

THE IMPLICATIONS OF SCHOOL BOUNDARY CHANGES ON CLASS  
REPRODUCTION

by

Nick Botero  
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The Implications of School Boundary Changes on Class Reproduction

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts at George Mason University

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## **DEDICATION**

This is dedicated to my loving wife Amanda and our dog Sophie.

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## LIST OF ABBREVIATIONS

Annandale High School .....	Annandale
Fairfax County Public Schools .....	FCPS
English Speakers of Other Languages .....	ESOL
Federal Graduation Indicator .....	FGI
Institution of Higher Education .....	IHE
Institutional Review Board .....	IRB
National School Lunch Program.....	NSLP
Parent-Teacher-Student Association.....	PTSA
School Nutrition Programs .....	SNP
Thomas A. Edison High School.....	Edison
Thousand (1000) .....	K
Virginia Department of Education.....	VDOE
Wilbert Tucker Woodson High School.....	Woodson

## **ABSTRACT**

### **THE IMPLICATIONS OF SCHOOL BOUNDARY CHANGES ON CLASS REPRODUCTION**

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This work explores the social and economic influence public school boundary changes have on class reproduction at the community level. The boundary change implemented by Fairfax County Public Schools (Virginia) at the beginning of the 2012-2013 school year affecting Annandale High School, W.T. Woodson High School, and Thomas A. Edison High School serves as a case study to explore this topic. For the purposes of this project I focus solely on the boundary change as it relates to W.T. Woodson High School and Annandale High School. In crafting this thesis, I reviewed relevant literature and analyzed secondary data regarding the aforementioned schools and the communities they support. The result of this work informs subsequent sociological research regarding school boundary changes and is intended to serve as an example of how these changes should be critically assessed in order to minimize myriad forms of social inequality that can be tied to them.

## INTRODUCTION

Class reproduction in the United States today perpetuates economic distinctions between social groups. Considering that the contemporary function of education is to prepare youths for integration into the labor market, the circumstances in which students receive educational training largely impacts their economic standing in the future. Though public education is regulated at the state level and is intended to provide standardized education for all students, the fact that schools are designated to support communities with differing levels of affluence enables these communities to influence their respective public schools in various ways and to various degrees. While I do not problematize the differing levels of affluence communities possess outright, I am concerned with critically examining how this distinction is perpetuated in the case of public school boundary changes. I argue that there is much more at stake than where students attend school; the process of changing public school boundaries comes with economic implications for the households of students which, in turn, impact the social and economic resources available to the schools these students attend.

In identifying and describing how school boundary changes contribute to class reproduction, I use the case of Fairfax County's boundary change involving Annandale High School, WT Woodson High School, and Thomas A. Edison High School which occurred in 2012. For the sake of brevity, these schools will be referred to going forward

as Annandale, Woodson, and Edison, respectively. It is important to note that though the communities supported by all three of these schools were affected by this boundary change, I have decided to focus solely on Annandale and Woodson for this particular project. In doing so I have isolated a specific area of my larger research question to establish a sound methodological approach and provide empirical evidence to build upon in subsequent phases of this research project. The uniqueness of this particular case lies in the large degree of disparity between these two schools across a multitude of academic and economic factors. Woodson is the quintessential “good” school where as Annandale represents its opposite. Given the polarizing dynamic between the two schools nested in communities with starkly different levels of affluence, this case study is ripe for examining how changes to school boundaries redefine a community and the extent to which the chasm between the two is closed or widened further. What follows is a brief description of this work’s structure.

First, I provide a brief review of literature relevant to this study. After conceptually framing the idea of class reproduction, I reflect on the function of public education, historically situating it in relation to the highly competitive and increasingly specialized domestic labor market in the United States. (Bowles and Gintis [1976] 2011) With this in mind, I investigate the part property values play in the relationship between economic standing and education. I also look at empirical findings that articulate the cultural dynamics of the interplay between educational institutions and the communities they are found in. Here I provide a critical commentary on how the education of children should be thought of as a form of human development, and how educational institutions

under differing circumstances hold different ideas of what constitutes a proper education for its students.

This is followed by my research design which employs a wholly quantitative longitudinal secondary data analysis methodology incorporating school-level data provided by Virginia Department of Education (VDOE) and community-level data in the form of personal property data made available by Zillow. In addition to defining each measure incorporated in these two categories, I also give a detailed account of the purpose they serve in answering my research question and how I obtained them. Lastly, I explain how these measures will be manipulated and analyzed.

Next, I bring forth my findings from executing my research design. I discuss whether or not my hypotheses were upheld and bring forth specific points of interest as shown in the data. An analysis of what these findings tell us about class reproduction in the context of the boundary change is also brought to bear here, especially regarding community status and educational outcomes, both of which have been shown to be correlated with wealth (Bowles and Gintis [1976] 2011, Khan 2011, Lacey 2007, Lareau 2011, Pattillo-McCoy 1999, Rios 2011, Shapiro 2004). This is followed by a series of closing arguments based on this analysis as well as a look at the limitations of this study.

Bringing schools and communities into dialogue with one another invites a comprehensive, multi-faceted look at how the boundary change has each of these areas. Such an exploration provides context to the changes that have been made to these school zones that looks beyond factors like overcrowding and calls for a critical examination of

the reasoning behind the boundary change and the consequences this decision had on the schools and communities observed.

## **LITERATURE REVIEW**

In structuring this project it is first necessary to identify and define the conceptual elements I am dealing with and review previous, relevant research conducted in the areas I am interested in exploring. The literature reviewed below is arranged thematically, working from theoretical concepts to research conducted around these concepts. Apart from summarizing key findings from existing research, I also include descriptions regarding the methods used to obtain and analyze the data on which those findings are based. This is done to provide a greater understanding of how the research design following this literature review was informed by the texts included in this section of the report.

In the context of this study, it is paramount to build an understanding of institutions that expands beyond their implicit function. While the facilitation of academic learning explains the functional character of a school, it is also a site of social learning and class reproduction. Given that the focus of this study is to arrive at an understanding of how distinctions between geographically similar, yet socioeconomically disparate communities influence the shaping of school zones, thinking through how schools reflect the character and reputation of the communities they are nested in is central to my investigation. First, I distinguish the features of communities and institutions that make them at once separate and mutually dependent concepts. Following

this conceptual mapping, I invite a macro perspective of how schools reflect the ethos, structure, and needs of the labor market it prepares students to eventually enter. Finally, I discuss how educational institutions in particular serve as sites of social reproduction that perpetuate myriad forms of inequality mirroring those found in the communities in which they are located.

### **Theoretical Framing of Class, Community, & Concrete Institutions**

Understanding the interplay among social class, communities and public schools requires a conceptual framing of what is involved in each. Exploring these concepts separately will help to better understand each in their specificity as well as how they are linked.

#### **Class.**

Before entertaining the concept of class reproduction, it is first important to clearly define what is meant by class for the purposes of this study. A Weberian sense of class used to distinguish “status groups...[categorized by] their consumption patterns rather than on their place in the market or in the process of production” (Coser [1977] 2003) is appropriate given that I am primarily looking at property values to determine the difference between the communities in question. As mentioned above, there are starkly different socioeconomic and demographic realities of those living in the communities making up Annandale and Woodson’s boundaries despite the relatively small geographic distance between them. Here it is helpful to consider Weber’s articulation of “social distance” between groups as “communities...held together by notions of proper lifestyles...social esteem and honor accorded to them by others...linked with...expectations of restrictions on social intercourse.” (Coser [1977] 2003) In addition to the people living

in the households that make up the communities I am interested in investigating, these social distinctions can be applied to Woodson and Annandale at the institutional level. The idea of a “good, resource rich” versus a “bad, poor school”, the social distinction between “us” and “them” exhibited in the public hearings between homeowners of the communities in question speak directly to Weber’s “status groups”. This characterization of class distinction is vital to this study in understanding how groups with differing levels of affluence were able to influence the boundary change that took place. This conceptualization of class will be brought into a discussion of class reproduction in subsequent discussion.

**Community.**

Grounding this study around communities is crucial in maximizing the potential for the results of this study to be generalizable. Though I am extricating schools and housing properties to be looked at independently, it is important to note that I still consider them to be linked to the larger construct of “community”. In building a conceptual framework to investigate the relationship between housing and education, I recognize that neither presents an exact path to understanding the other. Instead, categorizing communities based on shared understandings of lifestyle and their relative social and geographic distance to neighboring communities provides a sound theoretical platform to discuss the implications school boundary changes have for communities subjected to them.

William Julius Wilson and Richard P. Taub (2006) used ethnographic research to provide a detailed account of the migratory patterns of people in and out of four Chicago

neighborhoods considered to be on different points of the spectrum of what is considered middle-class in these communities. These distinctions were based largely along racial and economic lines. Taking Albert Hirschman's organizational theory of change and applying it to the neighborhoods of investigation, Wilson and Taub (2006) evaluated to what extent exit, voice, and loyalty played a part in racial and ethnic transitions that had occurred in each of these communities over the past three decades.

“Hirschman argues...when people become dissatisfied with changes in their surrounding they can *exit*...or...exercise *voice*... ‘to change, rather than to escape from’ an undesirable situation” (Wilson and Taub 2006: P. 7).

