

A Quantitative Examination of Georgia High School CCRPI Scores and School-Level  
Student Demographics Using Multiple Regression Analysis

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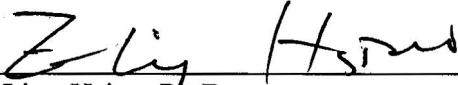
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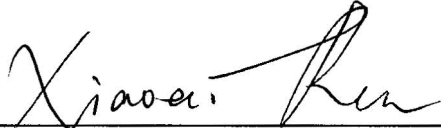
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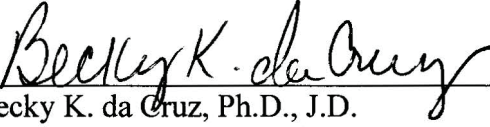
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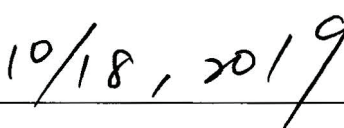
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## ABSTRACT

This dissertation study was conducted using multiple regression analysis to determine the degree to which school-level variables of percentage of minority students, percentage of students with limited English proficiency, percentage of economically disadvantaged students, percentage of students with a disability, and percentage of gifted students significantly predict the school's performance measure on Georgia's College and Career Ready Performance Index (CCRPI) for the school years 2012-2018. Data from public high schools composed of grades 9-12 across the state of Georgia were collected and analyzed. Results showed that a school's percentage of gifted students, percentage of economically disadvantaged students, and percentage of minority students were significant predictors of CCRPI scores across all seven years examined. For two of the seven years, a school's percentage of students with a disability was also a significant predictor of CCRPI scores. Findings from this study suggest the school's CCRPI scores are negatively affected by students of a racial/ethnic minority, students at an economic disadvantage, and at times, students with a disability. Findings from this study also show a school's percentage of gifted students positively affects the school's CCRPI scores.

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Finally, I am forever grateful to my family, without whom I would be hopelessly lost. You anchor me, uplift me, and inspire me to be better each day. I will never be more proud of anything than I am of you.

## DEDICATION

This dissertation is dedicated to my family. You are my life's greatest blessing.

## CHAPTER I

### INTRODUCTION

Beginning with the publication of *A Nation at Risk* in 1983, standardized test scores have played an increasingly strategic role in educational improvement and reform movements. Across the nation, states have grappled with how to implement the latest school improvement policy: the Every Student Succeeds Act (ESSA) of 2015. ESSA reauthorized the Elementary and Secondary Education Act (ESEA) of 1965 and replaced 2001's No Child Left Behind legislation (Georgia Department of Education, 2018a). One component of ESSA required each state to submit evidence to the U.S. Department of Education outlining the state's school accountability measure, which must include tracking student achievement on standardized tests (Georgia Department of Education, 2018a).

In the state of Georgia, policymakers met ESSA requirements through the creation and implementation of the state's College and Career Ready Performance Index (CCRPI) (Georgia Department of Education, 2017b). The CCRPI is considered a holistic measure of a school's progress on increasing student academic achievement, with emphasis placed on student standardized test scores (Georgia Department of Education, 2017b). Georgia's CCRPI is a school performance score ranging from 0-100. It is used to evaluate high schools based primarily on student achievement criteria, including content mastery in core subject areas, graduation rates, completed career/technical programs, and rigorous course enrollments (Georgia Department of Education, 2017b).

Another component of the score is determined by the progress of student subgroups closing the achievement gap, again measured through student scores on standardized tests (Georgia Department of Education, 2017b). The remaining 40% of a school's CCRPI score is determined by measuring how different groups of students scored on standardized tests one year compared to similar-scoring students from previous years; this measure is termed *student growth percentiles* (Georgia Department of Education, 2017b). Researchers have determined many of the components used to calculate a school's CCRPI score are consistently correlated to student race/ethnicity, English language proficiency, socioeconomic status, and special education status (Easton-Brooks & Davis, 2007; Parr & Bonitz, 2015; Rumberger & Palardy, 2005). Because of the aggregation of multiple metrics used to generate a school's CCRPI score, it could be assumed that the measure itself is free from bias regarding different groups of students. While the CCRPI emphasizes different achievement score goals for different groups of students, researchers have not conducted studies to conclusively determine the extent to which school-level student demographics influence a school's CCRPI score.

The purpose of the CCRPI is to “provide a comprehensive roadmap to help educators, parents, and community members promote and improve college and career readiness for all students” (Georgia Department of Education, 2017b, p. 1). This statement of intent reveals the connection which exists between accountability measures and data-based decision-making, another active initiative in education (van Geel, Keuning, Visscher, & Fox, 2016). School leadership and educational policymakers increasingly rely on data from school performance measures, such as student scores on high-stakes tests, to shape goals and policy (Goren, 2012; van Geel et al., 2016). While

using data to guide policy and decision-making is largely perceived as beneficial and effective practice, researchers have indicated such methods often bear mixed results (Goren, 2012; van Geel et al., 2016).

Many researchers have agreed data-based decisions in educational policy have been more detrimental than beneficial to the students for whom the data-based decisions were designed to help (Cabrera, Milem, Jaquette, & Marx, 2014; Kanno & Kangas, 2014). For example, Rumberger and Palardy (2005) tracked student enrollments and concluded data-based instructional practices may encourage schools to urge low-achieving students to transfer out or drop out. Conversely, Dee and Jacob (2011) examined data from the National Assessment of Educational Progress (NAEP) and concluded data-based decision-making and accountability measures have increased student learning outcomes, particularly among typically low-achieving student populations. Conflicting research findings provide insufficient evidence of data-based decisions improving academic outcomes for student achievement (Crowe & Sjoquist, 2016). As Georgia's public schools are increasingly relying on CCRPI data to drive school-level and system-level decisions and policy, a study of Georgia schools provides an opportunity to examine the relationships between school-level student demographics and school performance measures.

### **Problem Statement**

Sixteen years of experience in a Georgia public high school has shown me how school leaders and educational policymakers in Georgia use school-level performance measures, such as CCRPI, to guide instructional decisions and policy. Data from student achievement scores are commonly used by school administrators to create initiatives and

drive school improvement goals (Goren, 2012; Spillane, 2012). Researchers have shown this practice to be highly subjective, as it repeatedly led to inconsistent interpretations of data provided by students' test scores (Goren, 2012; Jacobsen, Snyder, & Saultz, 2014). Varied or unclear data interpretation has been shown to work against increasing student achievement and school performance (Goren, 2012; Murphy, 2013).

The outcomes from data-based decision-making led to a wide variability of results when carried out in educational settings (Goren, 2012; Jacobsen et al., 2014; Spillane, 2012). For example, Makaravage (2016) found no significant difference in student achievement scores between high schools focused on data-based school improvement reforms and schools without a data-driven decision-making process. Goren (2012) observed that school-level and district-level personnel often examined identical data with different goals in mind, leading to conflicting school improvement goals stemming from the same data set. The wide variety of performance measures and data used in the school improvement process across public schools and systems in the United States—from student achievement scores on standardized tests to graduation and dropout rates—overwhelms practitioners and policymakers alike, effectively creating gridlock in improvement initiatives (Cabrera et al., 2014; Goren, 2012; Jacobsen et al., 2014; Spillane, 2012).

White et al. (2016) attributed more than 50% of the variance in New Jersey student achievement scores to student race/ethnicity and socioeconomic status. Although researchers have examined several of the components of CCRPI separately, no conclusive research exists examining the predictive power of this study's selected variables on a Georgia high school's holistic CCRPI score (Blank & Smithson, 2014;

Hanushek, Kain, & Rivkin, 2009; White et al., 2016). An examination of Georgia high school CCRPI scores and school-level student race/ethnicity data, English language proficiency rates, socioeconomic status data, and special education rates could provide evidence for determining if any partiality exists for schools subject to CCRPI measures.

Anthropologist John Ogbu proposed that minority group classifications had significant effects on educational and economic outcomes for minority populations (Ogbu, 1999, 2004; Ogbu & Simons, 1998). For instance, a student's cultural group history of migration to the United States was found to strongly correlate to his/her educational achievement, namely if their forebears came voluntarily or involuntarily (Ogbu & Simons, 1998). Ogbu (1999, 2004) also noted the connections between the languages spoken in culture groups, perceptions of educational success, and educational outcomes for minorities (Ogbu, 1999, 2004). The effects of minority group status on school performance measures have not been generalizable to Georgia high schools.

Numerous researchers have written about the accuracy of socioeconomic status as a predictor of student achievement scores (Easton-Brooks & Davis, 2007; Folds & Tanner, 2014; Ladson-Billings, 2006; Nye, Konstantopoulos, & Hedges, 2004). Other studies have been used to examine how demographic variables such as race/ethnicity, limited English proficiency, disability status, and gifted status can be used to predict certain school performance indicators (Parr & Bonitz, 2015; Walsh et al., 2014). No previous work has been done, however, examining how a Georgia high school's population by race/ethnicity, English language proficiency, socioeconomic status, disability status, and gifted status account for the variance across high school CCRPI scores.

Some researchers have examined the relationship between the makeup of a student body and a school's comprehensive performance measure. For example, Folds and Tanner (2014) conducted a study that examined data from one middle Georgia school system and concluded that higher socioeconomic status and low absenteeism and mobility rates were reliable predictors of high scores on applied math and reading assessments. Attendance and student achievement test scores are two components of a school's CCRPI score (Georgia Department of Education, 2017b). Expanding the ideas of Folds and Tanner (2014) by conducting a more extensive study examining all Georgia high schools could better examine the impact that student race/ethnicity, English proficiency, socioeconomic status, disability status, and gifted status have on a high school's CCRPI score.

### **Purpose**

This study was designed to determine the extent to which a Georgia public high school's percentage of the student population by racial/ethnic minority, English Language Learner (ELL) status, socioeconomic status, disability (SWD) status, and gifted status can predict the school's CCRPI score. The purpose of this study was to measure the effects of student demographics at the school level on a CCRPI score for a Georgia high school. The results from this study can inform stakeholders and policymakers of how student demographics at the school level impact the school's CCRPI score. Currently, little scholarly literature exists on this specific topic; this study was designed to fill that gap in the literature. Expanding the ideas of Folds and Tanner (2014), this study was conducted to incorporate all public high schools in Georgia to provide further evidence to support or reject previous findings.

Data-based decision-making in schools may be ineffective at accurately evaluating a school's performance, as the data commonly used are strongly correlated to student race/ethnicity, English proficiency, socioeconomic status, and special education status (Easton-Brooks & Davis, 2007; Folds & Tanner, 2014; Parr & Bonitz, 2015). If Georgia's CCRPI is inaccurate in objectively measuring school performance in that certain groups of students score better than others, controlling for other factors, then the instructional and policy decisions being made based on that data would be flawed. The ramifications of such score bias could be far-reaching. For instance, expectations set for schools and their test takers may be out of reach. Additionally, teachers and school administrators may face repercussions for poor school performance scores due to conditions fully outside of their control (Rothstein, 2010). Conducting a study examining student body makeup by race/ethnicity, English proficiency, socioeconomic status, disability status, and gifted status both individually and with interaction effects could determine the extent to which each of these demographic variables predicts a Georgia high school's CCRPI score.

### **Research Questions**

This study aimed to answer the following research questions:

*Research Question 1.* Is there a statistically significant relationship between a Georgia high school's student demographic variables and the school's CCRPI score, and if so, to what degree?

*Research Question 1a.* Is there a statistically significant relationship between a school's percentage of minority students and the school's CCRPI score?

*Research Question 1b.* Is there a statistically significant relationship between a school's percentage of students with limited English proficiency and the school's CCRPI score?

*Research Question 1c.* Is there a statistically significant relationship between a school's percentage of economically disadvantaged students and the school's CCRPI score?

*Research Question 1d.* Is there a statistically significant relationship between a school's percentage of students with a disability and the school's CCRPI score?

