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Separate but equal? A look at Michigan public school districts

Travis Michalak

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Separate but Equal? A Look at Michigan Public School Districts

by

Travis Michalak

Thesis

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Thesis Committee:

Brian Sellers, Ph.D., Chair

Kimberly Barrett, Ph.D.

Grigoris Argeros, Ph.D.

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Dedication

To the friends, family, and faculty that aided me in my journey. To my mom in particular,

Roma uno die non est condita. It is finally done.

Acknowledgements

Abstract

In 1954, the Supreme Court ruled in *Brown v. Board of Education* that schools that are separate are inherently unequal and that the desegregation of schools should take effect with "all deliberate speed." Decades later, there are still schools whose student bodies are comprised of over 90% minority students. The following study aimed to understand the relationship between minority segregated schools and their graduation rates, as well as the relationship between student poverty rates and the racial composition of schools and the resulting effect these variables have on school funding. Using data collected from the Michigan School database, this study examined the 545 local educational agencies in Michigan for the 2015-2016 school year using multivariate analyses. Results of the analyses revealed a significant negative relationship between percent minority student and student poverty rate on graduation rate. The student poverty rate was also negatively correlated with both total school funding and capital projects funding. However, percentage minority student had a significant positive relationship with both types of funding. Future research should attempt to understand what other factors are contributing to the lower graduation rates observed in minority segregated schools, as funding does not appear to be the underlying factor.

Table of Contents

List of Tables

Chapter 1: Introduction

In 1954, the Supreme Court ruled in *Brown v. Board of Education* that schools that are separate are inherently unequal and that schools should be desegregated with "all deliberate speed." This court decision resulted in the end of de jure segregation in the United States. Yet the desegregation plans posed to be implemented with all deliberate speed proved to be a process that could not be carried out so swiftly.

Although the desegregation of schools was already decided, the opposition towards the process was quickly apparent. Many White families chose to relocate to the suburbs, while others enrolled their children into private schools in order to try and avoid the desegregation efforts; the relocation later being coined as "White flight" (Ledwith & Clark, 2007; Saporito, 2003; Zhang, 2011). Even with opposition, the desegregation plans started to be implemented, and during the 1970s, the Black high school dropout rate decreased because of the desegregation efforts (Guryan, 2004; Rumberger, 1987). As the years passed, the efforts to desegregate schools waned, and other political and social issues claimed the limelight. Now, over 60 years since the *Brown v. Board* decision, it is important to recognize exactly how far the desegregation efforts of schools reached.

During the 1990s, the proportion of Black students that were enrolled in schools that were comprised of students who were primarily White had decreased to a level lower than in any year since 1968 (Kozol, 2005). Prior research has also emphasized that school segregation by race is systematically linked to segregation by one's socioeconomic status (Orfield & Lee, 2005; Quillian & Lagrange, 2016; Rothstein, 2015). This connection is further supported by Logan and Burdick-Will (2015), who found that 60% of Black and Hispanic students attend majority poor schools compared to only 18% of White students

attending such schools. This has resulted in many minority students attending schools that

are not only predominantly minority filled but which are poor as well. This brings about the

idea of a double segregation, where students are being isolated by not only their race but also

their class as well (Kucsera, Siegel-Hawley, & Orfield, 2015; Rothstein, 2015). For

example, a typical Black or Latino student attends a school where the proportion of low-

income students almost doubles that of the typical White or Asian student, which creates a

divide in the educational opportunities available to these students (Orfield & Lee, 2005).

Schools that are filled with students whose families are in poverty and that are heavily

comprised of minority students have also been found to be closely related to limited

educational outcomes with high teacher turnover and less qualified staff (Kim, Losen, &

Hewitt, 2010; Kozol, 2005; Murname, 2007; Orfield, Kucsera, & Siegel-Hawley, 2012).

These problems are only exacerbated by the fact that overcrowding is much more prominent

in minority segregated schools than it is in schools that are primarily White (Kozol, 2005;

Kucsera et al., 2015). Most schools may not be completely segregated by race as they were

in days long past; however, a combination of segregating schools by socioeconomic status

alongside race is a similar tactic. In a country where all racial and ethnic groups are

guaranteed equal rights under the U.S. Constitution, it is unjust to allow minority students to

have lesser quality educational opportunities.

Purpose of Study

The goal of this study is to understand how racially segregated the Michigan public

school system currently is and to understand the ramifications that segregated schools have

on the academic outcomes of students. Another aim of this study is to understand the

relationship that student poverty rate and the racial makeup of schools has on school funding.