They applied Hirschman's theory to gain an intimate look at how residents understood their community's identity and to what degree they believed the values of their community might be compromised by the possibility of racial and economic changes occurring in the future. Their findings suggest that:

“Strong neighborhoods often remain so in opposition to other groups of people...work[ing] against the notion of intergroup harmony and integration in neighborhoods [and] schools...Efforts to develop and sustain strong communities...create resources that can be used to prevent or impede unwanted neighborhood integration—whether it be racial...or class-based. On the other hand, neighborhoods that feature a weak social organization...will see their residents confront an unwanted [situation]...by choosing to exit...[resulting in] a rapid ethnic/racial transformation of the neighborhood” (Wilson and Taub 2006: 181).

With this in mind, I believe the strong neighborhood in this study to be Woodson. But more importantly, it is the changed zone, the area exhibiting more wealth than other areas supported by Annandale, that I see as wanting to exit a situation it understands to be both untenable and irreversible in order to join the superior Woodson community, gaining greater social status and wealth as a result. With their exit, the Annandale community becomes even more depleted of social and economic resources.

**Concrete Institutions.**

While communities are a kind of institution, I am primarily concerned here with framing schools as a type of *concrete* institution. The concreteness of Annandale and Woodson High School is characterized by their unambiguous nature as physical locations established with a defined purpose of educating youths. The most important part of this definition for this study is that they occupy a physical place. As such, they cannot be fully separated from the communities in which they are imbedded. By focusing on measures solely at the school level I can keep both Annandale and Woodson distinct both from one another and the communities in which they are nested. Changing the boundary of neighborhoods a public school serves assumes a change in a community as demonstrated by Wilson and Taub (2006).

**Schools as Centers of Class Reproduction**

At its core, this research is concerned with identifying and describing class reproduction at the community level. In what follows I identify education and wealth as the two elements making up the whole of class reproduction. Through referencing a large body of research I argue that class reproduction occurs as a result of a cyclical process whereby students in a particular community receive an education that prepares them to have an economic standing that mirrors that of their community.

**Unequal Education**

Perhaps one of the most, if not *the* seminal work in class reproduction as it relates to children is Annette Lareau's *Unequal Childhoods* (2011). Based on findings collected from a team of ethnographers, Lareau (2011) emphasizes that the varying socioeconomic standings of the households children live in has a significant impact on how they think

about and participate in their education. A significant aspect of her study focuses on the day-to-day schedule of children from differing socioeconomic backgrounds. She finds that there is a direct correlation between socioeconomic standing and structure of schedule; upper middle class families tend to organize their day-to-day schedules around structured activities their children engage in whereas children from lower-middle class and poor families tend to have more unstructured free time outside of school which can be partly explained by their parents inflexible work schedules and the lack of resources they have to engage in structured activities outside of the school. This observation leads to Lareau's (2011) finding that the daily rhythms of children from differing socioeconomic backgrounds reflect the cultural values of their respective class distinctions; the busy, structured schedules of upper-middle class families results in children becoming comfortable with managing their time as they engage in a breadth of different activities and interact regularly with adults whereas lower-middle class and poor children develop a greater sense of self-reliance, autonomy, and creativity as they are left to occupy their time with minimal guidance from adults. Though both of these outcomes are framed positively, Lareau (2011) ultimately suggests that the structure of contemporary education and today's job market favors the cultural values of the upper-middle class as importance is placed on effective time management and having confidence to advocate for oneself in social institutions.

Shamus Rahman Khan (2011) focuses on St. Paul's, an exclusive northeast boarding school that prepares its students for Ivy league Universities. Having attended the school himself, he became keenly aware that though the school (and most all other

educational institutions) had become more diverse in terms of race and gender over the last half-century in the United States, this did not suggest that the culture of education or its role in preparing individuals for economic life had become more equal. Simply put, diversity should not be conflated with equality. Instead, he finds that “the overall level of inequality has increased dramatically”, pointing to the exponential growth of household income as one moves further up the hierarchical socioeconomic ladder in the United States today (Khan 2011: 5). He goes on to state that St. Paul’s actively works to promote certain cultural understandings that are at once liberal and elite, leaving students to think that nothing outside of their hard work has merited their achievement yet at the same time allowing them to understand themselves as superior to others that they see as not having put in the effort to seize their opportunities. “...this meritocracy of hard work and achievement has naturalized socially constituted distinctions, making differences in outcomes appear a product of who people are rather than product of the conditions of their making” (Khan 2011: 9).

Victor M. Rios (2011) provides substantial evidence to support this claim in his account of black and Latino youths living in Oakland, California. While St. Paul’s may serve as the quintessential model of the “good, rich” school, the schools attended by the children he studied are found on the opposite end of the spectrum. Here, he shows that rampant poverty and normalization of deviance (particularly violence and drug use) reduce educational institutions to settings of punitive control of youths. This approach leaves little to no room for teaching children the curriculum and giving them the tools they need to integrate into the labor force and achieve economic security. Focusing

specifically on young men in this setting, Rios (2011) asserts that such “punitive social control shapes young people’s decision making, actions, worldviews, and identities”, whereby they develop antagonistic relationships to their superiors (i.e. teachers and police) and negative understandings of the institutions in their communities. Between the very different educational institutions Khan (2011) and Rios (2011) discuss in their respective works, we find that the identities of the schools in question are very different. While both authors focus primarily on the function of the school for its students, they show that these schools reflect the culture these children live in. Students come to understanding themselves differently based on the function and purpose of their school.

Prior to examining the racial implications of the boundary change, it is worthwhile to note Kozol’s (2005) findings that public schools have entered into a process of resegregation following the desertion of court ordered educational policies in the 1970’s and 1980’s based on claims of the ineffectiveness and/or lack of need for these policies given the migration of whites out of major cities by that time.

#### **Education’s Connection to the Labor Market**

Having categorized schools as concrete institutions, it is essential to understand their connection to the pervasive, non-concrete institution of the labor market they prepare individuals to eventually enter. Samuel Bowles and Herbert Gintis ([1976] 2011) bring forth a historical account of public schools in the United States, paying close attention to the social and economic functions of them. They argue that following the Civil War and the settling of the Western frontier, “The folklore of capitalism was revitalized: Education became the new frontier” (Bowles and Gintis [1976] 2011: 3). A large body of

research demonstrates that in addition to the standard curriculum which tends to reflect the perceived contemporaneous needs of the domestic labor market, schools also teach children adherence to behavioral norms regarding power relationships as well as racial and sexual identity (Bowles and Gintis [1976] 2011; Khan 2011; Rios 2011; Eckert 1989; Pascoe 2007). Further, they claim educational institutions are centers for social engineering deeply imbedded within the capitalist American system that serve to strongly reinforce the gaps between social classes, inevitably resulting in the perpetuation of several forms of inequality, among them socioeconomic inequality.

As stated by Bowles and Gintis ([1976] 2011):

Like the nineteenth-century prairie settler, the late twentieth-century student has come to realize the fancy of flight. The school system has been increasingly unable to support the myth of equal opportunity and personal development...The school system is a monument to the capacity of the advanced corporate economy to accommodate and deflect thrusts away from its foundations. Yet at the same time, the educational system mirrors the growing contradictions of the larger society, most dramatically in the disappointing results of reform efforts. (P. 4-5)

Integral in their assessment is the finding that public education reflects the ethos of the labor force it prepares to one day integrate children into. This is apparent in the structure of the education system that teaches children not only the certified curricula but also behavioral norms such as subordination to superiors. This phenomenon has also been shown to be mediated by class (Lareau 2011). Building from her observations of educational institutions, Eckert (1989) used cultural deprivation theory in arguing that public schools perpetuate cultural and social systems by basing their practices solely on white middle-class backgrounds. Though not done overtly, students of lower socioeconomic standing were alienated from school resources, especially those in the form of stratified extracurricular activities that provide students with opportunities for

visibility and recognition in their communities (Eckert 1989). Similarly, Willis' (1977) finding that schools within working class communities in London perpetuate the class identity of the communities in which they are located suggests that schools serve to prepare students for jobs that reflect their socioeconomic standing. Kozol (2005) found that educators at elementary, middle and high schools throughout Chicago's inner-city were encouraged to work vocational language and practices into their curricula while simultaneously excluding college education as an area for students to entertain. Differing curriculums offered by high schools are aimed to differentiate how and what students of varying socioeconomic backgrounds learn which spurs a process of marginalization that can be detrimental to a student's life after school (Bowles and Gintis [1976] 2011; Eckert 1989; Lareau 2011; Van Houtte and Van Maele 2011).

### **Wealth**

While class distinctions are perpetuated by educational systems and the sectors of the labor market they prepare students to enter, Shapiro (2004) argues that the income these students will one day receive must be considered conceptually separate from wealth, which is essentially the sum of one's assets. Chief among these assets is home equity (Shapiro 2004). This point is especially elucidated when considering that FCPS anticipated that real estate and personal property taxes accounted for 71% of their 2.5 billion dollar annual budget as of 2014 (FCPS 2013). This point underlines the importance of monitoring the fluctuation of property values for communities directly impacted by the boundary change in question. Shapiro (2004) makes the point that despite landmark federal court rulings regarding educational and racial equality in the

United States, race is a determinant indicator of the wealth one is likely to have, arguing that the disenfranchisement of blacks in the United States over time, especially in the form of racially segregated neighborhoods which put them at a large disadvantage in accumulating wealth in comparison to whites. This is especially apparent in Pattillo-McCoy (1999) and Lacy's (2007) work that demonstrates that despite a significant number of blacks gaining higher incomes and entering into America's middle class, there is still a large gap between them and their white neighbors when it comes to wealth.

