A Geospatial and Statistical Analysis of Dropout in Louisiana Public High Schools

Michael D. Stein
Louisiana State University and Agricultural and Mechanical College

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A GEOSPATIAL AND STATISTICAL ANALYSIS OF DROPOUT IN LOUISIANA PUBLIC HIGH SCHOOLS

A Thesis

Submitted to the Graduate Faculty of Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Master of Science in

The Department of Geography and Anthropology

by

Michael David Stein
B.A., Louisiana State University, 2018
August 2021
Acknowledgements

Thanks to my friends and family who supported me during the duration of this project and kept my spirits up in what has been a very uncertain and stressful time for everyone. I learned a harsh lesson during my undergraduate Honors College thesis project about what happens mentally when the balance between my academic work and my social life falls into chaos. With your support, I was able to avoid having a miserable experience this time, despite working harder on this project than anything else in my life thus far.

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When volunteering at the St. Vincent de Paul Dining Room for the homeless in high school, I noticed over months of conversations that a significant number of them were high school dropouts. Prior to that experience, I had never really understood how devastating and prevalent the problem is in Louisiana. I did not know a single person at my high school who dropped out, so it was not something I even thought about. As I went through college and started teaching, my curiosity about the issue grew into a passion that fueled this project.

Teaching has been a positive and rewarding experience for me. All good teachers take pride in fostering the intellectual and personal development of their students. However, there are bitter experiences in teaching high school students, as well. As a student teacher in Baton Rouge high schools, I saw firsthand the depressing effect a large number of dropouts had on the morale of the teaching staff and student body. The students who drop out or fail your class always haunt you as a teacher. Even if the problems of that student were well out of your control, you still feel like you failed them, in some way. I want to see far less of Louisiana’s children drop out of school, for both their personal good and the benefit of our state. I hope that my work in this study can yield useful insights into high school dropout in Louisiana and help to solve the problem.
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Abstract

Students dropping out of high school is a nationwide problem, plaguing communities and often greatly reducing the prospects of a quality life for those students who do not complete their high school educations. Louisiana consistently has among the highest public high school dropout rates in the United States, and often the highest. This geospatial and statistical study aims to identify the factors that correlate with high school dropout in Louisiana public high schools, specifically, and to produce detailed maps of the dropout rates across the state to identify the schools most afflicted.

Extensive school-level data from five academic years (2014-15 to 2018-19) was compiled to perform correlation analysis between the variables and assess their relationships. In the geospatial component of this study, the average dropout rates for each high school across the state were mapped with ArcGIS Pro.

The correlation analysis revealed many intriguing insights into the relationships between the tested variables and the dropout rates. Many factors that correlate strongly with dropout rates in Louisiana are related to issues that occur outside of the school environment or are things that cannot be fixed easily. However, the two factors to reduce dropout rates that feasibly can be acted upon are: 1) reducing class sizes and 2) expanding the T9 (transitional 9th grade) program in schools where 9th graders drop out of school at high rates.

Concerning the spatial distribution of dropout in Louisiana, as a general statewide trend, the problem is overwhelmingly prevalent in the more populated parts of the state. Rural schools even in impoverished areas tend to have below average dropout rates, while nearly all schools with consistently high dropout rates are in urban areas.
Chapter 1. Introduction

1.1. Problem Statement

Every year, well over half a million high school students drop out of school in the United States. Few of them return to earn their diplomas or GED certificates. Some of these young people will ultimately find a way to salvage their lives and land stable careers, but many of them will end up homeless or involved in criminal activity within a few years of dropping out of high school. Completing high school education is one of the most important hurdles for a person to clear. Failing to do so generally leaves them in grave peril for the future. For prior generations this was not the case, but in the current American job market, it is difficult for anyone to gain employment in a legitimate career path without a high school diploma or GED certificate, at minimum.

The average dropout has an annual income of only $20,241, which is $10,386 less than those with a high school diploma or GED (McFarland et al. 2018). In addition, the average career lifetime earnings of dropouts are $260,000 less than those who earn a high school diploma or GED. A 2010 NCES study estimated that getting just one student to finish high school instead of dropping out would produce an average of more than $200,000 in higher tax revenues and reduced government expenses over that person’s lifetime. High school dropouts also have the highest unemployment rate by far of any social class, at around 13 percent. According to Figure 1.1 below, 53 percent of Americans between the ages of 16 and 24 who were high school dropouts were either unemployed or had never entered the workforce at all! This marks the first time in the forty years
the NCES has monitored these trends that the majority of dropouts were not active in the labor force, and the odds of reversing that trend do not seem promising.

Many studies have found a direct link between crime and high school dropout rate, including the sobering statistic that high school dropouts commit around 75 percent of crimes in the United States (Greene 2006). When young men cannot find legal ways to sustain themselves, they often resort to crime. In particular, Black and Hispanic men living in urban areas who are high school dropouts are highly likely to commit crimes. For example, a Forbes study found that about 60 percent of Black students in the Bronx who dropped out of high school ended up serving prison time (Crotty 2011). Therefore, it is in the interest of every community to keep the dropout rate to a minimum.

While high school dropout is a nationwide problem, it is a problem that is especially prevalent to us in Louisiana. The 2019 NCES study found that Louisiana public high schools had the highest dropout rate in the nation by far over the period from 2013-17. As Figure 1.2 shows
below, a staggering 9.6 percent of Louisiana residents between ages 16 and 24 were high school dropouts. That mark was far beyond the national average of 6.0 percent (McFarland et al. 2018). Year after year, Louisiana public high schools consistently have among the highest dropout rates in the nation, and often, the very highest. In this dataset of this project, it was found that approximately 1 in 9 of Louisiana’s 7th graders dropped out of public high schools before completing the 12th grade. About 6,000 students drop out of high school each year in Louisiana.

![Figure 1.2. Status Dropout Rates by State, 2013-17](image)

Source: Figure 2.6 from 2019 NCES Compendium Report. Public domain.

It is a local crisis that has lasting negative effects upon our state’s economy. Many companies decide not to open businesses in Louisiana because they cannot find enough qualified local workers to fill their positions (Moses 2009). As a result, many areas of Louisiana remain poor and underdeveloped with limited economic prospects, and the feedback cycle of poverty in these communities perpetuates itself. A 2021 report by World Population Review notes that Louisiana was tied with West Virginia for the second-most SNAP welfare recipients in the country at 17.4 percent of residents, surpassed only by New Mexico. Mitigating our dropout problem in
Louisiana is a critical step in reversing our economic fortunes and bringing future generations out of poverty.

1.2. Research Questions

This project aims to answer the following questions:

How do possible explanatory factors correlate with dropout rates in Louisiana, specifically? National research is a good starting point, but to truly analyze the problem in our state, only local data should be used.

Which of the tested factors, if any, are variables that the schools can feasibly act upon to reduce dropout rates? Identifying such factors is the first step in addressing the problem, and it will aid state education officials in developing future strategies to reduce dropout.

What is the spatial distribution of the dropout rates in the state? Which schools and school systems struggle with dropout the most? It is not enough to know that Louisiana averages a very high dropout rate across the state. The rates must be mapped out to identify the schools most in need of intervention, as well as the schools with consistently low dropout rates.
1.3. Summary of Other Chapters

Chapter 2 of this project is a literature review of the established research concerning high school dropout. Chapter 3 covers the methodology of the analysis, as well as details of the dataset and study area. Chapter 4 contains a summary of findings, the results of the correlation tests and all of the created maps. Chapter 5 is a conclusion and discussion. The back matter contains all of the literature references and an appendix with a list of datasets used in this study and links to access them.
Chapter 2. Literature Review

Before assessing Louisiana-specific data on high school dropout, it is useful to first understand the general findings of the extensive research that has already been done on the national level. Since this is such a pressing societal problem across the country, thousands of journalists and scholars across many disciplines have performed research to analyze the factors that lead to a high dropout rate in American high schools. It is also of critical interest to state governments, as well as the federal government at the national level. The National Center for Education Statistics carefully monitors the trends of high school dropout rates and publishes its findings annually. There are some expected socioeconomic trends that remain quite consistent over the years, while the influence of many other factors remains unclear and will require further research.

Household income has proven to be a reliable predictor of dropout rates over the decades. Students from low-income households are far more likely to drop out of school than their counterparts from higher-income classes. The 2014 NCES report notes that “the dropout rate for individuals from high-income families in 2014 was 2.6 percent, while the rates for individuals from middle- and low-income families were 5.4 and 9.4 percent, respectively” (McFarland et al. 2018). The 2019 NCES report states that 22 percent of economically disadvantaged students fail to graduate from high school on time with their cohorts.

The presence of the father within a family has also shown to be a critical factor in the academic performance of the children. A 2012 study by psychologist Edward Kruk found that a staggering 71 percent of high school dropouts grow up in fatherless homes. Such children are about twice as likely to drop out of school compared to students whose fathers are involved in their lives. In addition, fatherless children are likely to test poorly in the fields of reading, mathematics, and
critical thinking skills, and they generally have much lower grade point averages than their peers. In contrast, a 2007 study found that “children living with their married biological father tested at a significantly higher level than those living with a nonbiological father” (Tillman 2007). Fatherless children are also much more likely than average to misbehave at school, face suspension and expulsion, and leave school to join criminal gangs. This pattern is becoming increasingly relevant as the percentage of fatherless families and children born out of wedlock continues to grow at an alarming rate across all racial and socioeconomic groups in the United States. According to the U.S. Census Bureau, 18.3 million American children, about 1 in 4, currently live without a biological, step, or adoptive father in the home.

With regards to gender, boys are about 7 percent more likely than girls on average to drop out of high school (Kim 2015). A 2018 NCES report details the male-female breakdown of status dropouts – students between the age of 16 and 24 who dropped out of high school and had not obtained a high school credential, such as the GED. The status dropout rate was significantly higher overall for males at 6.2 percent than females at 4.4 percent, and some level of disparity existed within most racial groups. This disparity was the highest among Hispanics, with males having a 9.6 percent status dropout rate compared to 6.3 percent for females. The difference was also significant among Blacks, with males having a 7.8 percent status dropout rate compared to 4.9 percent for females. Multiracial students had a difference of 1.5 percent, with males having a 5.9 percent status dropout rate compared to 4.4 percent for females. The disparity was smaller for Whites and Asians. White males had a status dropout rate of 4.8 percent compared to 3.6 percent for females. Asian males had a meagre status dropout rate of 2.3 percent compared to 1.6 percent for females. However, the report found there were no measurable differences in status dropout rates between males and females among Pacific Islanders and Native Americans.
Racial factors on a nationwide scale indicate that non-Asian minorities are far more likely to drop out of high school than White and Asian students. However, at the local level, such a disparity is not always found (Chapman 2011). Likewise, there are often prominent grade-to-grade patterns of dropout rates that are unique to certain racial groups. For example, the dropout rates of Black students tend to consistently be highest in the 9th and 10th grades, while the highest dropout rates for Hispanic ELL (English Language Learner) students tend to be in the 12th grade (Kim 2015).

Black students drop out of school at above average rates nationally, and as with Hispanic students, there are no states in the country where Black students drop out of school at a lower rate than White students and few states where their dropout rates are close to that of White students. In 2017, Black Americans had a status dropout rate of 6.5 percent, with similar rates in recent years. Only 78 percent of Black students graduated on time with their high school cohort in the 2016-17 school year, which was the lowest of any racial group besides Native Americans. Interestingly, Black students born outside of the United States had a significantly lower status dropout rate (5.1 percent) than Black students born in the United States (6.6 percent). As Figure 2.1 shows below, no other race had such a discrepancy of greater than 1 percent, and for every race besides White, native-born students were less likely to be dropouts than foreign-born students.
However, Black status dropout rates have declined sharply over the last four decades, from 20 percent in 1977 to stabilizing just under 7 percent in recent years. In addition, the 2017 NCES report notes that for the first time in forty years, Black Americans aged 18 to 24 had a high school diploma or certification at about the same rate as White Americans. This means that, although Black students still drop out of school at a higher rate than White students, so many Black dropouts are earning their GED (or other certification) that the decades-old racial gap in achieving a high school education has effectively been closed.

Hispanic students also generally drop out of school at above average rates, but there are many variations in Hispanic students’ dropout tendencies, depending on their ethnicity, English-
language proficiency, and socioeconomic status. It is important to understand these differences when analyzing Hispanic dropout rates at the local level. As an example, third generation Cuban-American students in South Florida and foreign-born Mexican-American students in Los Angeles are both grouped under the same broad umbrella at the national level, but come from vastly different backgrounds and social conditions, and therefore different obstacles to graduating from high school. The 2019 NCES report notes that the dropout rate for Hispanic students nationally was the highest of any racial group at 6.5 percent, nearly double the rate of White students (3.9 percent) and considerably higher than the rate of Black students (5.5 percent).

The American Community Survey notes that over the five-year period from 2013-17, the average status dropout rate for Hispanic 16- to 24-year-olds was 9.9 percent. When separated by ethnicity, the status dropout rates of individual Hispanic subgroups ranged from 1.5 percent for individuals of Bolivian descent to 24.5 percent for individuals of Guatemalan descent. Status dropout rates for Hispanics of Honduran (17.6 percent), and Salvadoran descent (13.5 percent) were significantly higher than the total Hispanic status dropout rate. This is noteworthy to us in Louisiana, as the majority of our state’s Hispanic population is Honduran and Salvadoran, due to our historic ties to the banana industry in Central America (Martinez-Catsam 2017). The New Orleans metro area is home to the third largest Honduran community in the United States.

Among Hispanics between the ages of 18 and 24, the status completion rate for those who were foreign-born was only 78.1 percent, meaning more than one in five did not graduate high school or earn a high school credential. This rate is significantly lower than the completion rates for first-generation Hispanic students born in the United States (91.7 percent) and all generations afterwards. This makes sense, as foreign-born Hispanic students are far more likely to have limited English-language proficiency than their first-generation counterparts, and this presents a
significant obstacle to them achieving success in American high schools. To further emphasize that point, in the 2016-17 school year, only 66 percent of students with limited English-language proficiency, around two in three, graduated high school with their cohorts in four years. This cohort graduation rate is significantly lower than the U.S. national average of 85 percent, and also lower than the rates for both economically disadvantaged students (78 percent) and students with learning disabilities (67 percent).

On a positive note, although they are still relatively high, significant progress has been made nationally in lowering Hispanic dropout rates over the last five decades. After a great surge in Mexican immigration to the United States starting in the 1970s, many American high schools were overwhelmed by foreign-born students they were ill-prepared to teach, especially in border states such as Texas and California (Brittain 2002). Many of these students struggled to adjust and dropped out of school. As Figure 2.2 shows below, in 1977 one in three Hispanics between the ages of 16 and 24 was a high school dropout and had earned no credential. Four decades later, that rate has been reduced to less than 10 percent. In the ten years from 2007 to 2017, the Hispanic status dropout rate was reduced by more than half from 21.4 percent to 9.5 percent. Schools are far more prepared to teach large numbers of Spanish-speaking students than they were forty years ago, and this has led to far lower dropout rates. Billions of dollars have been spent nationwide in developing and implementing ESL (English as a Secondary Language) programs, which provide a curriculum for non-English speakers to learn the required material in their own language while gradually developing their knowledge of English (Gándara and Escamilla 2017).
Over the past forty years, White students have dropped out of school at rates a few percentage points below the national average. In 1977, the status dropout rate of White Americans was 11.9 percent, just under one in eight. By 2017, the status dropout rate had declined to 4.6 percent, which the status dropout rates for Blacks and Hispanics gradually inching closer to the White status dropout rate. That gap has closed considerably since 2007. In the 2016-17 school year, 89 percent of White students graduated high school on time with their cohorts, which was the best rate of any racial group besides Asian students (91 percent).

Asian students consistently drop out of high school at rates well below the national average, and most of the few that do drop out later earn their GED or other credential. The 2013–2017 average status dropout rate for Asians between the ages of 16 and 24 was a mere 2.3 percent, the
lowest of any race by far. When separated by ethnic group, the Asian status dropout rates rarely exceed 3 percent, with Burmese being a notable exception at 23 percent. Most of Louisiana’s Asian population is Filipino, Indian, and Vietnamese, for which the status dropout rates were 2.0 percent, 1.8 percent, and 2.5 percent, respectively.

