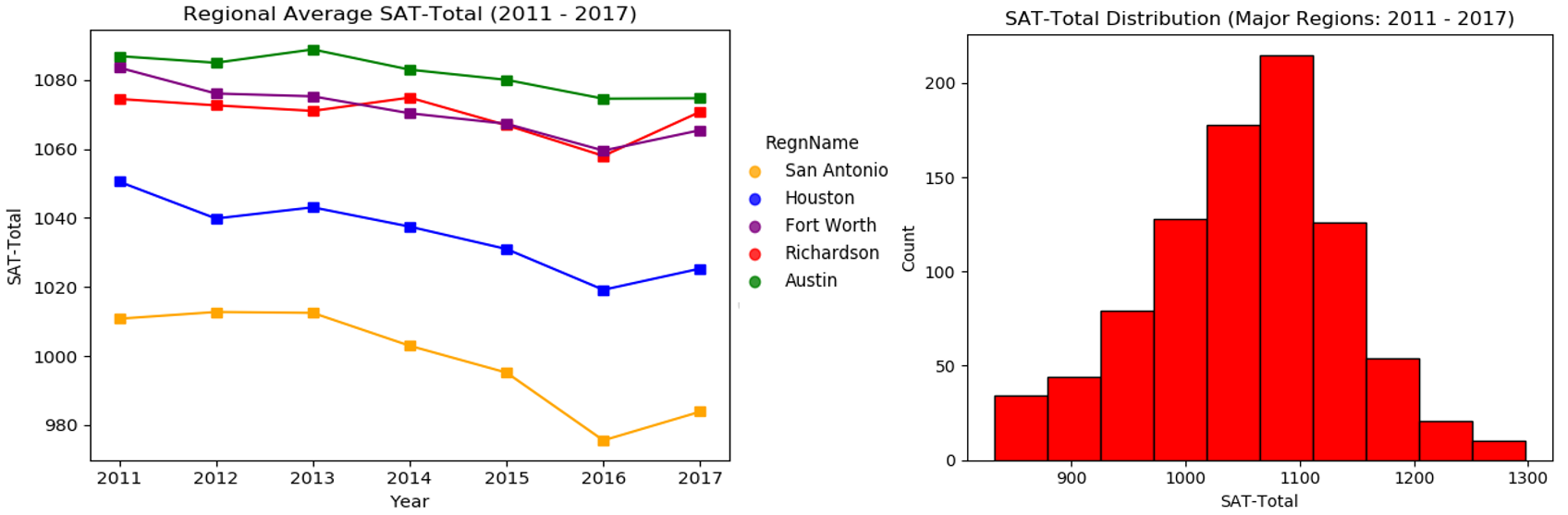
**Data Analysis: School District Features**