Most prior studies involving Michigan school districts have examined student academic performance using data involving state assessment test scores (Chaudhary, 2009; Mohai, Kweon, Lee, & Ard, 2011; Papke, 2005). Mohai et al. (2011) investigated the effects that air pollutants have on student performance on standardized tests and noted that minority students and students receiving free-and-reduced lunch were disproportionately attending schools in the most polluted regions. Alternatively, this present study placed an emphasis on examining student graduation rates as a measure of academic performance. This decision to use graduation rates was made to counteract the variability caused by the ever-changing assessments that are administered each year and because graduating from high school is considered one of the primary goals of secondary education.

The area of research involving school funding in Michigan can also be expanded. Militero, Metzger, and Bowers (2008) examined the total expenditures for only 10 districts surrounding Lansing and were more focused on longitudinal trends over multiple years whereas this present study utilized data from all the public school districts in Michigan and focused only on one school year. Another study focused on understanding districts' fiscal stress and found, in districts where the state was forced to intervene, higher quantities of Black and lower income students (Arsen & DeLuca, 2016). Chaudhary (2009) investigated how financial reform in Michigan affected student test scores and included individual minority percentages and free-and-reduced lunch percentages as variables in their analyses; however, the study used school data from 1992 to 2000 whereas this study utilized more current data. The present study also adds to this area of research by conducting regression analyses involving capital projects funding totals for all public school districts in Michigan alongside total funding.

Research Questions

In order to explore the aims of this study, several research questions were proposed in order to guide the research. These six research questions are detailed below:

1. Is there a relationship between the percent minority makeup of a school and the resulting graduation rates?

2. Are graduation rates inherently linked to student poverty rate?

3. Does the overall racial makeup of a school influence school funding?

4. Does the poverty rate of the student body have any influence on total school funding?

5. Is capital projects funding influenced by the percent minority makeup of schools?

6. Is capital projects funding influenced by student poverty rate?

Chapter 2: Literature Review

Historical Background

After the *Brown v. Board* (1954) decision, the nation's schools became the center of attention, which unfortunately resulted in the inequalities in the housing market to be overshadowed. The inner cities became a place of concentrated poverty, which was often intergenerational (Gadsden, 2017). Racially segregated housing markets limited residential mobility and even the most successful of the minorities living in the inner cities were restricted since minorities more often than not are sorted by their group's overall social standing (Alba & Logan, 1993; Pais, South, & Crowder, 2012). This resulted in minorities being limited to schools located in their districts, and since school funding is primarily based on local property tax, the schools were often less funded and in disrepair (Derisma, 2013).

Such blatant inequality was addressed in *San Antonio Independent School District v. Rodriguez* (1973), which addressed school funding based on local property tax. The argument presented how schools located in wealthy, primarily White neighborhoods were able to collect more per child and as a result were able to afford better books and equipment than schools in poorer neighborhoods. The Supreme Court ruled that such a financial system was indeed unequal; however, the system was not a violation of the Fourteenth Amendment's equal protection clause since the right to be educated is never mentioned explicitly or implicitly in the U.S. Constitution (Kim et al., 2010). This decision provided the foundation to the continuance of segregation since although inequality, primarily based on class and race, was recognized, the court refused to support the defendant.

In *Milliken v. Bradley* (1974), the issue of planned desegregation busing of public school students across district lines was addressed. The policy would allow students to be

bused to neighboring districts in an attempt to reduce the segregation that was still apparent in Michigan schools. The Supreme Court ruling stated that segregation is allowed as long as it was not considered an explicit policy of each school district, which meant the drawing of arbitrary lines by state officials that resulted in segregated school districts was not considered illegal (*Milliken v. Bradley*, 1984). This set a terrible precedent that limited inter-district desegregation plans significantly (Fiel, 2013). Thirty years after *Brown v. Board* (1954) the attempts to desegregate schools slowed, and a retreat back to 1896, where separate but equal was deemed an acceptable answer, was once again seen.

School Funding in Michigan

The School Aid Fund (SAF) is comprised of various contributions, such as sales tax, the lottery, and cigarette tax. Prior to 1994, the sales tax, at a rate of 4%, contributed 60% of its proceeds towards the SAF. For the cigarette tax, two cents of every 25 cents pack tax went towards the SAF. At the time, local taxation accounted for 69% of the state/local split of school finance, and the state funding made up the other 31%.

In 1993, the Michigan Legislature approved and the governor signed into law Public Act 145, which exempted all real and personal property taxes for school operating purposes and forced the legislature to create a new funding plan (Proposal A, 1994). This resulted in the creation of Proposal A to direct new funds towards schooling. With Proposal A, sales tax was increased to 6% with 100% of the additional revenue from the 2% increase going to the SAF. The cigarette tax also increased to 75 cents, with approximately 64% of the additional revenue directed towards the SAF. With the reduction in property tax and the new revenues from the tax increases, the new model was an 80/20 split for the state/local school funding. This resulted in a more even distribution of wealth by the state through the use of a

foundation allowance, which is the amount of revenue per student given to varying districts by the state of Michigan. This allowance is determined by the number of students enrolled in each district, which allows for fewer disparities in school funding than was observed when funding was based on local property taxes.