Native Americans now have the highest dropout rates nationally of any racial group. According to the 2019 NCES report, the status dropout rate for Native Americans aged 16 to 24 was 10.1 percent in 2017, the highest by far of any race. To further emphasize the struggles of Native Americans in the classroom, only 72 percent graduated with their high school cohorts in the 2016-17 school year, the lowest of any racial group. Many Native Americans, especially those of “full-blood” who live in communities on reservations, have a deep-seeded distrust of the federal government and the public school system. In the late 19th and 20th centuries many natives on reservations were forced to attend government boarding schools, where they were forced to abandon their indigenous language and customs (Child 1998). Consequently, for many Native Americans, suspicion of schooling remains intact today. The 2008 NCES report estimated that three out of ten Native American students educated at high schools on reservations drop out of school. Native reservations are often places of tremendous poverty, where unemployment, violent crime, and alcoholism are common problems (Matamonasa-Bennett 2017).

However, the majority of Native Americans (about 78 percent in the 2010 US Census) do not live on reservations and are more integrated into the broader American society, with most being of mixed-race heritage. Such Native Americans are likely to be at least half-White and closely match educational achievement patterns of White students, including dropout rates. Louisiana’s most concentrated Native American communities are the Houma tribe and Choctaw-Apache tribe of Ebarb, found in Terrebonne Parish and Sabine Parish, respectively. They do not
live in isolated reservations such as those found in Arizona, South Dakota, and Alaska. Instead, over two centuries they have intermarried into Cajun and Spanish communities, respectively, and are assimilated into the local society (Kniffen et al. 1987).

Lastly, in recent years students of Pacific Islander descent have had dropout rates similar to White and multiracial students. In the 2019 NCES report, they had a status dropout rate of 3.9 percent in 2017, below the national average. However, there was a large disparity between the dropout rates of male students (5.7 percent) and female students (1.9 percent).

As for how the characteristics of the school itself affects dropout rate, conclusions from research at the national level have been less decisive and often conflicting. Russell Rumberger found over many studies that the academic performance of a school directly influences the dropout rate, with worse-performing schools having higher dropout rates (Rumberger 2005). A study of high school dropout rates between rural and urban schools found that there was no clear correlation, and that dropout rates were better predicted by other factors (Jordan et al. 2012). A 2017 study found that school size had a strong correlation with dropout rate, with larger schools generally having a higher dropout rate as kids get lost in the shuffle (Wood et al. 2017). Another study found that a high rate of truancy and student suspension generally corresponds to high dropout rate at the school, while race is not as predictive of a factor (Noltemeyer et al. 2015, Robinson 2017).

A persistent theme in the established research on dropout is the importance of the ninth grade school year. Sociologist John Alspaugh found over several studies that the transition between eighth and ninth grade seems to be consistently problematic, as many kids struggle to adapt and never return to school (Alspaugh 1998). Likewise, further research indicated that middle school GPA, grades, attendance, and ACT math scores were all strong predictors of ninth grade
performance (McKee and Caldarella 2016). The ninth grade often puts a student on course for the rest of their journey towards graduating high school, either starting them on the path to success or steering them down the path to dropping out of school. One study of Chicago public schools from 2005 found that 9th graders who failed the majority of their classes in the first semester only graduated high school at a rate of 16 percent, while nearly all students with a “B” average after their freshman year graduated with their cohorts (Allensworth and Easton 2005). Figure 2.3 below, taken from their study, illustrates this pattern.

Figure 2.3. Chicago High School Graduation Rates by Failed Courses in Freshman Year
Source: Figure 5 from Allensworth, Elaine, and John Q. Easton. "The on-track indicator as a predictor of high school graduation." (2005). Used with permission (see Appendix C).

It is critical for the jump from eighth to ninth grade to be stable and positive. The ninth grade is a time of new freedoms, responsibilities, and distractions for students (Legters and Kerr 2001). While middle school students are still treated like children with a carefully regimented
school environment, high school students are treated much more like young adults with less supervision and structure. With the goal of preparing incoming freshmen for college in four years, coursework becomes significantly more rigorous and many students struggle to keep up. School can become a miserable and stressful environment for students falling behind, as their morale plummets along with their grades.

The state of Louisiana has tried to combat this trend of students dropping out after 8th grade by offering extra support and remedial instruction to high school students during their ninth grade year to make the transition easier. Several schools around the state operate academy programs for freshmen, where the incoming ninth graders are largely isolated from the rest of the high school student body, gradually easing them into the coursework and school environment (Vowell 2012). Despite these efforts, the dropout rate on average continues to spike dramatically starting in the ninth grade. Many scholars have been critical of Louisiana’s strict zero tolerance policy, where suspension or expulsion is the primary method for handling discipline problems, and argue it contributes to our public school system’s abnormally high dropout rate (Parr 2017).

While extensive research concerning high school dropout has been done with the perspectives and techniques from other fields, such as psychology, sociology, and economics, there has been minimal research done thus far from the geospatial perspective. The research that has already been completed was generally done either on a massive scale, analyzing high school dropout across the entire nation, or on a very small scale that focused on a single school or even a miniscule cohort of individual students. The scale of this thesis project is between the two, being a large enough sample to perform mathematical analyses over a broad area, but also localized enough to be specific to Louisiana and not skewed by nationwide trends.
This thesis project will study high school dropout in the state of Louisiana from the geospatial and statistical perspective, seeking to find clear patterns for what factors cause the dropout rate to grow or diminish. Prior research on the more localized scale has generally focused only on one or two possible factors at a time, and often from the qualitative perspective. Despite dropout being such a prevalent and consistent problem in our state, there is a miniscule amount of publicly available research that covers high school dropout rates in Louisiana. What little there is tends to be a brief mention in national studies, or a short, annual update on school performance metrics, sometimes including dropout statistics, in a local paper. Surprisingly, there seem to be no publicly available studies that analyze high school dropout rates in Louisiana across the entire state in comprehensive detail. The closest research to this end is a University of Mississippi study from 2006 of dropout rates in rural Louisiana high schools, but that study did not cover urban high schools, where the problem is most concentrated in Louisiana (Shafer and Hori 2006). This project aims to help bridge that gap in the established research.

The methods of research in this project will allow for testing of many possible quantitative factors at once to account for all the likely predictors in one fell swoop. If the state of Louisiana knows more about the explanatory variables of the problem, it will have an easier task of addressing these issues and ultimately helping to build better school systems and communities across the state. Taking the necessary actions would remain challenging, but at least the state’s educational professionals and administrators would have an idea, backed by concrete research and analysis, of how to plan the first steps in fixing a complicated problem.
Chapter 3. Methodology and Details of Dataset & Study Area

3.1. Methodology & Objectives

The extensive school-level data used in this project is recorded by the Louisiana State Department of Education and easily accessible from its website in the form of Excel spreadsheets and PDFs. This data was compiled into a Microsoft Excel spreadsheet and then run through Statistix 10, an advanced statistical analysis software, to perform correlation analysis between the variables. Links to all of the Department of Education spreadsheets used in this study are found in Appendix A. In addition, there is a link in Appendix A to a Google sheet where all of the data compiled for this project is stored together and publicly available for your convenience.

In this analysis, 88 variables of school-level data relating to dropout rates across 1,578 cases (roughly 315 schools each year for 5 school years) were put through the Pearson’s Correlation test. The dropout rates were the dependent variables, and the possible explanatory factors were the independent variables in these tests. The 9th –12th grade dropout rate, the 7th–12th grade dropout rate, and dropout rates in individual grades 7–12 were all tested to check for meaningful differences between grade levels that could yield useful insights.

In this case, the data put through these tests constituted the entire desired study area: all normal public high schools in the state of Louisiana. This made the outcomes of the tests far more powerful and predictive than if they were testing only sample data (Obilor and Amadi 2018). The resulting Pearson’s correlation statistic is consequently called the population correlation statistic.
(ρ), rather than the sample correlation statistic, which is far more common in statistical studies as researchers generally cannot survey the entire desired study population.

Values of the Pearson’s population correlation statistic (ρ) range from -1 to 1, with values close to -1 representing a very strong negative relationship and values close to 1 representing a very strong positive relationship. Generally, values close to 0 are considered to mean there is no meaningful relationship between the variables, especially in research of the natural sciences (Onwuegbuzie and Daniel 1999). However, in this case, since A) the dataset for this study was composed of population data instead of sample data and B) the amount of data compiled for these tests is massive (over 100,000 data points in total), even those values close to 0 are often meaningful in this study. Correlation statistics in social science research often lie close to 0, as human behavior is generally far more varied and complex than naturally occurring phenomena studied in the hard sciences, so such outcomes do not hinder useful observations in this study (Blalock 2017).

The majority of population correlation statistics derived from these tests fell in the range of -0.2 to 0.2, yet even these values generate plenty of useful observations when compared across variables, grade levels, and socioeconomic demographics. For example, if the correlation statistic for a given variable is consistently 0.1 across several grades but jumps to 0.25 for another grade, that is a significant difference that represents a useful insight into the underlying data patterns.

Variables that proved to have strong or interesting correlative relationships were often further analyzed against racial and socioeconomic variables to yield further insights. For example, class size proved to be an important predictive variable of dropout rates, so class size was tested against the racial and socioeconomic variables to see how class sizes varied for those students.
The first section of this study used correlation tests to identify the variables that correlate strongly with dropout rates in Louisiana public high schools. In the second section, the average dropout rates for each high school across the state during the duration of the study period (2014-15 to 2018-19 school years) are mapped with ArcGIS Pro. The average 7th – 12th grade dropout rate, average 9th – 12th grade dropout rate, and average dropout rate for each grade 7-12 are shown on their own choropleth map for each region. The maps identify how dropout rates vary from school to school, and also how dropout rates vary across grades within each school.

The state of Louisiana is divided into ten regions of roughly equal size in order to make each high school easily visible. For each region, a map showing the location of each high school was created, along with a legend that lists each school and parish in the region. The high schools are represented as polygons in these maps. Note that the polygons do not represent actual school districts, except for in parishes such as Red River and Pointe Coupee that only have a single school. They are more like simplified, geometrically-defined school districts. They were created in ArcGIS Pro by using Thiessen polygons with boundaries equidistant from the nearest school, then modified from there to not cross parish lines or the Mississippi River.

The real-world boundaries of school districts often change slightly over time, and their often awkward and complex shapes can make their interpretation on a map needlessly difficult. Also, public schools with selective enrollment (magnet, lab, and charter schools) have overlapping attendance zones with standard public schools, so displaying the two types of schools on the same map together does not work if the actual public school attendance zones are used. In addition, these overlapping attendance zones proved to make spatial interpolation techniques completely unsuitable for estimating dropout rates in this study area, particularly in urban areas. For example, all New Orleans schools in this study are charter schools with about forty attendance zones that
overlap in the real-world, so spatial interpolation techniques that might be useful in estimating values for non-overlapping public schools are rendered drastically inaccurate here.

The numerical boundaries between each category displayed in the maps are determined by the Jenks natural breaks method, which divides datasets into natural categories based on their distributions. The dropout rates are divided into five categories. The categories are kept consistent for each type of map across all regions, in order to make cross-comparison simple. For example, a high school with a 10th grade dropout rate between 1.26 and 3 percent in the Central Louisiana region is displayed in the same color in the Acadiana region, and so on. The categories are used statewide, and do not vary from region to region.

Table 3.1 below shows the categories of how the dropout rates are classified in the maps for each grade range. Dropout rates well below average are shown in dark blue, and dropout rates below average are shown in light blue. Dropout rates above average are shown in gray. High dropout rates are shown in light red, and critically high dropout rates are shown in dark red.

Table 3.1. Categories of Dropout Rates in Each Choropleth Map Grade Range

<table>
<thead>
<tr>
<th>Grade Range</th>
<th>Well Below Average</th>
<th>Below Average</th>
<th>Above Average</th>
<th>High</th>
<th>Critically High</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th – 12th</td>
<td>0 – 1.15%</td>
<td>1.16 – 2.3%</td>
<td>2.31 – 4.4%</td>
<td>4.41 – 7%</td>
<td>7.01% and Up</td>
</tr>
<tr>
<td>9th – 12th</td>
<td>0 – 1.15%</td>
<td>1.16 – 2.45%</td>
<td>2.46 – 4.4%</td>
<td>4.41 – 7%</td>
<td>7.01% and Up</td>
</tr>
<tr>
<td>7th</td>
<td>0</td>
<td>0.01 – 1%</td>
<td>1.01 – 2%</td>
<td>2.01 – 3%</td>
<td>3.01 – 4%</td>
</tr>
<tr>
<td>8th</td>
<td>0 – 0.75%</td>
<td>0.76 – 1.5%</td>
<td>1.51 – 3%</td>
<td>3.01 – 6%</td>
<td>6.01% and Up</td>
</tr>
<tr>
<td>9th</td>
<td>0 – 1.5%</td>
<td>1.51 – 3%</td>
<td>3.01 – 6.5%</td>
<td>6.51 – 10%</td>
<td>10.01% and Up</td>
</tr>
<tr>
<td>10th</td>
<td>0 – 1.25%</td>
<td>1.26 – 3%</td>
<td>3.01 – 5%</td>
<td>5.01 – 8%</td>
<td>8.01% and Up</td>
</tr>
<tr>
<td>11th</td>
<td>0 – 1.3%</td>
<td>1.31 – 2.6%</td>
<td>2.61 – 5.2%</td>
<td>5.21 – 7.8%</td>
<td>7.81% and Up</td>
</tr>
<tr>
<td>12th</td>
<td>0 – 1.25%</td>
<td>1.26 – 2.5%</td>
<td>2.51 – 5%</td>
<td>5.01 – 7.5%</td>
<td>7.51% and Up</td>
</tr>
</tbody>
</table>
The map of the ten regions (Figure 3.1) is shown on the following page. The dropout rates in each region are mapped and analyzed in depth. Important trends for each region are summarized. The high schools in the dense urban cores of Lafayette, Shreveport – Bossier City, Baton Rouge, and New Orleans are displayed in a separate map from the rest of the region to enhance their visibility.
Figure 3.1. Louisiana Regions Map for This Study

I. Shreveport Metro – Notable Population Centers: Shreveport, Bossier City

II. Monroe Metro – Notable Population Centers: Monroe, Ruston

III. Northeast Louisiana Delta – Notable Population Centers: None

IV. Central Louisiana – Notable Population Centers: Alexandria, Natchitoches

V. Lake Charles Metro – Notable Population Centers: Lake Charles

VI. Acadiana – Notable Population Centers: Lafayette, Opelousas, New Iberia, Morgan City

VII. Baton Rouge Metro – Notable Population Centers: Baton Rouge

VIII. Northshore – Notable Population Centers: Mandeville, Hammond, Slidell, Covington

IX. River Parishes – Notable Population Centers: Houma, Thibodaux, Laplace

X. New Orleans Metro – Notable Population Centers: New Orleans, Metairie, Kenner

In summation, this study aims to discover possible causal factors of high school dropout in Louisiana and map the dropout rates to determine which schools are most in need of intervention.
3.2. Dataset and Study Area Characteristics

The study area for this project is composed of all standard public high schools in the state of Louisiana. The only schools from the available data that were excluded from this study are alternative schools (reform schools for highly troubled or handicapped children) and virtual, online-only schools. These schools were omitted from the analysis because they tended to have abnormally high dropout rates that would skew the analysis, and because their core purpose is so fundamentally different from standard public schools that cross-comparing them is neither practical nor useful. These schools omitted from the dataset are few in number and represent a negligible amount of Louisiana’s high school students.