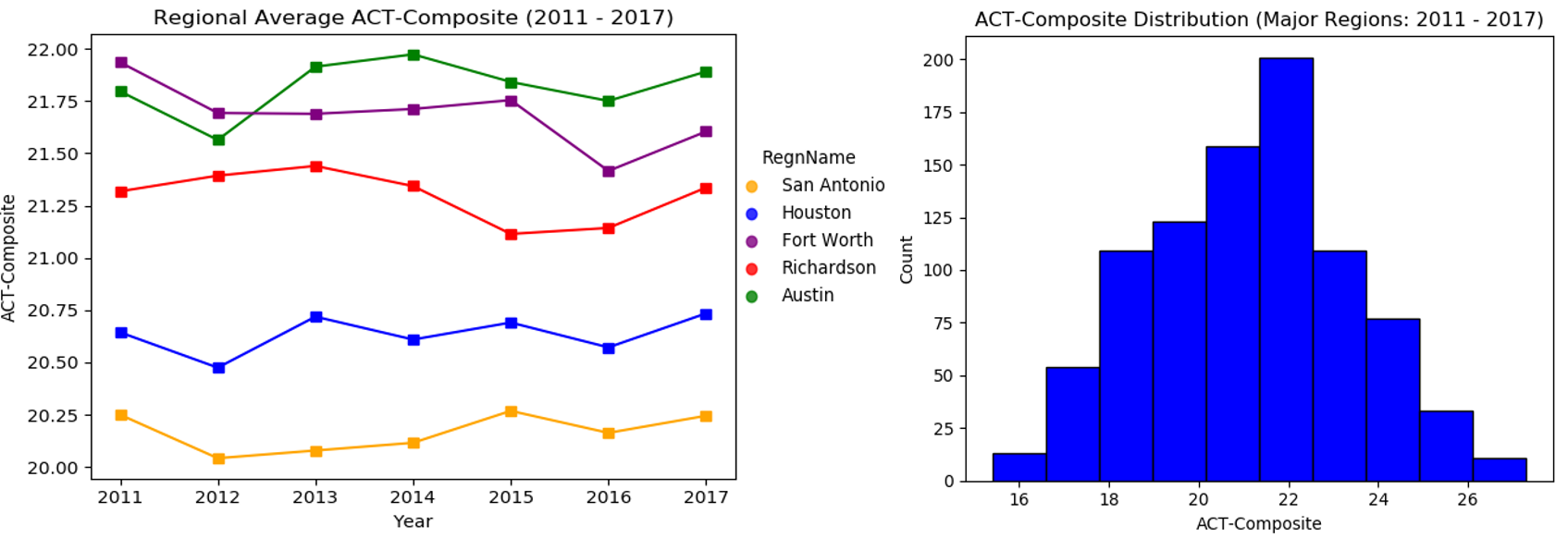
*(SAT)*

Let’s start of by viewing the regional averages for each class year and the distribution of district-level scores.



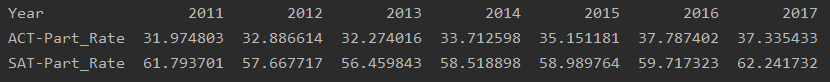
We can see that Austin performed the best while Fort Worth and Richardson were neck and neck. The gap between the top region and San Antonio is quite large. This will, unfortunately for the region of San Antonio, remain a common theme throughout this analysis.

