more in remedial related expenditures.

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