It is important to note that although property tax no longer contributes the majority of funding distributed to schools in Michigan, residents of school districts can still influence school funding in other ways. The Capital Projects fund, formerly known as the Building and Site Fund, accounts for projects involving school site expansion, construction, and renovations of school buildings and is funded via the sale of bonds, proceeds from the sinking fund millage, and the sale of school property. In addition, up to 20% of the funds provided to a district may be transferred to the Capital Projects Fund (Michigan Department of Education, 2019). As such, districts with greater resources could potentially buy more bonds and create higher quality environments for students to learn.

Education and Future Success

Education is a great indicator in predicting future success (higher wages, better health, reduced criminal activity), and as such, it is important to try to ensure that as many students are graduating from high school as possible (Ashenfelter & Krueger, 1992; Oreopoulos & Salvanes, 2011; Vernez, Krop, & Rydell, 1999). The focus on graduation rates is especially important due to many different changes that have developed in the last couple of decades. Deindustrialization resulted in employment rates in the manufacturing industry to drop during the 1970s, which is inherently tied to globalization where the manufacturing jobs were shifted overseas (Rodrik, 2016). Globalization has also created a drive by manufacturers to lower prices for consumers at the expense of workers, who receive

lower wages and have fewer safety and health regulations protecting them (Rabine, 2005).

Thus, deindustrialization and globalization have both contributed to reducing the overall

number of jobs that were once available to students after they graduated from high school

(Kupchik & Monahan, 2006; Linn & Welner, 2007; Wilson, 1987). The result is that

graduating from high school is not always enough to guarantee landing a job in today's

competitive job market. This is quite apparent when one notes that widespread

unemployment is predominately associated with people who are less educated (Woessman,

2014).

Lacking in education alongside a tradition of occupational discrimination in the

workplace both contribute to the reality that minority workers typically make lower wages

for similar positions held by Whites (Agesa & Monaco, 2004; Fan, Wei, & Zhang, 2016;

Foley, 1973). So not only are jobs becoming harder to obtain, especially if a person is less

educated, but if that individual is a minority, the amount of money he or she receives for

working will be less than what a White individual would make. This wage gap is only

furthered by the trend that college graduates will earn much more than individuals without a

degree (Afxentiou & Kutasovic, 2009; Card, 1999; Pascarella & Terenzini, 1991; Tamborini,

Kim, & Sakamoto, 2015). As such, education can be seen as a way to increase the

competitiveness of an individual in today's labor market (Blank, 2016).

In regard to segregated schools, a positive association has been found between early

grade-level desegregated schooling experience and later working in desegregated work

places and living in desegregated neighborhoods (Linn & Welner, 2007). This association

provides evidence that having desegregated schools would provide at the very least a good

step forward in combating unequal opportunities in the work place and in eliminating

segregated neighborhoods. Education is vital in today's competitive society, and all efforts must be made in order to ensure that all students, regardless of race or socioeconomic status, have a chance in succeeding in it.

Theoretical Framework

This study combined place stratification theory and racial threat theory in order to understand how segregation in schools has continued. In place stratification theory, powerful groups manipulate space in order to maintain their physical and social separation from groups that are deemed as undesirable (Charles, 2003). In practice, this translates to Whites excluding Blacks from neighborhoods through various means, including intimidation, discriminatory practices in real estate, mortgage lending, and by insurance agencies (Timberlake, 2009). These structural barriers enable a kind of social distance that allows the status advantages of White individuals to be preserved at the expense of the minorities who receive no such privileges (Bobo & Zubrinsky, 1996).

When discussing place stratification theory, the theory is typically divided into two versions. In the strong version, minorities are less likely to convert their socioeconomic status (SES) into advantageous home locations, and in the weak version, minorities are forced to pay more than Whites to enter the more advantageous neighborhoods and will face higher barriers to their entry into these areas (Pais, South, & Crowder, 2012). Pais, South, and Crowder (2012) found further support in their study when they noted substantial variation in the ability of minorities trying to convert their income to neighborhood quality in urban areas. This meant that Blacks and Hispanics were less able than Whites to convert their income into neighborhood SES.

The weak version of place stratification has found support in the discriminatory practices in the housing market search (Ross & Turner, 2005). Park and Iceland (2007) found that Hispanic home seekers were shown fewer properties compared to White home seekers and were more likely to be pushed towards units in minority neighborhood. This meant that minorities of higher SES were shown homes in lower income areas filled with other minorities rather than be shown homes in White neighborhoods filled with families with similar SES. The reasons for such practices vary; however, one of the causes cited is that realtors are hesitant to confront the fears and prejudices of their White home-buying clients (Yinger, 1995). This fear ties in directly with the next theory used in the study, racial threat theory.