*Research Question 1e.* Is there a statistically significant relationship between a school's percentage of gifted students and the school's CCRPI score?

*Research Question 2.* Which school-level student demographic variables, if any, serve as significant predictors of a Georgia high school's CCRPI score?

### **Theoretical Framework**

American education is viewed as the great equalizer, providing society access to social mobility (DeAngelo & Franke, 2016). However, researchers DeAngelo and Franke (2016) and Ogbu and Simons (1998) cited evidence claiming otherwise. Individuals belonging to groups of subordinate positions of power in society continue to face educational marginalization, inhibiting their social mobility (DeAngelo & Franke, 2016; Ogbu, 2004; Ogbu & Simons, 1998). Ogbu's Cultural Ecological Theory (CET) (Ogbu, 1999, 2004; Ogbu & Simons, 1998) is a key component of this study's theoretical framework. Researchers use CET to describe how marginalized groups are treated differently within a society, and the resulting educational and vocational outcomes

(Ogbu, 1999, 2004; Ogbu & Simons, 1998). Figure 1 presents a graphical representation of this study's framework with CET.

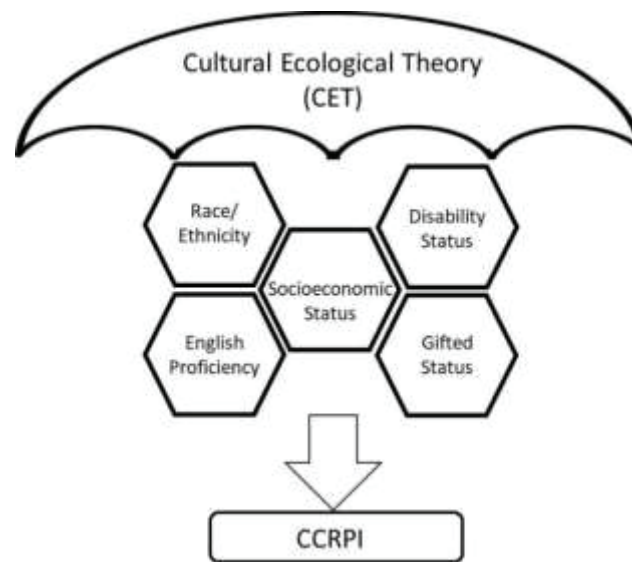


Figure 1. Cultural Ecological Theory and CCRPI.

The work of multiple researchers led them to propose strong correlations exist between student achievement and student demographics of race/ethnicity, English proficiency, socioeconomic status, disability status, and gifted status (Coleman et al., 1966; Dean, 2011; Hanushek et al., 2009; Hanushek & Rivkin, 2009; Jackson & Lunenburg, 2010; Ladson-Billings, 2006; Ogbu & Simons, 1998; Sullivan, Hourii, & Sadeh, 2016; White et al., 2016). This study was conducted to determine the magnitude of any correlations of the aforementioned student demographic variables at the school level upon CCRPI in Georgia high schools.

The U.S. Supreme Court ruling on *Brown v. Board of Education* in 1954 brought racial segregation into the educational policy spotlight. In 1964, Congress commissioned James Coleman to report on the condition of segregation and equality of education, in an effort to reevaluate opportunities in American schools. The findings of Coleman et al. (1966) revealed de facto segregation was still occurring, and that socioeconomic

composition of a school held greater association with student achievement than school facilities, curriculum, per pupil spending, teacher quality, or racial composition of the school (Coleman et al., 1966; Palardy, 2013). The Coleman report thus brought to light how multiple inequalities in school inputs (i.e., demographics) affected educational outcomes. Fifty years later, de facto segregation by race and socioeconomic status continue to be widespread and prevalent in American education (Palardy, 2013). The findings of some researchers have indicated socioeconomic status alone may account for 20% or more of the variance in student achievement test scores (Easton-Brooks & Davis, 2007; White et al., 2016). The debate regarding the effects of a student body's ethnoracial and socioeconomic makeup upon student academic outcomes continues in later studies reported in the literature (Causey-Bush, 2005; Dee & Jacob, 2011; Hanushek et al., 2009; Jimenez & Horowitz, 2013).

Researchers have shown race/ethnicity and socioeconomic status correlate strongly to student achievement measures (Bertrand & Marsh, 2015; Ellis, 2015; Mojica, 2013; Ryan, 2013). They have also begun to examine the influence that English proficiency status may have on student achievement measures. Federal law requires all students to take the same standardized test, regardless of primary or native language (Georgia Department of Education, 2018a). For students with limited English proficiency, a rigorous high-stakes academic test in a foreign language proves an insurmountable hurdle (Llosa et al., 2016). School performance measures for schools with large immigrant populations are affected differently than schools with low immigrant populations (Treffner, 2003). In Georgia, the fastest growing subgroup of students since 1997 are of Hispanic/Latino origin, and many of these students are English

language learners, not proficient in the language of the assessments given (Bauman, 2017). Testing students with an assessment written in a language they are still learning has led many English language learners to consistently score lower on standardized tests than their native English speaking peers (Ellis, 2015; Mojica, 2013). This study was designed in part to determine if schools with high English language learner populations reported high CCRPI scores.

Students receiving special education services fall into one of two classifications: students with disabilities (SWD) or gifted status (Georgia Department of Education, 2018d). SWD students may have a learning disability, emotional/behavioral disorder, or some other health impairment that contributes to statistically significant lower test scores (Hanushek, Kain, & Rivkin, 2002; Shifrer, Callahan, & Muller, 2013). Gifted students, meanwhile, tend to improve a school's student achievement scores (Dean, 2011). Despite growing rates of students receiving special education services (Georgia Department of Education, 2018d), little research has been done examining how SWD students and gifted students impact a Georgia public high school's CCRPI score (Crowe & Sjoquist, 2016; Custard, 2014).

### **Methodology**

This study was a non-experimental, quantitative study. Quantitative methodologies are more suitable for the collection and analysis of large data sets used to derive generalizations for a population (Ary, Jacobs, Sorensen, & Walker, 2012). The ex post facto design was adopted to examine how student race/ethnicity, English Language Learner status, economically disadvantaged status, disability status, and gifted status influence a Georgia high school's CCRPI score. The design was appropriate for this

study because the independent variables of interest in the study were characteristics of students, which already existed and cannot be manipulated.

Data collected and analyzed from all public high schools across the state of Georgia appropriates this study's quantitative design. Archival data for school years 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018 were collected from state agency websites for analysis using SPSS software. The independent variables for analysis were a school's percentage of students by racial/ethnic minority, ELL status, ED status, SWD status, and gifted status. The dependent variable for this study was the school's CCRPI score. Correlation analyses were used to determine the relationship between each independent variable and the dependent variable; multiple regression analysis was used to determine the extent to which each of the independent variables predicts the dependent variable.

### **Significance**

Examining the impact of school-level student demographics on a CCRPI score could have practical effects for those concerned with improving student achievement and school performance. This study would inform evaluators of the utility of Georgia's CCRPI, and as such the results may be used to inform policymakers and school administrators to better understand how student population demographics may influence school performance measures. Research on the predictive power of student race/ethnicity, student English proficiency, student socioeconomic status, student disability status, and student gifted status upon school performance has not previously been generalizable to high schools in the state of Georgia. As school improvement initiatives aim to increase school performance indicator scores, a study such as the

current one could have a profound impact on the effectiveness of such initiatives. Understanding the predictive power of school-level student demographics on a high school's CCRPI score could yield valuable insight to practitioners and policymakers in public education. By gaining a better understanding of the role student demographics play in current school performance measures across the state, practitioners may see a need to advocate for a change in the ways school performance is measured. If a school's main performance indicator (CCRPI score) is shown to be directly influenced by student body demographic makeup, the means by which Georgia schools are evaluated will be shown to need serious further revision. Findings from this study could inform educational stakeholders about how extensively a CCRPI score is determined by *student characteristics* versus what *actions schools take*. If current school performance measures are shown to be strongly tied to a student's English language proficiency or ethnicity, for example, then policymakers may deem it necessary to amend the test to minimize such effects. If, however, little to no significance was found between the school-level student demographics and CCRPI, then policymakers will have a stronger foundation upon which to defend current school evaluation practices.

Georgia's CCRPI was designed with multiple achievements and evaluative measures to address the shortcomings of previous measures of school accountability (Georgia Department of Education, 2017b). However, this holistic measure of school performance has not been sufficiently examined in scholarly literature. Until the current school performance indicator is scrutinized using data from all public Georgia high schools, no generalizable findings can be conveyed. A study that builds upon previous work with data and data analysis specifically in Georgia could shed light and bring clarity

to school improvement processes which are currently unclear and uncertain at best (Barnes, Slate, & Rojas-LeBouef, 2010; Crowe & Sjoquist, 2016; Goren, 2012; Jacobsen et al., 2014; Spillane, 2012).

### **Limitations, Delimitations, and Assumptions**

#### **Limitations**

According to Ary et al. (2012), a multiple regression analysis is subject to erroneously concluding a cause-effect relationship between two or more strongly correlated variables. Ary et al. (2012) also pointed out because the ex post facto research relies on data that have already existed, variables cannot be manipulated. This lack of control over variables may allow conclusions to be drawn that are deceptive or have limited generalizability.

The demographic variables examined in this study were limited to those identified by the Georgia Department of Education's classification of students. Identifying student characteristics such as race/ethnicity, English proficiency status, socioeconomic status, disability status, and gifted status may be determined by school officials' observations when parental involvement is minimal. With negligible oversight such as this, student identifiers could possibly be mistakenly inaccurate.

Georgia's CCRPI has experienced multiple revisions of its calculation since its inception. While a single school year's scores are calculated using an identical formula, scores from successive years analyzed in this study were not consistently calculated using duplicated procedures. Comparisons of nominal scores should not be made across subsequent school years.

## **Delimitations**

This study was delimited to Georgia public high schools serving only grades 9 through 12. Narrowing the scope of the study to include the secondary schools within a single state ensured that the data were comparable across each school in the study. Each school was subject to an identical formula for the CCRPI calculation for a given year; if and when the CCRPI formula changed, all schools were affected and fall under the provisions required under each updated calculation.

The same standardized tests were given to all students across all secondary schools included in this study. The uniformity of examinations ensure school performance measures were not only subject to identical calculation formulas, but components of the metric were identical as well. In addition, the metrics for CCRPI calculations were collected through identical means from every school, per state and federal guidelines. The scope of this study examining Georgia public high schools cannot be generalized to other states and their respective school performance indicators. The unique design of each state's accountability measure limits the potential findings of this study to secondary schools within the state of Georgia's public education system.

## **Assumptions**

The following assumptions were used as a guide in this study:

1. Data for school years that were identified and analyzed in the study were obtained from the Georgia Department of Education and the Governor's Office of Student Achievement. All data were available for download from these public databases.

2. All data were accurately reported to and by the Georgia Department of Education and the Governor's Office of Student Achievement. Full integrity and security of the data were assumed.

3. All Georgia public high schools fully complied with the policies and procedures as required by the Georgia Department of Education for CCRPI.

### **Definition of Key Terms**

*Achievement Gap.* The achievement gap is the difference in student performance between different subgroups of students (Georgia Department of Education, 2017b). When one subgroup of students outperforms another subgroup, and the variation in scores is statistically significant, the GaDOE recognizes this as an achievement gap (Georgia Department of Education, 2017b).

*College and Career Ready Performance Index (CCRPI).* Georgia's CCRPI is a comprehensive measure comprised of a school's improvement and achievement scores. Scores are published annually on a scale from 0 to 100, reflecting a school's ability to promote college and career readiness in its student body (Georgia Department of Education, 2017b).

*Cultural Ecological Theory (CET).* Cultural Ecological Theory is used by Ogbu and Simons (1998) to redefine cultural minorities not as those fewer in number, but rather groups in a subordinate position of power in a society. CET can be used to explain the educational and vocational outcomes of these marginalized groups as undermined and diminished by their interactions with society at large.

