

Project editing

[Linguistics](#), [English](#)



The Unfooled Literature Review The amount of high school dropouts has declined dramatically over the past decades. Since 1967, the rates dropped from 17% to 7% in 2012 (“ High School Dropout Rates”, 2013). While the news of more American students completing high school gives cause for celebration, the causal factors and disparities in student success leave much more to be desired. Factors such as race, socioeconomic level, drug use, criminal activity and background and teen pregnancy play major roles in why some students choose not to complete high school (Suh and Suh, 2007). School characteristics such as location, policy and curriculum load also affect student success and should be considered when discussing high school dropout rates. All these predicting dynamics need to be focused on and studied in order to continue the downward trend of high school dropout rates and hopefully eradicate them all together. “ To address the high school dropout problem, educational institutions must identify early on which students are likely to drop out” (Burrus and Roberts, p. 1).

Among students in America, about more than 33% do not graduate high school with their original classes. The troubling part is the higher 50% of minorities that are not completing their high school education. These statistics affect the demographic trends and creates a concentration of dropouts in poor urban neighborhoods. Unfortunately, 15% of the country’s high schools, mostly in urban areas, yield half of total dropouts (Dervarics, 2007). The issue of teens dropping out of high school is a widespread social and educational problem that has serious implications not only for an individual but also for society as a whole.

A great source of data on high school dropouts is the Education Resources

Information Center (ERIC) reports. For 50 years now, this federally funded research center has aided in serving the institution of education with cutting edge research, practice and professional development. It is known, respected and utilized worldwide. One of its most popular entries came from the High School Journal and was titled, “ Academic Disidentification, Race, and High School Dropouts” by Dr. Bryan Griffin. It described how a student’s ability to identify with academics is a big predictor of whether they will successfully complete high school (p. 71). Griffin went on to identify two models of student behavior that may cause early departure from high school; the frustration-self-esteem model and the participation-identification model. His article then explained how both models rely on a student’s ability to identify with academics, which lacked among minority students. In America, Black and Hispanic students tend to possess greater levels of academic disidentification when compared to White and Asian students. “ In summary, if either cultural inversion or stereotype threat plays a role in academic disidentification, then Black and Hispanic students, who often face both negative academic stereotypes and peer pressure to adopt anti-academic behaviors (Staff & Kreager, 2008), should place less emphasis on academic performance when deciding to leave school than either Asian or White students” (Griffin, p. 75).

Griffin conducted a study by using a cross-sectional, random sample of 132, 903 high school students from 14 different Florida school districts in the 1990-1991 school year. The sample of students was 60. 3% White, 15. 9% Hispanic, 22. 1% Black and 1. 8% Asian enrolled in 75 schools. The variables used were stay-in/dropout status, academic performance and race. At the

end of the study, Griffin's findings were consistent with previous research. Black students had the highest percentage with 13% of the 29,340 sampled, and then Hispanic students followed with 11.6% of the 21,081 sampled. White students came in with 8% of the 80,104 sampled, and Asian students had the lowest percentage with 5% of the 2,378 sampled. "The pattern of dropout rates found in these data provide support for the disidentification hypothesis; it appears that for racial groups for which a negative stereotype or oppositional subculture applies, the dropout rate was higher" (Griffin, p. 79). While this article was interesting, the theory of race affecting a student's ability to complete high school was based solely on academic misidentification. As it did allow for variables such as GPA and academic performance, the study should have included other contributing factors. Griffin did allow covariates such as students' age relative to their classmates and behavior issues, but they were barely discussed and needed more elaboration. This article failed to outline other characteristics that make race a predicting factor.

The socioeconomic status of students can have a significant impact on whether or not students drop out of high school. Pirog and Magee conclude that households with a greater financial background and more access to human resources are better able to invest in their children (Pirog & Magee, 1997). These parents are able to serve as role models for their children and help deter them from dropping out of high school (Bedard, 2001). The family-background variables are strongly related to long-run possibilities of high school completion (Pirog & Magee, 1997). Pirog and Magee continue to conclude the sizes of the family-background effects are large, particularly

when compared to the sizes of the effects of school characteristics (Pirog, 1997). Although Pirog and Magee argue that omitting school variables from the regression, significant changes occur, such as the benefits of being black decreasing significantly in the short and long terms, they do not give substantial evidence to prove this assumption. Pirog and Magee should have identified the “ benefits” of being black so they can be measured and conducted a detailed time-series analysis of the relationship between race and the unidentified measures of the “ benefits” of being black (Pirog & Magee, 1997).