This study covers a duration of five academic school years: 2014-15, 2015-16, 2016-17, 2017-18, and 2018-19. There are 313 schools included in this data for the 2014-15 academic year, 311 schools for the 2015-16 academic year, 315 schools for the 2016-17 academic year, 319 schools for the 2017-18 academic year, and 320 schools for the 2018-19 academic year. The Louisiana Department of Education has been recording and publishing extensive records of a wide variety of variables starting with the 2014-15, which is why the duration of this study begins there. There is some data published for prior academic years dating back to 2007-08, but this data is sparing and not detailed enough to be included in this study with the richly detailed data from 2014-15 and later. Just over two hundred thousand 7th – 12th grade students are included in the analysis for each year, and over a million 7th – 12th grade students are included over the five-year study period. Testing the data over a period of five years allows the tracking of two cohorts of eight-grade classes all the way through graduation, and it accounts for any students who complete a remedial period before starting the ninth grade.
The overwhelming majority of the 325 different schools in this study were open and teaching high school students for all five years of the study’s duration and kept the same name. Table 3.2 shown below shows the exceptions to that trend. The schools open and teaching high school students during the academic years shown in green, and closed or not teaching high school students during the academic years shown in red. The yellow cells represent two formerly separate schools that combined into one school, such as Mentorship STEAM Academy in Baton Rouge. The gray cells represent years where the schools were not opened yet.

Table 3.2. Schools That Opened, Closed, and Merged During Study Duration

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Mentorship Academy of Digital Arts</td>
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<tr>
<td>Mentorship Academy of Science &amp; Technology</td>
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<tr>
<td>Miller-McCoy Academy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Closed</td>
</tr>
<tr>
<td>Grambling State University Lab School</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Closed</td>
</tr>
<tr>
<td>G. W. Carver Collegiate Academy</td>
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<td></td>
<td>Merged into G.W. Carver High School</td>
</tr>
<tr>
<td>G. W. Carver Preparatory Academy</td>
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<td></td>
<td></td>
<td>Merged into G.W. Carver High School</td>
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<tr>
<td>Algiers Technology Academy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Closed</td>
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<tr>
<td>Fair Park High School</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Closed</td>
</tr>
<tr>
<td>Lake Area New Tech</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Closed</td>
</tr>
<tr>
<td>Northshore Charter School</td>
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<tr>
<td>Mentorship STEAM Academy</td>
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<tr>
<td>Einstein Charter School</td>
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<tr>
<td>Kenner Discovery Health Sciences Academy</td>
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<tr>
<td>KIPP Booker T. Washington</td>
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<tr>
<td>Lincoln Preparatory School</td>
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<tr>
<td>Livingston Collegiate Academy</td>
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<tr>
<td>Magnolia School of Excellence</td>
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<tr>
<td>Collegiate Baton Rouge</td>
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<tr>
<td>Istrouma High School</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Closed</td>
</tr>
<tr>
<td>Morris Jeff Community School</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Opened</td>
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<tr>
<td>Rooted School</td>
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<td></td>
<td></td>
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<tr>
<td>Southside High School</td>
<td></td>
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<tr>
<td>Tallulah Charter School</td>
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<tr>
<td>Jefferson RISE Charter School</td>
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<tr>
<td>John F. Kennedy High School</td>
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<tr>
<td>New Harmony High Institute</td>
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<tr>
<td>Rosenwald Collegiate Academy</td>
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</tbody>
</table>
3.2.1. Notes About the Schools Referred to in Table 3.2

The majority of these new schools that opened are new charter schools, often replacing a previous school. The only exceptions are Southside High School, which opened as a new public school in Lafayette Parish to accommodate population growth, and Istrouma High School, a decades-old public school in Baton Rouge which re-opened as a temporary charter school in 2017 after a few years of being shut down.

Lake Area New Tech closed after the 2017-18 school year, and was replaced by John F. Kennedy High School. The KIPP charter organization now runs the school, after the New Beginnings Foundation was forced by the Orleans Parish School Board to relinquish operation of the school, following a grade changing scandal in the 2018-19 school year. Fair Park High School in Shreveport was closed and converted into a middle school, with the high school being merged with Booker T. Washington High School. The Miller-McCoy Academy in New Orleans closed after the 2015-16 school year, and was replaced by the Livingston Collegiate Academy. Northshore Charter School is still open, but no longer teaches high school students, as of the 2018-19 school year. Grambling State University Lab School closed after the 2015-16 school year, and re-opened as Lincoln Preparatory School.

Some schools changed names after the duration of this study period. KIPP Renaissance High School in New Orleans is currently known as Frederick A. Douglass High School. Lee Magnet High School in Baton Rouge was renamed to Liberty Magnet High School at the start of the 2020-21 school year. It is especially common for charter schools in New Orleans to change names as they pass into the control of a different charter organization.
3.2.2. Types of Schools in this Study

Normal public schools – Defined as standard (non-magnet and non-charter) public schools that must admit all student applicants from their mandated attendance zone. About eighty percent of the schools in this study fall under this category. The smallest of these have less than one hundred students, while the largest have more than two thousand students.

Magnet Schools – Defined as public schools for highly gifted students that must qualify for admission to the school via a rigorous testing process. In this study, to qualify as a true magnet school, the entire student body must be enrolled in a magnet curriculum, and the school must not have a mandated attendance zone that constitutes less than an entire parish. For example, Baton Rouge Magnet and Lee Magnet in Baton Rouge are categorized as magnet schools here, but Scotlandville High School is not, because it has an attendance zone and not all of its students are enrolled in a magnet curriculum. Several public schools that are not actually true magnet schools by this definition include the word magnet in their names to sound more appealing, including most of the schools in Tangipahoa Parish.

Lab Schools – Defined as schools operated with direct oversight from a college or university, with the specific aim of educating the children of their faculty and staff. Though fees are minimal, admission to these schools is highly selective. Lab schools in this study are LSU Lab School and Southern University Lab School in Baton Rouge, Early College Academy in Lafayette (which offers dual-enrollment courses at South Louisiana Community College), and Grambling State University Lab School, which has since closed.

Charter Schools – Charter schools are tuition-free public schools supported by taxpayer funding, and with few exceptions, enrollment is open to all students via a lottery process instead
of attendance zones. They are independently operated schools that run with more flexibility than traditional public schools in exchange for increased accountability. The charter that establishes each school is a contract detailing the school’s mission, program, performance goals, and methods of assessment. Every public charter school has an authorizer which, subject to state law, may be a district school board, university, Mayor’s office, or non-profit organization. The authorizers are responsible for holding charter schools accountable for compliance with their operating agreements. Charter schools that perform poorly or otherwise break their contract in some way can have their authority to operate the school revoked, and the school can be closed or transferred to the oversight of a different charter organization. Charter schools are a relatively recent option for public education in the United States, and they have made significant inroads into Louisiana in the past two decades, particularly in the urban cores of major cities. In fact, in the aftermath of Hurricane Katrina, all public schools in Orleans Parish are charter schools, in one form or another.

3.2.3. Types of Charter Schools

There are six types of charter schools, as defined by the Louisiana Charter Schools Handbook below (Table 3.3):

Type 1: A new school chartered by a Local School Board.

Type 2: A new school or a converted pre-existing school chartered by BESE (Louisiana Board of Elementary and Secondary Education).

Type 3: A converted pre-existing school chartered by a Local School Board.
Type 3B: A former Type 5 charter school transferred from the Recovery School District (RSD) to a Local School Board.

Type 4: A new school or a converted pre-existing school chartered by BESE to a Local School Board.

Type 5: A formerly failing school chartered by BESE and supervised by the Recovery School District.

Table 3.3. Types of Charter Schools in Louisiana  

<table>
<thead>
<tr>
<th>Type</th>
<th>Authorizer</th>
<th>Charter Contract Parties</th>
<th>New School vs. Conversion</th>
<th>Admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LSB</td>
<td>LSB + Nonprofit Board</td>
<td>New School</td>
<td>Economically Disadvantaged &amp; Special Education (SPED) enrollment requirements; may have admission requisites consistent with mission</td>
</tr>
<tr>
<td>2</td>
<td>BESE</td>
<td>BESE + Nonprofit Board</td>
<td>Either</td>
<td>Economically Disadvantaged &amp; SPED requirements; may have admission requisites consistent with mission</td>
</tr>
<tr>
<td>3</td>
<td>LSB</td>
<td>LSB + Nonprofit Board</td>
<td>Conversion</td>
<td>Economically Disadvantaged &amp; SPED requirements; may have admission requisites consistent with mission</td>
</tr>
<tr>
<td>3B</td>
<td>LSB</td>
<td>LSB + Nonprofit Board</td>
<td>Conversion: former Type 5 returned to a LSB</td>
<td>Open enrollment only</td>
</tr>
<tr>
<td>4</td>
<td>BESE</td>
<td>BESE + LSB</td>
<td>Either</td>
<td>Economically Disadvantaged &amp; SPED requirements; may have admission requisites consistent with mission</td>
</tr>
<tr>
<td>5</td>
<td>BESE</td>
<td>BESE + Nonprofit Board</td>
<td>Conversion: under the jurisdiction of the RSD</td>
<td>Open enrollment only</td>
</tr>
</tbody>
</table>

In addition to the six types of charter schools defined by the state, in this study there are three special charter schools coined as “magnet charter” schools. In almost all cases, charter
schools are not allowed to select students for enrollment based strictly on talents or academic achievement, but a few charter schools are given special permission to do so and operate in the same manner as public magnet schools. All three of the schools mentioned below existed as schools for gifted students prior to becoming charter schools, so they are allowed to retain this tradition as charter schools because it complements their mission as schools.

Ben Franklin High School in New Orleans was the magnet school in Orleans Parish for highly gifted students, and was permitted to retain its high admission standards when the school re-opened as a charter school following Hurricane Katrina. The Louisiana School for Math, Science, and the Arts on the campus of Northwestern State University in Natchitoches is a magnet charter school for highly gifted 10th – 12th grade students, who apply for admission to LSMSA from around the state after their 9th grade year. The New Orleans Center for Creative Arts is a charter school specifically for the training and development of highly gifted students in the creative arts, and courses at the school are taught by professionals in those fields. Admission to NOCCA is by audition only, and the school boasts many distinguished graduates in the fields of acting, music, and writing.

3.2.4. Private Schools

However, it is important to point out that private schools are not included in this study. Unlike public schools, private schools are not bound by law to release information to the public. The minimal amount of information that is publicly available from private schools is simply not comprehensive enough to cross-compare with the available data from public schools, and
consequently, private schools are not included in this study. They would have been incorporated if a comparable amount of detailed data had been available.

The lack of private schools is significant. Louisiana has among the highest percentage of students attending private schools of any state in the country. A comprehensive study by Richard Buddin at the Cato Institute found that over 15 percent of high school students in Louisiana attended private school in 2008, among the highest rate in the nation (Buddin 2012). Other recent estimates suggest a similar number in recent years. In most of the country, private high schools are an expensive luxury for almost entirely upper-class children. However, Louisiana has a proud tradition of private schools dating back centuries, even before the state was admitted into the United States. In particular, the Catholic Church has operated many schools over the last three centuries, especially in South Louisiana, where the population is mostly Catholic. Every major population center in South Louisiana has at least one Catholic high school, and even many rural areas do, such as Abbeville and Ville Platte. Other religious institutions also operate an extensive number of private schools around the state, and there are also a few “segregation academies”, which opened in the aftermath of school de-segregation as school districts merged formerly racially segregated schools throughout the state (Bankston 2002). Financial support from the religious institutions and alumni helps to keep attendance costs manageable for families outside of the upper class.

In Louisiana, private schools are numerous and they educate a significant number of a middle class and even low-income students, especially in South Louisiana. This is a major reason why it is unwise to access dropout rates (or just about any other variable) in Louisiana public schools by using nationwide data alone as a starting point. Our public schools operate in a much different environment from public schools in any other state. Even Texas, right across the state
line, has a much different culture for public schools. In Texas, public schools are powerful and funded by property taxes from the local community, while private schools are almost non-existent.

When interpreting the results of this study, it must be done with the caveat in mind that a significant portion of the state’s high school students are not included. For example, the student demographics of the public school system in East Baton Rouge Parish is significantly disproportionate to the overall population of the parish. While roughly half of the residents in the parish are White, barely 10 percent of the students in the public school system are White. Unlike in the majority of American cities, most White middle class students in Baton Rouge are enrolled in private high schools. Similar patterns are present in other populated areas, such as Jefferson Parish and Orleans Parish.
Chapter 4. Summary of Findings

4.1. Summary of Findings – Correlation Tests

This section of the project report covers the process and results of the correlation tests to assess the relationship between each of the possible explanatory variables and the dropout rates in Louisiana public schools. For some variables, what the correlation statistics are not, is even more impactful than what they are. For example, it might be surprising to many that funding per student does not have a strong negative correlation with dropout rate, and in fact, it has a significant positive correlation.

Variables that proved to have strong or interesting correlative relationships were often further analyzed against racial and socioeconomic variables to yield further insights. For example, class size proved to be an important predictive variable of dropout rates, so class size was tested against the racial and socioeconomic variables to see how class sizes varied for those students.

With such a vast amount of data to work with, all of the dropout rates tested had a normal distribution except for one. The dropout rates of T9 (transitional 9th grade) students were highly erratic and had an irregular distribution with a high amount of variability. Consequently, the T9 dropout rate itself was excluded from further analysis, but T9 students are measured by other means in this study.

A set of tables (Tables B.1 to B.8) containing the p-values generated by these correlation tests are found in Appendix B. The vast majority of the p-values were extremely close to 0, and values above the tolerable significance level of 0.05 were uncommon. The exception to this was
the T9 dropout rate, as nearly all of its p-values were not only above 0.05, but often very close to 1.

The explanatory variables tested in this study can be categorized into the following eleven groups for simplicity:

4.1.1. Enrollment
4.1.2. Racial & Socioeconomic Demographics
4.1.3. Starting Grade
4.1.4. Class Size
4.1.5. Suspension Rates
4.1.6. Attendance Rate & Truancy
4.1.7. Expense per Student & Staff Salaries
4.1.8. Staff Education Levels & Experience
4.1.9. Retention Rates
4.1.10. Average ACT Score
4.1.11. T9 Students

The correlation statistics within each category are shown in tables. The dependent variables (dropout rates) are in the columns, and the possible explanatory variables are in the rows at the left of the tables.
4.1.1. Enrollment

Enrollment – The number of students enrolled in the school, recorded on October 1\textsuperscript{st} of the school year

Classified by the following variables:

Total Enrollment – All Students (Pre-K – 12)

Enrollment – Grades 7-12

Enrollment – Grades 9-12

Table 4.1. Correlation Test Results for Enrollment Variables

<table>
<thead>
<tr>
<th></th>
<th>DRt_7_12</th>
<th>DRt_9_12</th>
<th>DRate_7</th>
<th>DRate_8</th>
<th>DRate_T9</th>
<th>DRate_9</th>
<th>DRate_10</th>
<th>DRate_11</th>
<th>DRate_12</th>
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<td>0.0872</td>
<td>0.1062</td>
<td>0.0549</td>
<td>0.0837</td>
</tr>
</tbody>
</table>

Key Points of Analysis

The results in Table 4.1 clearly show that school enrollment size does have a positive correlation with dropout rate, particularly for the enrollment of grades 9-12. The larger the school, the higher the dropout rate is likely to be, independent of all other factors. The enrollment of the school does not seem to have much of any impact on 7\textsuperscript{th} grade dropout rates, but it has a much more significant impact on 8\textsuperscript{th} grade dropout rates, and then a less significant impact on dropout rate for grades 9-12. This trend will later be present again when starting grade variables are tested (Table 4.4).
4.1.2. Racial & Socioeconomic Demographics

Classified by the following variables of the Total School Enrollment:

Percentage of Male Students

Percentage of Female Students

Percentage of Native American Students (very small number)

Percentage of Asian Students (small number)

Percentage of Black Students (large number)

Percentage of Hispanic Students

Percentage of Hawaiian and Pacific Islander Students (very small number)

Percentage of White Students (large number)

Percentage of Multi-Race Students (exclusive of all racial groups listed above)

Percentage of Minority Students (all non-White student groups listed above)

Percentage of At-Risk Students – Students considered Economically Disadvantaged (see below)

Percentage of LEP Students – Students with Limited English-language proficiency

Economically Disadvantaged means any one of the following characteristics of a student:

(a) Is eligible for Louisiana's food assistance program for low-income families; (b) Is eligible for Louisiana's disaster food assistance program; (c) Is eligible for Louisiana's program for assistance to needy families with children to assist parents in becoming self-sufficient; (d) Is eligible for Louisiana's healthcare program for families and individuals with limited financial resources; (e) Is eligible for reduced price meals based on the latest available data; (f) Is an English Language Learner; (g) Is identified as homeless or migrant pursuant to the McKinney-Vento Homeless Children and Youth Assistance Act and the Migrant Education Program within the Elementary
and Secondary Education Act; (h) Is incarcerated with the office of juvenile justice or in an adult facility; or (i) has been placed into the custody of the state.