Combined, the literature reviewed provides a wealth of empirical evidence that clarifies the process and manifestation of class reproduction from different vantage points. It is not simply parental involvement with their children that molds them into facsimiles nor is it a school's ready-made agenda to manufacture a particular type of student. Rather, it is the class distinctions across communities that create the conditions of the environment in which a school is located. As demonstrated by these three studies, schools tend to reflect the cultural practices and expectations of the predominant class of the students they serve.

It is useful to think about the cultural and economic resources available to members of these neighboring communities. Take, for example, the public hearings in that took place in Fairfax County prior to the boundary change decision. Parents of households with lower socioeconomic standing (and likely lower levels of education) may have had less flexibility in their schedules that limited their awareness of and ability to participate in these hearings, resulting in the marginalization of their voices being heard on matters relating to on their children's education and the property value of their

homes. Still further, the performance of students, differing curriculums, and graduation rates at Annandale and Woodson could be connected to the cultural values that children internalize as a result of their upbringing. While the number of questions that can be raised around this topic are innumerable, what is important here is to understand that there is a direct link between the resources, ethos, and practices of a community and the schools that serve them.

As I am focusing on two public high schools in Fairfax County, Virginia, a county consistently ranked in the top ten richest counties in the nation (Forbes 2013), an obvious critique might be that there are public school systems throughout the country that pale in comparison to the worst school in Fairfax County in terms of resources, extracurricular activities, and so on. While this concern is valid, I believe this case presents a unique opportunity to shed light on the fact that these disparities are present even in the “best” public education systems in the country. A thorough analysis of this particular case can aid in an understanding of how educational inequality occurs and offer suggestions as to how to minimize its presence in public school systems throughout the United States.

## **RESEARCH DESIGN**

I conducted a secondary data analysis to assess the socioeconomic impact of the boundary change involving Annandale and Woodson that took effect at the beginning of the 2012/2013 FCPS school year. To this end, I bring community and school-level data into dialogue, exploring the educational inequalities between these two schools and the class distinctions existing in the communities in which they are nested. Because educational and class inequality are largely tied to economics, I focus on measures serving as economic indicators speaking to social reality. For example, the number of children receiving free and reduced price lunches at each school reflects the proportion of students living in communities with lower levels of affluence.

Beyond economically driven metrics, it is important not to lose sight of the educational function of schools. To this end I bring forth school-level data detailing the educational achievement of students at each school. In an effort to provide a balanced look at the effect of the boundary change over time, I will be incorporating data stretching from the 2010/2011 school year to 2014/2015. Allowing for examination of data two years prior to and two years after the boundary change's implementation. Alongside the measures defined below, I formulate hypotheses of what I expect to find.

From a high-level perspective, I expect that measures related to overcrowding (e.g. total student population, student-to-faculty ratio) will have become more even

between Woodson High School and Annandale High School, while a disparity in economic factors (e.g. students receiving free or reduced price lunches, property values) will favor Woodson High School and the communities that surround it. Similarly, I believe the rate of change in educational achievement of students at Woodson High School will exceed Annandale High School each school year. Should this be the case, this would suggest FCPS' boundary change strategy was successful in alleviating overcrowding at Annandale, but also exacerbate economic and academic groups already in place between the schools.

Because this study is interested in investigating changes over time, the measures selected both at the school and community level have remained relatively unchanged in their definition and have been reported using a similar metric throughout the period of focus. This level of continuity ensures the reliability of my findings. The following is an inventory of the different measures I will be incorporating into my study.

### **School-level Measures**

Existing statistics compiled by the Virginia Department of Education (VDOE) provide a wealth of information about the demographics, economic standing, and levels of achievement of each school's student population over time. The VDOE reports are prepared from data submitted by school divisions within the Commonwealth of Virginia. These school divisions gather their data from the individual schools they are comprised of. The following measures for both Annandale and Woodson High School have been incorporated for each school year from 2010/2011 to 2014/2015.

**Total student population.**

The VDOE's "Fall Membership" measure allows visitors to their website to run queries by specifying the number of students enrolled by school year, school division, and school. Users can further break down this measure by the gender, race/ethnicity, or group (disability, economically disadvantaged, limited English proficient, migrant, homeless) of students. The total number of students registered in the fall of a given school year for a particular school will serve as the total student population for that school year. As I am looking at high schools, this number is determined by the total sum of all students in grades 9, 10, 11, and 12 for each school for each individual school year. The total student population helps to understand the overcrowding concerns that served as the primary evidence to legitimate the boundary change. Monitoring the fluctuation of the total high school population is important in determining what success the boundary change has had in alleviating overcrowding at Annandale High School. I anticipate that the total student populations will be more evenly distributed following the boundary change than they were prior to it.

**Students receiving free and reduced price lunches.**

This will serve as the primary measure of students' economic standing. These data were collected accessing the VDOE Office of School Nutrition Programs (SNP) annual National School Lunch Program Free and Reduced Price Eligibility Reports. These reports record "eligibility statistics for the National School Lunch Program (NSLP)...for all public schools within the divisions that participate in USDA's National School Lunch Program (NSLP)." (VDOE 2015) These reports provide the total count of students participating in the School Nutrition Programs (SNP) which acts as the base size by

which Free Eligible and Reduced Eligible (students who are eligible for free or reduced priced lunches, respectively) are divided to arrive at Free Percentage and Reduced Percentage at each school. The Total Free/Reduced Eligible is the sum of students that are free eligible or reduced eligible, which is then divided by the SNP membership to arrive at the Total Free/Reduced Percentage. While I will be incorporating SNP Membership, Free Eligible, Free Percentage, Reduced Eligible, and Reduced Percentage, it is the Total Free/Reduced Eligible and Total Free/Reduced Percentage I am mostly interested in using to gauge the economic standing of students at each school.

Looking at the percentage of students receiving free and reduced priced lunches at each school over time will be instrumental in assessing the economic standing of each school and the student population they serve, especially considering the increase or decrease of this percentage following the boundary change. This offers insight into the level of affluence the communities in question have, which is vital in assessing the selection of the area that was changed. For example, if it is found that the number of students receiving free and reduced price lunches remained stable at each school over the five year period in question, this would suggest that the majority of Annandale's more affluent students moved to Woodson. This would necessarily bring with it a depletion in the monetary resources these households contributed to school fundraisers, programs, etc. that less affluent students could benefit from.

**Student ethnicity and race.**

This is the annual total number of students belonging to a particular ethnicity or race as defined by FCPS at each school. The seven ethnic and racial categories are “American

Indian/Alaska Native”, “Asian”, “Black/African American”, “Hispanic/Latino – Any Race”, “Native Hawaiian/Other Pacific Islander”, “Two or More Races”, and “White”.

The ethnic and racial make-up of each school is determined by FCPS as follows:

FCPS uses the ethnic and racial classifications established by the United States Department of Education pursuant to Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, and the Final Guidance in the Federal Register of 2007 (72 Fed. Reg. 59267). (FCPS 2015)

I expect to find that Annandale High School has a consistently higher concentration of non-white students than Woodson High School and perhaps a decrease in the white population at Annandale over the time period under investigation.

**Limited English proficient students.**

Incorporating reports provided by VDOE of Limited English Proficient Students at each school for each year are included in my study. These reports will serve as another indicator of the ethnic diversity at each school, one that more directly points to the amount of Fairfax County funding each school uses to educate students with first languages other than English in the state wide English Speakers of Other Languages (ESOL) program employed by public schools in Virginia. I anticipate that the percentage of non-white students at each school will have a direct relationship with the percentage of Limited English Proficient students at each school.

**Senior class size.**

Using the VDOE’s “Fall Membership” measure as explained above, the senior class size is defined as the total number of students registered in the fall for grade 12 at each school for each school year. This measure will serve to help calculate graduation rates at each school as mentioned below.

**Diploma graduates.**

Using the VDOEs High School Graduates & Completers query, I can distinguish the number of “Total Diploma Graduates” for each school year at a given school. This count is the sum of students who received Advanced, Standard, Modified, or Special Diplomas. I will incorporate each of these four categories of diploma in my data, paying particular attention to the percentage of students receiving either Advanced or Standard diplomas which will also serve to calculate graduation rates at each school as mentioned below.

**Graduation rate.**

To determine the ratio of students who graduated from each high school for each of the five years under investigation, I will divide the total number of diploma graduates by the senior class size for each year at each school. I will also be capturing the percentage of students who earned advanced or standard diplomas from their respective school each school year. These percentages are calculated by dividing the number of students who earned a diploma type by the total diploma graduates. These graduation rates will serve as an indicator of academic achievement at each school over time, potentially lending insights as to the impact of the boundary change on the level of academic achievement at each school.