Crofton, et al, analyzes the relationship between higher real minimum wages and high school dropouts in Maryland from 1993-2003, finding that higher educational attainment in adult population is associated with lower dropout rates for white and Black students, but not for Hispanic and Asian students (Crofton, et al. 2009). Crofton, et al. explains that this reflects Hispanic and Asian students growing up in communities with larger shares of recent immigrants and while the dropout rates of Hispanic and Asian students are less responsive to local cultural influences, they seem temporarily more responsive to local long-term economic conditions (Crofton, et al. 2009). Crofton, et al. also found that dropout rates were higher in higher-income counties for Hispanic and Asian students, but not for white and Black students, because higher income counties had readily available jobs for teenage residents (Crofton, et al. 2009). Crofton, et al. notes the differences in how local unemployment rates did not necessarily affect dropout rates for Hispanics and Asian students (Crofton, et al. 2009). Crofton, et al. did not report on other control variables, such as population, population density, and

the percent of the population over 25 years. Analyzing these variables could show a significant relationship between high school dropout rates and urban/rural areas and the relationship between high school dropout rates and the percentage of the population that is over 25 with or without a high school diploma; this could have significant implications on the cost-benefits of the population with a high school diploma. Dr. Lam's analysis of the theoretical framework of the relationship between socioeconomic status and academic achievement of students, reinforces Crofton, et al's conclusions that the relationship between socioeconomic status and academic achievement is an important indicator of dropout when compared to academic performance, family structure, and socioeconomic factors (Lam, 2014; Sirin, 2005). Although Dr. Lam's theoretical framework strengthens Crofton, et al's conclusions, the framework does not take into consideration location and population density, which can affect the relationships concluded in the framework and draw more conclusions.

In the study, High Cost of Maryland's Dropout Rate, it was concluded that students who failed to graduate from high school produced a direct cost on Maryland's taxpayers through lower tax revenues and encouraged a greater social cost, such as higher Medicaid and incarcerations expenses (Hauke, 2008). The costs of failing to graduate from high school spillover to society and can have a significant impact (Tyler & Lofstrom 2009). It is estimated that high school dropouts cost Maryland taxpayers \$42 million every year; about 27, 000 Maryland students in the class of 2007 failed to graduate from high school; and on average Maryland's 393, 200 working age dropouts earn nearly \$10, 000 less a year than Maryland's high school graduates, which

reduces the overall state income by nearly \$4 billion a year (Hauke, 2008). The study could have further concluded MD's high cost of dropout rates by analyzing the cost of MD counties, cities, and municipalities and conducting a comparison to conclude where additional outreach and/or educational resources can be focused on, in order to reduce the high school dropout rate and reduce potential costs.

One of the latest and most-cited studies conducted on the issue of high school dropout rates in the U. S. concerns drug use among students. The National Survey on Drug Use and Health (NSDUH) of the U. S. Substance Abuse and Mental Health Services Administration (SAMHSA), which is a branch of the U. S. Department of Health and Human Services is funding and overseeing this study. NSDUH combines data collected from 2002-2010. The respondents whose answers have been analyzed are 12th grade students and 12th grade aged dropouts; all of them are young people, ages 16 to 18. Figures of this report published on February 12, 2013 show that during 2002-2010 on the average one in seven 12th grade aged young people (about 13%) dropped out of school, among whom males prevail (about 14% vs. 11% of females). Hispanics (23%) and Native Americans (25%) comprise a quarter of all the dropouts; they are followed by Black Americans (12%), white Americans (11%), and Asian Americans (1. %). The overall results of the NSDUH report show that 12th grade aged young people were more likely to be engaged in substance abuse, such as cigarettes, alcohol, binge alcohol, illicit drugs, marijuana etc. For instance, 27% of dropouts were marijuana users compared to 15% of current students (SAMHSA, 2013). Overall, the research shows that there is a correlation between drug use rates among

students and the rates of school dropout.

One of the recent studies conducted by Gasper (2011) revisits the relationship between drug use among students and the rates of school dropout with the aim not only to define the percentage of drug users and non-users but also the developmental pattern of the processes of drug abuse and school dropout. The main specific feature of this research is the attendance to differences of experiences and background of students, which could lead to drug abuse and school dropout (Cho, 2011). The results of the research show that there is the significant difference between those who use drugs and do not use drugs based on their background, such as the data collected from them in 8th grade. More specifically, the comparison of students who use drugs and those who do not use but have similar results obtained in 8th grade, the relationship between drug use and dropout from school fell by one half (Gasper, 2011, p. 603). This suggests that taking into consideration the broader context is of great importance in studying the issue. At the same time, even taking the students' background into account, the positive correlation between drug use among students and school dropout rates still takes place.