*Economically Disadvantaged (ED).* This is a subgroup classification of students meeting federally defined low-income criteria for free or reduced meal pricing

(Governor's Office of Student Achievement, 2017b). A school's percentage of ED students was used as a measure of socioeconomic status for this study.

*English Language Learners (ELL)*. This is a subgroup classification of students that are not native English speakers and are eligible for services based on the results of an English language proficiency test (Alston & Ellis, 2018). According to federal guidelines, all students must take the same achievement tests, regardless of their primary or native language (Georgia Department of Education, 2018a).

*Every Student Succeeds Act (ESSA)*. The ESSA is the federal legislation that renewed the 1965 Elementary and Secondary Education Act (ESEA) and replaced the 2001 No Child Left Behind (NCLB) legislation (Georgia Department of Education, 2018a). Under ESSA, states are afforded greater flexibility for meeting the requirements of tracking student achievement and school performance (Georgia Department of Education, 2018a). The GaDOE created the CCRPI as a result of the ESSA (Georgia Department of Education, 2017b).

*Gifted*. Students meet the guidelines for gifted classification in Georgia by demonstrating a high degree of intellectual and/or creative abilities, exhibiting an exceptionally high degree of motivation, and/or excelling in specific academic fields, and who need special instruction and/or special ancillary services to achieve at levels commensurate with their abilities (Georgia Department of Education, 2018b).

*Governor's Office of Student Achievement (GOSA)*. An executive agency of the Georgia state government, GOSA's aim is to collect data and research regarding Georgia's P-20 education to improve "student achievement, school completion, and life opportunities for all Georgia students" (Governor's Office of Student Achievement,

2018a). All data and research are stored on a secure network and are available for public download.

*Race/Ethnicity.* GaDOE guidelines indicate schools collect racial and ethnic data in a two-part format: first, specifying whether or not an individual is of Hispanic/Latino ethnicity; second, specifying one or more of the following races: American Indian or Alaskan Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White (Georgia Department of Education, 2018c). These demographic categories are used by the GaDOE to generate subgroups of students for data collection and analysis (Georgia Department of Education, 2017b).

*Students with a disability (SWD).* GaDOE defines a student with a disability as any student with documentation of having one or more of the following conditions: autism, deafblind, deaf/hard of hearing, emotional & behavior disorder, intellectual disabilities, orthopedic impairment, other health impairment, significant developmental delay, specific learning disability, speech-language impairment, traumatic brain injury, and visual impairment & blindness (Georgia Department of Education, 2018d).

## CHAPTER II

### REVIEW OF LITERATURE

The literature reviewed was selected based on the area of focus for the proposed study and the significance of the findings relative to Georgia's current state of accountability and performance measures. This review of the literature begins with a brief historical overview of Georgia's measures of student and school accountability and school performance measures. Next, the problems of data ambiguity, the variability of data interpretations, and inconclusive measures of accountability in relation to Georgia's evolving system of school performance indicators are discussed. The school's aim for preparing students to enter college or a career was found to be dormant (Rumberger & Palardy, 2005; Schultz & Stern, 2013), so policymakers created and implemented a new, modified system of accountability (Superfine, 2011). Each major component of this new school performance index is then examined in light of the work of previous educational research. Such research has led many researchers to conclude that Georgia's new and supposedly more holistic index relies on a series of weakly supported claims (Christle, Jolivette, & Nelson, 2007; Folds & Tanner, 2014; Parr & Bonitz, 2015). These researchers indicated many of the components used in creating this new school performance index correlate to student-level demographics—namely race/ethnicity, English proficiency, socioeconomic status, disability status, and gifted status—more strongly than to school-level reform efforts. Cultural Ecological Theory is then briefly discussed in the context of the marginalization of different minority populations in public

education. The literature of each demographic variable examined in this study is outlined next, with the previous findings of each variable's correlation to school performance measures. Last, the gap in the relevant and reliable literature focusing on Georgia's school performance index is addressed.

### **Historical Context**

Since the Supreme Court's decision in *Brown v. Board of Education* in 1954, the federal government has continued to increase its role in public education (Superfine, 2011). As policies at the national level increasingly shaped the educational landscape in the United States, state and local boards of education found their policies and practices must change, often rapidly, to meet legislation handed down from the federal level. For instance, as part of the American Recovery and Reinvestment Act of 2009 (ARRA), the national government stipulated that in order to receive Race to the Top federal funding, states must advance educational reform by establishing data systems to track student progress and improvement beginning at pre-K levels (Superfine, 2011). States turned to educational corporations to purchase standardized tests, test preparation programs, and software packages as a means for collecting these required data (Harris, 2009; Levine & Levine, 2012; Spillane, 2012). Analysis of data from the last decade led researchers to conclude these top-down accountability reforms have been ineffective at increasing student achievement, but they have been valuable for garnering media attention and political capital for politicians (Harris, 2009; Superfine, 2011). Policymakers used the platform of education not for improving student learning outcomes but to rally votes and funding for election campaigns (Levine & Levine, 2012). Levine and Levine (2012) found ties between policymakers and large education-based corporations were

disconcertingly tight. Rather than increasing student achievement, top-down educational reforms increased profits for test-writing companies, textbook companies, and other education-based corporations (Levine & Levine, 2012). With so many varied interests at play in educational policymaking, it is no wonder the associated data collected showed such variability and broad interpretation (Goren, 2012; Jacobsen et al., 2014; Spillane, 2012). In the current era of data-driven decision-making in education, the increasing number of practices used to create data for analysis further widens the variability between such measures (Meyers & VanGronigen, 2018; van Geel et al., 2016). These irregularities in data and data interpretation have been shown to work against increasing student achievement and school performance (Goren, 2012; Murphy, 2013).

### **Ambiguity in Data Interpretations**

Researchers have shown it as a common practice for school policymakers and leaders to use data from school performance measures, particularly student achievement scores, to shape policy and goals (Goren, 2012; Spillane, 2012). This practice is highly subjective, often rendering widely inconsistent interpretations of the data (Goren, 2012; Jacobsen et al., 2014; Meyers & VanGronigen, 2018). Such irregularities in data interpretations have been shown to work against increasing student achievement and school performance (Goren, 2012; Murphy, 2013).

In separate studies that examined how school leaders used data to inform school-level policy, Isernhagen (2012) and Spillane (2012) both found decision-makers interpreted school performance and student achievement data in a variety of ways. Isernhagen (2012) and Spillane (2012) each concluded such ambiguities granted school leaders a considerable degree of autonomy in determining and prioritizing school issues

and problems. These two studies are relevant because the authors analyzed how school performance data are used to shape educational policy decisions. Moreover, these researchers concluded the array of interpretations of school performance data led to differing and, at times, conflicting conclusions about what worked, what needed improvement, and how to shape future policy (Isernhagen, 2012; Spillane, 2012). For example, in her study of Nebraska Title I schools, Isernhagen (2012) found a majority of classroom teachers lacked a clear understanding of their school's improvement goals, particularly when the school improvement goals were created by administrators or school improvement teams using testing data to shape school improvement goals. Further inquiry led Isernhagen (2012) to conclude that although school personnel agreed that the school improvement goals as stated were worthwhile, there were vast differences in opinion on what those goals meant and the best means for accomplishing them. For instance, many schools indicated a need for increased community involvement; however, teachers and administrator responses suggested vastly different interpretations of what that meant and how to bring about change (Isernhagen, 2012).

Not only are stakeholder perceptions of school performance influential in policy decisions, but differences in data perception have also been a source of contention between schools and the public at large. Jacobsen et al. (2014) conducted a comprehensive study of published school performance indicators across systems in each state and in five major U.S. cities. This team of researchers found as school systems published aggregated school-level data and performance measures, results drew comparisons from year-to-year and school-to-school with little consideration given to the methods for calculating scores (Jacobsen et al., 2014). Analysis of findings led his team

to conclude mandated publishing of school performance data functioned to validate school reform efforts only when data were presented and received in a favorable light (Jacobsen et al., 2014). Furthermore, converting the format in which school performance ratings were presented (i.e., on a numerical scale of 0-100 versus a letter-grade scale of A-F) led to a shift in public response. Manner and format of publicizing school performance data shaped public perceptions of school success (Jacobsen et al., 2014). Additionally, different perceptions and interpretations of school performance data led to a wide variety of changes in policy from school leaders and decision-makers (Jacobsen et al., 2014). For instance, in studying New York schools, Jacobsen et al. (2014) concluded the city's letter grade report was perceived as conflicting with the state's report by percentages of students meeting different proficiency levels, even though they reported identical data. Some viewed schools as performing poorly, while others viewed the same schools as moderately successful (Jacobsen et al., 2014). Such a difference in the perception of reported data led to a divergence in school and system reform efforts. Jacobsen et al. (2014) concluded these competing reform efforts diminish the legitimacy of public schools.

### **New School Accountability Measures in Georgia**

Like most states, Georgia entered the modern era of school accountability in 2001 with the passage of the No Child Left Behind Act (NCLB) (Thomas B. Fordham Institute, 2009). The NCLB legislation required states and schools to track student achievement on standardized tests. The law stated specific student populations and subgroups were required to meet a state-determined level of adequate yearly progress (AYP). Any school or system that failed to meet AYP goals was in danger of losing

significant federal funding (Thomas B. Fordham Institute, 2009). Not long after states established systems of accountability for meeting the requirements mandated under NCLB, researchers began to examine how these measures were affecting schools across the United States (Hanushek & Rivkin, 2009; Rumberger & Palardy, 2005; Schultz & Stern, 2013). Findings revealed school improvements were partly illegitimate. In their study of AYP rates across high schools in America, Rumberger and Palardy (2005) found a tradeoff existed between student achievement measures and school dropout and transfer rates: in order to meet the AYP threshold, schools encouraged low-performing students to drop out or transfer to another school or system. Researchers also discovered because of AYP guidelines, schools focused on preparing all students to pursue a four-year post-secondary degree (Symonds, 2012). However, students were ill-prepared for both college and career entry (Schultz & Stern, 2013; Symonds, 2012). The incentives included in the growing accountability legislation were shown to work against the very students the policies proclaimed to support (Hanushek & Raymond, 2005). Other researchers continued to prove that measuring school performance by student standardized test scores alone was ineffective (Causey-Bush, 2005; Levine & Levine, 2012; Rumberger & Palardy, 2005; Superfine, 2011; Thomas B. Fordham Institute, 2009). Rather than dismantling accountability programs, policymakers determined states and schools should be allowed to create a more holistic measure of school performance data (Georgia Department of Education, 2017b). In response to these federal policy changes, Georgia created its College and Career Ready Performance Index (CCRPI).

The Georgia CCRPI includes multiple components for evaluating school performance. The primary element is student achievement, as measured by content

mastery on standardized tests (Georgia Department of Education, 2017b). Also included in the CCRPI are graduation rates for student cohorts, completion rates for college and career preparation course sequences, and student progress as measured by student growth percentiles (Georgia Department of Education, 2017b). Closing the achievement gap is gauged by examination of standardized test scores by students with disabilities (SWD), students in language acquisition programs, or economically disadvantaged (ED) students from one school year to the next (Georgia Department of Education, 2017b). Spreading a school's performance indicator score across multiple dimensions appeared to minimize the adverse effects previous measures of accountability had on student learning outcomes. However, researchers indicated these components might be as flawed at measuring school performance as AYP (Cabrera et al., 2014; Kanno & Kangas, 2014; Parr & Bonitz, 2015). Parr and Bonitz (2015) particularly examined a nationally representative sampling of high school students. In their study, Parr and Bonitz (2015) examined school-level performance measures and determined student demographics were more strongly correlated to academic outcomes, such as high school dropout rates and post-secondary educational success, than were other factors, such as self-efficacy. Parr and Bonitz (2015) indicated social inequalities continue to have negative effects on student learning outcomes, regardless of how academic success or school performance is measured.