*(ACT)*



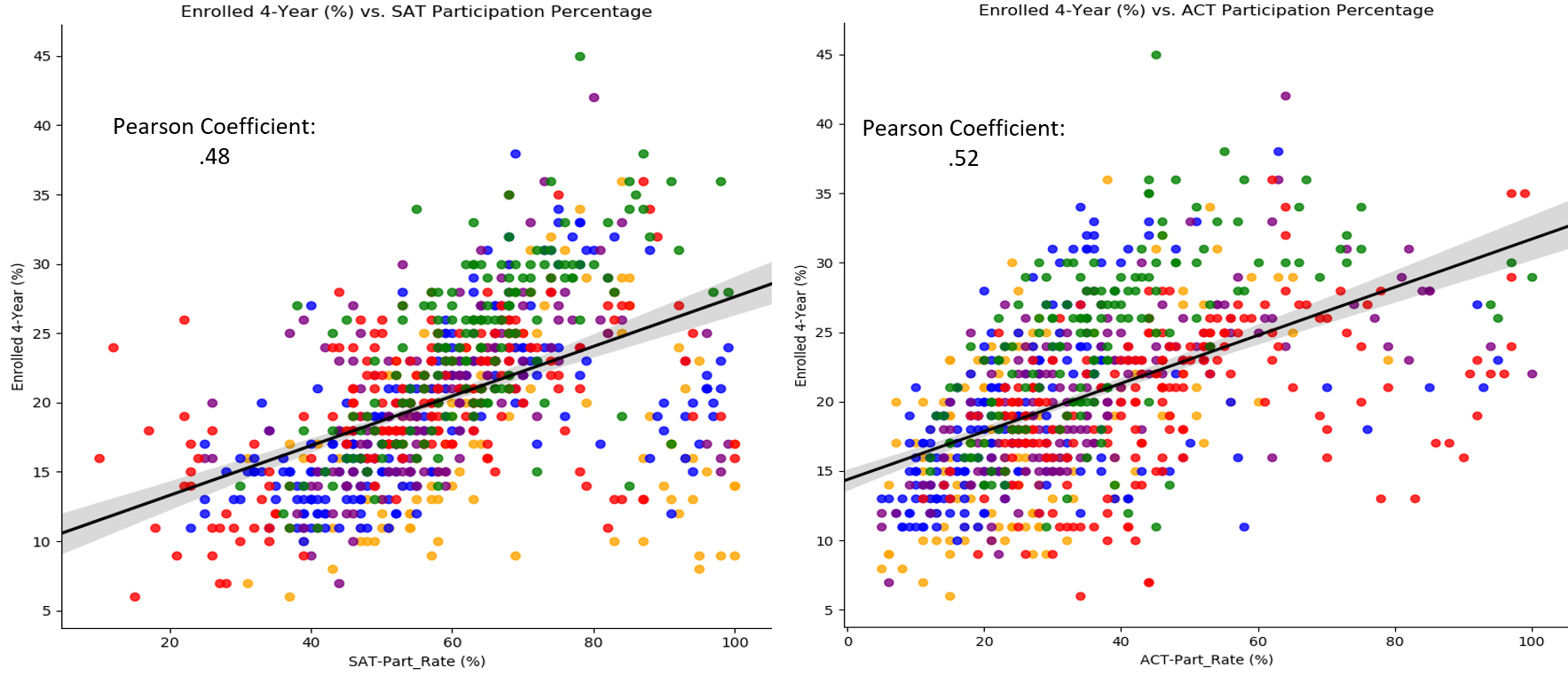
It appears that the districts located in Austin and Fort Worth achieved the best average scores on the ACT with Richardson not too far behind. As with SAT scores, there appears to be a slight uptick in the average scores for the class of 2017 (improved educators/smarter kids?).

*(SAT/ACT Participation %)*



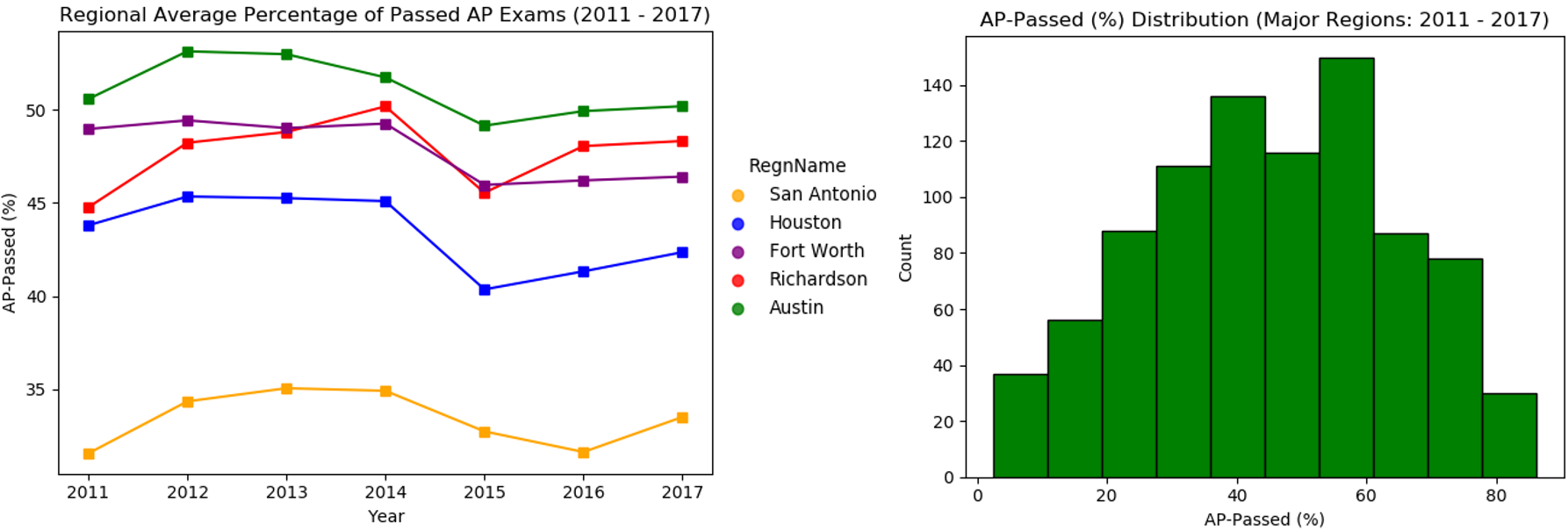
Something interesting I discovered is that more students consistently choose to take the SAT than the ACT. Why is this? Well… it’s very tough to know for certain without surveying high school students across Texas, but I’ll provide a possible theory. The SAT is the test students hear the most about while growing up from friends, parents, and teachers. You could say it’s the “standard test” students feel they have to take in high school.