The latest studies of the problem, however, deny the existence of the unilateral relationship between drug use and school dropout rates. One example is the study entitled "Americas Dropout Crisis: The Unrecognized Connection to Adolescent Substance Use (DuPont, Caldeira, et al., 2013)." The authors of the article claim that there exists a bilateral relationship between the studied issues. In other words, DuPont, Caldeira, DuPont,

Vincent, Shea, and Arria suggest that drug use both causes and is caused by dropout from school (DuPont, Caldeira, et al., 2013, p 35-37). Similar to the research conducted by Gasper, this study also claims that social, biological, environmental and other mechanisms (in other words, background) should also be taken into consideration while studying the issue.

SAMHSA (2013) presents bare figures on substance use among 12th grade students and 12th grade aged young people in relation to dropout status, gender, race and ethnicity. The research only suggests that there exists a relationship between all these factors but does not give certain conclusions.

Gasper (2011) goes further and analyzes the importance of the broader context in studying the problem. Gasper also suggests it is necessary to apply the propensity score matching method, which appears to be effective.

Finally, DuPont, Caldeira, et al. (2013) describe a bidirectional relationship between drug abuse and school dropout rates, which is of great importance for further researches. Still, there is no clear data on the underlying processes that can cause both behaviors. While it is difficult to prevent young people from taking drugs, it is necessary to study the processes that lead from substance abuse to school dropout and vice versa. These two problems are destructive to individuals and finding solutions is crucial for society as a whole.

Like drug use, teen pregnancy is an issue that has long been examined with relation to high school dropout. Researchers have examined whether teen pregnancy causes dropping out, and vice versa. They have considered differences between races and ages of the teen mothers, and whether these factors impact the rate of dropout. They have examined whether more teens

are becoming pregnant in recent years than in decades past, and whether or not those teen mothers are more likely now to drop out than previous generations (Kalogrides, 2009). Researchers have also considered how to develop interventions to keep teen mothers in school, not just to keep them from getting pregnant in the first place (Christenson and Thurlow, 2004). Interestingly, researchers have turned more toward postsecondary education as a hallmark of success among teen mothers, as standards in life and in the workplace have begun to shift away from high school diplomas or GEDs, and more toward postsecondary education becoming almost required for success.

Hofferth, Reid and Mott (2001), in their article "The Effects of Early Childbearing on Schooling over Time," use longitudinal data to examine how teenage childbearing impacts a woman's education. The authors found that teen mothers finish 1.9 to 2.2 fewer years of schooling than those who become mothers at 30 or older. Teen mothers are also at a disadvantage when it comes to their chances of finishing high school or gaining college education. When it comes to completing high school, teen mothers have just 10 to 12% the chance of mothers aged 30 or over. The teen mothers' chance of postsecondary or college education is just 14 to 29% as high as the older mothers. The authors did find slightly encouraging news: the effects of teen childbirth on high school dropout rates lessened in recent years because more female students overall were finishing high school. But the chances of a teen mother attending college have gotten worse: from 27% of an older woman's chance in the 1960s to 44% in the early 1990s.

The authors used logistic regression, least squares regression and fixed-effects models to examine the National Longitudinal Survey of the Labor Market Experience of Youth and the Panel Study of Income Dynamics. It is not clear if these data sources have been used for this type of study (of teen mothers and education) before. The authors took a novel approach in that they wanted to examine not just whether teen pregnancy has an effect on high school completion, but its effect on postsecondary education. The authors also examined whether changes in this effect had taken place over time. It is particularly interesting that more women are graduating from high school, regardless of teen pregnancy, than in the 1960s.

The trend makes sense, considering women's expanding role in the work force, but it is interesting to see statistical evidence to support it. It is also positive news that more teen mothers are graduating from high school. But as postsecondary education becomes increasingly necessary for a successful working life, making it possible for teen mothers to attend college is a worthy goal. These findings are particularly interesting as they demonstrate the trend of high school completion becoming a more attainable goal in America, and postsecondary graduation replacing it as a new, more elusive goal.

Mott and Marsiglio (1985) examined longitudinal data to examine whether the timing of a teen birth affects the mother's chances of completing high school or postsecondary education. Their study is unique in that they also considered the timing of the birth and the mother's race in their examination of her likelihood of completing high school. The authors also set themselves

apart by illustrating the value of General Equivalency Diploma (GED) for teen mothers. The article used the same data source as Hofferth, Reid and Mott (2001), the National Longitudinal Survey of Work Experience of Youth. The authors found that mothers who gave birth during high school or during the period shortly after graduation are unlikely to have earned a postsecondary degree. They also found that while black women and white have about equal chances of completing high school despite a teen pregnancy, Hispanic woman have far lower chances of high school graduation.

The study's GED-related findings are of particular interest. About 40% of women who gave birth before high school graduation earned their GED. The authors also found that teens who give birth between age 15 and 16 are unlikely to graduate high school by their young 20s, but the women who do earn their high school degree are just as likely to do so using a GED program as they are a traditional high school education. The authors use this as an argument for strengthening GED programs. The limitation of this study is that it was conducted in 1985, when a college education was not as necessary for success in the workplace as it is now. In that environment, a GED was more acceptable to employers - and maybe even for admission to postsecondary programs. The authors admit the value of the GED to employers is questionable compared to a traditional high school program - even in 1985. Certainly, the work force and higher education institutions have increased their standards to the point where the value of a GED is even less than it was in 1985.