**Federal graduation indicator.**

VDOE provides customizable post-secondary enrollment reports based on statistics accessed via National Clearing House regarding the Federal Graduation Indicator (FGI), which is defined as follows:

A report on the number and percent of high school graduates in a Federal Graduation Indicator (FGI) cohort who enrolled in a postsecondary Institution of Higher Education (IHE) within sixteen months of their high school graduation. Reports are available by state, school division, and school for all students and student subgroups. These reports provide the best available estimates and are based on data VDOE obtained from the National Student Clearinghouse. (VDOE 2015)

The FGI is calculated by following a group of students who started the ninth grade in the same school year; and...includes students who earned Virginia’s standard or advanced studies diplomas only; students who earned other Virginia Board of Education approved diplomas are not counted as graduates in the FGI. (VDOE 2015)

Using 4-year cohorts (students receiving standard or advanced diplomas four years after entering high school), I generated FGI queries for both Woodson High School and Annandale High School for 2010, 2011, 2012, 2013, and 2014. Of the data provided in these reports, I kept record of the following measures for the subgroups “All Students” and “Economically Disadvantaged”:

**Table 1**

<u>Measure</u>	<u>Figure</u>
<i>“Total number of students in the cohort earning a federally recognized high school diploma.”</i>	Number only
<i>“Students who enrolled in any Institution of Higher Education (IHE) within 16 months of earning a federally recognized high school diploma”</i>	Number & Percentage
<i>“Students who enrolled in a 4-year public Institution of Higher Education (IHE) within 16 months of earning a federally recognized high school diploma.”</i>	Number & Percentage
<i>“Students who enrolled in a 4-year private Institution of Higher Education (IHE) within 16 months of earning a federally recognized high school diploma.”</i>	Number & Percentage
<i>“Students who enrolled in a 2-year Institution of Higher Education (IHE) within 16 months of earning a federally recognized high school diploma.”</i>	Number & Percentage

(VDOE 2015).

**Student dropouts.**

This measure is derived from records kept on an annual basis by FCPS regarding the number of students who dropped out of school during each school year. In defining

student dropouts, FCPS distinguishes between ‘regular-term dropouts’ and ‘summer dropouts’ as follows:

“A regular-term dropout is a student who leaves school before the last day of the regular school year for any reason other than promotion, transfer to another school, death, or graduation, and fails to return to school by October 1 of the following school year...A summer dropout is a student who was in membership on the last day of the previous school year but fails to return to school by October 1 of the following school year for any reason other than transfer to another school, death, or graduation. These students are counted as dropouts for the grade, school, and year in which they fail to return to school.” (VDOE 2015)

Student dropout rate, the measure I will primarily be referencing in my analysis, is defined as the total number of dropouts (regular-term and summer) expressed as a percentage of fall membership, which is “the count of students in membership on the last day in September and reported in the Student Record Collection to the Virginia Department of Education.” (FCPS 2015) Thinking specifically of academic achievement, I believe Annandale High School will have lower graduation rates, a lower rate of students entering post-secondary education, and a greater dropout rates than Woodson High School for each year under investigation.

**Faculty population.**

VDOE also captures the total number of faculty members at each school for each school year. This measure will be integral in coming up with the *Student-to-Faculty Ratio* measure that will be created by dividing the total student population by the total number of faculty members for each year at each school. Just as I anticipate the total population of students to decrease at Annandale and increase at Woodson following the boundary change, I also believe the student-to-faculty ratio will follow this same pattern.

## **Property Measures**

The starting point for community data was derived from FCPS' Annandale Boundary Study website. This website includes detailed maps as well as the proposed alternatives to redrawing boundary lines before the final decision was made. Using these maps as a guide, I used Zillow.com, a real estate website, to conduct online searches of specific addresses falling into one of the three following geographic categories: 1) homes that have remained in Woodson's boundary, 2) homes that have remained in Annandale's boundary, and 3) homes within the zone that was moved from Annandale's boundary to Woodson's. These properties lend themselves to comparisons regarding their age and size as well as the fluctuation of their values from a historical perspective.

Collecting and analyzing the data for the measures defined above will provide a detailed understanding of the economic impact the boundary change had on the communities feeding into Annandale High School and Woodson High School as well as its impact on the academic achievement of the students at each school over time.

### **Data collection.**

In gathering the property level data my greatest concern was ensuring the representativeness of my sample. While va.gov provides several maps detailing a geographic perspective of housing, I was unable to obtain a list of the total population of properties in the regions of interest to my study. This left me unable to employ a whole host of sampling techniques that would have been ideal to my study. Given this limitation I created a unique sampling framework to guard against sampling error as much as possible. Using three maps (one for each region's boundary, the highest and lowest points of longitude and latitude was plotted to create a rectangular perimeter of the region. Each

perimeter was then be cut into equal quadrants, at which point these quadrants was furthered quartered, resulting in 16 equally distributed areas within each map. Next, two street names appearing in each area were selected based on convenience. I am aware of the implications of selection bias in this part of my sampling procedure but believe that the representativeness of each regions property population was not compromised given the equally distributed areas determined prior to this step. A google search of each street name was run, and the first link of a property on that street provided by Zillow.com was selected. Of the information Zillow.com provided for each property, the street address, total square footage, year built, and the property value as it stood in the month of September for each year from 2010-2015 was collected.

In all, this data was collected for 32 properties in each of the three territories (two for each of the sixteen areas within each map), leaving me with a total of 96 properties across the three territories. Given that the Central Limit Theorem holds that a minimum of 30 unique data points must be obtained to create meaningful distributions (Malhotra 2010), it was important to select two properties for each territory to meet this demand. This ultimately ensures the validity and reliability of an analysis of each territory as well as across the three territories of interest. In instances where one of the sixteen defined areas within a territory does not have properties, I used a random number generator between 1 and the number of areas containing properties in that territory. For example, the Woodson zone had three areas without properties, which led me to run a random number generator between 1 and 13 to determine which of the active areas I pulled the next property from. In this scenario, this process was performed six times to account for

the six missing properties (two for each of the three inactive areas). After collecting data for all 96 properties I then looked at a host of measures to compare each territory.

**Property age and size.**

Averaging the square foot of properties in each territory shows the average size of homes in each territory. Similarly, the average year built of properties shows the average age of homes in each territory. Both of these measures are static and serve as constant variables when looking at fluctuations to property values as detailed below.

**Average property value by territory.**

The average property value per territory was determined by getting the mean of the averages of property values for each property from 2010-2015. This served as a single data point showing the difference in dollar amount for the average property in each territory considering the average of the past six years. While this does not help us understand how the boundary change impacted the housing market in each territory, it serves as an indicator of the level of affluence each territory has relative to the others.

**Average property value by year.**

The average property value per year for each territory was determined by averaging the property values of each of the 32 properties in each of the three territories for each year from 2010-2015. Looking at this measure across territories helps to understand how property values in each of the territories stack up in terms of dollar amount year over year as well as the difference in increase or decrease to property value over time.

**Rate of change to property value.**

The rate of change in property value was determined by dividing the property value of a given year by the average property value of a territory from the subsequent year.

Displayed as a percentage, this measure demonstrates the average rate of increase or decrease in value to properties in a territory.

Looking at the property value data in isolation was helpful in understanding to what degree properties in the changed zone reflect the market trends of those homes that have remained under Woodson's or Annandale's boundary. While it was expected that the general trend will be similar over time across each of the three territories in question as a result of several environmental factors I do not specifically address (e.g. national and local economy, local housing market trends), I was primarily interested in the rate of increase or decrease to the value of these properties relative to one another. This rate was calculated for each year by dividing the value of a property in August of one year divided by the value of the same property in August of the previous year and will be represented as a percentage. This allowed me to understand how the value fluctuated before and after the boundary change. I also calculated the increase or decrease in value of the property over the five years in question by dividing the value of a property in August 2014 by that property's value in August 2010. I hypothesized that the property values of homes currently feeding into Woodson High School that fed into Annandale High School prior to the boundary change would have a more positive rate in value change than properties in the other two areas explored.

Looking at the year-to-year trend of the property value fluctuation alongside the year-to-year trend of the percentage of students receiving free and reduced priced lunches over the same period of time served as an indication of the connection between the economic situation within each school as well as in the communities that feed into them. I

anticipated that the lower the percentage of students receiving free or reduced priced lunches at a school was the more positive the property value fluctuation rate for homes falling into that school's boundary would be.

## **FINDINGS & ANALYSIS**

Having collected the data for the measures previously defined and discussed, the following is a comprehensive account of the results. First, I examine a comparative view of the total student population at each school from 2010/2011-2014/2015 to address the success FCPS had in alleviating the overcrowding at Annandale. From this point, I explore the finer points of the school-level data collected, structuring my findings around the economic impact of the change, the demographic make-up of the schools over time, and changes to the levels of academic achievement at each school. Next, I look at the community level data, bringing to bear findings from the property data collected. Finally, I provide a synthesis of the school and property level data in context of each other before developing a critical analysis of my findings. In the analysis of the findings to come, I discuss the degree to which my hypotheses are upheld or refuted and how they speak to the socioeconomic impact of the boundary change that manifested at both the school and community level.

### **School-level Data**

With the exception of Total Student Population, all measures include data for Woodson High School and Annandale High School as well as the FCPS overall. Generally speaking, Woodson outperforms FCPS in every category included in this study. Annandale High School consistently falls below FCPS in every category. Given the

diverse socioeconomic differences already existing in the communities feeding into each school, it is to be expected that these differences would remain more or less stable despite the boundary change. However, what is of particular interest here is the degree to which the disparity between the two schools has changed following the boundary change.

**Total student population.**

The first measure to address is the total student population. As overcrowding was the primary reasoning behind the boundary change, it is a logical first step in analyzing to what extent FCPS was successful in alleviating the overcrowding at Annandale High School. As shown in Figure 1, the schools shared an inverse relationship regarding their total student populations in the school years spanning from 2010/2011 to 2014/2015.