Table 4.2. Correlation Test Results for Demographic Variables

<table>
<thead>
<tr>
<th></th>
<th>DRt_7_12</th>
<th>DRt_9_12</th>
<th>DRate_7</th>
<th>DRate_8</th>
<th>DRate_T9</th>
<th>DRate_9</th>
<th>DRate_10</th>
<th>DRate_11</th>
<th>DRate_12</th>
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<td>-0.1071</td>
<td>-0.0739</td>
<td>-0.002</td>
<td>0.0096</td>
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<td>0.0512</td>
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<td>-0.0305</td>
<td>-0.0287</td>
<td>-0.0332</td>
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<td>-0.0786</td>
<td>-0.0604</td>
</tr>
<tr>
<td>Pct_Asian</td>
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<td>-0.0284</td>
<td>-0.0084</td>
<td>-0.0068</td>
<td>-0.0312</td>
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<td>0.1568</td>
<td>0.2998</td>
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<td>0.0031</td>
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<td>0.0541</td>
<td>-0.0106</td>
<td>0.0178</td>
<td>0.021</td>
<td>0.0418</td>
<td>0.0492</td>
<td>0.0626</td>
<td>0.0176</td>
</tr>
<tr>
<td>Pct_White</td>
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<td>-0.4433</td>
<td>-0.158</td>
<td>-0.1301</td>
<td>-0.1549</td>
<td>-0.3211</td>
<td>-0.3941</td>
<td>-0.292</td>
<td>-0.2648</td>
</tr>
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<td>Pct_Mult</td>
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<td>-0.0625</td>
<td>-0.0379</td>
<td>-0.0806</td>
<td>-0.1528</td>
<td>-0.1697</td>
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</tr>
<tr>
<td>PctMinrty</td>
<td>0.4766</td>
<td>0.4433</td>
<td>0.158</td>
<td>0.1301</td>
<td>0.1549</td>
<td>0.3211</td>
<td>0.3941</td>
<td>0.292</td>
<td>0.2648</td>
</tr>
<tr>
<td>PctAtRisk</td>
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<td>0.4302</td>
<td>0.1359</td>
<td>0.0418</td>
<td>0.1195</td>
<td>0.3005</td>
<td>0.3812</td>
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<tr>
<td>Pct_LEP</td>
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<td>0.1722</td>
<td>0.055</td>
<td>0.0183</td>
<td>0.2878</td>
<td>0.325</td>
<td>0.237</td>
<td>0.1633</td>
</tr>
</tbody>
</table>

Table 4.3. Correlation Test Results for LEP and At-Risk Students

<table>
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<tr>
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<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pct_LEP</td>
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<td>0.0877</td>
<td>-0.0384</td>
<td>0.2548</td>
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<td>0.8493</td>
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<td>PctAtRisk</td>
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<td>-0.714</td>
<td>-0.1654</td>
<td>0.714</td>
<td></td>
</tr>
</tbody>
</table>

Key Points of Analysis

Table 4.2 covers correlation test results for racial and social economic demographics. Male students are a bit more likely to drop out of high school than female students, which is consistent with national trends. The difference is negligible in the 8th grade, but consistent in the 7th grade and in grades 9 to 11. In the 12th grade the disparity lessens a bit, but boys are still a bit more likely to drop out of school than girls.

Native American students have a slight negative correlation with dropout rate, meaning they are less likely than average to drop out of high school. In other states, such as New Mexico and Alaska, Native Americans are often extremely impoverished and dropout rates in those
communities are very high, so it is interesting that this is not the case with Louisiana’s relatively small Native American population.

Asian students also have a slight negative correlation with dropout rate, meaning they are less likely than average to drop out of high school. The Asian students who do drop out of school seem more likely to do so in grades 7-9, and their likelihood of dropping out lessens as they get closer to graduating high school.

Black students have a strong positive correlation (over 0.4) with dropout rate that far exceeds any other racial group, and remains consistently higher across all grade levels. They are far more likely to drop out of high school than the average student. Black students in the 7th and 8th grade are more likely to drop out of school than 7th and 8th graders of any other race, and they remain at a high risk of dropping out in grades 9-12. Their correlation with dropout rate peaks in the 10th grade, but lessens slightly as they get closer to graduating.

Hispanic students have a significant positive correlation with dropout rate (over 0.2) that is surpassed only by Black students. There is not much difference from the average student in the 7th and 8th grades, but starting in the 9th grade Hispanic students become at high risk of dropping out. Their correlation with dropout rate peaks in the 10th grade, but lessens slightly in the 11th and 12th grades as they get closer to graduating.

Hawaiian-Pacific Islander students are very slightly above average in likeliness to drop out of high school, with correlation statistics of around 0.05. This trend remains consistent across grade levels.

White students have a strong negative correlation (over -0.4) with dropout rate that far exceeds any other racial group, and remains consistently lower across all grade levels. They are far less likely to drop out of high school than the average student. The disparity is not as great in
the 7th and 8th grades (only around -0.15), but becomes much higher in grades 9-12. White students who do drop out of high school are more likely to do so in the 11th and 12th grades than in the 9th and 10th grades, which is the opposite trend of Black and Hispanic students.

Multi-race students have a significant negative correlation with dropout rate (over -0.2) that is surpassed only by White students. They are significantly less likely to drop out of high school than the average student. Just as with White students, the disparity is not as great in the 7th and 8th grades (only around -0.05), but becomes much higher in grades 9-12 (consistently around -0.15).

Minority students have a strong positive correlation (over 0.4) with dropout rate. The overwhelming majority of minority students in Louisiana public schools are Black, so naturally the correlation trends for Minority students mirrors those of Black students.

At-Risk (Economically Disadvantaged) students have a strong positive correlation (over 0.4) with dropout rate. Likewise, the overwhelming majority of At-Risk students in Louisiana public schools are Black, so the correlation trends for At-Risk students mirrors those of Black students. No other racial group even has a positive correlation with At-Risk percentage, but Black students have a very high positive correlation at 0.735 (Table 4.3). Asian students are unlikely to be At-Risk with a negative correlation of –0.23 and White students are very unlikely to be At-Risk with a negative correlation of -0.71. It also seems male students are a bit more likely to come from economically disadvantaged backgrounds than girls, at least according to the state’s classification.

LEP (Limited English Proficiency) students also have a strong positive correlation (just under 0.4) with dropout rate. Asian students have a significant positive correlation (0.25) with LEP, and Hispanic students have a very high positive correlation (0.85) with LEP. It makes sense that LEP kids often struggle in school and drop out at high rates. They often struggle to fit in with
other students and not all schools are properly equipped to teach them in their primary language, as they gradually learn English. They may fall behind in school, grow frustrated, and see going to school as increasingly futile.

In Louisiana, this primarily relates to kids who grow up speaking Vietnamese and Spanish, respectively, as their primary language. No other racial group has a positive correlation with LEP higher than 0.1, and White students have a very strong negative correlation (-0.71) with LEP. LEP is also correlated with At-Risk proficiency at 0.2, so these kids are likely to come from economically disadvantaged backgrounds.

Male students seem to be more likely to be LEP students than female students. A Japanese study (Sugiura et al.) in 2008 found that girls on average are significantly more invested in retaining acquired knowledge of a second language than boys, whose engagement often diminishes.

4.1.3. Starting Grade

This was tested in order to see how the grade at which students began at their high school would correlate with dropout rates. This was measured by the following variables:

Start Grade – Simply the grade at which students begin at the high school (1st to 12th)

Elementary vs. Middle School – Schools that start in grades 1-5 compared to grades 6-8.

Start_6th – Schools that start in grade 6 compared to 7-12.

Start_7th – Schools that start in grade 7 compared to 8-12.

Start_8th – Schools that start in grade 8 compared to 9-12.
Table 4.4. Correlation Test Results for Starting Grade Variables

<table>
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<tr>
<th></th>
<th>DRt_7_12</th>
<th>DRt_9_12</th>
<th>DRate_7</th>
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<th>DRate_10</th>
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</thead>
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<tr>
<td>St_Grade</td>
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<td>Elmnt_Mid</td>
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<td>0.1439</td>
<td>0.0337</td>
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<td>0.0288</td>
<td>0.0007</td>
<td>0.0302</td>
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</table>

Key Points of Analysis

A number of schools include lower grades on the same campus as high school grades, especially in rural areas. Starting grade has a significant positive correlation (around 0.25) with high school dropout rate (Table 4.4). Across the board, the lower the start grade for that facility, the lower the dropout rate is likely to be in the high school grades. The higher the start grade, the higher the dropout rates are likely to be. Students who enter their school in 6th grade are less likely to drop out than those who enter high school in 9th grade, and those who enter their school in 1st grade are less likely to drop out than those who enter that school in 6th grade.

There is a negligible difference in dropout rates between high schools that start in 8th grade compared to high schools that start in 9th grade, but there is a significant difference between schools that start in 7th grade compared to 8th grade. The dropout rate of 8th graders is significantly lower when they begin high school in 7th grade instead of 8th grade.

Entering a new school environment and campus with new classmates and new teachers can be a very stressful change for a high school student. Students who attend their high schools long before the 9th grade have more time to make friends among their classmates, meet teachers and administrators, and grow comfortable with their school environment. This is standard in rural areas, where high schools often serve grades Pre-K through 12 all on the same campus. Nearly all urban high schools across the state start in the 9th grade, putting those freshmen into a stressful new environment where they are often unfamiliar with their classmates and teachers.
4.1.4. Class Size

In this case, class size refers to the number of students learning in a classroom of a given course, not the total number of students in a grade or graduating class.

Classified by the following variables:

Class Size 1-20: The percentage of classes at the high school that had between 1 and 20 students.
Class Size 21-26: The percentage of classes at the high school that had between 21 and 26 students.
Class Size 27-33: The percentage of classes at the high school that had between 27 and 33 students.
Class Size 34: The percentage of classes at the high school that had 34 or more students.

Table 4.5. Correlation Test Results for Class Size Variables

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<tr>
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<td>0.1327</td>
<td>0.2105</td>
<td>0.1570</td>
<td>0.1803</td>
</tr>
</tbody>
</table>

Key Points of Analysis

This group of variables in Table 4.5 is easy to interpret. Class size is critically important and it demonstrates an integral relationship with high school dropout rates. The percentage of classes between 1 and 20 students has significant negative correlations around -0.2. The percentage of classes between 21 and 26 students has neutral correlations very close to 0. The percentage of classes with 27 students and higher has significant positive correlations above 0.2. The difference in these correlation statistics is staggering, considering how a class with twenty students might not seem much different at the surface to a class with twenty-seven students. Extrapolated across an
entire high school, however, such a difference becomes critical regarding the dropout rates in the school.

Schools with low dropout rates tend to have more small classes, while schools with high dropout rates tend to have more large classes. The clear inference: class sizes should be kept below 27 students as much as possible, and ideally less than 21 students. Classes of 27 students or more should be kept to a minimum. Class size does not seem to affect 7th grade dropout rates much, but starting in the 8th grade it becomes critical to keep classes smaller.

Large classes are more difficult for teachers to manage and can often deprive students of individual attention they may need. It is much easier for a student to become disengaged with school in a large class than a small class. Even with interactive teaching methods, there is only so much a teacher can do to keep a class of 27 or more students consistently focused and immersed in the classroom.

Table 4.6. Correlation Test Results for Class Size Variables by Demographics

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1_20</td>
<td>-0.0809</td>
<td>0.0809</td>
<td>0.0723</td>
<td>-0.2227</td>
<td>-0.1309</td>
<td>-0.2759</td>
<td>0.0239</td>
<td>0.1897</td>
<td>0.0338</td>
<td>-0.1897</td>
</tr>
<tr>
<td>CS21_26</td>
<td>0.0515</td>
<td>-0.0515</td>
<td>-0.0079</td>
<td>0.0756</td>
<td>-0.0054</td>
<td>0.0738</td>
<td>-0.0965</td>
<td>-0.0142</td>
<td>0.0305</td>
<td>0.0142</td>
</tr>
<tr>
<td>CS27_33</td>
<td>0.0776</td>
<td>-0.0776</td>
<td>-0.0867</td>
<td>0.2215</td>
<td>0.1264</td>
<td>0.2776</td>
<td>0.0303</td>
<td>-0.1826</td>
<td>-0.0493</td>
<td>0.1826</td>
</tr>
<tr>
<td>CS34</td>
<td>0.0166</td>
<td>-0.0166</td>
<td>-0.0571</td>
<td>0.1656</td>
<td>0.2082</td>
<td>0.2392</td>
<td>0.0508</td>
<td>-0.2572</td>
<td>-0.0788</td>
<td>0.2572</td>
</tr>
</tbody>
</table>

It was also checked to see how racial groups among the students correlated with the class sizes (Table 4.6). White students have significant positive correlation (0.19) with class sizes of 1 to 20 students, and a significant negative correlation (about -0.2) with class sizes of 27 students and greater. White students drop out of school far less often than the average student, and they tend to have more small classes and fewer larger ones. Conversely, both Black and Hispanic students have significant negative correlations with class sizes of 1 to 20 students, and a significant positive correlation with class sizes of 27 students and greater. This means students in the two
racial groups most likely to drop out of school are often in larger classes, where it is harder for them to get the individual help they might need!

Interestingly, Asian students share similar class size correlations with Black and Hispanic students, and are still less likely than the average student to drop out of high school. Also, male students tend to be in slightly more small classes and fewer larger classes than female students, even though male students are a bit more likely to drop out of school.

4.1.5. Suspension Rates

Students can be placed under suspension for poor academic performance or a serious disciplinary infraction. Punishments enforced by suspension vary significantly, depending on circumstance. Poor academic performance might result in the student being prohibited from participating in extracurricular activities such as clubs and sports, while a suspension due to a serious discipline issue might result in the student being prohibited from being on campus for a few days.

The data is classified by two variables:

In-school suspension rates – Percentage of students who were given in-school suspension

Out-of-school suspension rates – Percentage of students who were given out-of-school suspension

Table 4.7. Correlation Test Results for Suspension Variables

<table>
<thead>
<tr>
<th></th>
<th>DRate_7_12</th>
<th>DRate_9_12</th>
<th>DRate_7</th>
<th>DRate_8</th>
<th>DRate_T9</th>
<th>DRate_9</th>
<th>DRate_10</th>
<th>DRate_11</th>
<th>DRate_12</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS_Susp</td>
<td>0.237</td>
<td>0.2265</td>
<td>-0.0684</td>
<td>0.0208</td>
<td>0.0104</td>
<td>0.1979</td>
<td>0.2188</td>
<td>0.1448</td>
<td>0.1185</td>
</tr>
<tr>
<td>OS_Susp</td>
<td>0.2206</td>
<td>0.2153</td>
<td>0.1061</td>
<td>0.0339</td>
<td>0.0306</td>
<td>0.1692</td>
<td>0.1711</td>
<td>0.1474</td>
<td>0.1597</td>
</tr>
</tbody>
</table>
Key Points of Analysis

To no surprise, both types of suspensions have a significant positive correlation with dropout rates at just over 0.25 (Table 4.7). A student who struggles academically or gets into disciplinary trouble is more likely than average to drop out of school (Chu and Ready 2018). There do not seem to be any clear trends by grade, other than that the correlation is stronger for grades 9-12 than for 7th and 8th grades. There also is no clear statistical difference in the correlations of in-school suspension and out-of-school suspensions. Neither type of suspension is a stronger indicator of dropout rate than the other.