Basch (2011) takes an interesting angle on teen pregnancy by specifically reviewing the degree at which minority teens are at an increased risk for childbearing, in his article “ Teen Pregnancy and the Achievement Gap among Urban Minority Youth.” Basch also examines the consequences of teen birth and how these consequences can be mitigated with interventions geared toward high school-aged children. He describes how teen pregnancy can impact health as well as high school completion, postsecondary education and economic success. He also adds that it is a self-perpetuating problem - teen mothers tend to give birth to children who, in turn, become mothers in their own teenage years. Basch describes “ a cycle of poverty” (Basch, 2011, p. 614) that keeps whole families from succeeding. In this way he highlights the critical importance of programs that help teen mothers to succeed, hopefully breaking this cycle.

Maybe not surprisingly, Basch found that black teens ages 15 to 17 had a rate of teen pregnancy more than three times as high as that of white teens, and Hispanic girls had a rate more than four times as high as that of whites. Birth rates among women ages 15 to 19 dipped 34% between 1991 and 2005, but increased 3% from 2005 to 2006. While the disparity in birth rates among whites and blacks declined from 1991 to 2006, the disparity among Hispanics and whites rose. Basch also examined rates of intercourse with multiple partners, condom use, birth control pill use and other more detailed data on sexual activity. This is useful in developing interventions to prevent teen pregnancy, but does distract some from his focus upon teen pregnancy rates among the races.

Basch cites Mott and Marsiglio (1985) for his data on pregnancy and completion of high school. A major weakness of his article is that he seems to gloss over the portion on “causal pathways” that affect a teen mother’s education (Basch, 2011, p. 616). He does make a significant point, though: If teen pregnancy significantly affects a mother’s education, and in 2006 there were 435,000 teen births in America, reducing those births by even half would spare hundreds of thousands of women from potentially a lifetime of economic hardship. Basch then suggests various interventions to prevent teen pregnancy, most of them alternatives to abstinence-only education (which, as he notes, has not been proven effective).

He notes that women of color can be limited in their accomplishments by the way that racist perspectives attach to their “aspirations” (Basch, 2011, p. 616). If it is assumed that a woman of color is not bound for college or for economic success, maybe she is less likely to aspire to those goals and more likely to give in to sexual pressures and become pregnant as a teen. Basch’s chief recommendation is to address this racism head-on in schools and in sex education programs. This point is a very important one that I did not see stated so clearly elsewhere in the literature – of course, racism and lowered expectations for teens of color affect their ability to meet goals such as high school graduation and college attendance. It is refreshing to see the impact of this insidious racism stated so clearly in the context of teen pregnancy. Marcotte (2013) takes a novel approach in that examines whether dropping out of high school leads to teen pregnancy, while the more common approach is to measure the impact of teen pregnancy on the likelihood of dropping out. Marcotte analyzes data from the U. S. Centers for Disease

Control and Prevention (CDC), as well as data from the U. S. Department of Education's National Center for Education Statistics (NCES). He examines birth rates in conjunction with dropout rates in various areas of the country and at various times. He finds that as dropout rates fall, so do the rates of teen births. The findings are true in both black and white girls. Marcotte posits that teens who drop out have more idle time to get into trouble, which leads to them getting pregnant at higher rates. He also acknowledges that it is possible that teens who attend more school realize more deeply the consequences of teen pregnancy, and avoid taking the risk.

A major weakness of Marcotte's article is that he spends a great deal of time explaining his method - comparing CDC data with NCES data - and his findings are limited to contingency tables listing the frequencies of dropout, income and employment and time series depicting birth and dropout rates rising and falling. To his credit, the author acknowledges openly that his findings are just a piece of the larger library of literature on teen pregnancy and on dropout rates. I would agree with him that these findings are an important part of this body of literature, because of his interesting approach of considering whether dropping out causes teen pregnancy, rather than the opposite, more common assumption.