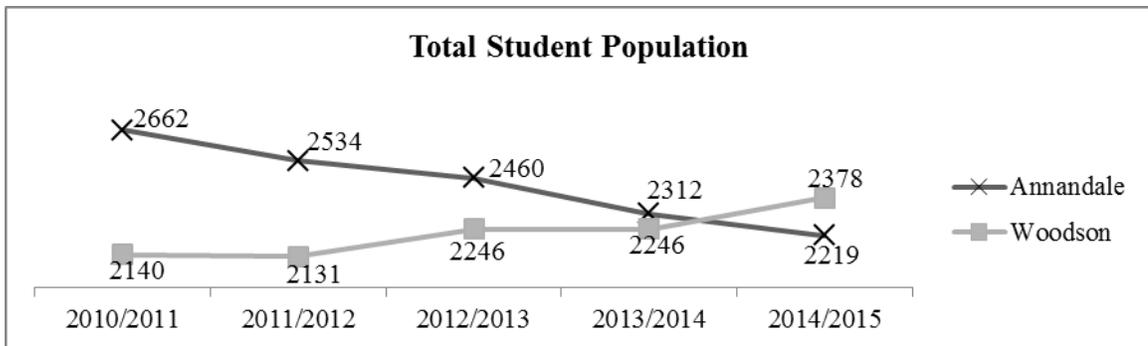


Figure 1

At the beginning of the 2010/2011 school year Annandale had 522 more students than Woodson. Two years later, at the beginning of the 2012/2013 school year when the boundary change first took effect, Annandale had reduced this gap to 214. This gap

continued to narrow over the following two school years, culminating in Annandale having 159 less students than Woodson by the beginning of the 2014/2015 school year.

It comes as no surprise that displacing students from a more populated to a less populated school would result in a more congruous student population at both.

Establishing FCPS' success in alleviating overcrowding at Annandale High School in evidence is important before moving on to the more pressing sociological questions at hand. Understanding the migration of people from one institution to another in simple quantitative terms is necessary to establish before investigating the socioeconomic implications of it.

**Students receiving free and reduced price lunches.**

As stated earlier, the percentage of students receiving free or reduced priced lunches serves as the primary economic indicator at each school for this study. Clearly demonstrated in Figure 2, the percentage of Woodson's student body receiving free/reduced price lunches consistently falls below the county average and is drastically lower than Annandale's year-after-year. While the boundary change in 2012/2013 resulted in a 2.5% decrease in students receiving free and reduced price lunches from the year before (the lowest percentage in the school years observed), this trend was reversed in the two following school years. Remarkably, over half the students at Annandale received free or reduced price lunches in 2014/2015, a net increase of 7.2% from the 2010/2011 school year and a 7.07% increase since the boundary change occurred. This finding suggests that the students living in the zone that was moved from Annandale to Woodson in 2012/2013 were more affluent than the majority of the students who

remained at Annandale, and that their migration to Woodson further solidified the economic disparity between the two schools that existed prior to the boundary change.

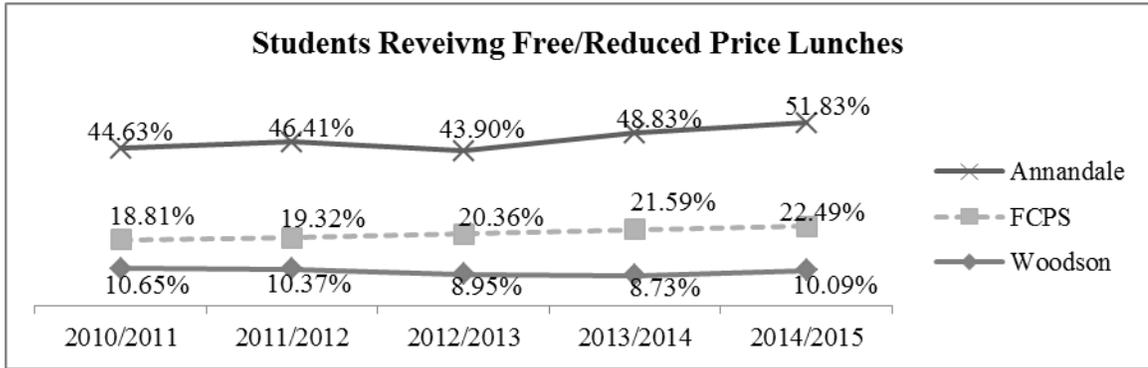


Figure 2

**Student ethnicity and race.**

Race has been shown to be highly correlated with class distinctions in the United States (Shapiro 2004). To test whether this holds true for this particular case I looked at the differences in the racial makeup of Annandale and Woodson’s student bodies over time. Paying particular attention to the four most prevalent racial categories (white, Hispanic, black, and Asian) at Annandale and Woodson offers a more complete understanding of how the boundary change affected the demographic makeup of each school over time. Further, bringing these demographic considerations into conversation with free/reduced price lunch figures helps establish more robust findings regarding the link between race and economic standing.

Though experiencing a net loss in white students, whites consistently accounted for more than half (and in some instances nearly two-thirds) of Woodson’s total student population. While Annandale experienced a similar net loss in white students, whites

accounted for a little more than a quarter of their total student population at the beginning of the 2010/2011 school year, dropping to less than one-fifth by the 2014/2015 school year. Black and Hispanic students collectively accounted for nearly half of Annandale's student body in 2010/2011 and increased to just fewer than 60% by 2014/2015 (more than 40% of which were Hispanic). Comparatively, Woodson's combined Hispanic and black population was consistently less than 15% across each school year.

These findings lead to the conclusion that the boundary change is significantly associated with a lowered white population at Annandale, correlating in a larger proportion of its student body belonging to racial minorities. Woodson maintained a relatively high proportion of white students both compared to FCPS averages and Annandale. Thinking back to the connection between race and wealth in the United States, the significant differences in the racial make-up of each school's student body that were perpetuated by the boundary change suggest that a gap in economic resources available to each school was widened. This echoes the findings regarding students receiving free and reduced price lunches shown above as well as Kozol's (2005) findings regarding the resegregation of schools.

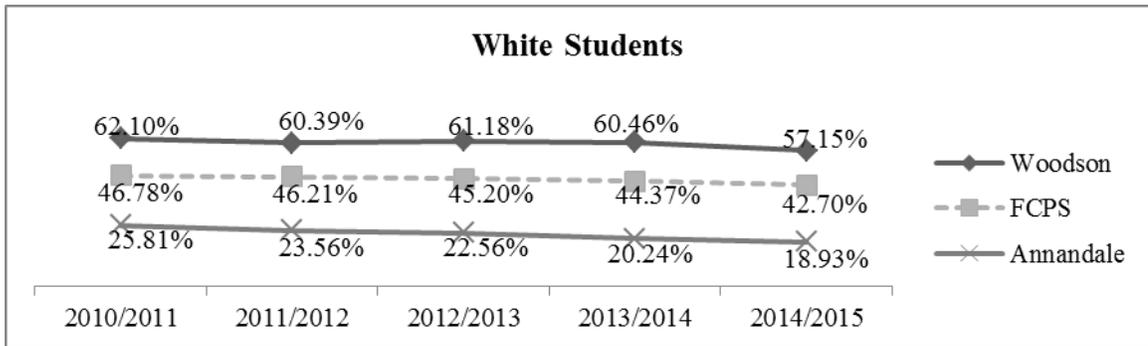


Figure 3

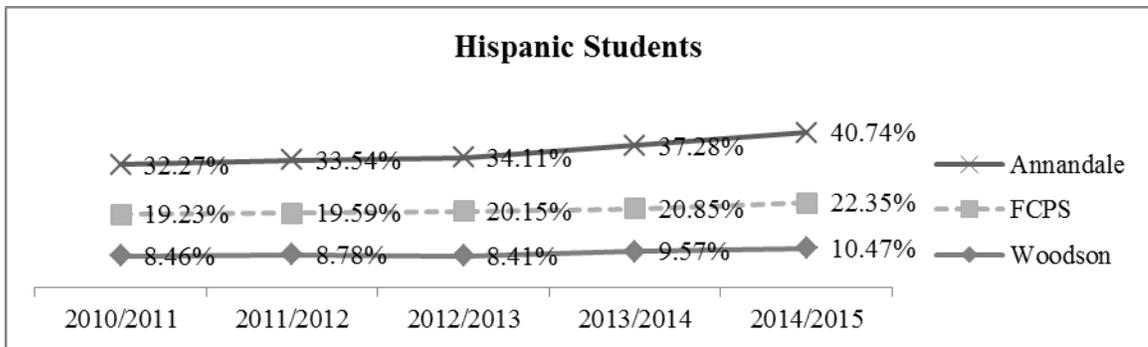


Figure 4

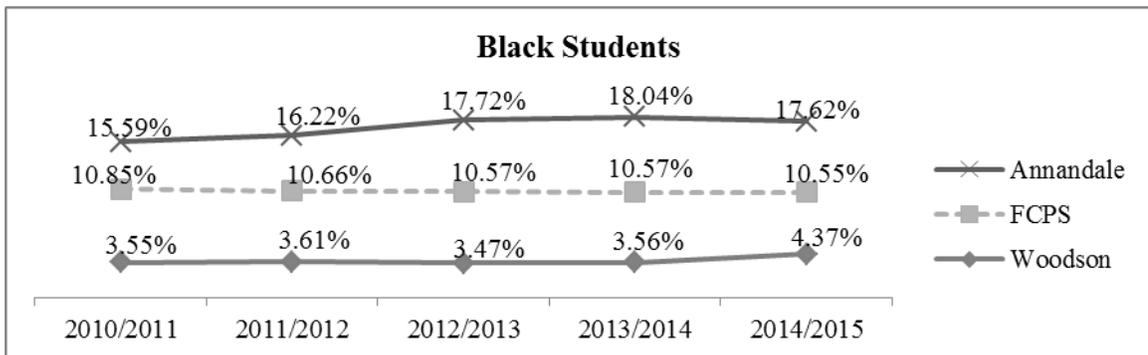


Figure 5

**Diploma Graduates.**

Woodson's lowest percentage of diploma graduates (95.14% in 2011/2012) was 3.5%

higher than Annandale's highest percentage of diploma graduates (91.64% in

2013/2014), the year following the boundary change. While each school has not seen a significant rate of increase or decrease from one year to the next, it is important to note that the boundary change has not had a significant effect on the percentage of seniors graduating from either school. Annandale’s diploma graduates are consistently below the county average while Woodson’s are consistently above it.