Zhu, Jacob, Bloom, and Xu (2012) showed in a meta-analysis of education research and school study designs that no statistically significant differences were found in student achievement outcomes when examining school-wide data versus data from individual classrooms. School-wide student outcomes were nearly identical, regardless

of any classroom-level differences. Findings from these studies provide further validation that CCRPI scores may be predicted by variables of circumstance into which students are born. The literature suggested school performance measures like CCRPI scores may be better predicted from school-level student demographics rather than educational strategies or school-level policies (Kanno & Kangas, 2014; Parr & Bonitz, 2015). However, much remains inconclusive. The gap in the literature warrants exploration of these ideas through a study examining all public high schools in Georgia and could shed light on many unknown factors in contemporary school performance measures.

### **Cultural Ecological Theory**

American anthropologist John Ogbu studied minority education for over 30 years (Ogbu & Simons, 1998). His examination of minorities in schools extended to multiple countries, notably Britain, Israel, India, Japan, New Zealand, and the United States (Ogbu & Simons, 1998). Across countries and cultures, Ogbu observed minorities grouped themselves together to maintain their native cultural identity and encourage solidarity within their group (Ogbu, 2004; Ogbu & Simons, 1998). Efforts of cultural minorities to coexist within society created friction and conflict in society at large but acutely within schools (Ogbu, 2004; Ogbu & Simons, 1998). Ogbu's focus on the ways in which cultural groups dealt with this friction and conflict led him to develop his Cultural Ecological Theory (CET) (Ogbu & Simons, 1998).

Ogbu used CET to help explain the burden of cultural minority groups, specifically racial/ethnic minorities, to navigate the tension of maintaining their cultural identity without fully assimilating into the dominant culture (Ogbu, 2004). For example,

Ogbu discussed how Black students did not strive to achieve high grades in school because it was negatively perceived within their culture as “acting White” (Ogbu, 2004, p. 2). Formal education in the United States was perceived as a strongly “White institution” (Ogbu & Simons, 1998, p. 174). Enduring tensions between the minority Black culture and the majority White culture was the outcome observed by Ogbu and Simons (1998). Furthermore, Ogbu and Simons (1998) noted that multiple minority groups, not just Black Americans, displayed mistrust with perceived “White institutions” such as schools, courts, and other governmental institutions. This mistrust was accompanied by “an abstract belief in the importance of education for success, which contradicted . . . their community’s and parents’ concrete experiences,” resulting in ambivalence regarding a school (Ogbu & Simons, 1998, p. 180).

It should be noted that Ogbu defined minority groups not merely by population percentage, but that any group in a subordinate position of power within the larger culture (Ogbu & Simons, 1998). South Africans during apartheid is a familiar example of this definition of minority status. Although racial and ethnic minorities were his primary focus of study, Ogbu’s Cultural Ecological Theory extends to all students identified as subordinate or secondary within educational settings. The school-level student demographic groups examined in this study qualify as minority groups under Ogbu’s definition (Ogbu & Simons, 1998). Ogbu’s acknowledgment of the role played by socio-cultural dynamics and persistent underperformance in schools by different student groups provides a theoretical underpinning for the variables to be examined in this study.

## **Student Demographics as Predictor Variables**

Certain student demographic variables, including but not limited to race and ethnicity, limited English proficiency, and socioeconomic status, play a decisive role in determining student achievement on standardized tests (Brockmeier, Starr, Green, Pate, & Leech, 2013; Causey-Bush, 2005; Christle et al., 2007; Kanno & Kangas, 2014). In Georgia, more than 50% of a school's CCRPI score is derived from student test scores (Georgia Department of Education, 2017b). In a comprehensive study examining Georgia elementary schools, Brockmeier et al. (2013) found school-level student demographics were more accurate predictors of student standardized test scores than school leadership factors, such as tenure or successful implementation of programs or improvement initiatives. In a related study examining suburban Pennsylvania high schools, Kanno and Kangas (2014) exposed a clear underrepresentation in and lack of access to rigorous coursework for English Language Learners (ELLs). Instead of cognitively challenging work, schools relegated these students to low-level assignments. Kanno and Kangas (2014) concluded a lack of access to honors and advanced-level coursework was a significant reason that ELL students continued to score poorly on achievement tests. According to the U.S. Department of Education (2017), ELL students are the largest-growing subgroup in the American student population. Unfortunately, very little research is available examining the effect measures such as CCRPI have on ELL students, or in turn how ELL students are affected by such measures. This gap in the literature warrants further study on this topic. By evaluating student demographic variables at the school level and Georgia high school CCRPI scores, educators may better understand the relationships between the two.

Economists interested in studying education created a model called the *educational production function* (Dewey, Husted, & Kenny, 2000). Designed to examine how a particular set of variables affects educational outcomes, an educational production function is a measure of educational output, such as standardized test scores or graduation rates, as a result of a specified set of inputs (Dewey et al., 2000). These inputs may range from school and community-level inputs, such as average teacher experience or median property values, to the level of individual student inputs, such as parental education level or family income. Dewey et al. (2000) argued the leading theorists in this field of study erroneously included both parental education level and family income as educational inputs in the production function. According to Dewey et al. (2000), previous methodologies were faulty because parental education and family income are inextricably tied together. Family incomes were primarily determined by parental education. Thus, previous findings often cited in the research may be misleading. Dewey et al. (2000) demonstrated by excluding one of these two variables in the equation, an education production function is less biased and more precise, arguing this updated method may yield findings more accurately portraying how school-level and community-level inputs affect educational outputs. Dewey et al. (2000) established the lack of consensus among researchers as to how acutely particular student-level variables impact school performance measures. Further research in this area of study could aid practitioners and policymakers in understanding how various student-level variables correlate to school performance measures.

## **Race/Ethnicity**

Perhaps no test is taken by more high school students than the Scholastic Aptitude Test (SAT). In a study examining the relationship between secondary student demographics and SAT scores, St. Rose (2008) determined the main effect of race/ethnicity accounted for a larger portion of the variance in SAT verbal and math scores than gender or socioeconomic status. Using a representative sample size of 100,000 SAT test-takers, she attributed 10% of the variance in math scores and 6% of the variance in verbal scores to student race/ethnicity, controlling for other factors (St. Rose, 2008). On a smaller scale, a study of 309 public Georgia high schools was conducted by Shepherd (2004). Her study led her to conclude race/ethnicity was strongly correlated to another set of standardized tests taken by high school students, the Georgia High School Graduation Tests (GHSGT). The GHSGTs were phased out in Georgia in the 2011-2012 school year, but for the nearly three decades prior, every high school student who wanted a diploma was required to pass each of the tests that spanned across four academic domains. Shepherd's (2004) study indicated schools with higher percentages of White students had a higher percentage of students passing each of the GHSGTs. These studies clearly display the variance between White high school students and their minority counterparts on standardized test scores.

In a comprehensive study examining schools in New Jersey, White et al. (2016) determined two-thirds of the variance in high school student test scores were attributed to student race/ethnicity and economic factors. They examined data across elementary, middle, and high school levels, and found student race/ethnicity did not affect test scores significantly until the secondary level. Denoting how extensive student race/ethnicity

influenced New Jersey test-based academic performance indicators, White et al. (2016) concluded a one percent increase in a high school's minority population corresponded to a decrease of proficiency scores in English/Language Arts by 0.19 and Mathematics by 0.33. Studies such as the one conducted by White et al. (2016) have led some researchers to suggest efforts of educational policymakers are stymied by racial/ethnic factors and that such efforts can *measure* the achievement gap, but do little to actually *close* it (Crowe & Sjoquist, 2016; Custard, 2014; Ladson-Billings, 2006).

In a 2016 report from the National Center for Education Statistics, the Department of Education disclosed surprising figures related to achievement gaps between White students and their minority classmates. For example, an examination of the White-Black achievement gap in reading scores from 1992-2013 showed achievement gaps decreased at the elementary level but grew at the secondary level (Musu-Gillette et al., 2016). Meanwhile, the White-Hispanic achievement gap in reading scores remained relatively unchanged at the elementary and secondary levels, though the gaps continued to span at least 20 points on the scaled score ranging from 0-500 (Musu-Gillette et al., 2016). The writers of the report also discussed how Asians earn much higher rates of passing scores on AP/IB exams (72%) compared to Whites (40%), Blacks (23%), or Hispanics (34%) (Musu-Gillette et al., 2016).

The White-Black achievement gap is well documented in scholarly literature (Causey-Bush, 2005; Hanushek et al., 2009; Hanushek & Rivkin, 2009; Ladson-Billings, 2006; Musu-Gillette et al., 2016). Since the 1990s, researchers have begun to investigate other racial/ethnic achievement gaps in addition to the White-Black achievement gap, such as those between White and Asian-American students or White and Hispanic

students (Chang, 2005; Hanushek & Raymond, 2005; Mojica, 2013). Immigrant children (defined as foreign-born children who immigrated to the United States or as U.S.-born children whose parents are immigrants) are the fastest-growing segment of the U.S. population, accounting for one in five American children (Chang, 2005). In a study examining differences in immigrant children's achievement on standardized tests, Chang's (2005) research led her to conclude while an immigrant child's generation itself had no significant effect on academic performance, the family's country of origin did significantly affect student academic outcomes. For example, Asian immigrant children were shown to consistently outperform both their White counterparts and Hispanic immigrant children (Chang, 2005). In two separate but comparable studies, researchers demonstrated some subgroups within the Hispanic/Latino classification were more susceptible to underachievement than others (Kim et al., 2018; Sullivan et al., 2016). Such findings show how children's academic skills and success in American education are closely tied to a parent's country of origin.

In a related study examining how immigrant populations can defy traditional ethnoracial stratification, Jimenez and Horowitz (2013) analyzed third-generation immigrants in the high-skilled immigrant gateway city of Cupertino, California. Asian student populations there outperformed every other student subgroup, including the White majority (Jimenez & Horowitz, 2013). The heavy Asian influence in the city resulted in strong local resistance to assimilation into White majority culture, with "Whiteness" being seen as negative, signifying laziness, mediocrity, and an underachieving reputation (Jimenez & Horowitz, 2013). Conversely, Asian heritage represented high achievement, strong work ethic, and success (Jimenez & Horowitz,

2013). For many students, racial and ethnic identities influence their academic achievement.

In addition to student achievement scores, a second notable component of Georgia's CCRPI is a school's graduation rate. Christle et al. (2007) conducted a study and analyzed two years of school-level data across 196 high schools in Kentucky. They determined student attendance, socioeconomic status, and racial/ethnic demographics all strongly correlate to school graduation rates. Their findings indicated many of the circumstances outside of student control were strongly tied to a significant educational outcome—earning a high school diploma.

Another component of Georgia's CCRPI aims to assess how well a school closes the achievement gap (Georgia Department of Education, 2017b). Student achievement scores for each school's lowest-scoring quartile of students are examined each year. The intent of this CCRPI component is to ensure low-achieving students remain at the forefront of school improvement plans (U.S. Department of Education, 2011). However, researchers have argued educational research needs to not only critically examine the achievement gap but must also address the aggregate effects of inadequate education for students of color (Causey-Bush, 2005; Easton-Brooks & Davis, 2007; Ladson-Billings, 2006). Termed the *education debt*, these researchers have established that perpetual inequalities in education for minority populations have created a considerable chasm of wealth, power, and opportunity between Whites and non-Whites. Furthermore, these researchers weighed evidence from standardized test scores, Advanced Placement examination scores, enrollment in honors and Advanced Placement courses, dropout rates, and college admissions data and suggested current academic achievement measures

do not excavate the societal issues working to maintain the status quo (Ladson-Billings, 2006). Ladson-Billings (2006) showed an achievement gap exists, and each of the measures she examined is a factor in determining a Georgia school's CCRPI score. Aims for more holistic achievement measures such as Georgia's CCRPI may be intended to address some of the results of social inequalities found in schools, but no research has conclusively shown precisely how well Georgia schools are working to close the achievement gap or address the education debt. By examining how Georgia's current high school performance indicators are correlated to student demographic variables, a study aimed specifically at examining these ideas would allow one to weigh in on this ongoing debate and address this current gap in the literature.