Racial threat theory argues that as the size of a racial and/or ethnic minority group increases, the majority group increasingly perceives them as a threat towards their own economic and political power (Blalock, 1967). In regard to this study, the focus was placed on the economic threat that minority groups can be perceived as posing. As minorities compete for jobs, housing, and other resources, the White majority may feel as if their own economic well-being is being threatened (Blalock, 1967). This perceived racial threat is often measured by calculating the percent of the population in a given area that identify as a minority (Blalock, 1967; Liska, 1992).

Numerous researchers have found support for racial threat theory. Huff and Stahura (1980) found that the percentage of low income and Black populations had statistically significant effects on police employment and it was not uncommon for these areas to be labeled as high-risk areas. Similarly, Jackson and Carroll (1981) noted that the Black population in general was a strong predictor of police expenditures. Additionally, police

force size and expenditures are influenced by crime, with areas with more instances of crime receiving more aid (Huff & Stahura, 1980; Jackson & Carroll, 1981). This could be interpreted as areas with higher minority and lower income populations commit more crimes; however, it should not be overlooked that these areas are patrolled more frequently and that the officers make more arrests than in more affluent neighborhoods with less patrols (Kane, 2002; Terrill & Reisig, 2003).

The perception of crime and what is deemed criminal further supports racial threat theory. Chiricos, Welch, and Gertz (2004) found that typification of crime influences its punitiveness and noted that crime being deemed as a "Black phenomenon" related to support for more punitive measures. Similarly, the perception of minorities as criminals also increases support for harsher crime control measures (Welch, Payne, Chiricos, & Gertz, 2011). In areas where minorities primarily reside, this could potentially lead to a disproportionate number of minorities receiving more severe sentences. This can also lead to unfair labeling. Caravelis, Chiricos, and Bales (2011) found that minority defendants were more likely to receive a habitual offender status in areas with rising minority populations but not in areas with stable minority populations. This supports the notion that stricter crime control measures are more likely to be applied when minorities are seen to be entering areas that are not already minority-filled.

Paired alongside each other, place stratification theory and racial threat theory allow an understanding of how non-White groups are restricted and what must be accomplished in order to overcome the current obstacles. In place stratification theory, the public and private discriminatory practices prevent minorities from moving up in terms of their status and from relocating to higher quality neighborhoods. In racial threat theory, a perceived economic

threat to the White majority results in attempts to maintain economic dominance and well-being. Together, the two theories explain how the White majority attempts to limit minority mobility and economic power.

Chapter 3: Methodology

This study utilized a quantitative research design that relied on secondary data analysis. All of the data sets used were obtained from the Michigan Department of Education through their affiliate website Michiganschooldata.org. The state of Michigan is divided into 56 intermediate school districts (ISDs) that can be further divided into 545 local education agencies (LEAs). In regard to this study, the analysis focused on the 545 LEAs, which are more commonly referred to as public school districts. Some of the smaller districts did not have data on student graduation rates listed, and as a result, only 505 districts were included in the analyses involving graduation rate as a variable, with the missing data being excluded via listwise deletion. Private and charter schools were not included in any of the analyses. As mentioned above, there are several research questions underpinning the purpose of this study. The following research hypotheses were derived by the aforementioned research questions, and they were evaluated by the data analysis that was conducted.

Hypotheses

H_1. There is a significant negative relationship between the percent minority makeup of schools and graduation rates. As the percentage of minority students in schools increases, the graduation rates will decrease.

H_2. There is significant negative relationship between the poverty rate of students and graduation rates. As the student poverty rate increases, graduation rates will decrease.

H_3. There is a significant negative relationship between the percent minority makeup of schools and total funding received. As the percentage of minority students in schools increases, total school funding will decrease.

H_4. There is a significant negative relationship between the poverty rate of students and the total school funding received. As the student poverty rate increases, total school funding will decrease.

H_5. There is a significant negative relationship between the percent minority makeup of schools and capital projects funding received. As the percentage of minority students in schools increases, capital projects funding will decrease.

H_6. There is a significant negative relationship between the poverty rate of students and capital projects funding received. As the student poverty rate increases, capital projects funding will decrease.

Measures

The independent variables used included the percentage of minority students in a given school and the percentage of students receiving free-and-reduced lunch. The percent minority of each school was obtained by taking the total number of students that identified themselves as non-White (American Indian, Asian, African American, Hispanic of any race, Native Hawaiian, and two or more races) and dividing by the total number of students in each LEA. This percentage was used as an indication of whether or not the school is primarily minority segregated.