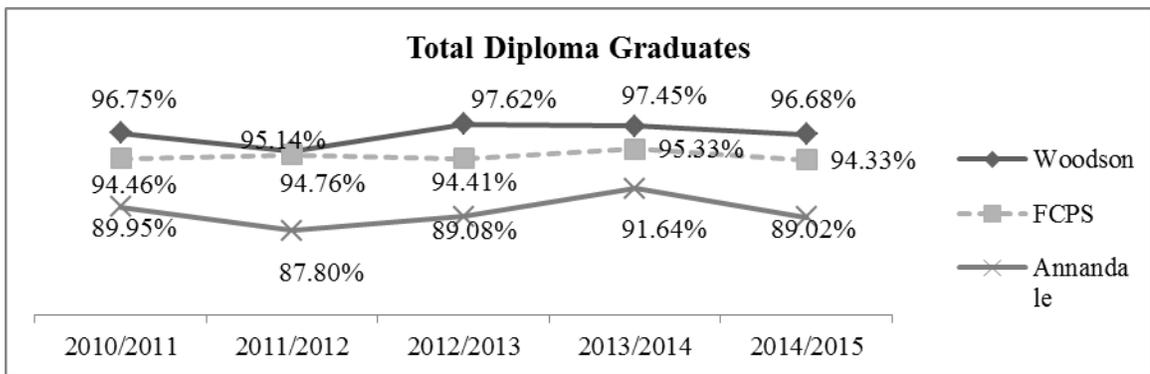


Figure 6

Distinguishing between advanced and standard diploma graduates helps to further understand the gap in academic achievement between Woodson and Annandale. Though the percentage of students at each school receiving advanced diplomas is greater than that of students receiving standard diplomas, as shown in Figure 7 and Figure 8, respectively, Annandale students consistently receive more standard diplomas than do students at Woodson while the reverse is true of advanced diplomas.

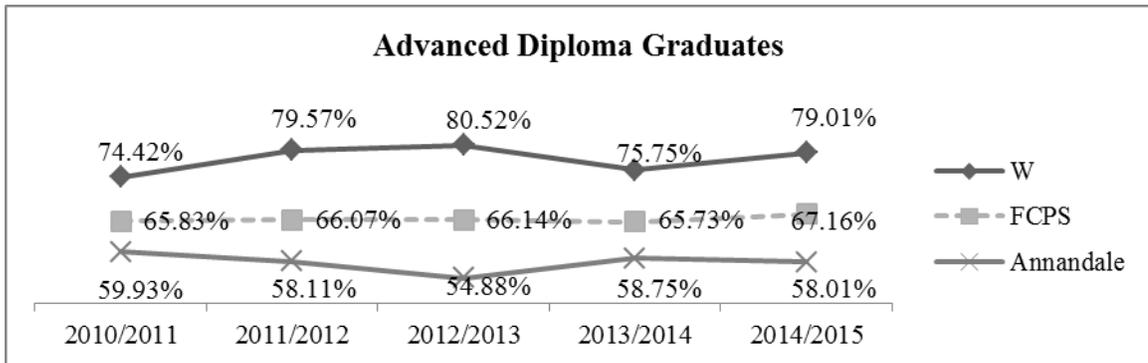


Figure 7

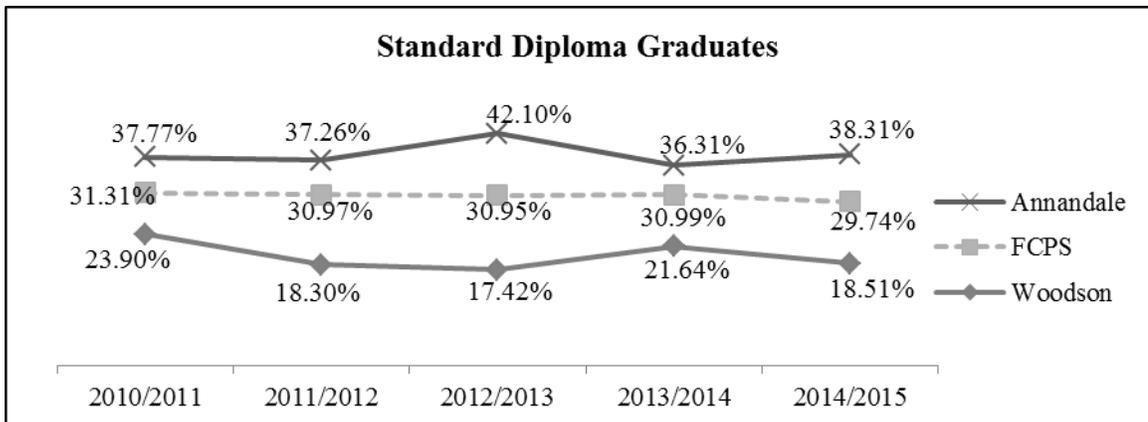


Figure 8

**Dropouts.**

Just as graduating secondary education serves as a reliable indicator of a school’s effectiveness, so too does the percentage of students dropping out of a school. Though student dropouts are few and far between when considering the total student population of high schools in FCPS, it is important to examine the negative end of the spectrum of academic achievement. As shown in Figure 9, Annandale consistently shows a greater percentage of students dropping out of school than Woodson for every year incorporated in this study. On an average yearly basis roughly 3% of students drop out of Annandale

compared with an average annual of 0.03% dropping out of Woodson. Once again, Annandale falls on the lower side of the county average while Woodson outperforms it.

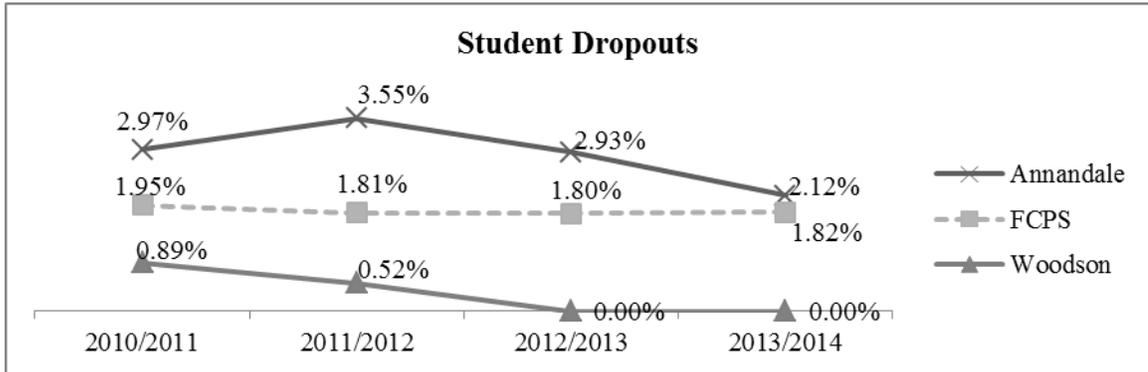


Figure 9

**Post-secondary education.**

With almost exactly two-thirds of American high school graduates enrolling in post-secondary education as of October, 2015 (New York Times 2015), it is safe to say college has become an educational norm. Gaining perspective about the proportion of the student bodies at Annandale and Woodson going on to post-secondary college is a crucial indicator of the academic achievement each school exhibits. Data for all measures regarding post-secondary education in the 2014/2015 school year was unavailable at the time of data collection, though what was available hints at a number of compelling findings.