Researchers have shown student race/ethnicity impacts student achievement scores (Custard, 2014; Ladson-Billings, 2006; Musu-Gillette et al., 2016). However, no conclusive evidence has yet determined how such factors impact a Georgia high school's CCRPI score. This gap in the literature necessitates a further examination of how student race/ethnicity affects Georgia high schools' performance measure.

### **Limited English Proficiency**

Perhaps the most daunting hurdle many immigrant children must face in school is that of a language barrier. Federal laws mandate all students must take the same standardized test, regardless of primary or native language (Georgia Department of Education, 2018a). When Ward (2011) examined middle school English Language Learner (ELL) student test scores across multiple North Georgia counties, she found ELL students scored worse on all middle school standardized tests than their native English-speaking counterparts. However, Ward's (2011) study was limited in that it did

not examine students from all areas in the state, nor did it control for other factors, such as race/ethnicity, socioeconomic status, or special education status. A similar study conducted across 15 elementary schools in Fairfax County, Virginia, led Yudd Moscoso (2000) to conclude higher concentrations of non-native English speakers resulted in lower student achievement scores. However, like Ward's (2011) study, the Yudd Moscoso (2000) study was limited in that it only examined a few selected schools from a convenience sample. Though these findings are not generalizable to Georgia high schools, the work of these researchers set a foundation for further research to build upon.

One such study was conducted throughout the Philadelphia, Pennsylvania school district, comparing students' English competency to state standardized test scores (Mojica, 2013). In her study, Mojica (2013) concluded, controlling for other factors, English language acquisition was significantly correlated to scores on the Pennsylvania standardized test; as students' language acquisition scores increased, so did scores on the state standardized achievement tests. A similar study at one Georgia high school by Ellis (2015) showed positive correlations between student English proficiency and End-of-Course-Tests and Georgia High School Graduation Tests. Her findings led Ellis (2015) to conclude mastery of the English language is strongly tied to standardized test scores in Georgia. However, her study was limited in that it only examined scores from a single high school in Georgia from the 2011-2012 school year to the 2013-2014 school year.

Studies such as these led Wakeman (2013) to ask why the variable of limited English proficiency, when controlling for other factors, continues to show positive correlations to standardized test scores. One theory put forward was that academic language includes nuances that differ from the more common social tongue. In her study,

Wakeman (2013) discussed how ELL students in Georgia were not taught nor exposed to the academic register as native English-speaking students were, and as a result, these students score lower on standardized achievement tests in Georgia. She examined the predictive power of English language proficiency scores and scores on standardized biology End-of-Course exams in one Georgia high school (Wakeman, 2013). The results of her study led her to conclude that, when controlling for other factors, stronger English proficiency translated to higher science scores on Georgia's biology End-of-Course Test (Wakeman, 2013). Perhaps Wakeman (2013) was correct in her assertion that ELLs struggle on science achievement tests due to a lack of understanding academic language; however, no generalizations should be made from her study alone, since her study only examined a single grade level at a single school within a single subject.

English Language Learners have cause for concern regarding these high stakes tests. However, several researchers have shown the positive impact that strategic intervention programs have on these grim circumstances (Cabrera et al., 2014; Llosa et al., 2016; Treffner, 2003). For example, Treffner (2003) studied 340 Florida high schools and found time spent in language acquisition programs, such as ESOL courses, had a positive and drastic impact on student academic progress and student achievement scores. Llosa et al. (2016) conducted an experimental study across sixty-six schools in the southeastern part of the U.S. and found although English Language Learners consistently score lower on science achievement tests, those achievement gaps were significantly reduced when strategic interventions for language acquisition were implemented.

Researchers have shown strategic language acquisition programs can help ELL students better reach their potential on standardized tests (Llosa et al., 2016; Treffner,

2003). However, some school districts have eliminated such programs because they were deemed too politically controversial (Cabrera et al., 2014). Cabrera et al. (2014) studied Latino students in Tucson, Arizona, and concluded exceptional gains in standardized test scores were made due in large part to student participation in a Mexican-American studies program. This program placed low-achieving Latino students, many of whom were English language learners and economically disadvantaged, into a sheltered, homogeneous group for instruction. Instructors themselves were often Latino. Program instructors received specialized training for the program, which was based on the works of Freire, emphasizing cultural identity, power, and oppression (Cabrera et al., 2014). When the program was eliminated by the school board due to political controversy, achievement scores among the target population were shown to significantly drop (Cabrera et al., 2014).

While specific programs can implement strategic interventions to aid ELL students in academic achievement and on student achievement tests, some researchers have indicated the structure and makeup of a school can have an impact on minority students, particularly those for whom English is not their native language (Kanno & Kangas, 2014; Kumar & Lauermann, 2018). Kanno and Kangas (2014) concluded from their examination of students in suburban Pennsylvania that a systematic restriction of access to rigorous coursework was a contributing factor to limited ELL student success on Pennsylvania standardized tests. They argued such limited access to rigorous coursework tended to have lasting impacts on advancement within the school and reduced postsecondary education options as well (Kanno & Kangas, 2014). Kumar and Lauermann (2018) conducted a study investigating the impact of limited diversity in the

teacher workforce on ELL students. Their work led them to conclude that when a school's teaching faculty lacked ethnoracial diversity, minority populations experienced a direct negative effect; this negative impact was particularly significant among populations of students for whom English was not the native language (Kumar & Laueremann, 2018).

Students with limited English proficiency often experience academic neglect in the home as well. Martinez (2011) found in her study of Latino homework patterns that ELL students completed homework less than other students, largely due to a lack of parental help at home. The considerable language barrier between ELL students and families and academic assignments and achievement tests was shown to have a significantly negative impact on numerous academic outcomes for ELL students (Martinez, 2011).

Why ELL students continually score lower on standardized achievement tests is outside the scope of this study. However, the fact that ELL students do consistently score lower on standardized achievement tests is part of this study's theoretical framework. The direct effects of ELL students' lower achievement scores on a school's holistic CCRPI measure have, to this point, gone largely unmeasured, and warrants further investigation. This study aimed to measure the correlation between a school's ELL student population and the school's CCRPI score.

### **Economically Disadvantaged Students**

The historic Coleman report given to Congress provided overwhelming evidence linking student socioeconomic status to student achievement (Coleman et al., 1966). The report described how a school's average socioeconomic status of the student body held a

stronger correlation to the school's academic outcomes than did school facilities, curriculum, per pupil spending, teacher quality, or ethnoracial makeup of the school population (Coleman et al., 1966). The work of contemporary researchers such as Gloria Ladson-Billings and Greg Palardy has built upon the work of Coleman to show little has changed since Coleman's report was commissioned in 1964 (Ladson-Billings, 2006; Palardy, 2013). Specifically, these researchers have shown de facto segregation by socioeconomic status and race has continued prevalence in American society and affects American schoolchildren (Ladson-Billings, 2006; Palardy, 2013). In a nationwide study that focused on secondary students and their post-secondary aspirations, Palardy (2013) determined students who attended a high socioeconomic secondary school (defined as the average socioeconomic status one standard deviation greater than the mean) had a 68% higher probability of enrolling in a four-year college or university than did students at low socioeconomic high schools. Similarly, Hudley et al. (2009) found students with low socioeconomic status were twice as likely to not complete a 4-year degree at a college or university. Though these researchers focused on academic pursuits beyond high school, the findings revealed the inequalities pervasive in American education due to wealth, or lack of it.

Studying inter-district and intra-district income segregation in American public elementary schools, Owens, Reardon, and Jencks (2016) discovered from 1990 to 2010, income segregation in schools increased by over 15%. In larger school districts, intra-district segregation by student free/reduced lunch status increased by over 40% from 1991 to 2012 (Owens et al., 2016). Increases in income inequality have contributed to this rise in de facto segregation between schools and districts across America, and the

effect of unequal access to resources is theorized as one cause for the resulting growth in academic achievement gaps (Owens et al., 2016). Conversely, Thompson (2011), in his study of Florida public high schools and charter high schools, concluded a student's socioeconomic status was a significant predictor of student academic success, regardless of the type of school. Although progressive charter schools showed greater results in student achievement, student socioeconomic status was just as significant a predictor of student achievement in charter high schools as it was in traditional public high schools (Thompson, 2011).

In an examination spanning multiple countries, Chmielewski (2014) noted how systems of student tracking varied, but that in all systems examined, tracks were largely determined by socioeconomic status. Her findings led her to conclude in the U.S., course placement was significantly correlated to student socioeconomic status, limiting access to rigorous coursework for students of low socioeconomic status (Chmielewski, 2014). Parker, Jerrim, Schoon, and Marsh (2016) determined in educational systems with student tracking in place, students of low socioeconomic status had significantly less socioeconomic mobility than others. In a follow-up study, Parker, Marsh, Jerrim, Guo, and Dicke (2018) showed the greater a nation's socioeconomic spread, the lower the mean and the greater the spread of student achievement. These findings support those by Reardon and Owens (2014), who determined that economic segregation remained and affected school quality and educational outcomes.

Numerous researchers have written about the accuracy of socioeconomic status as a reliable predictor of student achievement scores (Easton-Brooks & Davis, 2007; Folds & Tanner, 2014; Ladson-Billings, 2006; Nye et al., 2004; Parr & Bonitz, 2015). In their

study of wealth as a predictor of academic success, Easton-Brooks and Davis (2007) determined socioeconomic status accounted for over 25% of the variance in student achievement for White students, and nearly 20% of the variance in student achievement for Black students. However, Easton-Brooks and Davis (2007) argued parental wealth was a more accurate predictor for student achievement than parental socioeconomic status. By measuring wealth as the market value of net assets, parental level of wealth accounts for generational social and capital progress better than socioeconomic status, which is typically derived from such factors as education level, occupational prestige, and income. Easton-Brooks and Davis (2007) showed wealth or lack of wealth was a more accurate predictor in determining student achievement on standardized tests. This seemingly minor distinction in defining a crucial demographic variable further attests to the lack of consensus and ongoing debate in the scholarly literature regarding the correlation between a family's financial well-being and a child's (and a local school's) academic outcomes.

A study on Georgia schools by Shepherd (2004) showed schools with higher percentages of students qualifying for free or reduced lunch consistently had lower pass rates on Georgia's high school graduation tests. In a more recent study examining 163 high schools in metro Atlanta, significant correlations were found between student socioeconomic status and the United States History End-of-Course exam scores (Watkins, 2017). Without exception, as a school percentage of economically disadvantaged students increased, the End-of-Course exam scores decreased (Watkins, 2017). There is clearly a strong correlation in Georgia between student achievement and

student socioeconomic status; what is unclear is the strength of impact upon a high school's CCRPI score.

Folds and Tanner (2014) conducted a study examining how multiple school-level student variables, some of which were demographic in nature, affected student achievement in one middle-Georgia county school system. Their investigation of high school seniors led them to conclude a student's race and socioeconomic status were reliable predictors of scores on standardized assessments (Folds & Tanner, 2014). Interestingly, many of the variables examined by Folds and Tanner—namely attendance rates, career/technical course completion rates, and student test scores—are all components of Georgia's CCRPI (Georgia Department of Education, 2017b). The researchers indicated these components were reliable predictors for student achievement (Folds & Tanner, 2014). Still, the findings from a single county in middle Georgia are not enough to conclude any generalizable results for the entire state. This gap in the literature warrants expanding these ideas by conducting a comprehensive study incorporating all public high schools in Georgia.

Building upon this work, Parr and Bonitz (2015) observed parental socioeconomic status, parental involvement, and student absentee rates were more strongly correlated to student dropout rates than student engagement with assignments or student self-efficacy ratings. Parr and Bonitz (2015) examined a sample of 15,753 high school students, 845 who dropped out of high school while the remaining 14,908 earned their diploma. Data were collected from students' 10th-grade year in school, again two years later, and one final time after two more years had passed. The results indicated parental socioeconomic status, student academic performance (as measured by GPA),

level of parental involvement, and student absentee rates were strongly correlated to dropping out of high school; student self-efficacy ratings and student ratings on the value of school assignments were not significantly correlated to dropout rates (Parr & Bonitz, 2015). These findings support the premise that Georgia's most holistic measure of school performance to date may show a strong correlation to a school's student population makeup.