A review of the literature shows that the characteristics of the high school that a student attends plays a major role in the teen's decision on whether to drop out of high school, the literature shows. Bradley and Renzulli (2011) incorporates direct testimonials of students leaving school for personal reasons as well as it being suggested from staff. The " Push" factors for drop outs are based on the administrative policies set by the school system that

force students out and the “ Pull” factors include family and socioeconomic status that takes the student away from school. (Bradley & Renzulli, 2011) Some students disconnect with the objectives of school based on the way that it is structured, therefore causing behavior backlash that is not handled properly by the administration. Many school systems do not investigate in detail the cause behind the students’ behavior they merely push the out and make them feel inferior, which causes the students to drop out. (Bradley & Renzulli, 2011) The study proved there was a solid connection of high school dropouts and socioeconomic class, however it failed to detail the administrative factors that caused students to drop out. The data that the study used excluded Asian and Indian American, because of their low dropout rates and didn’t offer any reasons for this demographics low rates. Tas, Bora, Selvitopu, & Demirkaya (2011) believe that students drop out for three main reasons with the first being intensive curriculum, grade repetition, and mistrust of neighborhood. Students reported problems of negative behaviors from teachers and school administration lead them to drop out of high school. (Tas, Bora, Selvitopu, & Demirkaya, 2011) The administration sets the guidelines that the students and teachers must follow and determine which school the students must attend based on their set system. The article suggests that the teachers may not be aware of all the processes to handle various types of students, therefore they can cause a student to drop out. The authors offer several suggestions for school administration improvements, however the data set they used consisted of 19 participants which can cause for skewed results.

Schoeneberger (2012) writes that future dropouts can be stopped during the

being of their high school career based on their middle school attendance records. Poor attendance records can be result of family factors or student general uninterested with the educational environment. Many school policies are focused on getting the students in the school in order to receive funding, however little is done to understand why students are not coming to school and administrative ways to fix the issue. (Schoeneberger, 2012) The study suggested several ways to use attendance records as an indicator of dropout rates, however it didn't discuss a test of current absentee prevention programs.

Christle, Jolivette, & Nelson (2007) defines several variable school characteristics that are related to high school dropout rates and their relationship to the students. The study includes the use of qualitative and quantitative methods in order to get prospects from students, staff, teachers, and administration. The standout characteristics are school environment, disciplinary procedures, and classroom environment had a significant effect on student dropout rates. (Christle, Jolivette, & Nelson, 2007) The study proved that the higher overall school failure the more dramatic impact it has on the dropout rates and it offered several examples for improvements. The study has limitations on quantitative data that represented all of their categorical data therefore they had to focus more of the qualitative data from surveying, however there are no mention of the schools counseling and social work services for dropout prevention (Warren and Jenkins, 2005).

Lee, Cornell, Gregory, & Fan (2011) suspects that suspension policies have an adverse effect on student completion of high school. The study compares black and white students in varying school population size number of

suspensions in relation to the dropouts in order to discover the reason behind the student's behavior. It found that there is a relationship between high suspension and dropout rates regardless of the socioeconomic class of the students in the school population. (Lee, Cornell, Gregory, & Fan, 2011) The study surveyed several students in order to determine why and how they misbehave in school. Many of the white students' suspension and dropout was related to bullying and many of the black students were related to gang affiliation. Many of the students attitudes toward conforming to school rules and policies had a major effect on suspension and dropout rates as well. Once students miss school for suspension they may find it hard to get back to level of their peers or think the school no longer wants them, therefore they decide to drop out. (Lee, Cornell, Gregory, & Fan, 2011) The data used in this study was skewed based on which race was the majority in the school and didn't ask the students if they were aware of the school counselling services. The study didn't detail the school policies that lead to the students being suspended and rather the policies were executed correctly.

Hypothesis

Individual student characteristics and school characteristics affect high school dropout rates.

Descriptive Statistics

In order to observe high school dropout rates and how they correlate with Individual Characteristics, we examined data from various sources on national high school dropout rates of students ages 16 to 24. The data used to analyze the relationship between dropouts and individual Race and

Ethnicity was provided by the National Center for Education Services through the Institute of Education Services (ies). Data was also used from the U. S. Department of Commerce. We focused on national data between 1992 and 2012 because current data collection procedures changed in 1992 and data before then may not have been comparable. Before then, the data for White and Black students included students of Hispanic ethnicity, so the analysis would not have been valid.

After reviewing national data on high school dropout rates and examining how the data correlates with a student's race or ethnicity we focused our attention to the state of Maryland and analyzed the relationship between high school dropout rates and income. Data was provided by The Maryland State Department of Education's (MSDE) annual report, " Maryland Report Card". The state-wide data used reflects a ten-year span from 2003 to 2013. MSDE began collecting and reporting data on elementary and secondary schools in each Maryland county in 2003. Wealth expenditure data is not yet available in the 2014 MD Report Card annual report. The variables used to analyze the relationship between high school dropout rates and income in Maryland include: per pupil wealth and the number of students receiving free/reduced lunch. Per pupil wealth is defined by MSDE as taxable wealth in relation to the September 30th enrollment of a school district; wealth is defined as the sum of a county's net taxable income, the assessed value of real property, and fifty percent of the assessed value of personal property. The number of students receiving free/reduced lunch is defined as the number of students whose applications for free/reduced price meals meet the family size and income guidelines, as published annually by the U. S.