Free-and-reduced lunch is commonly used as a proxy for student poverty rate (Day et al., 2016; Ilie, Sutherland, & Vignoles, 2017), and this study also used this measure. To qualify for free-and-reduced lunch, students' families must be at or below 185% of the poverty line. To put this in perspective, in 2016 the poverty line for a family of four in Michigan was found to be approximately $24,000 by the American Community Survey. The percentage of students receiving free-and-reduced lunch was found by taking the total

number of students eligible for free-and-reduced lunch and dividing by the total number of

students in that LEA. For this analysis, the percentage obtained was considered equivalent to

the student poverty rate.

The dependent variables for this study included graduation rate, total school funding,

and capital projects funding. The graduation rate was obtained by taking the total number of

students in each LEA who were able to graduate (using a 4-year cohort) and dividing by the

total number of students who potentially could have graduated. For total school funding and

capital projects funding, the totals were already calculated and were simply obtained from the

Michigan School data website. Total school funding is considered the fund balance total for

each LEA, which is obtained after subtracting the liability total from the asset total. This

total fund balance is considered a measure of available expendable financial resources

(Michigan Department of Education, 2019). Capital projects funding is considered money

typically reserved for school construction, expansion, and renovation. Capital projects

funding is calculated by subtracting the liability total for the capital projects fund from its

asset total. In districts that had capital projects funding, this funding is included in the total

school funding. The datasets used involving the independent variables were created for

students in school during the fall of 2015. The dependent variables used data obtained from

the 2015-2016 school year.

Data Analytic Plan

The data were analyzed using version 25 of Statistical Package for the Social

Sciences (SPSS) software. The descriptive data were determined in SPSS using the

secondary data from the Michigan school database. Correlations were recorded for each

independent variable and their relationship with each of the three dependent variables.

Multiple regressions were conducted to attempt to answer the proposed hypotheses. All of the regressions used percent minority of each school district and the percent of students receiving free-and-reduced lunch as co-variates for the inputs. The three regression models created had different dependent variables, one concerned with graduation rates, one with total funding balance, and the last with capital projects funding. The regression equations for each were recorded, and tables were created to show the results.

Chapter 4: Results

The means, standard deviations, and correlations for the predictor variables and for

each dependent variable are presented in Tables 1-3. Table 1 lists the descriptive statistics

for the dependent variable graduation rate.

Table 1

Means, Standard Deviations, and Correlations for Graduation Rate and Predictor Variables

Variable	M	SD	1	2
1. Graduation Rate Percentage	83.69	11.71		
2. Percentage Minority Student	20.24	21.02	-.43**	
3. Free-and-Reduced Lunch Percentage	47.72	18.25	-.50**	.44**

Note. $N = 505$. *M* and *SD* are used to represent mean and standard deviation, respectively.
**$p < .01$ (two-tailed tests).

The mean graduation rate was 83.69% with a standard deviation of 11.71 for the 505

public school districts that had data on the 2015-2016 graduation rates. Graduation rate was

also found to have significant moderate negative relationships with both percentage minority

students ($r = -.43$) and free-and-reduced lunch percentage ($r = -.50$). Percentage minority

students and free-and-reduced lunch had a moderate positive relationship with each other and

was significant at the 0.01 level.

Table 2 lists the descriptive statistics for the dependent variable total funding balance.

Table 2

Means, Standard Deviations, and Correlations for Total Funding Balance and Predictor Variables

Variable	M	SD	1	2
1. Total Funding Balance	7,665,979.13	19,260,816.44		
2. Percentage Minority Student	19.74	20.87	.06	
3. Free-and-Reduced Lunch Percentage	48.02	19.04	-.23**	.41**

Note. $N = 545$. *M* and *SD* are used to represent mean and standard deviation, respectively.
**$p < .01$ (two-tailed tests).

The mean total funding for the 545 public school districts was $7,665,979.13 dollars with a standard deviation of 19,260,816.44. Total funding balance's relationship to the percentage of minority students was not statistically significant; however, total funding balance was found to have a weak negative relationship with the free-and-reduced lunch percentage and was significant at the .01 level.

Table 3 lists the descriptive statistics for the dependent variable capital projects funding.

Table 3

Means, Standard Deviations, and Correlations for Capital Projects Funding and Predictor Variables

Variable	M	SD	1	2
1. Capital Projects Funding	4,523,038.04	13,672,328.55		
2. Percentage Minority Student	19.74	20.87	.123**	
3. Free-and-Reduced Lunch Percentage	48.02	19.04	-.198**	.41**

Note. $N = 545$. *M* and *SD* are used to represent mean and standard deviation, respectively.
**$p < .01$ (two-tailed tests).

The mean capital projects funding amount was $4,523,038.04 dollars and had a standard deviation of 13,672,328.55. Capital projects funding was found to have a weak positive relationship with the percentage of minority students that was significant at the 0.01 level. A weak negative relationship between capital projects funding and the percentage of students receiving free-and-reduced lunch was found and was also significant at the 0.01 level.