### **Disability Status**

Students identified as having needs that warrant special education services are classified as students with disabilities (SWD) (Georgia Department of Education, 2018d). Identifying students for special education has not been without controversy, as many argue identifying and labeling students in this manner creates or sustains biases or discrimination (Morgan et al., 2018). One fear is that minority students will be misidentified and placed into special education programs (Morgan et al., 2018). However, some researchers have argued if any systematic bias exists, it may actually underidentify students in minority populations for special education placement (Morgan et al., 2018).

The primary provision for SWD students has been to provide them with any supports deemed necessary to allow an equitable opportunity for completing a K-12 education (Georgia Department of Education, 2018d). Such programs for support and intervention have been shown to have limited success by researchers focused on this field of study (Douglas, McLinden, Robertson, Travers, & Smith, 2016; Hanushek et al., 2002). For example, a common accommodation for SWD students is a smaller class size (Zarghami & Schnellert, 2004). Each state has different rules regarding class sizes for

special education populations, but Zarghami and Schnellert (2004) concluded students with the most profound special education needs remain largely unaffected by initiatives for reducing class sizes.

Regardless of the accommodations provided to them, special education students are still required to take equivalent courses and identical assessments (Blank & Smithson, 2014; Douglas et al., 2016; U.S. Department of Education, 2011). One result of this policy Douglas et al. (2016) found was that instruction tended to focus on assessment topics, such as reading comprehension and mathematics. This narrowing of the curricular scope diminishes instruction in areas of value in particular for students with disabilities, often negatively impacting student learning outcomes (Douglas et al., 2016). Blank and Smithson (2014) drew similar conclusions from their research. They found across all fifty states, the average rate of participation on standardized tests was 96% of SWD students, yet only 36% of these students met the state-defined proficiency level on the assessment (Blank & Smithson, 2014). Following up, they determined instruction in grades 4 through 8 gradually became misaligned to curricular standards, and increasingly more so in special education settings (Blank & Smithson, 2014). This led to the conclusion that, at least in part, special education students score worse on achievement tests because they are less likely to be instructed in the curriculum being tested (Blank & Smithson, 2014).

Using data from a nationwide longitudinal study of high school students, Shifrer et al. (2013) contributed lower scores for SWD populations to their limited access to rigorous coursework, especially in math, science, and foreign languages. Their research led to the conclusion that school processes of tracking and stratification were significant

contributors to lower academic achievement for special education students, as they work to prevent SWD students from enrolling in courses that might further develop their cognitive skills (Shifrer et al., 2013).

Not all studies show an agreement among researchers in the results of special education on student achievement scores. In a study of Texas elementary schools, Hanushek et al. (2002) determined enrollment in a special education program significantly increased student achievement in mathematics tests, particularly for students classified as having a learning disability or an emotional/behavioral disorder. A similar study examining special education policies across the United States conducted by Zarghami and Schnellert (2004) noted well-qualified special education teachers proved an important factor for increasing student achievement for SWD students. They added lower quality teacher preparation programs for special education have a significant negative effect on special education teacher attrition rates, which directly impacts student achievement for SWD populations (Zarghami & Schnellert, 2004). Conversely, in a different nationwide study, Gage, Adamson, MacSuga-Gage, and Lewis (2017) examined student achievement outcomes for special education students and found teacher credentials and experience had no significant effect on SWD achievement scores. They did find teachers of emotional/behavior disorder students were likely to be less experienced, and more likely to hold a provisional certification; however, controlling for such circumstances, no significant effects were found (Gage et al., 2017). In his research using the 2009 Program for International Student Assessment (PISA) data, Smith (2016) concluded any gains in student achievement in the modern accountability era are offset by the manipulation of the testing pool—i.e., that greater accountability measures have

led to fewer SWD students being tested. His data analysis led him to deem that more special education students are transferring or dropping out, removing them from the pool of test-takers (Smith, 2016). Different conclusions from nationwide studies indicate that much is still undetermined regarding student achievement measures for students with disabilities.

### **Gifted Status**

In Georgia, a student is identified as gifted if the student “demonstrates a high degree of intellectual and/or creative ability, exhibits an exceptionally high degree of motivation, and/or excels in specific academic fields, and who needs special instruction and/or special ancillary services to achieve at levels commensurate with his or her ability” (Georgia Department of Education, 2018b, para.1). Although the state of Georgia has established guidelines for gifted status eligibility, local school systems hold a high degree of autonomy for the means by which potentially gifted students are identified and evaluated (Georgia Department of Education, 2018b). Most systems in Georgia and across the U.S. have relied on a parent and teacher referral system for identifying students as potential candidates for gifted services (Card & Giuliano, 2015). As a result of this traditional referral system, racial/ethnic minorities, English Language Learner (ELL) students, economically disadvantaged students, and females are all underrepresented in gifted education (Card & Giuliano, 2015). Such underrepresentation in gifted and talented education programs has contributed to less rigorous academic standards and lower student achievement for underrepresented student groups (Card & Giuliano, 2015). In their research on gifted and talented program representation, Card and Giuliano (2015)

concluded a universal screening process for all elementary-aged students could correct this problem of underrepresentation in gifted programs.

In North Carolina, Dean (2011) conducted a study in which she paired middle school students of a similar background (race/ethnicity and income level), one of which was enrolled in a gifted education program and the other was not enrolled in such a program. Examining the pairings, she found gifted students consistently scored better on standardized tests than their non-gifted match (Dean, 2011). Upon further review, Dean (2011) observed the students in gifted programs had access to more academically challenging coursework and were expected to regularly use higher-order thinking skills. Controlling for students' family income level and race/ethnicity led Dean (2011) to attribute the gifted students' higher scores to their consistent use of higher-order thinking skills in academically challenging environments. This study also provided evidence of non-gifted, particularly racial/ethnic minorities and economically disadvantaged students, as continually being marginalized through reduced educational opportunities, perpetuating the achievement gap (Dean, 2011).

A related study conducted by Whiting (2006) led him to also conclude racial/ethnic minorities and females were underrepresented in gifted programs. He argued one significant reason Black males are less successful in academic school settings was due to their lack of access to rigorous academic coursework (Whiting, 2006). To address this chronic problem, Whiting (2006) proposed increasing gifted enrollments of Black males in order to cultivate scholar identities in the community. Whiting (2006) stated by creating a sense of belonging in academic settings, Black males would value

education more and, as a result, reverse the trends of underrepresentation in gifted classifications and overrepresentation in failure and dropout rates.

Whiting's (2006) ideas for fostering an academic identity within the Black community were not unfounded. In a 1999 study conducted among gifted urban New York high school students, Verna and Campbell (1999) concluded it was prior academic success that contributed to gifted student achievement, rather than the resources or educational experiences provided in enrollment in a gifted and talented program. In fact, the data collected led them to surmise that too many resources had a direct negative effect on a gifted program's students' academic confidence (Verna & Campbell, 1999). Conversely, Brown and Abernethy (2009) observed in their study that as accountability measures increased, resources for gifted programs decreased. The decrease in resource funding was associated with diminishing achievement scores for students identified as gifted (Brown & Abernethy, 2009). Brown and Abernethy (2009) argued until state and local policies require an increase in responding to gifted students' learning needs, gifted students will continue to be overlooked and underserved.

Researchers have cited evidence that the advantages offered to students in gifted and talented programs begin to wane after grade 7 (Bui, Craig, & Imberman, 2014). Using SAT scores as a measure of student achievement, Bui et al. (2014) determined gifted and talented education programs had no significant effect on a student's SAT score beyond grade 7. The marginal increases in SAT scores beyond grade 7 were attributed to students' increased exposure to higher-achieving peers, compared to similar students not enrolled in gifted and talented programs (Bui et al., 2014). Grouping learners homogeneously by ability or previous academic performance has been supported by

researchers as a means by which student achievement can continue to increase (Bui et al., 2014; Collins & Gan, 2013; Peters & Matthews, 2016).

### **Summary**

The present state of affairs in Georgia public education revolves around school CCRPI scores. Aimed at addressing shortcomings of previous measures of school accountability, the CCRPI combines multiple achievement measures. However, researchers have shown many of these components to be determined largely by the circumstances into which students are born more than any actions and efforts a school could take (Covington, 2016; Easton-Brooks & Davis, 2007; Hanushek & Rivkin, 2009; Jackson & Lunenburg, 2010; Ladson-Billings, 2006). These researchers cited in this literature review concluded variables outside of school (and outside of student control) are some of the variables most strongly tied to earning a high school diploma. Cultural Ecological Theory can be used to explain the burden of cultural minority groups, specifically racial/ethnic minorities. Such variables include student race/ethnicity, English language proficiency, socioeconomic status, disability status, and gifted status. In the current era of data-driven decision-making in education, the data used are often inconclusive and widely open to various interpretations. This ambiguity is problematic for stakeholders across all levels of public education because the data-driven decisions are not leading to increased student achievement nor an increase in other educational outcomes. Findings from the aforementioned previous studies are further validation that Georgia's holistically designed CCRPI may be susceptible to strong correlations to circumstances into which a student is born. These studies point to CCRPI as still primarily determined by student-level identifiers, rather than educational strategies or

school-level policies. However, much remains inconclusive. This gap in the literature warrants further study examining school-level student demographics alongside CCRPI scores, as such a study could shed light on many unknown factors in contemporary school performance measures. Until conclusive research can be used to demonstrate how much of a school's performance indicator is determined by school-level student demographics, institutions in Georgia are condemned to suffer from a continued lack of clarity and transparency in the data used for educational policy and reform. School leaders and lawmakers will continue to believe the unproven assumption that changes in policy will lead to continued improvement in student learning outcomes, and students will continue to suffer from the adverse effects of ineffective accountability measures.

## CHAPTER III

### METHODOLOGY

The purpose of this study was to determine the extent to which selected school-level student population demographic characteristics influence a Georgia public high school's College and Career Ready Performance Index (CCRPI) score. The focus of this study was to measure the impact of the independent variables (percentage of student population identified as racial/ethnic minorities, percentage of students with limited English proficiency, percentage of economically disadvantaged students, percentage of students with disabilities, and percentage of gifted students) upon the dependent variable (CCRPI score). This chapter begins with the research questions guiding the study, followed by a description of the research design used to complete the study. With the explanation of the research design, the population and participants are discussed. Next, instrumentation and assumptions of statistical procedures, reliability, and validity are reviewed. Data collection procedures and data analysis methods are then discussed.

#### **Research Questions**

The research questions for this study were as follows:

*Research Question 1.* Is there a statistically significant relationship between a Georgia high school's student demographic variables and the school's CCRPI score, and if so, to what degree?

*Research Question 1a.* Is there a statistically significant relationship between a school's percentage of minority students and the school's CCRPI score?

*Research Question 1b.* Is there a statistically significant relationship between a school's percentage of students with limited English proficiency and the school's CCRPI score?

*Research Question 1c.* Is there a statistically significant relationship between a school's percentage of economically disadvantaged students and the school's CCRPI score?

*Research Question 1d.* Is there a statistically significant relationship between a school's percentage of students with a disability and the school's CCRPI score?

*Research Question 1e.* Is there a statistically significant relationship between a school's percentage of gifted students and the school's CCRPI score?

*Research Question 2.* Which school-level student demographic variables, if any, serve as significant predictors of a Georgia high school's CCRPI score?