Department of Agriculture, and students approved through direct certification; counts are reported from the students first day of enrollment until the last day of enrollment in the school year or the date the student withdrew from the school system.

The literature we read about school characteristics lead us to focus on the impact of attendance rates and wealth expenditures per pupil on high school dropout rates in the state of Maryland. The data used to analyze the relationship between high school dropout rates and school characteristics came the Maryland State Department of Education's " Maryland Report Card." Again, we analyzed data between 2003 and 2013 due to data collection procedures and sufficient information. The data measures many important school characteristics, as well as calculating and reporting the drop-out rates for schools and counties. Among the most significant measures included in the report card are the number of students who missed 5 or fewer days of school each year, those who missed 90 or more days of school each year, the number of days of attendance each year, and wealth expenditures per pupil. Those four characteristics, including the dropout rates are summarized here.

Individual Characteristics

Student's Race or Ethnicity

From 1992 to 2012, there were 738, 931, 000 high school students of all races between the ages of 16 and 24 years old. Out of the 738, 931 students, 469, 016 of them identified as white, 106, 216 of them identified as black and 120, 321 of them identified as Hispanic; which leaves 43, 378

students without any racial identification.

Figure 1

From 1992 until 2012, 6.5% of White students dropped out of high school. The median was 6.8% and there was no mode present. The minimum amount of dropouts was in 2012 with 4.3% and the maximum amount of dropouts was in 1995 with 8.6%, leaving a standard deviation of 1.231.

Figure 2

From 1992 until 2012, 11.16% of Black students dropped out of high school. The median was 11.3% and there was no mode present. The minimum amount of dropouts was in 2011 with 7.3% and the maximum amount of dropouts was in 1992 with 13.8%, leaving a standard deviation of 2.090.

Figure 3

From 1992 until 2012, 23.8% of Hispanic students dropped out of high school. The median was 25.3% and there was no mode present. The minimum amount of dropouts was in 2012 with 12.7% and the maximum amount of dropouts was in 1992 with 30%, leaving a standard deviation of 5.573.

Figure 4

Overall, from 1992 until 2012, 9.9% of all students dropped out of high school. The median was 10.5% and there was no mode present. The minimum amount of dropouts was in 2012 with 6.6% and the maximum amount of dropouts was in 1995 with 12%, leaving a standard deviation of 1.629.

Figure 5

Student's Wealth

Total Per Pupil Wealth (2003-2013)

From 2003 to 2013, the lowest per pupil wealth was in 2003 with \$286, 364. The highest per pupil wealth was in 2011 with \$506, 438. Overall, the total per pupil wealth increased from 2003-2013, but in 2012 there was a 27% decrease with \$397, 614 per pupil wealth. In 2013, per pupil wealth increased by 21% to \$505, 354 per pupil wealth.

Figure 6

From 2003-2013, the average per pupil wealth was \$375, 725. The lowest average was in 2003 with \$274, 102 and the highest average was in 2013 with \$521, 652. Overall, there was an increase in mean per pupil wealth, but in 2012, there was a significant decrease. In 2012, the mean per pupil wealth decreased by 29% and in 2013 the mean increased significantly by 24%.

Figure 7

From 2003-2013, the median per pupil wealth was \$355, 410. The lowest median was in 2003 with \$239, 979 and the highest median was in 2013 with \$438, 184. Overall, there was an increase, but in 2012 there was a significant decrease. In 2012, the median per pupil wealth decreased by 27% and in 2013 the median per pupil wealth significantly increased by 24%.

Figure 8

From 2003-2013, the standard deviation for per pupil wealth was 84032. 5. The lowest standard deviation was in 2003 with 105026 and the highest was in 2011, with 272631. Overall, the standard deviation increased, but in 2012, there was a significant decrease.

Figure 9

From 2003-2013, the highest total number of students receiving free/reduced lunch was in 2013 with 92, 483 students receiving free/reduced lunch. The lowest total number of students receiving free/reduced lunch was in 2003 with 49, 062 students receiving free/reduced lunch.

Figure 10

From 2003-2013, the mean number of students receiving free/reduced lunch was 375, 725. The lowest mean number of students receiving free/reduced lunch is in 2003 with 1, 962 and the highest was in 2011 with 3, 709 students. Overall, the mean number of students receiving free/reduced lunch increased from 2003-2013.

Figure 11

From 2003-2013, the median number of students receiving free/reduced lunch 73, 893. The highest median number of students receiving free/reduced lunch is in 2011 with 1, 381 students and the lowest is in 2003 with 674. Overall, the median number of students receiving free/reduced lunch increased from 2003-2013.

Figure 12

From 2003-2013, the highest standard deviation was in 2011 with 5, 467 and the lowest was in 2003 with 3, 282. Overall, the standard deviation of students receiving free/reduced lunch increased overtime.