It’s good to see in the later years that ACT participation grew, but it is also quite concerning that students are not more encouraged to take the ACT as well as the SAT. Taking two tests instead of just one immediately increases the chance of a student doing well on at least one. Doing well on one of the college admission tests is all it can take to get into college and earn scholarship money. With scholarship money, enrolling into college becomes more likely/possible for a student. As you can see below, both SAT and ACT participation rates contain positive correlation with Texas college enrollment percentage. Why not take both??

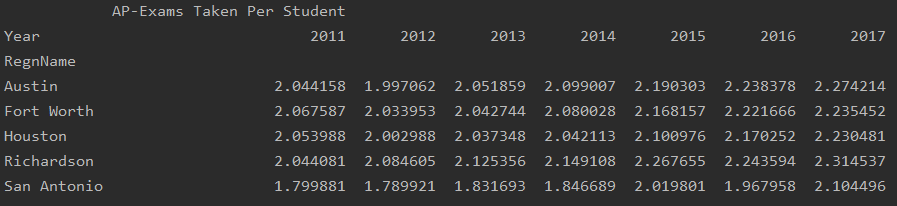


*(AP Exams)*

Note: In this study, a score of three or above on an AP exam is considered passing. Most colleges accept this score.

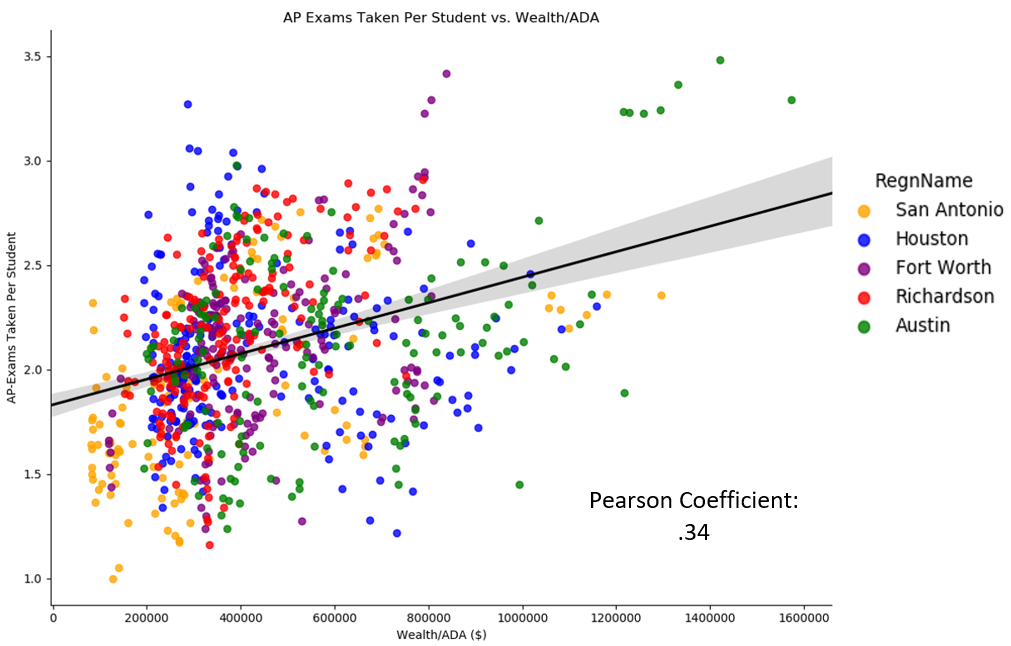