4.1.6. Attendance Rate & Truancy

Attendance Rate – Percentage of students attending class, usually reported after the first period class

Truancy – When a student is absent from school without permission (unexcused absence)

Classified by the two variables:

Attendance Rate – Percentage of students attending class each day, across the entire student body

Truancy Rate – Percentage of entire student body who had one or more unexcused absences

Table 4.8. Correlation Test Results for Attendance Rate and Truancy

<table>
<thead>
<tr>
<th></th>
<th>DRt_7_12</th>
<th>DRt_9_12</th>
<th>DRate_7</th>
<th>DRate_8</th>
<th>DRate_T9</th>
<th>DRate_9</th>
<th>DRate_10</th>
<th>DRate_11</th>
<th>DRate_12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Att_Rate</td>
<td>-0.4433</td>
<td>-0.4231</td>
<td>-0.0629</td>
<td>-0.0132</td>
<td>-0.0784</td>
<td>-0.2642</td>
<td>-0.349</td>
<td>-0.2709</td>
<td>-0.3078</td>
</tr>
<tr>
<td>Tru_Rate</td>
<td>0.1692</td>
<td>0.1656</td>
<td>-0.0443</td>
<td>-0.1073</td>
<td>0.0375</td>
<td>0.0989</td>
<td>0.1235</td>
<td>0.1498</td>
<td>0.1297</td>
</tr>
</tbody>
</table>
Key Points of Analysis

Unsurprisingly, attendance rate has a strong negative correlation (over -0.4) with dropout rates (Table 4.8). The higher the attendance rate, the lower dropout rates tend to be, and vice versa. When broken down by grade, the correlation is negligible in the 7th and 8th grades, but quite strong in grades 9-12. Schools with low attendance rates are likely to suffer high dropout rates starting in the 9th grade and onward.

Conversely, the relatively low positive correlation of truancy rate (about 0.17) with dropout rates might be surprising to many. Schools with higher truancy rates are a bit more likely to have higher dropout rates and schools with lower truancy rates are a bit more likely to have lower dropout rates, but the disparity is not as significant as one might expect. When broken down by grade, truancy rate actually has a slight negative correlation with dropout rate for the 7th and 8th grades, but the correlation becomes slightly positive from the 9th to 12th grades.

Regular attendance is a much better predictor of dropout rate in high schools than truancy rates. A student who has the occasional unexcused absence or two might not necessarily be at risk of dropping out, compared to a student who frequency does not attend class. All dropouts commit truancy, but many truants do not drop out of school.

The two variables were tested against each other, and attendance rate and truancy rate have a strong negative correlation with each other at -0.4454. This makes sense. The higher the attendance rate, the lower truancy rates tend to be, and vice versa.

Table 4.9. Correlation Test Results for Attendance Rate and Truancy by Demographic

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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Att_Rate</td>
<td>0.2114</td>
<td>-0.2114</td>
<td>0.0192</td>
<td>0.1934</td>
<td>-0.3106</td>
<td>-0.087</td>
<td>0.0432</td>
<td>0.3078</td>
<td>0.0829</td>
<td>-0.3078</td>
<td>-0.4676</td>
<td>-0.2371</td>
</tr>
<tr>
<td>Tru_Rate</td>
<td>-0.0923</td>
<td>0.0921</td>
<td>-0.0007</td>
<td>-0.1522</td>
<td>0.1064</td>
<td>0.1131</td>
<td>-0.1177</td>
<td>0.0408</td>
<td>0.1177</td>
<td>0.2896</td>
<td>0.1597</td>
<td></td>
</tr>
</tbody>
</table>
Further analysis by racial and socioeconomic demographics (Table 4.9) shows attendance rate has a significant positive correlation with female student percentage, and an inverse negative correlation with male student percentage. Female students are significantly less likely to miss school than male students, on average. White and Asian students have significant positive correlations with attendance rate, meaning they are more likely to attend school, on average. Black students have a quite strong negative correlation (-0.31) with attendance rate, so they are less likely to attend school, on average. At-Risk students have a very strong negative correlation with attendance rate, so they are very likely to not attend school. LEP students also have a significant negative correlation (-0.24) with attendance rate, so they are also less likely to attend school, on average.

Male students are more likely to be truants than female students, but the disparity is not as severe as it is with attendance rates. Correlation is slightly positive for male students, and inversely negative for female students. White and Asian students are a bit less likely to be truants, while Black and Hispanic students are a bit more likely to be truants, but these racial differences are not as significant as with attendance rates. At-Risk students and LEP students are also significantly more likely than average to be truants.
4.1.7. Expense per Student & Staff Salaries

Classified by the four variables:

Expense per Student – Average of dollars spent per pupil across the entire student body

Average Teacher Salary

Average Administrator Salary

Average Staff Salary – All school staff included.

Table 4.10. Correlation Test Results for Expense Variables

<table>
<thead>
<tr>
<th></th>
<th>DRt_7.12</th>
<th>DRt_9.12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp_Stdnt</td>
<td>0.0935</td>
<td>0.1142</td>
</tr>
<tr>
<td>Tch_Salry</td>
<td>0.0216</td>
<td>0.0023</td>
</tr>
<tr>
<td>Adm_Salry</td>
<td>0.1143</td>
<td>0.0906</td>
</tr>
<tr>
<td>Stf_Salry</td>
<td>0.1151</td>
<td>0.0818</td>
</tr>
</tbody>
</table>

Key Points of Analysis

Expense per student actually has a slight positive correlation (about 0.1) with dropout rates, which would surprise many people. Schools with less funding per pupil are slightly more likely than average to have lower dropout rates, while schools with higher funding per pupil are slightly more likely to have higher dropout rates (Table 4.10). Teacher salaries have a neutral correlation with dropout rates, so there is no statistical relationship. Meanwhile, administrator and staff salaries also have a slight positive correlation (about 0.1) with dropout rates.

It is important to remember here that the correlation between variables does not necessarily imply causation (Onwuegbuzie and Daniel 1999). Just because expense per students, administrator salaries, and staff salaries have a positive correlation with dropout rate, that does not mean reducing them will have a positive effect in lowering the dropout rates. That is not a sensible nor
feasible course of action. However, it does imply that lowering the dropout rates cannot be achieved simply with higher funding and higher-paid staff.

Table 4.11. Correlation Test Results for Expense per Student by Demographic

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp_Stdnt</td>
<td>-0.1414</td>
<td>0.1414</td>
<td>-0.0275</td>
<td>0.0238</td>
<td>0.2201</td>
<td>-0.0376</td>
<td>0.1334</td>
<td>-0.2127</td>
<td>0.0088</td>
<td>0.2127</td>
<td>0.1853</td>
<td>0.0045</td>
</tr>
</tbody>
</table>

When compared by racial group in Table 4.11, Black students show a significant positive correlation (0.22) with expense per student, while White students show a significant negative correlation (-0.21). This means funding per student is higher on average as the percentage of Black students is higher and lower when the percentage of White students is higher. The correlation (0.13) with Hawaiian-Pacific Islander students appears to just be a random statistical anomaly, due to a small percentage of students.

It can be stated conclusively that the disparity in dropout rates between Black students and White students has nothing to do with school funding. If it did, these correlations would be reversed. The same is true for the disparity between male and female students. Money alone is not fixing the problem of high school students dropping out. More concentrated approaches are needed to combat the trends.
4.1.8. Staff Education Levels and Experience

All of these variables below test attributes of teachers, administrators, and overall staff at each school:

Percentage of Staff at a Certain Education Level (Less than Bachelor’s Degree, Bachelor’s Degree, Master’s Degree, Education Specialist, Doctoral Degree)

Percentage of Staff Members That Are Teachers or Administrators

Average Years of Experience for Each of Those Groups

Table 4.12. Correlation Test Results for Staff Education and Experience Variables

<table>
<thead>
<tr>
<th></th>
<th>DRt_7_12</th>
<th>DRt_9_12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tchr_Less</td>
<td>0.0686</td>
<td>0.0624</td>
</tr>
<tr>
<td>Tchr_Bchl</td>
<td>-0.0768</td>
<td>-0.0715</td>
</tr>
<tr>
<td>Tchr_Mstr</td>
<td>-0.0043</td>
<td>-0.0198</td>
</tr>
<tr>
<td>Tchr_EdSp</td>
<td>-0.027</td>
<td>-0.0246</td>
</tr>
<tr>
<td>Tchr_Doct</td>
<td>0.0255</td>
<td>0.0131</td>
</tr>
<tr>
<td>Tchr_Expr</td>
<td>-0.2117</td>
<td>-0.1997</td>
</tr>
<tr>
<td>Pct_Tchrs</td>
<td>-0.0653</td>
<td>-0.0754</td>
</tr>
<tr>
<td>Admn_Less</td>
<td>-0.1172</td>
<td>-0.1108</td>
</tr>
<tr>
<td>Admn_Bchl</td>
<td>0.1098</td>
<td>0.092</td>
</tr>
<tr>
<td>Admn_Mstr</td>
<td>-0.0118</td>
<td>0</td>
</tr>
<tr>
<td>Admn_EdSp</td>
<td>-0.0431</td>
<td>-0.0428</td>
</tr>
<tr>
<td>Admn_Doct</td>
<td>0.0197</td>
<td>0.0083</td>
</tr>
<tr>
<td>Admn_Expr</td>
<td>-0.0707</td>
<td>-0.0638</td>
</tr>
<tr>
<td>Pct_Admin</td>
<td>0.0079</td>
<td>0.0031</td>
</tr>
<tr>
<td>Staff_Les</td>
<td>-0.1996</td>
<td>-0.1621</td>
</tr>
<tr>
<td>Staff_Bch</td>
<td>0.1445</td>
<td>0.1291</td>
</tr>
<tr>
<td>Staff_Mst</td>
<td>0.0639</td>
<td>0.0415</td>
</tr>
<tr>
<td>Staff_EdS</td>
<td>-0.0238</td>
<td>-0.0248</td>
</tr>
<tr>
<td>Staff_Doc</td>
<td>0.0521</td>
<td>0.0352</td>
</tr>
<tr>
<td>Staff_Expr</td>
<td>-0.2275</td>
<td>-0.2093</td>
</tr>
</tbody>
</table>
Key Points of Analysis

There do not seem to be any clear takeaways regarding the affect staff education levels or composition have on dropout rates (Table 4.12). The only clear patterns are that teacher experience and staff experience both have significant negative correlations (about -0.2) with dropout rates. Administrative experience also has a negative correlation, but it is much less significant.

It makes sense that a high school with more experienced staff is likely to have lower dropout rates, and vice versa. Experienced teachers and staff can learn from past experiences and better identify and help students who are most at-risk of dropping out of school. They are likely to employ more effective teaching methods and better classroom management skills than newer teachers.

4.1.9. Retention Rates

This is a case where differences in terminology are very important. From the college perspective, retention is a good thing, as it refers to keeping college students at the university and on the path to graduating. In the context of high school students, however, retention means something quite different.

When a high school student does not fulfill the requirements to advance to the next grade by the end of the academic year, they are retained, meaning they must repeat that grade again the next year. High schools want their retention rates to be as low as possible. Sometimes schools get into trouble for passing students onto the next grade level who have not actually met the proper requirements, even falsifying test scores. A few schools have been closed down for doing such things, such as John F. Kennedy High School and Tallulah Charter School in this study.
Classified by the variables:

7th Grade Retention Rate – Percentage of 7th graders retained after the school year
8th Grade Retention Rate – Percentage of 8th graders retained after the school year
9th Grade Retention Rate – Percentage of 9th graders retained after the school year
10th Grade Retention Rate – Percentage of 10th graders retained after the school year
11th Grade Retention Rate – Percentage of 11th graders retained after the school year
12th Grade Retention Rate – Percentage of 12th graders retained after the school year

Table 4.13. Correlation Test Results for Retention Variables

<table>
<thead>
<tr>
<th>Retention Rate</th>
<th>DRt_7_12</th>
<th>DRt_9_12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rtn_Rat7</td>
<td>0.1139</td>
<td>0.1209</td>
</tr>
<tr>
<td>Rtn_Rat8</td>
<td>0.1526</td>
<td>0.1413</td>
</tr>
<tr>
<td>Rtn_Rat9</td>
<td>0.4977</td>
<td>0.4726</td>
</tr>
<tr>
<td>Rtn_Rat10</td>
<td>0.4855</td>
<td>0.4676</td>
</tr>
<tr>
<td>Rtn_Rat11</td>
<td>0.4791</td>
<td>0.4553</td>
</tr>
<tr>
<td>Rtn_Rat12</td>
<td>0.2143</td>
<td>0.2054</td>
</tr>
</tbody>
</table>

Key Points of Analysis

This retention data is also simple to interpret (Table 4.13). Retention rates across grades 7-12 have significant positive correlation with dropout rates. The higher the retention rates in a high school, the higher the dropout rates are likely to be. The correlation between retention rates and dropout rates is particularly strong (just under 0.5) for grades 9-11, and drops quite a bit for the 12th grade. 7th and 8th graders who are retained are at significant risk of dropping out. Retained students in grades 9-11 are at extremely high risk of dropping out. Retained 12th graders are still at high risk of dropping out, but much less so than 9th, 10th, and 11th graders.

It makes sense that retained students are at very high risk of dropping out of school. They become more isolated from their classmates and friends that were not held back, and they may
come to see school as pointless and graduation unachievable for them. It is natural for students to feel frustrated and mentally disengaged when they are not meeting expected academic expectations. It is interesting that 12th graders who are retained are much less likely to drop out of school than 11th graders who are retained, as they are closer to finishing.

A comparison across racial and socioeconomic variables shows that Black, Hispanic, and LEP students are significantly more likely to be retained than the average student, while White and multi-racial students are significantly less likely to be retained than the average student.

4.1.10. Average ACT Score

Though far from perfect, the ACT (American College Test) is a general standard assessment of how prepared a high school student is for college, and it is taken by millions of American students each year. It tests reading comprehension, as well as basic knowledge of mathematics (algebra, geometry, and trigonometry) and English that students should have learned by the 11th grade. The average ACT score in this study is a 19.0.

Students that score highly on the ACT are more likely to succeed in a rigorous college environment, where independent problem-solving, critical thinking, and reading comprehension skills are necessary tools for academic success. Consequently, colleges rate the ACT very heavily when considering admission for a prospective student that has applied. Most colleges have a minimum threshold for the ACT score, below which they will not even consider admission.

The Taylor Opportunity Program for Students (TOPS) scholarship so many middle-class and lower-class Louisianans depend on to fund their college undergraduate studies is also heavily affected by the ACT score they achieve, in addition to their high school grade point average. There
is a huge difference in TOPS funding between scoring a 23 and a 27 on the ACT, and between a 27 and a 30. The majority of 4-year schools in Louisiana, as well as TOPS, place more emphasis on the ACT than the SAT, so that is the standardized test Louisiana high schools spend a significant amount of time and money preparing their students for.

In Louisiana, taking the ACT is mandatory for all 11th grade students, and the test has been provided at no cost to students since 2013. As such, the average ACT score of a high school is a useful variable to test, because unlike other measures of academic achievement that vary greatly from school to school, the ACT is something every single high school in the state is preparing their students to take. In many other states, such as Massachusetts, it is not mandatory to take the ACT, and only highly motivated students applying for college do so.

 Classified by the variable:

 Average ACT Score – Average ACT score achieved by the senior class (12th graders) at the high school in a given academic year.

 Table 4.14. Correlation Test Results for Average ACT Score

<table>
<thead>
<tr>
<th></th>
<th>DRt_7_12</th>
<th>DRt_9_12</th>
<th>DRate_7</th>
<th>DRate_8</th>
<th>DRate_T9</th>
<th>DRate_9</th>
<th>DRate_10</th>
<th>DRate_11</th>
<th>DRate_12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg_ACT</td>
<td>-0.3817</td>
<td>-0.3836</td>
<td>-0.0577</td>
<td>-0.0924</td>
<td>-0.1152</td>
<td>-0.2563</td>
<td>-0.3398</td>
<td>-0.2842</td>
<td>-0.316</td>
</tr>
</tbody>
</table>

Key Points of Analysis

The average ACT score shows a strong negative correlation (about -0.38) with the overall dropout rates (Table 4.14). The higher the ACT scores are in a high school, the lower the dropout rates tend to be, and vice versa. The correlation is not very strong for 7th and 8th graders, but is quite strong for grades 9-12.
It is unlikely that the ACT score by itself would ever cause a student to drop out of school, but from this we can infer that students who perform poorly in school and are below college-readiness standards are significantly more likely to drop out of school compared to the average student, while students who perform well on the ACT and are considered college-ready are unlikely to drop out of school. These results are not surprising. A 2008 study found that ACT scores are not only a good predictor of college success, but also correlate strongly with IQ scores in the general population (Koenig et al. 2008).