Multiple linear regressions were conducted for each of the dependent variables using the two predictor variables. The findings are displayed in Table 4.

Table 4

Regression Analysis Predicting Graduation Rates, Total Funding Balance, and Capital Projects Funding with Predictor Variables

Variable	Graduation Rate b	Beta	Total Funding Balance b	Beta	Capital Projects Funding b	Beta
Percentage Minority Students	-.144*** (.023)	-.258	166,424.93*** (41,757.56)	.180	161,312.25*** (29,473.97)	.246
Free-and-Reduced Lunch Percentage	-.248*** (.027)	-.386	-306,259.60*** (45,782.91)	-.303	-215,134.66*** (32,315.21)	-.300
Constant	98.427		19,086,618.04		11,669,189.41	
Adjusted R^2	.301		.076		.086	
N	505		545		545	

Note. b = unstandardized regression coefficient with standard error in parentheses; Beta = standardized regression coefficient.
***p < .001 (two-tailed tests).

The first multiple regression was calculated to predict graduation rate based on the school's percentage of minority students and the school's free-and-reduced lunch percentage, which is being used as a proxy for student poverty. When predicting the graduation rate, it was found that percentage minority students (Beta = -.258, $p < .000$) and free-and-reduced lunch percentage (Beta = -.386, $p < .000$) were significant predictors. The predicted graduation rate is equal to 98.427 - .144X_1 - .248X_2. The independent variables are measured by percent total, so when calculating the predicted graduation rate, the coefficients were multiplied by whole numbers and not decimals. The graduation rate is expected to decrease by 0.144% for each unit increase in percent minority students and decrease by 0.248% for each unit increase in free-and-reduced lunch percentage. The adjusted R^2 calculated means that the model explained approximately 30% of the variance in graduation rates.

The next multiple regression conducted were created to predict total funding based on the same independent variables: percentage of minority students and the school's free-and-reduced lunch percentage. When predicting the total funding, percentage minority student (Beta = .180, p < .000) and free-and-reduced lunch percentage (Beta = -.303, p < .000) were both significant predictors. The predicted total funding amount is represented in the model $19,086,618.04 + 166,424.93X_1 - 306,259.60X_2$. The total funding balance is expected to increase by \$166,424.93 dollars for each unit increase in percentage minority student and to decrease by \$306,259.60 dollars for each unit increase in free-and-reduced lunch percentage. The adjusted R^2 means that this model explains about eight percent of the variance in the total funding balance.

The final regression was concerned with predicting the capital projects funding using the same independent variables as the previous two analyses. When predicting capital projects funding, it was found that percentage minority student (Beta = .246, p < .000) and free-and-reduced lunch percentage (Beta = -.300, p < .000) were significant predictors. The model created for determining the total capital projects funding was $11,669,189.41 + 161,312.25X_1 - 215,134.66X_2$. The capital projects funding is predicted to increase by \$161,312.25 dollars for each unit increase in percentage minority student and to decrease by \$215,134.66 dollars for each unit increase in free-and-reduced lunch percentage. The adjusted R^2 determined means that approximately nine percent of the variation in capital projects funding is explained by the two independent variables.

Chapter 5: Discussion

This study sought to understand how the percentage of minority students in schools and the percentage of students receiving free-and-reduced lunch (as a proxy for student poverty) influence graduation rates, total school funding, and capital projects funding. After running multiple regressions, the relationship between these variables was determined. The results of the study showed that there was a significant negative relationship between the percentage of minority students in schools and the graduation rates, which supports the first hypothesis (H_1). This should not be interpreted as minority students being less capable of graduating at the same rate as White students due to intellectual ability. As noted in prior research, minority segregated schools have been noted to be comprised primarily of students whose families are living in poverty, and the schools typically have high teacher turnover and less qualified staff; all of which influence the rate at which students graduate (Kozol, 2005; Murname, 2007; Orfield, Kucsera, & Siegel-Hawley, 2012). A significant negative relationship was also determined between the student poverty rate and graduation rates, a finding that supports H_2. This relationship was similarly found in previous studies comparing the effects that student poverty has on graduation rates (Baydu, Kaplan, & Bayar, 2013; Howard & Madison-Harris, 2011).

The relationship between the percentage of minority students in schools and the total funding received showed a significant positive relationship. This was also found to be the case in regard to the percentage of minority students in schools and capital projects funding. The results went against the predictions (H_3 and H_5, respectively, were not supported) and could be the result of many variables not measured in the current study. Future research should endeavor to expand the number of relevant covariates related to the dependent

variables of interest. Some possible covariates that future researchers may wish to consider

include the local median household income, the unemployment rate, and outstanding school

district debt.   Unfortunately, since this study was more exploratory with only two

independent variables included in the models, the reason for such a relationship can only be

speculated. One such explanation would be that total funding in Michigan is based on the

total number of students enrolled in each district, meaning that areas with more students

receive more money overall. Since urban areas are the more densely populated and

minorities are more likely to live in urban areas, the positive relationship found between the

percentage of minority students in schools and total school funding may possibly be

explained by funding distribution according to population density of school districts

(Ledwith & Clark, 2007; Zhang, 2011).