The regions of Austin, Richardson (Dallas), and Fort Worth appear to contain the best passing percentages. I found it interesting to also take a look at the availability of AP classes to students. One could argue that more availability to AP classes would result in a student being able to take more exams and earn more college credit.



From the standpoint of AP class/exam availability, it appears that Richardson (Dallas) gives the most opportunity to students to earn college credit. Austin tends to offer the second most opportunity, which is quite impressive when also taking into account that Austin contained the best passing percentage.

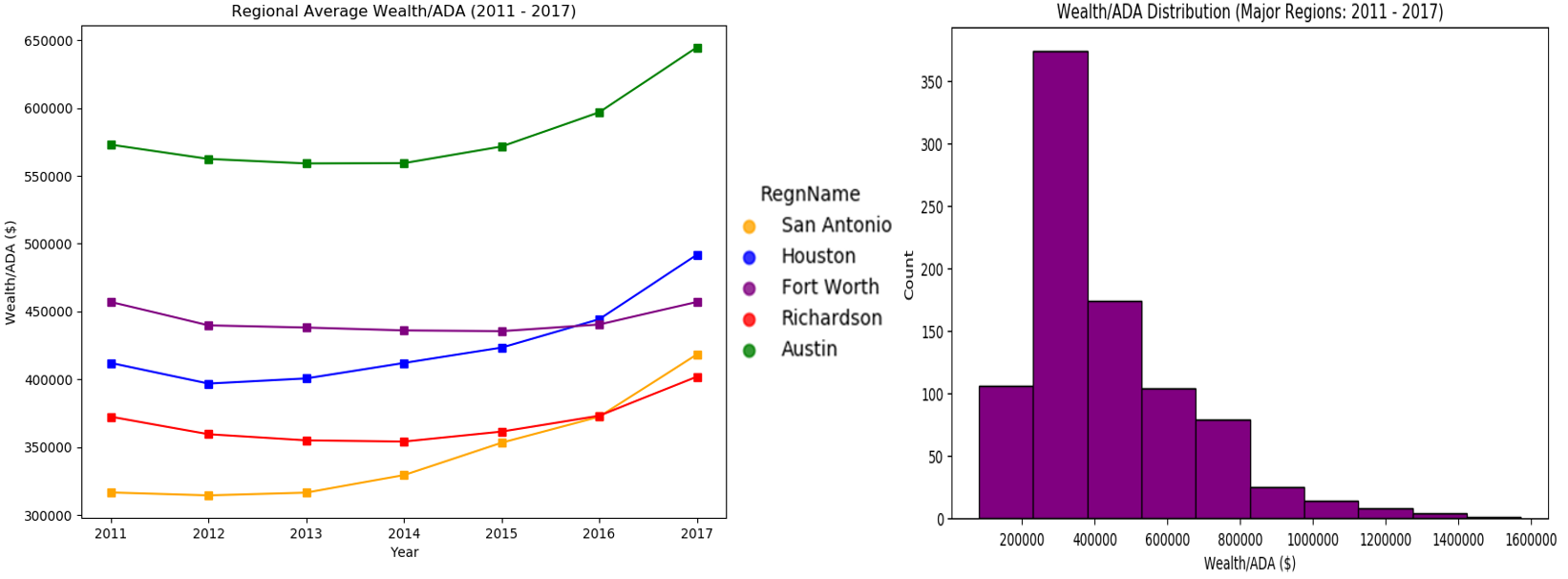
The next figure will offer a transition to our next analysis of the wealth per average daily attendance (“Wealth/ADA”) feature of school districts. Let’s take a look at how Wealth/ADA affected the amount of AP exams taken per student throughout 2011 - 2017. One might hypothesize that we could see a positive correlation as wealth/funding would bring in more qualified teachers and increase the number of AP classes offered to students.