### Table 4.15. Correlation Test Results for Average ACT Score by Demographic

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Avg_ACT</td>
<td>0.3294</td>
<td>-0.3294</td>
<td>-0.0171</td>
<td>0.5643</td>
<td>-0.5563</td>
<td>0.0834</td>
<td>0.2117</td>
<td>0.4974</td>
<td>0.1285</td>
<td>-0.4974</td>
<td>-0.7860</td>
<td>-0.1436</td>
</tr>
</tbody>
</table>

Broken down by racial and socioeconomic groups, female students on average score significantly higher than male students (Table 4.15). Those correlations are very significant at 0.33. White and Asian students have a very high positive correlation with average ACT scores, meaning they tend to score significantly above average. Hawaiian-Pacific Islander students also tend to score above average, and Hispanic students tend to score slightly above average. Black students have a strong negative correlation with average ACT scores, meaning they tend to score well below average. Economically disadvantaged students tend to score very badly on the ACT, and LEP students also score below average.

It is noteworthy that female students in Louisiana public high schools seem to have significantly higher average ACT scores than their male counterparts. However, lack of detail in this variable should inspire caution in interpreting its meaning until more detailed data is provided. Only the average ACT scores of 12th graders at these Louisiana high schools is recorded in the data used for this study from the Department of Education website. No details are provided
concerning composite scores, nor the scores in the individual subject areas of mathematics, reading, writing, English, or science. A comprehensive, nationwide study (Buddin) in 2014 of nearly two million students found that female students generally have better average grades than male students in all subjects, and yet still had a slightly lower average ACT score than male students. Boys tend to score better in the math and science sections, while girls score better in the reading and English sections.

4.1.11. T9 Students

The T9 (transitional 9th grade student) program was developed in recent years to help Louisiana students make the often difficult jump from 8th grade to 9th grade. Some middle schools prepare their students better than others, and especially at large, urban high schools there are often disparities in the 9th grade class between students coming from different feeder schools.

The goal of the T9 program is to get 9th grade students who entered high school with academic proficiencies a bit below grade level fully caught up by the end of their 9th grade year, so that they do not have to repeat the grade and are less at risk to drop out. T9 students are enrolled in a special curriculum that effectively supplements material they were supposed to learn in middle school, while still allowing them to learn their 9th grade material alongside their classmates. They are essentially considered to be 8th graders who were not held back, and they have five years to graduate by the time they finish 12th grade.

The program is fairly new, starting in the Fall 2014 semester, and it is not used in all public high schools, but the early results are already very promising. A recent report by the Louisiana Department of Education (Boudreaux 2019) showed that most T9 students caught up by the end
of their first year in high school, and proceeded into the 10th grade on schedule, as planned. Former T9 students graduate at a similar rate to non-T9 students, so it seems the program is making significant progress in preventing these struggling students from dropping out.

The variable T9 percentage was calculated to measure the percentage of incoming 9th graders who were T9 students. This is simply the number of T9 students divided by the sum of T9 students and 9th grade students. For example, a school with 20 T9 students and 180 non-T9 students would have a T9 percentage of 10%.

\[ \frac{20}{(20+180)} = \frac{20}{200} = 0.1 \text{ or } 10\% \]

Table 4.16. Correlation Test Results for T9 Percentage

<table>
<thead>
<tr>
<th></th>
<th>DRt_7_12</th>
<th>DRt_9_12</th>
<th>DRate_7</th>
<th>DRate_8</th>
<th>DRate_T9</th>
<th>DRate_9</th>
<th>DRate_10</th>
<th>DRate_11</th>
<th>DRate_12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pct_T9</td>
<td>0.2074</td>
<td>0.2074</td>
<td>-0.0006</td>
<td>0.0131</td>
<td>-0.1071</td>
<td>0.1749</td>
<td>0.1912</td>
<td>0.15</td>
<td>0.1041</td>
</tr>
</tbody>
</table>

Key Points of Analysis

As Table 4.16 shows, the percentage of T9 students does correlate positively at a significant amount (0.21) with dropout rates, but this is not surprising. Schools that consistently have a larger T9 student percentage will naturally have a larger percentage of academically struggling students, which are at high risk of dropping out. Magnet schools, lab schools, and charter schools with highly selective enrollment generally do not even have a T9 program, since students coming into 9th grade below grade level have little chance of meeting the rigorous academic standards of those schools, and no such students are admitted in the first place.

In this case, the key variable to look at is how the dropout rate of T9 students specifically is affected by the percentage of T9 students. The correlation is negative by a fairly significant amount (-0.11). As the percentage of T9 students increases, T9 students are less likely to drop out.
It is better for a T9 student to be one of many T9 students than one of few T9 students in their cohort.

There are plenty of schools, such as St. Helena, that consistently have high 9th grade dropout rates, and yet have few or no students in the T9 program. Such schools have nothing to lose, and potentially a lot to gain by adding or expanding a T9 program to help their struggling 9th graders adjust.

It also seems that some schools are drastically underassessing the number of incoming 9th graders who are not at grade-level. For example, many large public schools in Caddo Parish and Jefferson Parish have a relatively high percentage of T9 students, and the dropout rate of non-T9 9th graders is often significantly higher than the T9 students, sometimes even triple or quadruple the amount. Generally, T9 students have a much higher dropout rate than non-T9 9th graders, so perhaps these schools need to significantly increase the number of their incoming freshmen who take a T9 curriculum. It seems a lot of students are slipping through the cracks, in that regard. This would be a relatively straightforward solution that could potentially help many struggling students.

Broken down by racial and socioeconomic demographics, T9 students are slightly more likely to be male than female (0.05 correlation). Hispanic and Black students are more likely than average to be T9 students (about 0.15 positive correlation), while White (-0.19 negative correlation) and multi-race (-0.12 negative correlation) students are less likely on average to be T9 students.

Another interesting observation is that starting grade also has a significant positive correlation (0.15) with T9 percentage. This suggests that the earlier students enter their high school campus, the less likely they are to fall behind grade-level proficiencies by the time they finish the 8th grade.
4.1.12. T9 Percentage Difference

Sometimes the percentage of T9 students at a given high school changed quite dramatically from year-to-year, so it was important to test if that had any effect on T9 dropout rates. Another variable called the T9 percentage difference was created to measure the effect a change in the percentage of T9 students had upon the T9 dropout rate.

The T9 percentage difference is simply the T9 percentage in one school year minus the T9 percentage of the previous year. For example, if a high school had 19% T9 students one year and 11% T9 students the previous year, its T9 percentage difference value for that year would be 8%. Likewise, if a high school had 8% T9 students one year and 14% T9 students the previous year, its T9 percentage difference value for that year would be -6%. Schools that never had any T9 students in the five-year study period were excluded from this calculation so as not to skew the correlation results.

When the T9 percentage difference values are measured against the T9 dropout rates, and there is a significant negative correlation of -0.18. This means as the T9 percentage increases from the previous year, T9 students are much less likely to drop out of school, and as it decreases, T9 students are much more likely to drop out of school. This is another significant indicator of how important the T9 program can be for schools with a large number of struggling 9th graders. Not all schools need a T9 program, but many schools do. Schools with high 9th grade and T9 dropout rates really should consider expanding their T9 programs. The schools that have firmly utilized it on a consistent basis and put large numbers of their incoming 9th graders into a T9 curriculum have already seen a significant, positive impact.
4.1.13. Other Potentially Useful Variables Not Included

There are other variables that ideally would have been included in this analysis, but there simply was not enough publicly available data across all schools to do so. More useful research can hopefully be done on the relationship between these factors and Louisiana high school dropout rates in the future.

These include:

- Percentage of student body involved in sports
- Percentage of student body involved in clubs
- Time of day when the first period starts
- Use of a block schedule for classes instead of the standard 8-period schedule
- Amount of vocational programs offered by the school in lieu of college prep courses
- Presence of an ROTC program

4.1.14. Overall Conclusion of these Correlation Tests

Many factors that correlate strongly with dropout rate are related to issues that occur outside of the school environment or are things that cannot be fixed easily. There is no way to make all impoverished students achieve economic stability, nor can LEP students instantly master English.

However, the two factors to reduce dropout rates that feasibly can be changed very quickly and with minimal disruption are: 1) reducing class sizes and 2) putting more incoming freshman into the T9 program in schools where 9th graders drop out of school at high rates.
4.2. Summary of Findings – Choropleth Maps

In this section, the average dropout rates for each high school across the state during the duration of the study period (2014-15 to 2018-19 school years) are mapped with ArcGIS Pro. The average 7th – 12th grade dropout rate, average 9th – 12th grade dropout rate, and average dropout rate for each grade 7–12 are shown on their own choropleth map for each region. The maps identify how dropout rate varies from school to school, and also how the dropout rates vary across grades within each school.

The state of Louisiana is divided into ten regions (see Figure 3.2) of roughly equal size in order to make each high school easily visible. Table 4.17 below shows the categories of how the dropout rates are classified in the maps for each grade range. Dropout rates well below average are shown in dark blue, and dropout rate below average are shown in light blue. Dropout rates above average are shown in gray. High dropout rates are shown in light red, and critically high dropout rates are shown in dark red.

<table>
<thead>
<tr>
<th>Grade Range</th>
<th>Well Below Average</th>
<th>Below Average</th>
<th>Above Average</th>
<th>High</th>
<th>Critically High</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th – 12th</td>
<td>0 – 1.15%</td>
<td>1.16 – 2.3%</td>
<td>2.31 – 4.4%</td>
<td>4.41 – 7%</td>
<td>7.01% and Up</td>
</tr>
<tr>
<td>9th – 12th</td>
<td>0 – 1.15%</td>
<td>1.16 – 2.45%</td>
<td>2.46 – 4.4%</td>
<td>4.41 – 7%</td>
<td>7.01% and Up</td>
</tr>
<tr>
<td>7th</td>
<td>0</td>
<td>0.01 – 1%</td>
<td>1.01 – 2%</td>
<td>2.01 – 3%</td>
<td>3.01 – 4%</td>
</tr>
<tr>
<td>8th</td>
<td>0 – 0.75%</td>
<td>0.76 – 1.5%</td>
<td>1.51 – 3%</td>
<td>3.01 – 6%</td>
<td>6.01% and Up</td>
</tr>
<tr>
<td>9th</td>
<td>0 – 1.5%</td>
<td>1.51 – 3%</td>
<td>3.01 – 6.5%</td>
<td>6.51 – 10%</td>
<td>10.01% and Up</td>
</tr>
<tr>
<td>10th</td>
<td>0 – 1.25%</td>
<td>1.26 – 3%</td>
<td>3.01 – 5%</td>
<td>5.01 – 8%</td>
<td>8.01% and Up</td>
</tr>
<tr>
<td>11th</td>
<td>0 – 1.3%</td>
<td>1.31 – 2.6%</td>
<td>2.61 – 5.2%</td>
<td>5.21 – 7.8%</td>
<td>7.81% and Up</td>
</tr>
<tr>
<td>12th</td>
<td>0 – 1.25%</td>
<td>1.26 – 2.5%</td>
<td>2.51 – 5%</td>
<td>5.01 – 7.5%</td>
<td>7.51% and Up</td>
</tr>
</tbody>
</table>
Important trends for each region are summarized. The high schools in the dense urban cores of Lafayette, Shreveport – Bossier City, Baton Rouge, and New Orleans are displayed in a separate map from the rest of the region to enhance their visibility.
Figure 4.1. Map of Shreveport Metro High Schools

Figure 4.2. Map of Shreveport-Bossier City High Schools
Figure 4.3. Shreveport Metro Average 7-12 Grades Dropout Rate

Figure 4.4. Shreveport Metro Average 9-12 Grades Dropout Rate

Figure 4.5. Shreveport Metro Average 7th Grade Dropout Rate

Figure 4.6. Shreveport Metro Average 8th Grade Dropout Rate
Overall, the majority of high schools in the Shreveport Metro have below average 9th – 12th grade dropout rates (Figure 4.4). Compared to other densely populated areas of the state, the Shreveport-Bossier City urban area has relatively low dropout rates, and no schools fall into the critically high category. The only schools with high dropout rates are Fair Park and Woodlawn, and Fair Park merged with Booker T. Washington High School after the 2016-17 school year. Plain Dealing and Bossier in Bossier Parish have above average dropout rates, as do Huntington, Southwood, and Booker T. Washington in Caddo Parish.

As for the rural areas, every high school in DeSoto Parish has a below average dropout rate, and every high school in Claiborne Parish has a dropout rate well below average. Red River Parish is also below average. Doyline and Minden High School in Webster Parish have above average dropout rates, as do Bienville and Gibsland-Coleman in Bienville Parish.

By grade level, the 9th grade dropout rates are relatively low throughout the region, but a significant number of schools, both urban and rural, have 12th grade dropout rates above average. The 12th grade dropout rate is critically high at Woodlawn High School, and four other Shreveport high schools also have high 12th grade dropout rates (Figure 4.10).
Figure 4.11. Map of Monroe Metro High Schools

Monroe Metro High Schools

**Jackson Parish**
- Jonesboro-Hodge (2)
- Quitman
- Weston

**Lincoln Parish**
- Choudrant
- Grambling Lab (1)
- Ruston
- Simsboro

**Ouachita Parish**
- Carroll (7)
- Neville (5)
- Ouachita Parish (9)
- Richwood
- Sterlington
- West Monroe (6)
- West Ouachita
- Wossman (8)

**Union Parish**
- D’Arbonne Woods Charter (3)
- Downsville Charter (4)
- Union Parish

**Morehouse Parish**
- Bastrop
- Beekman Charter

Figure 4.12. Monroe Metro Average 7-12 Grades Dropout Rate

Figure 4.13. Monroe Metro Average 9-12 Grades Dropout Rate
Figure 4.18. Monroe Metro Average 11th Grade Dropout Rate

Figure 4.19. Monroe Metro Average 12th Grade Dropout Rate
Summary Analysis of Region Maps – Monroe Metro

Overall, most high schools in the Monroe Metro have below average 9th – 12th grade dropout rates (Figure 4.13). All of the high schools in Lincoln Parish and all of the high schools in Union Parish besides Downsville Charter have below average dropout rates. Ouachita Parish High Schools all have dropout rates that are slightly below average or above average, with no schools in either extreme category.

Interestingly, the biggest problem area in this region is rural Morehouse Parish, northeast of Monroe. Both high schools in the parish have above average dropout rates, and Bastrop High School is the only school in the region to have a critically high dropout rate.

By grade level, the dropout rates across the region are generally low through the 9th grade, but rise sharply starting in the 10th grade in many of the schools (Figure 4.17). At Bastrop High, the dropout rate is already above average in the 8th grade and is critically high in the 11th and 12th grades.
Figure 4.20. Map of Northeast LA Delta High Schools

Figure 4.21. Northeast LA Delta Average 7-12 Grades Dropout Rate

Figure 4.22. Northeast LA Delta Average 9-12 Grades Dropout Rate
Figure 4.23. Northeast LA Delta Average 7th Grade Dropout Rate

Figure 4.24. Northeast LA Delta Average 8th Grade Dropout Rate

Figure 4.25. Northeast LA Delta Average 9th Grade Dropout Rate

Figure 4.26. Northeast LA Delta Average 10th Grade Dropout Rate
Figure 4.27. Northeast LA Delta Average 11th Grade Dropout Rate

Figure 4.28. Northeast LA Delta Average 12th Grade Dropout Rate
Despite the Northeast Louisiana Delta being the most impoverished region of the state, and among the most impoverished areas of the entire country, there is not even a single high school where the 9th – 12th grade dropout rate is critically high (Figure 4.22). Many of the high schools in the region even have a below average dropout rate, while only a few fall into the high dropout rate category.

The high schools in Caldwell Parish and LaSalle Parish have dropout rates well below average. The high schools in East Carroll Parish and West Carroll Parish all have dropout rates that are at least below average. The only schools with high dropout rates are Delhi and Rayville in Richland Parish, Central in Catahoula Parish, Madison in Madison Parish, and Delta Charter in Concordia Parish.