Figure 13

School Characteristics

Maryland's Schools Dropout Rates

The dropout rate since 2003-2013 was also considered in order to provide a broader perspective of the attendance. For the 11 years period the total

school enrolment was 4, 913, 271 students 220, 802 of whom dropped out in the course of the study period. The dropout rate is hence approximately 4.49% of the total enrolment. We calculated the mean, mode, median, standard deviation and the percentage dropout rate for the period to help us get a clear understanding of the dropout rate in Maryland County.

The total dropout rate was highest in 2005 and lowest in 2010 as shown below.

Figure 14

The mean dropout rate fluctuated during the study period. The rates from 2003-2013 were 211.19, 209.89, 232.7, 235.51, 205, 173.57, 81.56, 72.75, 187.96, 215.75 and 177.11 respectively. 2006 had the highest mean dropout rate while 2010 had the lowest dropout rate.

Figure 15

The percentage dropout rate helped understand the rate of dropout rate as compared to the number of students present in the schools. The rate ranged from 3.99% to 5.25%. The lowest rate is in 2010 and 2012 while 2009 experience the highest rate as compared to the total number of students. The graph below is a clear indication of this;

Figure 16

The mode of the number of students varied with years. The rates from 2003 to 2013 were 11, 81, 45, 41, 63, 1, 14, 5, 7, 59 and 6 respectively. There were fluctuations in the mode as shown in the figure below.

Figure 17

The dropout standard deviation rate from 2003 to 2013 were 960. 2, 1011, 1049. 56, 1038. 24, 968. 44, 892. 72, 206. 92, 162. 53, 878. 97, 976. 59 and 860. 79 respectively. The rate was highest in 2005 and least in 2010. The figure below shows the fluctuation in the standard deviation of the dropout rates.

Figure 18

The median for the period were as follows 51, 57, 50, 63, 63, 57, 46, 41, 53, 55 and 47 respectively since 2003 to 2013. There were fluctuations in the median rate for the period with 2006 and 2007 having the highest rates and 2010 having the smallest median rate as shown in the figure below.

Figure 19

Maryland School's Attendance

To ensure a broad overview of attendance in our research, we chose to examine the data of 5 or fewer absences among high school students in Maryland. We calculated the mean, mode and standard deviation for 2003-2013 data on 5 or fewer absences. The mean of 5 or fewer absences for 2003-2013 are as follows respectively: 577. 97, 697. 14, 568. 46, 592. 21, 614. 53, 603. 86, 626. 46, 606. 95, 611. 47, 563. 45, 552. 57. In Figure shown below, there is a fluctuation in the mean of 5 or fewer absences from 2003-2013.

Figure 20

The median of 5 or fewer absences among high school students in Maryland are as follows, respectively: 345, 334, 303, 299, 340, 336, 325, 319, 317, 320, 303. The following Figure shows that the median declined over time

during 2003-2013.

Figure 21

The standard deviation of 5 or fewer absences among high school students in Maryland from 2003-2013 is as follows, respectively: 1370.85, 1643.06, 1555.75, 1556.32, 1630.99, 1608.64, 1731.74, 1710.64, 1682.24, 1476 and 1455.65. In Figure below, it is evident that standard deviation fluctuates slightly over time during this period.

Figure 22

In order to receive a broad overview of attendance we decided to include the data of 90 or more absences. We calculated the mean, mode, and standard deviation for 2003-2013 data on 90 or more absences. The mean of 90 or more absences for 2003-2013 are as follows respectively, 1119.84, 1038.16, 1041.70, 1046.57, 1034.46, 1008.01, 1009.24, 971.55, 976.11, 933.79, and 925.53. In figure shown below displays there is a decrease in the mean of 90 or more absences from 2003-2013.

Figure 23

The median of 90 or more absences for 2003-2013 are as follows respectively, 1139.50, 1097, 1122, 1125, 1105, 1079, 1034, 1005, 962, and 935. In figure shown below displays that a decrease in the median of 90 or more absences from 2003-2013 began in 2004 however increased in 2005, then it began to steadily decrease in the following years.

Figure 24

The standard deviation of 90 or more absences for 2003-2013 are as follows

respectively, 1113. 93, 729. 87, 737. 61, 727. 61, 711. 94, 708. 75, 702. 98, 712. 13, 698. 55, 694. 89, and 685. 56. The figure shown shows that standard deviation began relatively high in 2004, however it steadily declines as it reaches 2013.

Figure 25

In the interest of thoroughness, we looked at the summary statistics for the total days attended for each year from 2003-2013 in Maryland high schools. The means for these years are as follows, respectively: 310951. 97, 285919. 32, 203962. 36, 222445. 53, 200913. 86, 212561. 85, 184956. 4, 171400. 69, 168443. 72, 201351. 11, 189071. 27. In the Figure below, it is clear that the mean overall declined from 2003 to 2013, with some fluctuation.