### **Research Design**

This study was a non-experimental, quantitative study. The ex post facto design was used to determine the extent to which various school-level student demographics influence a high school's CCRPI score. Ex post facto research is used to examine relationships when researchers cannot control or manipulate independent variables or randomly assign subjects to different conditions (Ary et al., 2012). The design was appropriate because the independent variables (percentage of racial/ethnic minorities, percentage of students with limited English proficiency, percentage of economically disadvantaged students, percentage of students with a disability, and percentage of gifted students) cannot be manipulated, as they are preexisting characteristics of school student populations. Because the population examined was clearly defined, no random sampling

was necessary as would be the case with an experimental study. Instead, all schools meeting the defined parameters of the population as defined were examined. These factors made the ex post facto design the most appropriate for this study.

### **Population**

The target population for analysis in this study consisted of public high schools in the state of Georgia for school years 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018. These comprise all the years for which CCRPI data were available. According to the Georgia Department of Education (2017a), the number of public high schools was between 375 and 386 in Georgia for school years 2012 to 2018. For this study, high schools were defined as those comprised of grades 9-12. In Georgia, some school systems utilize a non-traditional model of the school structure. Such models may include a combined middle and high school, comprised of grades 6 or 7 through grade 12. Other models may consist of primary through secondary grades. This study was used to examine only those schools employing a traditional high school comprised solely of grades 9-12. Table 1 shows the number of Georgia public high schools serving grades 9-12 for each school year for which all the data are available, from 2012 to 2018.

Table 1

*Number of Georgia Public High Schools (Grades 9-12) by School Year*

School year	Number of high schools
2011-2012	383
2012-2013	386
2013-2014	386
2014-2015	382
2015-2016	378
2016-2017	376
2017-2018	375

*Note.* Adapted from “Downloadable Data,” by Governor’s Office of Student Achievement, 2018b.

For Georgia’s public high schools, the selected school-level student demographic data and CCRPI scores were available beginning in the 2011-2012 school year (Georgia Department of Education, 2017a; Governor's Office of Student Achievement, 2018b). The most current year for which data were available was the 2017-2018 school year. Data from Georgia’s public high schools were obtained for each independent and dependent variable for each school year to the most current year of available data, beginning with the 2011-2012 school year.

**Participants and Sampling**

The state of Georgia reported CCRPI scores for all public schools beginning with the 2011-2012 school year to the 2017-2018 school year (Georgia Department of Education, 2017a). Of these public high schools, some were classified as middle and high schools because of their inclusion of grades lower than grade 9 (Governor's Office of Student Achievement, 2017b). Similarly, some schools were classified as comprehensive elementary, middle, and high schools (Governor's Office of Student Achievement, 2017b). These school CCRPI scores were calculated using a different scoring formula than schools comprised of only grades 9-12 (Georgia Department of

Education, 2017a). Thus, any schools comprised of grades beyond the 9-12 range was not used in this study. However, data obtained from schools comprised of only grades 9-12 provide ample representation to generate credible findings. Data were collected and analyzed for each school year in the range 2012-2018. This range includes all the years for which high school CCRPI scores were calculated in Georgia. Analysis of data spanning seven school years allowed for tracking of any trends or viewing any anomalies that may have existed in CCRPI and school-level student demographic records.

### **Instrumentation, Validity, and Reliability**

#### **Instrumentation**

The Georgia Governor's Office of Student Achievement (GOSA) serves as the state agency responsible for reporting and auditing P-16 education in Georgia (Governor's Office of Student Achievement, 2017a). Part of this obligation requires the agency to collect and publish data showing how each school and school system are fulfilling accountability requirements outlined by state law (Governor's Office of Student Achievement, 2017a). GOSA cooperates with the Georgia Department of Education to collect and publish data reports outlining each public school's College and Career Ready Performance Index (CCRPI) score. As Georgia's alternative to the federally-mandated accountability measure of Adequate Yearly Progress (AYP), the CCRPI was developed to incorporate comprehensive measures of student growth and achievement (Georgia Department of Education, 2017b; U.S. Department of Education, 2011). The CCRPI data are available beginning with the 2011-2012 school year. The CCRPI data for each school year between 2012 and 2018, for a total of seven years of high school CCRPI and school-level student demographic data, were examined in this study.

## **Validity**

Georgia's College and Career Ready Performance Index (CCRPI) has faced criticism concerning validity and reliability (Crowe & Sjoquist, 2016). However, Georgia's Department of Education went to great lengths to establish validity for the CCRPI. Multiple groups of stakeholders were involved in the design and development of the instrument (U.S. Department of Education, 2011). Such groups include parent organizations, professional educator organizations, chambers of commerce, professional standards commissions, legislative and executive committees, university consultants, and civic organizations, among many others. Efforts of these groups helped to ensure the content, construct, and external validity of the CCRPI (U.S. Department of Education, 2011). The GaDOE used a process of statistical equating to ensure assessment measures used in the CCRPI are equal in difficulty (Georgia Department of Education, 2017c). Additionally, the GaDOE's multi-step process of CCRPI's construction, consisting of field-testing assessment questions and analyzing the results for accurately measuring student content mastery, ensured the measures used in calculating CCRPI scores were valid (Georgia Department of Education, 2017c). GaDOE conducted periodic additional analyses over time comparing the results from CCRPI measures to other well-regarded assessment systems, serving as further evidence of external validity (Georgia Department of Education, 2017c).

## **Reliability**

The reliability of the CCRPI is difficult to measure, as the score is an index comprised of multiple metrics. These metrics include student achievement scores, graduation rates, closure of the achievement gap, student growth percentiles, and post-

secondary readiness factors (Georgia Department of Education, 2017b). End-of-course achievement level descriptors (EOCs) account for 50% of a high school’s CCRPI score (Georgia Department of Education, 2017b). The EOCs for Georgia high schools have been shown to be comparable to national averages (Crowe & Sjoquist, 2016). However, other measures used to calculate the CCRPI have not been shown as needing further research to ensure reliability (Crowe & Sjoquist, 2016). According to the Georgia Department of Education (2017c), each assessment is evaluated for reliability using Cronbach’s alpha reliability coefficient (See Table 2). These calculations assure the Georgia Department of Education of the reliability of the assessments used in CCRPI calculations.

Table 2

*Coefficient Summary for 2016-2017 Georgia CCRPI Assessment Reliability*

Course	Average Reliability	Minimum/Maximum Reliability
9 <sup>th</sup> Grade Lit. and Comp.	0.89	0.87 / 0.91
American Lit. and Comp.	0.88	0.88 / 0.90
Coordinate Algebra	0.90	0.90 / 0.90
Analytic Geometry	0.90	0.90 / 0.91
Biology	0.91	0.91 / 0.92
Physical Science	0.88	0.87 / 0.90
American History	0.92	0.91 / 0.92
Economics	0.91	0.90 / 0.91

*Note.* Adapted from “Validity and Reliability for the 2016-2017 Georgia Milestones Assessment System,” by Georgia Department of Education, 2017c, p. 4.

The reliability coefficient can be used for comparisons from test to test and ranges from 0 to 1 (Georgia Department of Education, 2017c). Reliability coefficients for the assessments used in CCRPI calculations suggest that scores provide a reliable measure of student performance.

## **Independent Variables and Dependent Variables**

### **Independent Variables**

The predictor variables used in this study were the percentage of each school's student population by racial/ethnic minority, percentage of student population identified having limited English proficiency, percentage of economically disadvantaged students (as measured by percentage of students qualifying for free/reduced lunch pricing), percentage of students with a disability, and percentage of students identified as gifted. In this study, the student demographic characteristics were recorded on a ratio scale, which was appropriate for independent variables in a regression analysis.

### **Dependent Variables**

The dependent variables in this study were Georgia public high school CCRPI scores. CCRPI scores are continuous interval data, and as such were appropriate for the dependent variable in regression analysis. A multiple regression analysis allows researchers to analyze the magnitude of the main effects of each independent variable upon a dependent variable, as well as interaction effects between independent variables on the dependent variable if any exist. As this study aimed to generate a predictive model for CCRPI scores of Georgia's public high schools using school-level student demographic data, a multiple regression analysis was appropriate.

### **Data Collection**

After the Institutional Review Board (IRB) granted permission (Appendix A), data for this study were collected through state government agencies. The Georgia Governor's Office of Student Achievement collects data from all public schools in the state of Georgia (Governor's Office of Student Achievement, 2017b). Each school's

breakdown of school-level student demographic characteristics was accessible from the Georgia Governor's Office of Student Achievement on their website or through a special data request (Governor's Office of Student Achievement, 2018b). The Georgia Department of Education collects and publishes a CCRPI score for all public K-12 schools in the state (Georgia Department of Education, 2017a). As these measures are available for public download, the CCRPI scores were downloaded for part of the data collection process. These data were compiled and aggregated into a single data set for conducting a multiple regression analysis. All the data for both the dependent and independent variables were continuous, which was appropriate for predictive modeling in multiple regression analysis.

### **Data Analysis**

Descriptive statistics were used to summarize each of the independent variables. Means, standard deviations, minimum, maximum, skewness, and kurtosis were reported for the percentage of the student body by racial/ethnic minority, percentage identified having limited English proficiency, percentage identified as economically disadvantaged, percentage of students with a disability, and percentage of students identified as gifted. Descriptive statistics were reported for the overall sample and by groups based on CCRPI score ranges (90+, 80-89, 70-79, and < 70). These included the number and percentages of each school-level student demographic variable.

Correlation analysis was used to analyze data for Research Questions 1 through 1e. This approach allowed the continuous variables of school-level student demographic characteristics to be examined in order to identify the strongest correlations between the independent variables and the dependent variable. Correlation coefficients among the

independent variables and the dependent variable were reported to answer RQ 1 and its sub-questions.

Multiple linear regression was used to analyze data for Research Question 2. This statistical approach allowed the continuous variables of school-level student demographic characteristics to be examined in order to identify the best predictors of the dependent variable, the high school CCRPI score. All the independent variables were entered into the regression equation and analyzed in order to determine the power each effect had on predicting the dependent variable of the CCRPI score.

The data analyzed were collected from the Georgia Department of Education for school years 2012 through 2018. These data provided an appropriate platform for the ex post facto design to analyze the differences between schools and examine the predictive power of the independent variables on the dependent variable. Multiple regression analysis is a statistical analysis tool that allows researchers to examine the relationship between several independent variables and a continuous dependent variable (Creswell, 2014). Using this method in the study allowed for an examination of the differences in school-level student demographics between high-performing schools and low-performing schools, as measured by the CCRPI score. The regression analysis also allowed for an analysis of the predictive power for each independent variable on the dependent variable.

Multiple regression analysis relies on several assumptions that were checked in the data analysis. Violations of these assumptions could lead to invalid or biased findings (Navarro, 2017). First, a multiple regression relies on an assumption of a normal distribution of the residuals (Navarro, 2017). Using SPSS, the normal scatterplot revealed the distribution of residuals to test the normality of the residuals. A second

fundamental assumption in regression analysis is linearity (Navarro, 2017). Again, SPSS scatterplots were used to determine if the linearity assumption holds true. If a non-linear relationship was determined to exist between an independent variable and a dependent variable, non-linear transformations were performed to determine the appropriate quadratic fit for the variables being analyzed (James, Witten, Hastie, & Tibshirani, 2017).

A third assumption made in regression analyses is homogeneity of variance, or homoscedasticity, an assumption that the variance of residuals for independent variables is constant (Navarro, 2017). SPSS scatterplots allowed a visual inspection to check for a violation of homoscedasticity. Any irregularities were examined further through Levine's test. Though slight differences in variance should not be cause for concern, significant differences could pose problems for the reliability of this study's findings (Navarro, 2017). Finally, collinearity between the independent variables cannot go unchecked, as it could lead to problems when analyzing regression results (Navarro, 2017). Issues of multicollinearity can cause researchers to inaccurately conclude the significance between multiple independent variables and the dependent variable. SPSS was used to check for multicollinearity using the variance inflation factor (VIF) (Navarro, 2017). Variables with a VIF coefficient exceeding 10 would indicate a problematic level of collinearity, and thus were either combined into a single predictor variable, or one of the independent variables was removed from the model (James et al., 2017).