By grade, there is great variability in how the dropout rates fluctuate across the region. Many of these schools are very small, with less than 200 students, and even one dropout in one year can skew the map and make it seem like dropout is a bigger problem for that particular grade than it may actually be (Figure 4.28, for example). A study period of longer than five years would be needed to confirm these grade-level trends more accurately for some of these small schools.
Figure 4.29. Map of Central LA High Schools

Central Louisiana High Schools

**Grant Parish**
- Georgetown
- Grant
- Montgomery

**Sabine Parish**
- Converse
- Florien
- Negreet
- Pleasant Hill
- Zwolle

**Natchitoches Parish**
- Lakeview
- Louisiana School for Math, Science, and the Arts
- Natchitoches Central

**Rapides Parish**
- Alexandria
- Bolton
- Buckeye
- Glenmora
- Northwood
- Oak Hill
- Peabody
- Pineville
- Plainview
- Rapides
- Tioga

**Vernon Parish**
- Anacoco
- Evans
- Hicks
- Hornbeck
- Leesville
- Pickering
- Pitkin
- Rosepine
- Simpson

**Winn Parish**
- Atlanta
- Calvin
- Dodson
- Winnfield

Figure 4.30. Central Louisiana Average 7-12 Grades Dropout Rate

Figure 4.31. Central Louisiana Average 9-12 Grades Dropout Rate
Figure 4.36. Central Louisiana Average 11th Grade Dropout Rate

Figure 4.37. Central Louisiana Average 12th Grade Dropout Rate
Summary Analysis of Region Maps – Central Louisiana

The maps in the Central Louisiana region show a clear contrast between dropout rates in populated and rural areas. Every single high school in both Sabine Parish and Vernon Parish, which border Texas, have 9th – 12th grade dropout rates below average, with most being well below average (Figure 4.31). Grant Parish, immediately north of Alexandria, also only has high schools with below average 9th – 12th grade dropout rates. Dodson and Winnfield in Winn Parish have above average dropout rates, but Calvin and Atlanta have dropout rates well below average, like most rural schools in the region.

Many of the schools in the more densely populated areas of this region are starkly different from the rural schools. Every high school in Rapides Parish except for Plainview has an above average 9th – 12th grade rate. Northwood and Rapides have high dropout rates, while Bolton and Peabody in Alexandria have critically high dropout rates. Lakeview and Natchitoches Central in Natchitoches Central also have above average dropout rates.

By grade, dropout rates are below average across the region in the 7th and 8th grades, before rising sharply in Alexandria in the 9th grade and peaking in the 10th grade. Interestingly, the opposite is true for the rural areas of Sabine Parish and Vernon Parish, where the dropout rates are generally the lowest in the 10th grade (Figure 4.35).
Figure 4.38. Map of Lake Charles Metro High Schools

Lake Charles Metro High Schools

Allen Parish
Elizabeth
Fairview
Kinder
Oakdale
Oberlin
Reeves
Starks

Calcasieu Parish
Barbe
Bell City
DeQuincy (2)
LaGrange (6)
Lake Charles College Prep (7)
Sam Houston (4)

Beauregard Parish
Sulphur
DeRidder
Vinton
East Beauregard (1)
Washington-Marion (5)
Merryville
Westlake (3)

Jefferson Davis Parish
Elton
Hathaway
Jennings

South Beauregard

Cameron Parish
Grand Lake
Hackett
Johnson Bayou

Jefferson Davis Parish
Elton
Hathaway
Jennings

South Cameron

Figure 4.39. Lake Charles Metro Average 7-12 Grades Dropout Rate

Figure 4.40. Lake Charles Metro Average 9-12 Grades Dropout Rate
Figure 4.41. Lake Charles Metro Average 7th Grade Dropout Rate

Figure 4.42. Lake Charles Metro Average 8th Grade Dropout Rate

Figure 4.43. Lake Charles Metro Average 9th Grade Dropout Rate

Figure 4.44. Lake Charles Metro Average 10th Grade Dropout Rate
Summary Analysis of Region Maps – Lake Charles Metro

This region has extremely low 9th – 12th grade dropout rates across the board. Overall, this region has the lowest percentage of dropouts in the state. All but three schools have 9th – 12th grade dropout rates that are below average, and the majority of these schools are in the well below average category (Figure 4.40). The only exceptions are three urban schools in Lake Charles. LaGrange and Lake Charles College Prep are above average, and Washington/Marion High School is the only school in the region with a high dropout rate. No schools fall into the critically high category.

By grade, the only red polygons on the maps show that Washington/Marion High School has a high dropout rate in the 10th grade (Figure 4.44). Also, some of the rural schools see a slight rise in dropout rate for the 12th grade, while still remaining below average (Figure 4.46).
Figure 4.47. Map of Acadiana High Schools

**Acadiana High Schools**

<table>
<thead>
<tr>
<th>Acadia Parish</th>
<th>Avoyelles Parish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Church Point (8)</td>
<td>Avoyelles</td>
</tr>
<tr>
<td>Crowley (7)</td>
<td>Avoyelles Public Charter (1)</td>
</tr>
<tr>
<td>Iota</td>
<td>Bunkie</td>
</tr>
<tr>
<td>Midland (2)</td>
<td>LA School for Ag. Sciences</td>
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<tr>
<td>Rayne</td>
<td>Marksville</td>
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<td>Eunice</td>
<td>Jeanerette</td>
</tr>
<tr>
<td>Mamou</td>
<td>Loureauville (13)</td>
</tr>
<tr>
<td>Pine Prairie</td>
<td>New Iberia (14)</td>
</tr>
<tr>
<td>Ville Platte</td>
<td>Westgate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>St. Landry Parish</th>
<th>St. Mary Parish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beau Chene</td>
<td>Berwick (19)</td>
</tr>
<tr>
<td>JS Clark Leadership Academy (4)</td>
<td>Centerville (17)</td>
</tr>
<tr>
<td>Magnet Academy for Cultural Arts (5)</td>
<td>Franklin (16)</td>
</tr>
<tr>
<td>North Central</td>
<td>Morgan City (20)</td>
</tr>
<tr>
<td>Northwest (3)</td>
<td>Patterson (18)</td>
</tr>
<tr>
<td>Opelousas (6)</td>
<td>West St. Mary (15)</td>
</tr>
<tr>
<td>Port Barre</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vermillion Parish</th>
<th>St. Martin Parish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbeville (9)</td>
<td>Breaux Bridge</td>
</tr>
<tr>
<td>Erath (10)</td>
<td>Cecilia</td>
</tr>
<tr>
<td>Gueydan</td>
<td>St. Martinville (12)</td>
</tr>
</tbody>
</table>

Figure 4.48. Map of Lafayette Parish High Schools

**Lafayette Parish High Schools**

<table>
<thead>
<tr>
<th>Lafayette Parish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acadia</td>
</tr>
<tr>
<td>Carenco</td>
</tr>
<tr>
<td>Comeaux</td>
</tr>
<tr>
<td>David Thibodeaux (2)</td>
</tr>
<tr>
<td>Early College Academy (1)</td>
</tr>
<tr>
<td>Lafayette</td>
</tr>
<tr>
<td>Northside</td>
</tr>
<tr>
<td>Southside</td>
</tr>
</tbody>
</table>
Figure 4.53. Acadiana Average 9th Grade Dropout Rate

Figure 4.54. Acadiana Average 10th Grade Dropout Rate

Figure 4.55. Acadiana Average 11th Grade Dropout Rate

Figure 4.56. Acadiana Average 12th Grade Dropout Rate
Summary Analysis of Region Maps – Acadiana

The rural areas of Acadiana generally have below average dropout rates, with some exceptions. All high schools in Vermillion Parish have 9th – 12th grade dropout rates well below average. All high schools in St. Mary Parish except for Franklin have below average 9th – 12th grade dropout rates. All high schools in Acadia Parish also have below average 9th – 12th grade dropout rates. In St. Martin Parish, the 9th – 12th grade dropout rates of all three schools are above average. The dropout rates vary in Evangeline Parish, Iberia Parish, and Avoyelles Parish.

The dropout rates also vary in the more populated parishes of Lafayette and St. Landry. In Lafayette, David Thibodeaux High School and the Early College Academy, both schools for high-achieving students, have 9th – 12th grade dropout rates well below average. Lafayette and Southside have 9th – 12th grade dropout rates below average. Carencro has a high 9th – 12th grade dropout rate, and Northside High School has a critically high dropout rate. In St. Landry Parish, the Magnet Academy for Cultural Arts has a 9th – 12th grade dropout rate well below average, and the JS Clark Leadership Academy has a 9th – 12th grade dropout rate below average. Conversely, North Central and Opelousas have high 9th – 12th grade dropout rates (Figure 4.50).

By grade, the JS Clark Leadership Academy has a critically high 7th grade dropout rate, despite having a low overall dropout rate (Figure 4.51). In St. Martin Parish, Breaux Bridge and St. Martinville have critically high 8th grade dropout rates (Figure 4.52). Northside High School has a critically high dropout rate in the 10th grade (Figure 4.54). In St. Landry Parish, dropout rate is highest in the 9th grade, and seems to improve in the following grades (Figure 4.53).
Figure 4.57. Map of Baton Rouge Metro High Schools

Figure 4.58. Map of East Baton Rouge Parish High Schools
Figure 4.59. Baton Rouge Metro Average 7-12 Grades Dropout Rate

Figure 4.60. Baton Rouge Metro Average 9-12 Grades Dropout Rate

Figure 4.61. Baton Rouge Metro Average 7th Grade Dropout Rate

Figure 4.62. Baton Rouge Metro Average 8th Grade Dropout Rate
Figure 4.63. Baton Rouge Metro Average 9th Grade Dropout Rate

Figure 4.64. Baton Rouge Metro Average 10th Grade Dropout Rate

Figure 4.65. Baton Rouge Metro Average 11th Grade Dropout Rate

Figure 4.66. Baton Rouge Metro Average 12th Grade Dropout Rate
Summary Analysis of Region Maps – Baton Rouge Metro

East Baton Rouge Parish has many schools that are struggling with dropout rate. Broadmoor, Istrouma, McKinley, Scotlandville and Woodlawn all have high 9th – 12th grade dropout rates. Baker, Belaire, Capitol, Glen Oaks and Tara all have critically high 9th – 12th grade dropout rates. Conversely, Baton Rouge Magnet, Lee Magnet, LSU Lab School, Madison Prep, and Zachary all have 9th – 12th grade dropout rates well below average. Central, Southern Lab, and Mentorship STEAM Academy all have 9th – 12th grade dropout rates below average (Figure 4.60).

The rural schools in this region often have higher dropout rates than rural schools in other parts of the state. Denham Springs, Donaldsonville, Doyle, East Ascension, East Feliciana, East Iberville, Plaquemine all have 9th – 12th grade dropout rates above average. St. Helena and Livonia both have high 9th – 12th grade dropout rates.

By grade, all three high schools in Iberville Parish have high 8th grade dropout rates (Figure 4.62). Southern Lab has a high dropout rate in the 7th and 8th grades, before stabilizing in the older grades. Donaldsonville has a high dropout rate in the 11th grade (Figure 4.65). St. Helena High School has a high dropout rate in the 11th grade, and a critically high dropout rate in the 12th grade. For most of the East Baton Rouge Parish schools that struggle with dropouts, the problem really accelerates starting in the 10th grade and sustains that high level through the 12th grade.
Figure 4.67. Map of Northshore High Schools

Northshore High Schools

St. Tammany Parish
- Covington
- Fontainebleau (1)
- Lakeshore
- Mandeville
- Northshore
- Pearl River
- Salmen
- Slidell

Tangipahoa Parish
- Amite
- Hammond
- Independence
- Jewel Sumner
- Kentwood
- Loranger
- Ponchatoula

Covington
- Hammond
- Independence
- Jewel Sumner
- Kentwood
- Loranger
- Ponchatoula

Washington Parish
- Bogalusa
- Franklinton
- Mt. Hermon
- Northshore Charter School
- Pine
- Varnado

Figure 4.68. Northshore Average 7-12 Grades Dropout Rate

Figure 4.69. Northshore Average 9-12 Grades Dropout Rate
Figure 4.70. Northshore Average 7th Grade Dropout Rate

Figure 4.71. Northshore Average 8th Grade Dropout Rate

Figure 4.72. Northshore Average 9th Grade Dropout Rate

Figure 4.73. Northshore Average 10th Grade Dropout Rate
Figure 4.74. Northshore Average 11th Grade Dropout Rate

Figure 4.75. Northshore Average 12th Grade Dropout Rate
Summary Analysis of Region Maps – Northshore

The Northshore has higher dropout rates than many people might expect, given the region’s socioeconomic demographics. Every high school in Tangipahoa Parish besides Kentwood has at least an above average 9th – 12th grade dropout rate. Amite, Hammond, and Independence have high 9th – 12th grade dropout rates. Rural Washington Parish fares no better. Pine is the only school in the parish with a below average 9th – 12th grade dropout rate (Figure 4.69). The town of Bogalusa is a major hotspot for dropouts, as both Bogalusa High School and Northshore Charter School have critically high 9th – 12th grade dropout rates. Illustrative of this point, Northshore Charter School no longer teaches high school students, as of the 2018-19 school year. In St. Tammany Parish, all but three of the high schools have below average 9th – 12th grade dropout rates. Covington, Slidell, and Salmen have above average 9th – 12th grade dropout rates.

By grade, the dropout rates stay quite consistent, but see a noticeable jump in the 11th and 12th grade. In Tangipahoa Parish, dropout is a significant problem in the 12th grade (Figure 4.75). Albany, Independence, Loranger, and Hammond all jump to having high dropout rates in the 12th grade, after being above average in the 11th grade. The Bogalusa schools have high dropout rates throughout, and both schools are critically high in the 10th grade (Figure 4.73). Several schools in St. Tammany Parish have above average dropout rates starting in the 11th grade (Figure 4.74), and Salmen is the only school in the parish to have an above average dropout rate in each grade.
Figure 4.76. Map of River Parishes High Schools

Figure 4.77. River Parishes Average 7-12 Grades Dropout Rate

Figure 4.78. River Parishes Average 9-12 Grades Dropout Rate
Figure 4.83. River Parishes Average 11th Grade Dropout Rate

Figure 4.84. River Parishes Average 12th Grade Dropout Rate
Summary Analysis of Region Maps – River Parishes

The River Parishes is a unique region of the state regarding high schools, because despite being fairly isolated and rural, most of these high schools have large enrollments compared to rural schools in other parts of the state. All three high schools in Lafourche Parish have at least a below average 9\textsuperscript{th} – 12\textsuperscript{th} grade dropout rate. Both schools in St. James Parish have an above average 9\textsuperscript{th} – 12\textsuperscript{th} grade dropout rate, while both schools in St. Charles Parish have a below average 9\textsuperscript{th} – 12\textsuperscript{th} grade dropout rate. In Terrebonne Parish, all of the high schools besides H.L. Bourgeois have an above average 9\textsuperscript{th} – 12\textsuperscript{th} grade dropout rate. East St. John High School is the only school in the region to have a high dropout rate (Figure 4.78).

By grade level, some of the red polygons on these maps indicating high dropout rates should be viewed with skepticism here. For example, the high schools in St. Charles Parish both start in the 9\textsuperscript{th} grade, and yet are shown here to have critically high dropout rates in the 8\textsuperscript{th} grade (Figure 4.80). The same pattern can be seen with Terrebonne High School, which until recently started in the 10\textsuperscript{th} grade, and yet is shown to have a critically high dropout rate in the 9\textsuperscript{th} grade (Figure 4.81). What seems to be occurring here is struggling students in these schools are taking a remedial curriculum and are classified in the grade below most incoming students. If such students drop out, they are classified by the parish as a dropout in that grade, instead of the grade they would usually be in. This pattern seems to be unique to this region, and was not observed anywhere else. Except for those statistical anomalies, the dropout rates at the schools in this region stay consistent across grades.
Figure 4.85. Map of Jefferson Parish Urban High Schools

Jefferson Parish
- Bonnabel
- East Jefferson
- Grace King
- Haynes Academy
- Helen Cox
- Higgins
- Jefferson RISE Charter
- John Ehret
- Kenner Discovery Health Sciences Academy
- Patrick F. Taylor Academy
- Riverdale
- Thomas Jefferson
- West Jefferson

* Fisher and Grand Isle are in the Periphery map.