Figure 26

The median of total days attended by Maryland high school students each year from 2003-2013 is, respectively: 196287, 187600, 132262. 5, 137117, 1371176. 5, 132184, 118192. 5, 106929, 110302, 118923. 5, 109714. In the Figure below, it is evident that the media of total days attended declined pretty significantly over time between 2003-2013.

Figure 27

The standard deviation of total days attended for Maryland high schools from 2003-2013 is, respectively, 1370. 85, 1643. 06, 1555. 75, 1556. 32, 1630. 99, 1608. 64, 1731. 74, 1710. 64, 1682. 24, 1476, 1455. 65. In the Figure below, it is evident that the standard deviation declined over time.

Figure 28

Maryand Expenditure per Pupil

Based on the articles read in the literature, we decided to include data on

school wealth expenditures per pupil from 2003-2013 for the state of Maryland. School wealth is a characteristic that could aid in a student decision to drop out of high school. We calculated the mean, mode, and standard deviation for 2003-2013 data on school wealth expenditures per pupil. The mean of wealth expenditures per pupil for 2003-2013 are as follows respectively, 8117.54, 8203.84, 8547.56, 9346.75, 10070.88, 10905.88, 11963.38, 12560.29, 12929.08, 13027.25, and 13031.96. The figure shown below show a steady increase of mean expenditures from 2003-2013.

Figure 29

The median of wealth expenditures per pupil for 2003-2013 are as follows respectively, 7910, 8262, 8731, 9103, 9699, 10609, 11545, 12054, 12330, 12577, and 12520. The figure shown below show a steady increase of median expenditures from 2003-2013.

Figure 30

The standard deviation of wealth expenditures per pupil for 2003-2013 are as follows respectively, 758, 1925.26, 1963.10, 898.02, 999.99, 1114.18, 1260.36, 1350.66, 1249.94, 1261.71, and 1261.55. In the figure shown below the standard deviation of wealth expenditure per pupil had several increases and decreases over the ten year timeframe.

Figure 31

Inferential Statistics

Inferential statistics techniques gave us the opportunity to use our data to determine the relationship, if any, between individual and school

characteristics and the likelihood that a student will drop out of high school. Since most of our data is limited to frequencies, so we chose to use the Chi square independence test to determine if, in fact, race or any of the school characteristics analyzed affects the possibility of a student not successfully completing high school. We also was able to complete a multiple regression analysis on free reduced lunch and student wealth to investigate whether student and family income has any correlation with high school dropout rates.

Individual Characteristics

Students' Race and Ethnicity

In order to examine whether a student's race could be an indicator for dropping out of high school, we ran the Chi square test on the national data from 1992 to 2012.. Our null hypothesis was: There is no relationship between the race or ethnicity of a student and their chance of becoming a high school dropout. That is, the two are independent variables. Our alternate hypothesis is: There is a relationship between the race or ethnicity of a student and their chance of becoming a high school dropout. Under this alternate hypothesis, their chance of actually dropping out of high school dependent variable, and their race or ethnicity is the independent variable.

Original Counts

Number of Dropouts

Number of Non-Dropouts

Total

White Students

30, 579

438, 437

469016. 3108

Black Students

11, 744

94, 473

106216. 2074

Hispanic Students

27, 382

92, 939

120321. 4048

Other Students

2, 618

40, 759

43377. 07487

Total

72322. 7737

666608. 2241

738930. 9978

Percentage of Rows

Number of Dropouts

Number of Non-Dropouts

White Students

6. 52%

93.48%

100.00%

Black Students

11.06%

88.94%

100.00%

Hispanic Students

22.76%

77.24%

100.00%

Other Students

6.04%

93.96%

100.00%

Percentage of Columns

Number of Dropouts

Number of Non-Dropouts

White Students

42.28%

65.77%

Black Students

16.24%

14.17%

Hispanic Students

37.86%

13. 94%

Other Students

3. 62%

6. 11%

100. 00%

100. 00%

Expected Counts

Number of Dropouts

Number of Non-Dropouts

White Students

45904. 9094

423111. 4014

Black Students

10395. 8973

95820. 3101

Hispanic Students

11776. 4416

108544. 9632

Other Students

4245. 5255

39131. 5494

Distance from Expected

Number of Dropouts

Number of Non-Dropouts

White Students

5116. 8542

555. 1463

Black Students

174. 7160

18. 9556

Hispanic Students

20679. 7238

2243. 6192

Other Students

623. 6594

67. 6631

Chi-Square Statistic

Chi-Square

29480. 3376

p-Value

< 0. 0001

Table 1

Table 1 data shows a p-Value of