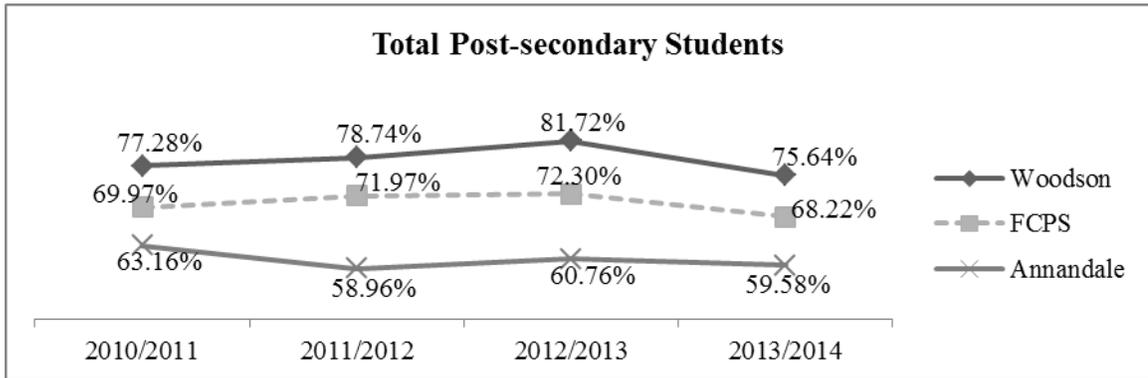


Figure 10

Woodson once again outperformed the county average for every year when considering the percentage of its students going on to post-secondary education while Annandale consistently fell behind. Woodson saw a nearly 3% increase in its graduating class moving to post-secondary education during the year of the boundary change relative to the previous year. This was followed by a dip of about 6% the following year, the lowest point of any school year for Woodson of those being considered. But even at this lowest point in 2013/2014, Woodson had just over 16% more of its student body going to college than did Annandale who fell nearly 9% below the county average for the school year. Of course, this is only the surface level of post-secondary education. Looking over Figures 8-10, the post-secondary picture becomes much clearer when considering the difference in students at Annandale and Woodson attending four and two year colleges. Since the boundary change took place, 18.5% more Woodson students attended post-secondary than did Annandale students.

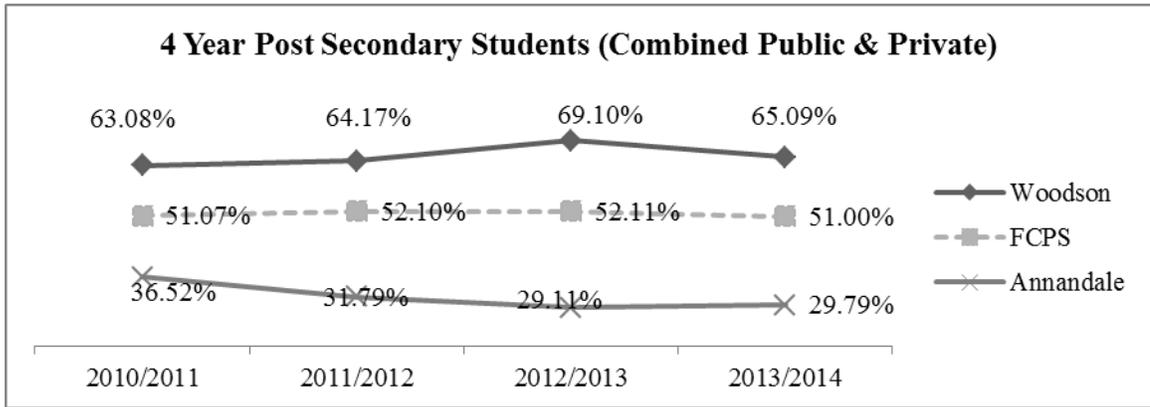


Figure 11

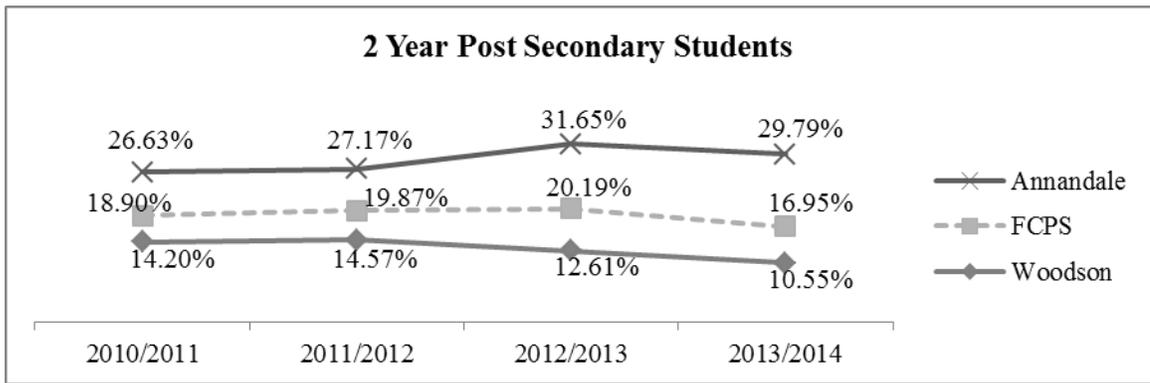


Figure 12

Given that two-year post-secondary schools are often associated with trade schools and/or granting associate degrees to its students (College View 2015), the fact that Annandale students attend these schools in greater proportions than those at Woodson each year suggests that socioeconomic make-up of the communities feeding into each school are reproduced. Students from less affluent communities feeding into Annandale repeatedly graduate less than Woodson students, are less likely to attend college, and of those students who do go on to college, have a greater propensity to attend two-year post-secondary schools. This could also suggest a different trajectory of less affluent students

transferring to four-year post-secondary schools after starting at less expensive, two-year post-secondary schools. Further, the same is true, though to a lesser degree, when comparing Annandale to the county average for these same measures. While I do not suggest the boundary change is to blame for these disparities, it is important to note that Woodson had a net increase of students going on to attend four-year post-secondary schools while the opposite was true of Annandale. Similarly, there was a net increase of students going on to attend two-year post-secondary schools following the boundary change while Woodson experienced a net decrease for this measure.. These findings suggest that students who were moved from Annandale to Woodson were instrumental in furthering the disparity of post-secondary academic achievement between the two schools.

### **Property Data**

The findings from the property data show similarities to the findings at the school level in that there is a clear difference in the socioeconomic realities of the communities supported by either school. What follows is a reporting of several measures suggesting that households remaining in and converted to Woodson's boundary benefited from the boundary change more so than households remaining in Annandale's boundary.

#### **Average square foot by territory.**

This measure helps to gain a sense of the actual physical places students and their parents live. Given that larger homes typically indicate more wealth for those occupying them, looking at the average square footage of homes helps illustrate the varying degrees of wealth in each of the three areas. Looking at Table 2 there is a clear split between the

three areas in roughly 300 sq. ft. increments: Woodson occupies the top position, Annandale the bottom, and the changed zone the middle. Thinking of this measure as being related to wealth, it is important to note that as a result of the boundary change Annandale's community has lost a more affluent portion of their boundary to Woodson. Woodson's boundary has effectively appropriated more wealth away from their neighboring school which already had a dearth of wealth by comparison.

**Table 2**

<b>Average Square Foot of Households by Territory</b>	
Woodson	2614 sq. ft.
Changed Zone	2381 sq. ft.
Annandale	2070 sq. ft.

**Average year built.**

Though not as informative as the previous measure or the ones to follow, the age of homes is helpful when considering that this impacts the property value of a home. As shown in Table 3, the same hierarchy is shown once again. The average home in Woodson's boundary four years newer than Annandale on average, while the average home in the changed zone was two years newer. This aligns with the conclusion that Annandale lost a more affluent part of its boundary to the already wealthy Woodson boundary.

**Table 3**

<b>Average Year of Household Construction by Territory</b>	
Woodson	1972
Changed Zone	1970
Annandale	1968

**Average property value.**

Due to the unequalled importance of this property measure, I have looked at it a number of different ways to arrive at a multi-dimensional understanding of it. From a temporal perspective, a longitudinal look at the average property value for each year provides insights as to how the boundaries change occurring in the fall of 2012 impacted property values in each of the specified areas. A more in-depth descriptive measure is shown in Figure 13. Here the average property value of each home from 2010-2015 is distributed into different property value ranges and categorized by their respective area. Ranges were determined based on the statistical distribution of the average property values of all 96 homes incorporated in the study as shown in Table 4.

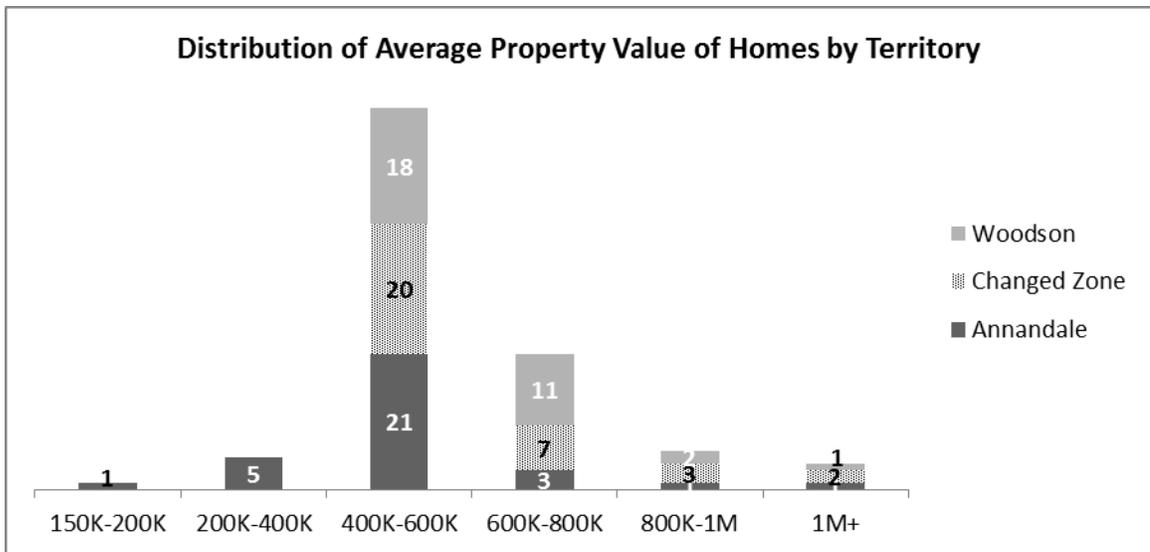


Figure 13

While the majority of the homes in each of the three areas is valued between \$400,000 and \$600,000, the real worth of this distribution is found in the deviations from the norm. The changed zone has more than twice as many homes as Annandale whose values exceed \$600,000, while Woodson has nearly three times as many. Similarly, though on the opposite end of the distribution, Annandale has more than 20% of its properties valued below \$400,000 while the other two areas have none. Indeed a \$400,000 home is well above the average value of properties in the United States (US Census); I am not suggesting that the Annandale community is impoverished or in a state of economic emergency, only that it pales in comparison to both the Woodson community and the area that was moved from their community to Woodson's.