Figure 4.86. Map of Orleans Parish Urban High Schools

Orleans Parish
- Abramson Sci Academy
- Algiers Technology Academy
- Ben Franklin
- Cohen College Prep
- Edna Karr
- Dr. Martin Luther King
- G.W. Carver Collegiate Academy
- G.W. Carver Preparatory Academy
- International School of New Orleans
- Joseph S. Clark Preparatory
- KIPP Booker T. Washington
- KIPP Renaissance
- Lake Area New Tech
- Landry-Walker
- Lusher Charter
- McDonough #35
- McMain
- Miller-McCoy Academy
- Morris Jeff Community School
- New Harmony
- New Orleans Center for Creative Arts
- New Orleans Charter Science & Math
- New Orleans Military & Maritime Academy
- Rooted School
- Rosenwald Collegiate Academy
- Sophie B. Wright

* Einstein Charter is in the Periphery map.
Figure 4.87. New Orleans Urban Area Average 7-12 Grades Dropout Rate

Figure 4.88. New Orleans Urban Area Average 9-12 Grades Dropout Rate

Figure 4.89. New Orleans Urban Area Average 7th Grade Dropout Rate

Figure 4.90. New Orleans Urban Area Average 8th Grade Dropout Rate
Summary Analysis of Region Maps – New Orleans Urban Area

In Jefferson Parish, there is a clear contrast between the regular public schools and the schools with selective enrollments (charter schools and magnet schools). All of the regular public schools besides Helen Cox have an above average 9th – 12th grade dropout rates (Figure 4.88). East Jefferson, Higgins, Grace King and Riverside have high dropout rates, and Bonnabel and West Jefferson have critically high dropout rates. The three magnet schools in the parish all have dropout rates well below average 9th – 12th grade dropout rates, as one would expect for highly gifted students. For the charter schools, the Kenner Discovery Health Sciences Academy also has a dropout rate well below average. The Jefferson RISE Charter School has a high dropout rate, but during the time of this study period only had a single 9th grade cohort, so it is too early to make any definite judgments concerning the long-term dropout rate in that school (Figure 4.91).

In Orleans Parish, Lusher Charter, Warren Easton, Ben Franklin, Edna Karr, and KIPP Booker T. Washington all have well below average 9th – 12th grade dropout rates (Figure 4.88). Morris Jeff Community School, New Harmony, Rosenwald Collegiate Academy and Rooted School also fall into this category, but their much smaller sample of data precludes making definitive conclusions for now. New Orleans Charter Science & Math, Miller-McCoy Academy, McMain, the New Orleans Military & Maritime Academy, and the New Orleans Center for Creative Arts all have below average 9th – 12th grade dropout rates. Sophie B. Wright, International High School of New Orleans, Landry-Walker, McDonough #35, Lake Area New Tech, and G.W. Carver Collegiate Academy all have high 9th – 12th grade dropout rates. Algiers Technology Academy, Cohen College Prep, Joseph S. Clark Preparatory High School, and G.W. Carver Preparatory Academy all have critically high 9th – 12th grade dropout rates. Several of the schools with high dropout rates have since closed.
The dropout rates of Edna Karr and Warren Easton are especially noteworthy. These are large, urban high schools with a student enrollment composed almost entirely of low-income, Black students, and yet these schools have dropout rates well below average. Urban schools with comparable demographics in other parts of the state tend to have high dropout rates. These two schools stand out as a success story, and the charter organizations that run them deserve praise.
Figure 4.95. Map of New Orleans Periphery High Schools

Jefferson Parish
- Fisher
- Grand Isle (2)

Orleans Parish
- Einstein Charter (1)

Plaquemines Parish
- Belle Chasse
- Phoenix
- South Plaquemines

St. Bernard Parish
- Chalmette

* The size of Grand Isle is slightly exaggerated here.
Figure 4.98. New Orleans Periphery
Average 7th Grade Dropout Rate

Figure 4.99. New Orleans Periphery
Average 8th Grade Dropout Rate

Figure 4.100. New Orleans Periphery
Average 9th Grade Dropout Rate

Figure 4.101. New Orleans Periphery
Average 10th Grade Dropout Rate
Summary Analysis of Region Maps – New Orleans Periphery

The New Orleans Periphery contains a mix of large schools on the outskirts of the New Orleans urban area and small, isolated schools deep in the bayous of the Mississippi River Delta. Most of the schools have a below average 9th – 12th grade dropout rate. Belle Chasse and Grand Isle have 9th – 12th grade dropout rates well below average. Only Einstein Charter in New Orleans East has an above average 9th – 12th grade dropout rate (Figure 4.97).

By grade level, the dropout rates stay consistent and generally below average. Phoenix has an above average dropout rate in the 7th and 11th grades. Fisher has an above average dropout rate in the 11th grade (Figure 4.102).
Chapter 5. Conclusion and Discussion

5.1. Conclusion

The correlation coefficient analysis yielded many useful observations concerning predictive factors of dropout rate, most of which reflect national trends noted in prior research. Black and Hispanic students in Louisiana public schools are far more likely than average to drop out of school, along with students who have limited English-language proficiency (LEP students) and economically disadvantaged students. In contrast, White students are far less likely than average to drop out of school. These trends in our state are not surprising, as they match national trends in the relationship between socioeconomic factors and dropout rates.

More interestingly, funding per student was shown to have a significant positive correlation with dropout rate, rather than negative, meaning that this is not a problem that can be solved with money alone. The disparity in dropout rates between White and Black students is not due to a disparity in funding. Difference in class size was also proven to have a critical impact upon dropout rate. Class sizes should be kept below twenty-six students as much as possible, and ideally should be twenty or less. In addition, the state’s new T9 program has shown promising early results in combating dropout rate, and its positive impacts should spread as the program is expanded in the coming years.

Regarding the spatial patterns of dropout rates in the choropleth maps, there is variability between regions and within regions. As a general statewide trend, high school dropout is a problem overwhelmingly prevalent in the more populated, urban parts of the state. With few exceptions,
rural schools even in impoverished areas tend to have below average dropout rates, while nearly all of the schools with consistently high dropout rates are in urban areas. East Baton Rouge Parish, Rapides Parish, Tangipahoa Parish, and Jefferson Parish are populated areas where the majority of schools have above average or high dropout rates. The similarities between the 9th – 12th grade dropout rates in the Northeast Louisiana Delta (Figure 4.22) and the Northshore (Figure 4.69) would surprise many people. The former is the most impoverished region of the state, while the latter is the most affluent region, yet dropout is more of a problem in the Northshore region. This is one of many examples that dropout in Louisiana is primarily a problem in the more populated areas.

The charter school revolution in Orleans Parish can be considered a remarkable success regarding dropout rate, as the parish overall has significantly lower dropout rates than many other urban parishes with similar demographics. Charter schools have both passionate proponents and detractors, but regarding dropout rates, they certainly seem to be doing far more good than harm in New Orleans and Baton Rouge.

5.2. Discussion

When I first conceptualized this project, I had a vague idea of the data that was publicly available, but was unsure of the volume and detail of those records. I expected that there would be some significant gaps in the data, based on my experience working in schools. I initially thought of analyzing just part of the state, or even just a few parishes, depending on the data available.
When it became apparent that the entire state had the detailed data I wanted to test, I decided to make the entire state of Louisiana my study area. I want this project to benefit the whole state.

I expected that records would be minimal or completely missing for entire school districts and parishes, and that I would have to use some spatial interpolation methods to compensate for the data gaps. I was pleasantly surprised at the completeness and vast detail of the records. It is the dream of any data researcher to work with such well-kept records, and I thank the Louisiana State Department of Education for making them easily accessible to the general public.

While the COVID-19 pandemic certainly presented significant challenges to my work, it also gave me a great opportunity. In normal circumstances, I would not have had the time to compile the vast amount of data I did for this study. I would have had to be more selective in the attributes tested and exclude some variables. Due to the COVID-19 pandemic, I had hundreds of hours to scour every dataset available, and I left no stone unturned for this project.

I expected class size to be a great predictor of dropout rates, but it was interesting to see such a clearly-defined positive correlation. The benefits of small class sizes have been harped upon by education professionals for years, but in my education training, I was never told a clear number for exactly how small we should aim for class sizes to be. The data from my study clearly shows that class sizes of 20 or less students are ideal for high schools, and classes of 27 or more students should be kept to a minimum starting in the 8th grade.

That reflects upon my experience teaching in and observing various high school classrooms over the years. I found class sizes of between 15 and 20 students to be most ideal for maintaining classroom control and giving students the individual attention they need. Classes of around 25 students are manageable for a good teacher, but not always ideal. Outside of certain subjects like
physical education, asking one teacher to manage thirty or more high school students is a disaster waiting to happen. I watched very experienced, good teachers get mentally worn down after a year of struggling to manage a large class with behavior problems. Teaching is difficult enough at it is. Putting an inexperienced teacher in charge of thirty high school students multiple times a day is setting them up to fail, but unfortunately, this happens in schools each year all across America.

While everyone agrees that smaller class sizes are ideal, it is challenging for schools in more populated areas to keep class sizes small. Sometimes, the size of the student body grows faster than the school system can handle by hiring more teachers or expanding facilities. The rapid growth of three Ascension Parish high schools in the past twenty years is a great example of this. Some research has suggested that the Copernican model of block scheduling has significant benefits in reducing class sizes, along with improving student behavior, boosting academic performance, and reducing dropout rates (Carroll 1989). If I were to do a follow-up of this project, I would study how the schedule of each high school related to the dropout rates. While some Louisiana high schools have switched to block schedules, many still use the traditional format of seven or eight periods each day.

The results of my correlation tests also support John Alspaugh’s findings that the starting grade of a high school is important. It is better for students to transition into high school in the 7th grade, instead of the 9th grade. It may be possible for some areas of the state to change 9–12 high schools into 7–12 high schools without too much of a problem. This is impractical for many urban high schools with well-established networks of feeder middle schools, but may be more feasible in rural and suburban areas.

The fact that dropout is primarily an urban area problem in Louisiana is also noteworthy. If recent American history is any indication, the rural areas of our state will likely continue to
stagnate or decline in population, as many traditional rural industries cut jobs due to outsourcing and automation. A growing percentage of our students will be taught in urban and suburban schools in the future, where the problem of dropout is far more prevalent. Our state must be ready to combat the challenges this will pose.

Ultimately, I come away with a more optimistic view of the problem than when I started this project. My research has shown that there are some factors, such as class sizes, that schools can actually manage to potentially lower their dropout rates. Funding and implementing such changes is another hurdle, but at least it is possible, and other states have undertaken such measures successfully.
Appendix A. Datasets Used in This Study

Below is a link to the Master Dataset in a Google sheet, where I have compiled all the data I used for this research for your convenience:

https://docs.google.com/spreadsheets/d/1Y3ydMEC2UqwKvHkD4VK9BeAAATwPbLgvRBRCzefc0Hy8/edit?usp=sharing

Though you cannot edit this data, you can view the spreadsheet and copy its contents for use in your own research. This sheet is connected to my personal Google account, and called “Louisiana High School Dropout Study – Master Dataset Compilation”. If you are unable to access this spreadsheet and wish to do so, please contact me via my permanent personal email at mstein23@protonmail.com, and I will send you the dataset in Excel format.

The spreadsheets used for this study can be found individually in the Data Center section of the Louisiana Department of Education Website. All links listed below are accurate and working at the time of this publication.
School System Attributes – Dropout Rate

2014 School-District-State Annual Dropout Rate

2015 School-LEA-State Annual Dropout Rates

2016 School-District-State Annual Dropout Rate

2017 School-District-State Annual Dropout Rate
Link: https://www.louisianabelieves.com/docs/default-source/data-management/2017-school-district-state-annual-dropout-rate.xlsx?sfvrsn=c7fb9e1f_4

2018 School-District-State Annual Dropout Rate

School System Attributes – Class Size Data

2007-2017 School-District-State Class Size Summary

2018-2019 School-District-State Class Size Summary

School System Attributes – Discipline

2014-2015 School-District-State Discipline Rates
School System Attributes – Truancy Data

2013-2015 School-District-State Student Truancy Rates

2015-2016 School-District-State Student Truancy Rates

2016-2017 School-District-State Student Truancy Rates

2017-2018 School-District-State Student Truancy Rates

No Data Available for 2018-19 School Year at the time the data was compiled for this study. Truancy data for the 2018-19 school year is now available at the link below.

School System Attributes – Student Retention Data

2015-2016 School-District-State Student Retention Rates

2016-2017 School-District-State Student Retention Rates

2017-2018 School-District-State Student Retention Rates

Data corresponds to previous year, missing data for 2017-18 and 2018-19 school years.
Student Attributes – Enrollment Data

Oct 2014 Multi stats (Total by Site) – Public

Oct 2015 Multi stats (Total by Site) – Public

Oct 2016 Multi stats (Total by Site and LEA)

Oct 2017 Multi stats (Total by Site and School System)

Oct 2018 Multi stats (Total by Site and School System)

School Financial Data

2014–2015 School–By–School Financial Data
Link: https://www.louisianabelieves.com/data/310/

2015–2016 School–By–School Financial Data
Link: https://www.louisianabelieves.com/data/310/

2016–2017 School–By–School Financial Data
Link: https://www.louisianabelieves.com/data/310/

2017–2018 School–By–School Financial Data
Link: https://www.louisianabelieves.com/data/310/

2018–2019 School–By–School Financial Data
Link: https://www.louisianabelieves.com/data/310/
ACT Scores – High School Performance

ACT Scores – Class of 2015

ACT Scores – Class of 2016

ACT Scores – Class of 2017

ACT Scores – Class of 2018

ACT Scores – Class of 2019
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Table B.3. P-Values for Correlation Tests of Staff Salary and Teacher Education Variables

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Table B.4. P-Values for Correlation Tests of Administrator and Staff Education Variables
Table B.5. P-Values for Correlation Tests of Retention, Truancy, Percentage T9, and Average ACT Score Variables

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Table B.8. P-Values for Correlation Tests of Demographics and Key Predictive Variables

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Appendix C. Permission to Use Copyrighted Image (Figure 2.3.)

Below is the email transcript from my interaction via email with Dr. Elaine Allensworth of the University of Chicago, requesting permission to use the copyrighted image from her work:

July 5, 2021

Dear Dr. Allensworth,

I am completing a Master's thesis at Louisiana State University entitled “A Geospatial and Statistical Analysis of Dropout Rate in Louisiana Public High Schools.”

I would like your permission to reprint Figure 5 from your 2005 report “The on-track indicator as a predictor of high school graduation” in the literature review section of my dissertation, which is in preparation for my graduation in August 2021:

You can see in the attached document (on p. 28) how I plan to use your image in my work.

I am obliged to state that 1) this document will be submitted to LSU Digital Commons, an open access institutional repository and 2) that, according to the LSU By-Laws, the university reserves a nonexclusive, paid-up, royalty-free right to distribute copies of theses and dissertations, both internally and to third parties, whether by electronic means, microfilm, or otherwise.

Please contact me if you have any questions or need additional information.

Thank you.

Sincerely,
Michael Stein
Louisiana State University
mstei23@lsu.edu

Below is her response, granting me permission to use the figure:

July 6, 2021

Hi Michael,

Yes, that is fine. Congratulations on completing your thesis!

Elaine Allensworth, PhD
Lewis-Sebring Director
UChicago Consortium on School Research

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References


Vita

Michael Stein is a native and lifelong resident of Baton Rouge, Louisiana. He graduated from St. Michael High School in 2014. He graduated *summa cum laude* with full college honors from Louisiana State University in 2018, earning Bachelor of Arts degrees in History and Geography. He plans to earn his Master of Science degree in Geography this August 2021.

He completed the GeauxTeach program in the LSU College of Education to become a certified teacher of Social Studies for Grades 6–12 in the state of Louisiana. He has experience teaching middle school students at Sherwood Middle Magnet School, and high school students at Woodlawn High School and Lee Magnet High School (now called Liberty Magnet). He also has experience teaching college students as a supplemental instructor and teaching assistant at LSU. He now works as a senior GIS analyst for the City of Baton Rouge.

For questions or feedback concerning this study, he can be reached via his permanent email address at mstein23@protonmail.com.