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Introduction
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Do Lower Instructional Expenditures Lead to Higher 4-Year Public High School Graduation Rates in the United States?

It is often stated that more money must be invested into the public school system in order to increase student achievement. This idea is so prominent that while campaigning for public office many politicians often promise voters that they will allocate more money for public schools if elected. Even large consumer goods corporations have developed education-driven fundraising programs, such as the Box Tops for Education program sponsored by General Mills and Target Corp's Take Charge of Education, in which a designated portion of profits will go directly to the schools of the consumer's choice.

With the national public high school 4-year adjusted cohort graduation rate (ACGR) in the United States residing at 81.4% [†], with the lowest rate of 71.7% held by Georgia and the highest rate of 89.7% claimed by Iowa, it is no surprise that many people would like to direct more money into the public education system. After all, it is commonly thought that more money in schools will translate into increased student achievement, and in particular more graduates. A few basic educational expenses that are often targeted by this strategy include instructional supplies and services as well as teacher compensation, all of which are collectively labeled instructional expenditures.

But does increased spending on instruction lead to higher 4-year public high school graduation rates? Some would argue yes. Instructional supplies and services are extremely important to student learning since they are part of the foundation of classroom education. More money for supplies and services would *ensure* that all students are set up for a successful learning experience. And perhaps paying teachers higher wages—or simply giving them annual bonuses for yielding higher standardized test scores—will increase their effectiveness as educators. A higher paid teacher could focus more on her curriculum instead of working a second job to make ends meet. While this collective theory seems plausible, the contrary theory seems reasonable too and is the hypothesis of this paper. Lower instructional expenditures per student may actually lead to higher 4-year ACGRs in U.S. public high school districts. Lower instructional expenditures would require schools to be innovative with their curricula in ways that promote student achievement and also require schools to employ the types of teachers who are willing to get paid lower salaries.

In this investigation, we study the relationship between 4-year ACGR and instructional expenditures per student in public high school districts across all fifty states. We take into account other demographic and financial variables related to academic achievement, including some that are previously shown to be correlated with high school graduation rates, such as income, ethnicity, and percentage of students identified as English language learners. Using a multiple linear regression analysis, we examine the hypothesis that low instructional expenditures per student lead to higher 4-year ACGR in US public high schools.

[†] The 81.4% adjusted cohort graduation rate quoted here is the national average for public high schools in the 50 states, including the District of Columbia, for the 2012-2013 academic year, and is quoted from the National Center for Education Statistics, Common Core of Data (CCD).