However, the positive relationship between the percent minority students and capital

projects funding proves puzzling. Since low-income minority families are more likely to live

in less affluent neighborhoods, the wealth necessary to purchase bonds would be limited

(Darrah & DeLuca, 2014). Yet obtaining a quality education is considered the great

equalizer in American society, and one possible explanation could be that parents might

potentially make cuts in other areas of their lives in order to pay for a better quality education

for their children.

The relationship determined between student poverty rate and the total school funding

was found to show a significant negative relationship, supporting the predictions of H_4. The

same relationship and support was found for student poverty rate and capital projects

funding, which was H_6. These relationships are logical for both of the dependent variables.

First, as mentioned previously, total funding is based around the total number of students

enrolled in each public school district. One explanation for the relationship could be that impoverished rural areas that have a limited number of students would receive less overall school funding from the state. This follows previous research findings suggesting there has been an increasing trend of poor Americans relocating to rural and suburban communities in recent decades (Miller, Votruba-Drzal, & Sefodji, 2013; Murphy, 2007).   Another possible explanation for this relationship is that non-urban areas tend to offer fewer economic and social opportunities than those available in bigger cities (Fisher, 2007). These same communities would also lack the resources necessary to buy bonds to fund capital projects.

This study relied on the theoretical framework of both place stratification and racial threat theory. The research was guided on the assumption that the racial threat by minorities would result in the White majority attempting to stop minority advances. By limiting funding to minority schools, the state would effectively be hindering the educational advances of minority students. Since limiting education attainment also limits future potential wealth (Afxentiou & Kutasovic, 2009; Tamporini, Kim, & Sakamto, 2015), minorities would be unable to afford to live in the same neighborhoods where educated Whites reside. This demonstrates the influence that racial threat has on place stratification.

However, the results of this study found that there was a positive correlation between total funding and capital projects funding and the percentage of minority students in schools rather than a negative one. The only negative correlation recognized in regard to the two types of funding involved the relationship with the percentage of free-and-reduced lunch. Place stratification relies on the premise of powerful groups trying to separate themselves from groups that they deem as undesirable. In this study, place stratification can be interpreted with how districts with higher rates of student poverty receive less funding. Since

these students are less likely to graduate, they are less likely to be able to obtain higher paying jobs that require a higher education and would allow them to afford the wealthier neighborhoods (Oreopoulos & Salvanes, 2011). Although the original prediction with place stratification theory assumed that the minority segregated schools would receive less funding, there was still a viable connection with the student poverty rate that could be discussed.

Still the negative relationship observed between the percentage of minority students in schools and graduation rates leaves cause for concern. Since it appears that funding is not the reason for the lower graduation rates, more research must be conducted in order to understand this relationship. This supports racial threat theory in that, although minority segregated schools are receiving adequate funding, this is not necessarily translating into quality allocation of resources and is resulting in lower graduation rates. Since this study was more inductive in nature, only two independent variables were used; however, the R^2 of .301 means that about a third of the variance in the graduation rates is explained by only those two independent variables.

Limitations and Delimitations

The nature of this study was more exploratory, and as such, the number of covariates used for the testing were limited. This results in the inability to generalize the findings to other school districts in the country located outside of Michigan. Future researchers should attempt to include more independent variables in order to have a more concrete idea on how these variables relate to one another. Some controls that were mentioned previously include local median household income, the unemployment rate, and outstanding school district debt. The local median household income is often used when analyzing data that are concerned with the economic conditions of certain areas (Hyman, 2017) and would be useful in a study

that wanted to examine how family income may affect student success. Similarly, the unemployment rate would prove useful in determining how household factors affect students' academically and has typically been used to control for regional variation in economic factors (Zimmer & Jones, 2005). Additionally, the inclusion of outstanding school debt would allow future researchers to understand how much debt influences the dependent variables. Debt reduces the total funding available to each school and could potentially be valuable in understanding the effect it has on student graduation rates.

    It should also be noted that the sample for this research included only public school districts. Prior research has supported the notion that private and charter schools are more likely to increase racial isolation (Fiel, 2013), and they were excluded for the purpose of this study. The sample included all 545 public school districts in Michigan; however, data for each district for student graduation rate were not available and was excluded via listwise deletion.