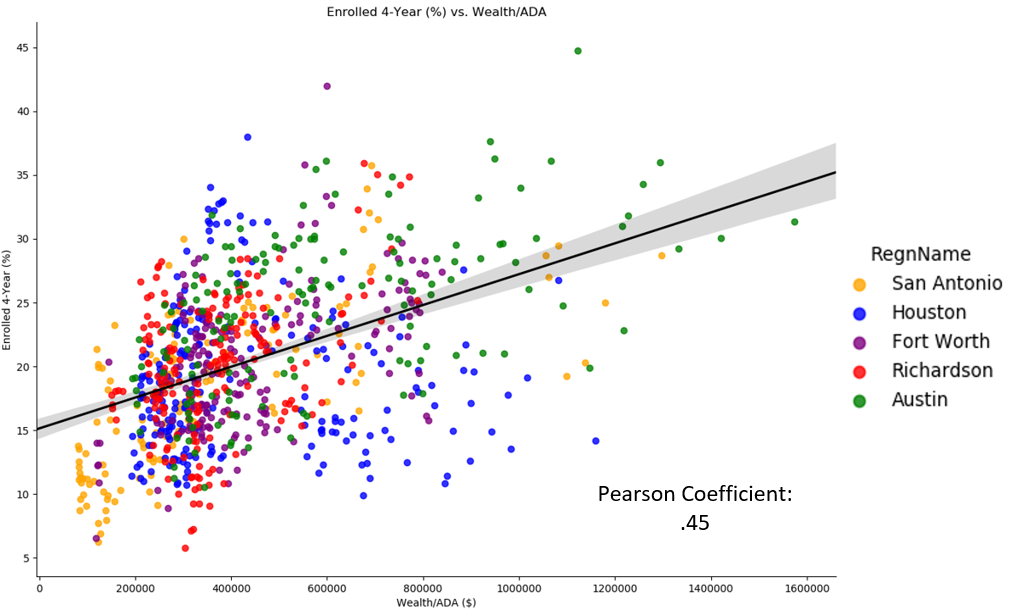
As anticipated, there was indeed a positive correlation. The cluster on the top rights represents Eanes ISD in Austin, which averaged the largest Wealth/ADA. The school that averaged the second highest Wealth/ADA was Alamo Heights ISD in San Antonio. It’s interesting to view the difference in Wealth/ADA between the Alamo Heights ISD cluster and the rest of the districts from San Antonio.

*(Wealth/ADA)*

Austin held a healthy lead over its nearest competitors in Fort Worth and Houston. Overall, it appears that Wealth/ADA has been increasing in recent years. Something we could later choose to explore is the average property tax for homes in each region.



It should be interesting view how Wealth/ADA correlated with college enrollment percentage for the different class years as well. It would not be unreasonable to hypothesize that a student’s ability to enroll into college increases with wealth as college is not free in the United States.



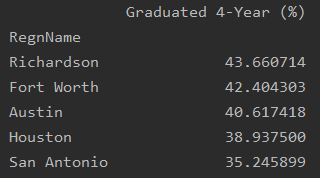
Though it certainly isn’t the only factor influencing college enrollment percentage, Wealth/ADA does indeed contain a positive correlation with college enrollment percentage. As mentioned before, this can be attributed to “wealthier” students having more access to college.

Let’s say a student has poor test scores, but comes from a family with money. There are several colleges that are still willing to accept this student. Even if the student ends up failing out, the college will still be entitled to tuition payments.

With that being said we still have to acknowledge that there are plenty of students in the districts containing higher Wealth/ADA that are taking advantage of the quality education made available to them in testing well and earning scholarships/being more attractive to colleges. Though I can’t necessarily prove it with data right now, it’s not egregious to assume that many of the parents in these “wealthier” areas are well educated and therefore, encourage/press their children to do well in school as they know firsthand what education can bring to an individual’s life.