The data presented in Figure 14 starts to elaborate more fully on the findings above regarding home size and age.

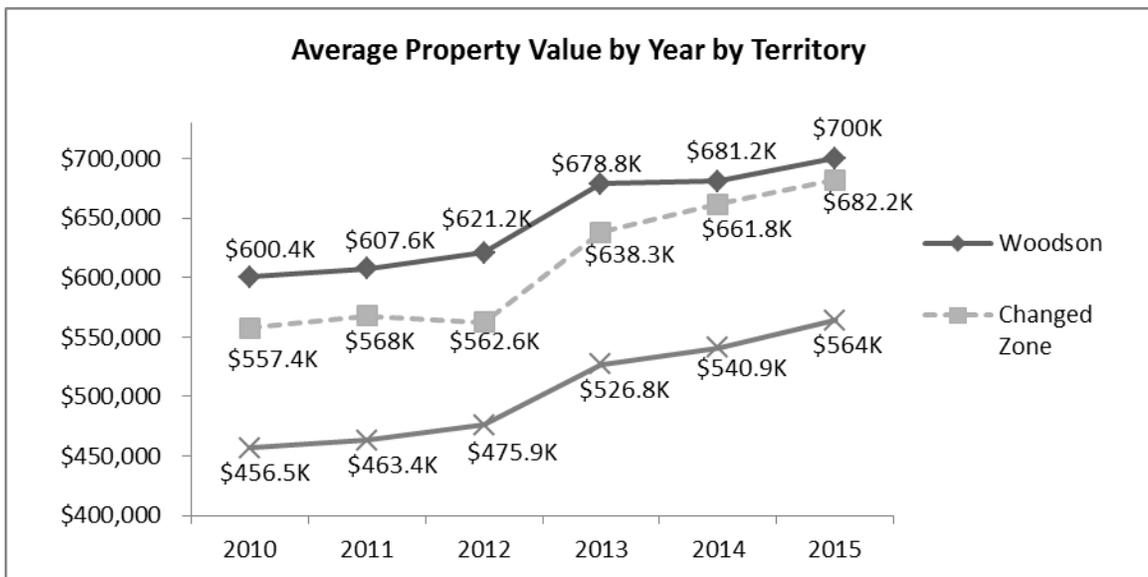


Figure 14

As expected, the average property value of a home in each of the three areas correlates to the average size and age of homes in these areas. In September 2010, two years before the boundary change occurred the familiar hierarchy shown in the three preceding measures is replicated. However, what is unique of this measure is the relative gaps between these areas. Whereas size and age generally showed that the gap between Woodson and Annandale was twice as large as the gap between the changed area and Annandale, here it is evident that the changed zone was much closer to Woodson than Annandale prior to the boundary change and increasingly more similar to Woodson following it.

Just as the property values across all three areas generally increased over time, so too did the relative distance between Annandale and the changed area. In September 2011, exactly one year before the boundary change took place, the average property value of a home in the changed zone was \$104,500 more than that of Annandale. By September 2015, three years after the boundary change took effect, this disparity grew to \$118,125, an increase of 11.5%. This finding suggests based on the evidence that the boundary change further disenfranchised the Annandale community which, in turn, depleted the already lacking economic and social resources available to Annandale High School students.

The changed zone benefited more so than the other two areas in terms of property value. It is clear that this area, which was already more affluent than the rest of Annandale's surrounding neighborhoods, increased their wealth as a result of the

boundary change. Even after accounting for the recovery of the housing market which benefited all three areas of interest, the rate of increase in property value following the boundary change was greater for the changed area than that of the Woodson and Annandale. Of all the findings from the measures brought forth, I believe this to serve as the proverbial “smoking gun” of this study. While the findings at the school level developed a simple narrative of Woodson’s advantage over Annandale from an educational perspective, Figure 14 clearly demonstrates the winners and losers of the boundary change in the form of wealth, the other key element of class reproduction.

## CONCLUSIONS

The findings of this study generally support my hypothesis that the socioeconomic divide between Annandale and Woodson widened at both the school and community level as a result of the boundary change. The community supported by Woodson appropriated one of the more affluent areas previously attributed to Annandale, resulting in an increase in affluence in the former and further disenfranchising the latter in terms of social and economic resources. While FCPS pointed to overcrowding as the primary reason for the boundary change and can statistically prove that this problem was alleviated as a result of its implementation, it is also clear that this decision perpetuated previously existing social and economic inequalities between the communities supported by Annandale and Woodson. The upper and upper-middle class that dominates the Woodson community maintained and improved upon both their superior position in the housing market and access to education than did their comparatively less affluent counterparts in Annandale's community.

Class reproduction in the forms of wealth and education are particularly apparent when examining the changed zone. Those living in this predominantly white, affluent area effectively improved upon their social and economic standing, entering into a zone with a superior public school while simultaneously increasing the value of their properties. From an educational perspective, students in the changed zone entered into a

public school that was wealthier, produced higher levels of academic achievement, and prepared a significantly greater percentage of its students for post-secondary education than did the school they previously attended.

The social and economic strength of the changed zone helped to further their access to wealth and educational resources, though at the expense of the community it exited. For Annandale, this displacement of resources resulted in even higher levels of students receiving free and reduced price lunches and a greater degree of racial segregation between them and Woodson. Though the property values of homes in the Annandale community rose as a result of the housing market recovering, it increased at a lower rate than the changed zone and remained well behind the average property values of both the changed zone and Woodson. Given the robust, empirical findings of this study, I proffer that the boundary change ultimately served as an event that perpetuated and aided the process of class reproduction along the lines of education and wealth.

Aside from the continuous trend of Woodson having a more advantageous position than Annandale for each measure incorporated in this study, it must be acknowledged that the figures for both schools have high degrees of academic achievement and both communities have high property values compared to the rest of the country. This is not surprising considering that FCPS continues to be ranked one of the ten best public school systems in the United States. But when digging deeper, when understanding the stark gaps in academic achievement between these two schools, these findings suggest that Fairfax County, one of the richest counties in the one of the

wealthiest nations in the world, should be considering more than overcrowding when deciding on boundary changes between its public schools.

The wealth exhibited by the area moved from Annandale to Woodson suggests that Annandale has been deprived of the economic resources this community was able to make available to their school. Combining the findings at both the school and community level, the outcome of my research points to a single conclusion: A comprehensive, critical assessment of the social and economic resources communities offer their respective schools as well as a statistical forecasting of the potential social and economic impact a proposed boundary change would have on the communities and schools in question is imperative to ensuring that forms of class inequalities are minimized as much as possible in this process. Such a framework can and should be used when looking at cases throughout the United States. If this is happening in one of the so-called ten best public school systems in the country, one can begin to imagine the effects of similar happenings elsewhere.

## **RESEARCH LIMITATIONS**

Throughout this work I have alluded to several of its limitations. My ability to access data both at the school and community level was hindered by several factors including my status as an MA candidate and the time frame in which I was working. Limitations also existed in of what I did not account for. I failed to examine the boundary change as it related to neighborhoods moved from Annandale to Edison High School which could have illuminated the whole of the boundary change more clearly.

When setting out to conduct this research, FCPS policy restricted my direct access to teachers and students based on my status as a MA candidate. I was made aware of this after emailing the principal of Woodson explaining my research, which he then forwarded to FCPS headquarters who then emailed me asking me to cease and desist from my inquiries. This message explained that scholarly research involving FCPS students and faculty can only be conducted by doctorate candidates. It is interesting to note that I had a series of emails and phone calls with the principal of Annandale prior to being made aware of this restriction. Given this restriction I was limited to work solely with publicly available secondary data, leaving the perceptions, opinions, attitudes, and lived experiences of the individuals directly affected by the boundary change missing from my research.

As explained in my methodology of selecting property measures, I was unable to obtain property data in list form for the total population of homes in the areas I looked to investigate. Though the method I developed ensured the representativeness of my sample and allowed for meaningful statistical analyses, having information on the total population of interest would enable me to make more concrete statements regarding this aspect of my research.

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## **BIOGRAPHY**

Nick Botero graduated from Hayfield High School, Alexandria, Virginia, in 2006. He received his Bachelor of Science in Sociology from Radford University in 2010 and his Master of Arts in Sociology in 2015.