    The use and creation of one of the various segregation indexes is also recommended in future research. The dissimilarity index is a widely used measure of residential evenness and is useful in research involving segregation analyses, which could prove helpful in school segregation analyses (Massey & Denton, 1988; Reardon et al., 2012). Alternatively, some researchers have used the Gini coefficient, as it includes all transfers of members between areas whereas the dissimilarity index focuses on over- and underrepresented areas (Massey & Denton, 1988; Schwartz & Winship, 1980; White, 1986). Regardless of what index future researchers choose, its inclusion will only strengthen the study.

Finally, using free-and-reduced-lunch as a proxy for student poverty is not a perfect measure. This becomes more problematic as free lunch programs change every year, and as such, caution should be used when making broad conclusions involving it as a covariate.

Conclusion

This study was conducted to observe the presence of segregated schools in Michigan's public school districts and to understand the relationship that these schools have with graduation rates and funding. These data were obtained from the Michigan Department of Education's website, and all 545 public school districts were included in the dataset, with the exception of only 505 districts being used in analyses involving graduation rate. Multiple regressions were conducted in order to evaluate the relationship that the two independent variables, the percentage of minority students in school and the percentage of students receiving free-and-reduced lunch, had with the three dependent variables. The number of independent variables used was severely limited; however, the study was not conducted to prove causal relationships outright but rather to determine whether there were significant negative correlational relationships between the variables.

The results of this study bring about more questions than answers, which fuels the need to conduct more research, particularly research that utilizes more control variables when conducting analyses. That is not to say that the findings were insignificant, however, since much can be interpreted from the study's results. First, the moderate negative correlation observed between the percentage of minority students in schools and graduation rates demonstrates an inequality that is still apparent in Michigan schools. This is even more concerning when the results also showed that there was a significant positive relationship between the percentage of minority students in schools and both types of funding measured,

total funding and capital projects funding. What this implies is that these segregated school districts may receive adequate funding, but this is not translating into higher graduation rates for schools with a higher percentage of minority students. How funding is utilized to enhance instruction, expand educational opportunities, and improve overall quality of educational experiences at schools with predominately minority makeup still requires further investigation.

The significant negative relationship observed between both funding types and the percentage of students receiving free-and-reduced lunch also demonstrates how the current funding system can hurt less populated school districts. These communities receive less funding overall from the state, since funding is based upon a per-pupil basis, and are less likely to be able to afford buying the bonds necessary to fund capital projects for the schools. When the funding policy changed school funding from being primarily raised through local property tax, to one that is funded directly by the state through a head count, the funds were more evenly distributed across districts. Unfortunately, the correlation observed between funding and districts with higher percentages of student receiving free-and-reduced lunches shows that the Michigan's fix to provide equal funding to all districts was not completely successful.

This study provides various policy implications. First, the foundation allowance system where overall funding is based on a per-pupil basis does not necessarily guarantee that all districts will have the funds necessary to flourish. This problem is only further exacerbated by the fact that districts with higher rates of student poverty also receive less capital projects funding. Areas with higher rates of student poverty in more rural areas also lack larger student populations, which also means that they may receive less overall funding

through foundation allowance. A policy recommendation would be to find a way to ensure

that these districts are funded in a more equitable way.

Next, as mentioned previously, the positive relationship between the percentage of

minority students and both types of school funding does not appear to be aiding in increasing

graduation rates. This might mean that other factors are playing a bigger role in determining

graduation rates. Previous studies have noted that schools heavily comprised of minority

students typically have higher teacher turnover and less qualified staff (Kim et al., 2010;

Kozol, 2005), which may be a stronger factor in determining graduation rates. Future studies

that look at Michigan schools should perhaps include covariate measuring teacher turnover

rates and professional qualifications standards to see how they may influence graduation

rates.

Environmental factors may also be influencing the graduation rates as well. Mohai,

Kweon, Lee, and Ard (2011) found that air pollution concentrations are statistically

significant predictors of school performance, with schools in areas with the highest air

pollution concentration having the lowest attendance rates and the highest proportion of

students failing to meet statewide test standards. This environmental factor should not be

underestimated and future research on the subject of graduation rates may want to include air

pollution as a variable. In addition to the findings of air pollution and school performance,

Mohai et al. (2011) noted that 82% of Black students and 62% of both Hispanic and students

enrolled in free lunch attended schools in the most polluted 10% of the state whereas only

44% of White students attended such schools. This finding suggests that minority students

and those receiving free lunch in these polluted areas may be more at risk of air pollution,

which could possibly be influencing how well these students perform in their schools.

This study, although not rigorous enough to conclusively confirm causal relationships between the variables, resulted in significant findings that suggest that there are inequalities that are still apparent in Michigan public school districts. These inequalities are observed in the total funding received and when one notes that minority segregated schools in Michigan are struggling to achieve the same graduation rates that are seen in schools that have a lower percentage of students that are of minority status.

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