**Data Analysis: Percent of Students Earning College Degree Within Four Years**

For the classes of 2011 – 2014, let’s look at the average percentage of students who were able to earn their college degree by region.

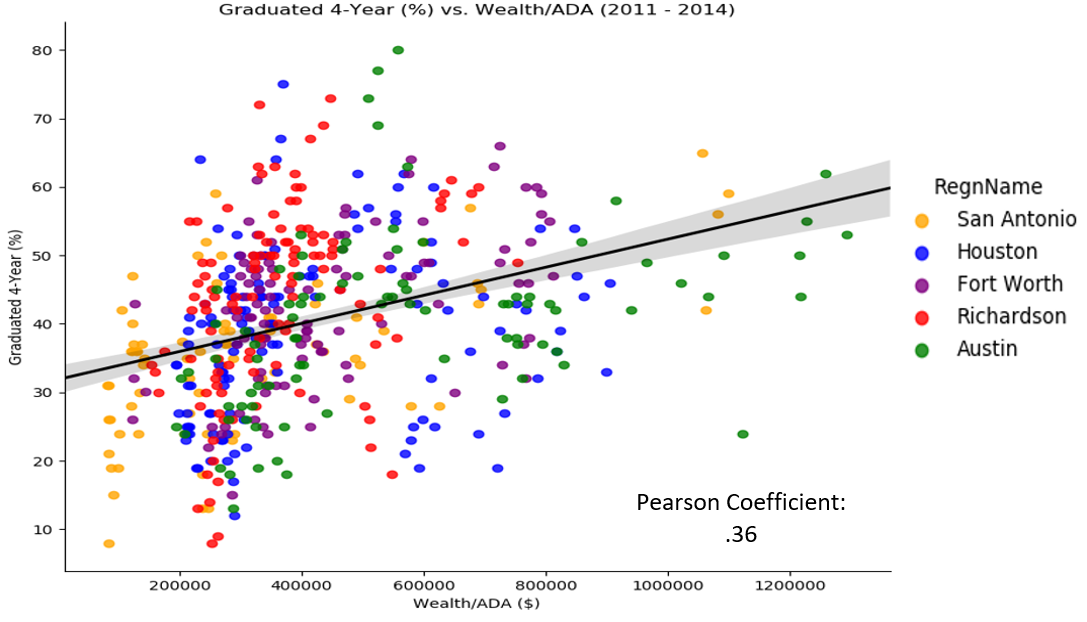


Looks like Richardson (Dallas) contained the highest percentage of students who were able to earn their college degree within four years. There’s roughly an 8% difference between the Richardson (Dallas) and San Antonio, which isn’t too much of a surprise as San Antonio contained poor school district features.

(Wealth/ADA Effect on College Graduation %)

As an exercise, let’s assume that most of the students attending high school in the wealthier districts are simply going to college because they can afford it and there’s a college out there willing to accept them for their money. We could then expect to see a very poor correlation between Wealth/ADA and those who graduate from college within four years.

For the less fortunate areas, the students who attended college most likely earned scholarship. We could assume these students contained a greater chance of earning their degree as they were more prepared, hurting the positive correlation as well. To test our assumptions, let’s take a look at the actual data from the classes of 2011 – 2014 (college graduation year: 2015 – 2018).



The correlation may be lower than the one for college enrollment percentage (pearson coefficient: 0.45), but the difference is not as extreme as one would expect from the assumptions made in the exercise above. These wealthier areas tend to attract well-educated families and teachers, so it’s not all that surprising to see that these school districts contained a decent percentage of their students go on to earn a college degree.

It’s important to note that not having as much financial worry, can lift an immense amount of pressure from a student in their attempt to earn a degree. Financial pressure is one of the top reasons a student will drop out of college and not earn their degree.

MORE POTENTIAL COLLEGE GRADUATION CORRELATIONS

VIF ANALYSIS

(Based on your suggestions)