Ordinary Least Squares (OLS) regression was used to run the regression model. As each independent variable is ratio data, an OLS was an appropriate procedure for this design. OLS regression analysis is used to predict a linear relationship between independent variables and dependent variables by squaring the sum of differences

between the actual and predicted value of variables along a regression line (Navarro, 2017). The following formula is used for OLS regression:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_nX_n + \varepsilon \quad (1)$$

where  $Y$  equals the expected value of the outcome variable,  $\beta$  equals the regression coefficient,  $X$  equals the value of the predictor variable, and  $\varepsilon$  equals the expected error term (James et al., 2017). The  $\beta$  coefficients interpret the estimated changes in  $Y$  corresponding to a one-unit increase in one predictor variable with other variables being held constant.

The data collected were transferred into the statistical computing program SPSS for analysis. Using SPSS allowed for checking assumptions of linearity by examining scatterplots of the variables under examination. If linearity could not be assumed, variables were transformed or a polynomial fit was run for the model, lending more accurate predictions. SPSS also allowed for a review of the distribution of residuals through histograms and normal probability plots, as regression models operate under the assumption that the residuals follow a normal distribution. Multicollinearity of the independent variables was also examined with the use of the variance inflation factor (VIF) to check for significant multicollinearity between variables. If any of the predictor variables were found to be significantly correlated to one another ( $VIF > 10$ ), one of these variables was removed from the prediction equation. The analyses run by SPSS allowed for a determination on the impact of the independent variables (percentage of student population by race/ethnicity, percentage of students with limited English proficiency, percentage of economically disadvantaged students, percentage of students with disabilities; percentage of gifted students) upon the dependent variable (CCRPI score).

## Summary

This chapter provides an overview of the non-experimental ex post facto design using multiple regression analysis that was used in this research study. This allowed for an examination of data collected from the Georgia Department of Education and the Governor's Office of Student Achievement. Data were collected from all public high schools throughout the state of Georgia comprised solely of grades 9-12 spanning the school years from 2012 to 2018. These data were percentage of student population by racial/ethnic minority, percentage of student population identified having limited English proficiency, percentage of student population identified as economically disadvantaged, percentage of student population with a disability, and percentage of student population identified as gifted. Data analyzed also included each Georgia public high school's CCRPI score. Data collected were evaluated through a multiple regression analysis. This procedure provides a researcher the means to analyze the magnitude of effects between independent variables on the dependent variable if any exist. As this study was designed to generate a predictive model for CCRPI scores of Georgia's public high schools using school-level student demographic data, a multiple regression analysis was appropriate.

Descriptive statistics were used to summarize each of the independent variables. Means, standard deviations, minimum, maximum, skewness, and kurtosis were reported for the student demographic characteristic predictor variables. Descriptive statistics were reported for the overall sample and by groups based on CCRPI score ranges (90+, 80-89, 70-79, and < 70). Correlation analysis and multiple linear regression were used to analyze data for each of the research questions. Multiple linear regression allowed the

continuous independent variables to be examined in order to identify the best predictors of the dependent variable, high school CCRPI score. All independent variables were entered into the regression equation and analyzed in order to determine the power each effect had on predicting the dependent variable of the school CCRPI score.

In Chapter 4, the results of data analysis are presented. These results are discussed in detail in Chapter 5. Implications and recommendations for future studies are offered in Chapter 5 as well. References are provided and all related documents are included in the appendices.

## CHAPTER IV

### DATA ANALYSIS

The purpose of this study was to determine the extent to which selected school-level student population demographic characteristics influence a Georgia public high school's College and Career Ready Performance Index (CCRPI) score. To measure the impact of the independent variables (percentage of student population identified as racial/ethnic minorities, percentage of students with limited English proficiency, percentage of economically disadvantaged students, percentage of students with disabilities, and percentage of gifted students) upon the dependent variable (CCRPI score), quantitative data were collected from the Georgia Governor's Office of Student Achievement (GOSA) and the Georgia Department of Education (GaDOE). Although there are existing studies on student demographics and student achievement, minimal research has been conducted examining the impact these school-level student demographics have on school performance measures like CCRPI. This study was designed to address some of the gaps in research by examining the relationship between school-level student demographics and school performance measures.

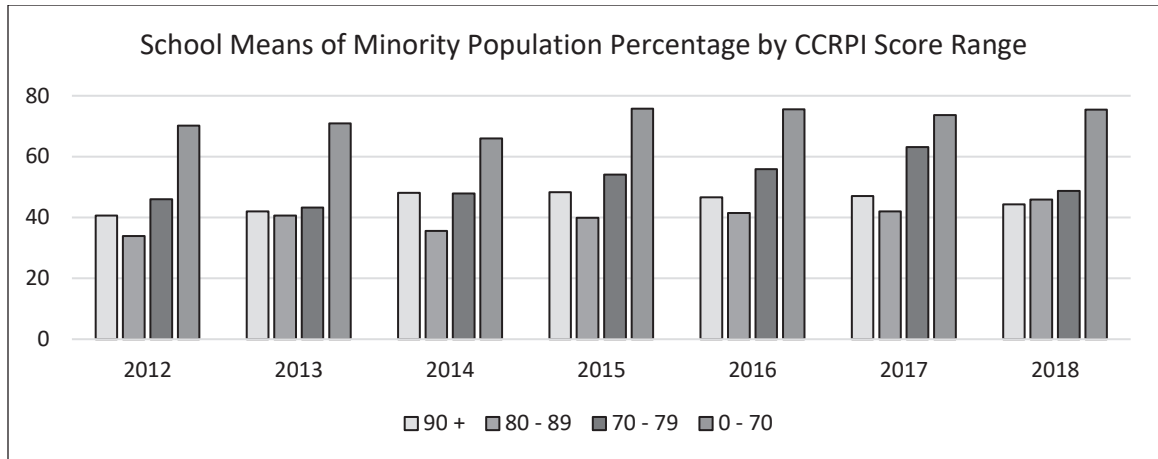
This chapter presents a detailed summary of the populations selected for data analysis. Descriptive statistics for all schools in the population are organized by year and CCRPI score range and are presented in table format. Trends from the descriptive statistics are discussed. Next, the results for each research question are presented based on the findings from the data analysis. The statistical significance of correlations

between the independent variables and dependent variable are discussed, with data summaries presented in tables. Next, results from the assessments of data sets are provided, outlining the normality of residuals, multicollinearity tests, and homoscedasticity (homogeneity of variance) test results. Finally, findings from multiple regression analyses are used to present the predictive power of each independent variable on the dependent variable.

### **Descriptive Statistics**

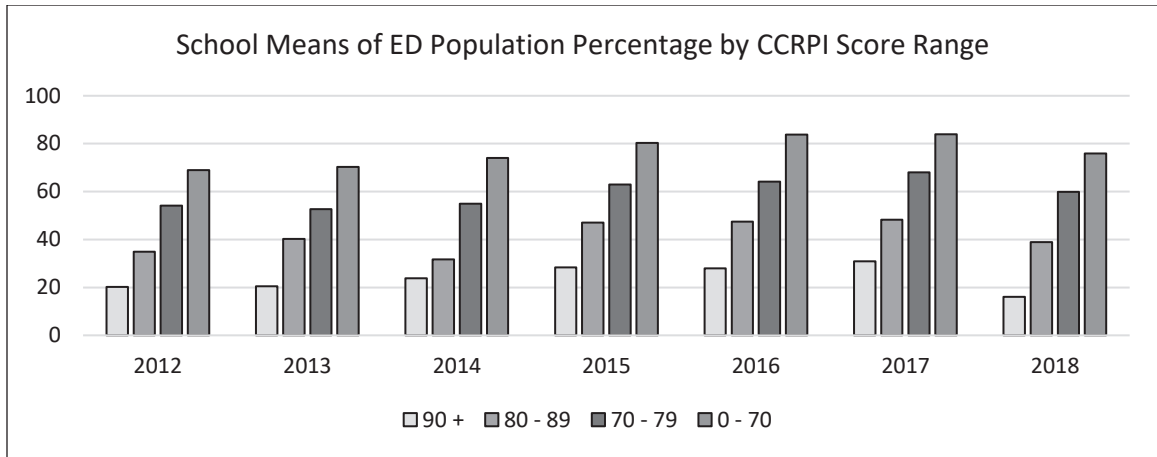
Data collected from Georgia's GOSA and GaDOE for the school years 2012-2018 included the school-level demographics of percentage of minorities, percentage of English language learners, percentage of economically disadvantaged students, percentage of students with a disability, and percentage of gifted students. School CCRPI scores were also collected. Appendix B displays the descriptive statistics for Georgia high schools composed of grades 9 through grade 12, grouped by CCRPI score range. Below are the trends discovered from the descriptive data.

Grouping schools by CCRPI score ranges allows for viewing several noteworthy trends. First, low performing school groups had higher means of minority populations, with the school group scoring 90+ as the exception. This is evident for all school years except 2018, in which the mean percentage of minority students was slightly lower for the highest-scoring school group.



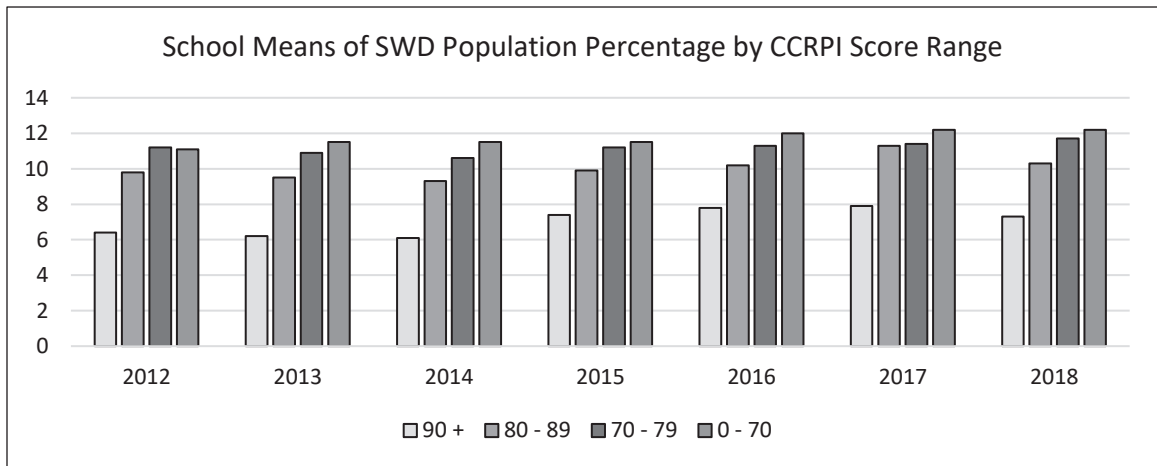
*Figure 2.* Means of minority students as a percentage of school population, grouped by school CCRPI score range.

Figure 2 displays school means of minority population percentages for all years, grouped by the CCRPI score range. Data in this study were not differentiated between specific minority groups. Previous researchers concluded specific minority group affiliations affected student achievement results differently; for example, schools with higher Asian-American populations displayed greater student achievement results than schools with other minority groups (Chang, 2005; Jimenez & Horowitz, 2013; Ogbu & Simons, 1998). This may partially explain the aforementioned trend regarding CCRPI scores and minority populations in Georgia high schools.



*Figure 3.* Means of economically disadvantaged students as a percentage of school population, grouped by school CCRPI score range.

Figure 3 displays school means of economically disadvantaged population percentages for all years, grouped by the CCRPI score range. The descriptive statistics reveal low performing school groups had considerably higher mean percentages of economically disadvantaged student populations than high performing school groups. This trend held true for all years for which data were available.



*Figure 4.* Means of students with a disability as a percentage of school population, grouped by school CCRPI score range.

Figure 4 displays school means of students with a disability population percentages for all years, grouped by CCRPI score range. The descriptive statistics

indicate higher-performing school groups had lower means of students with disabilities than lower-performing school groups. This was the case for all years for which data were available.

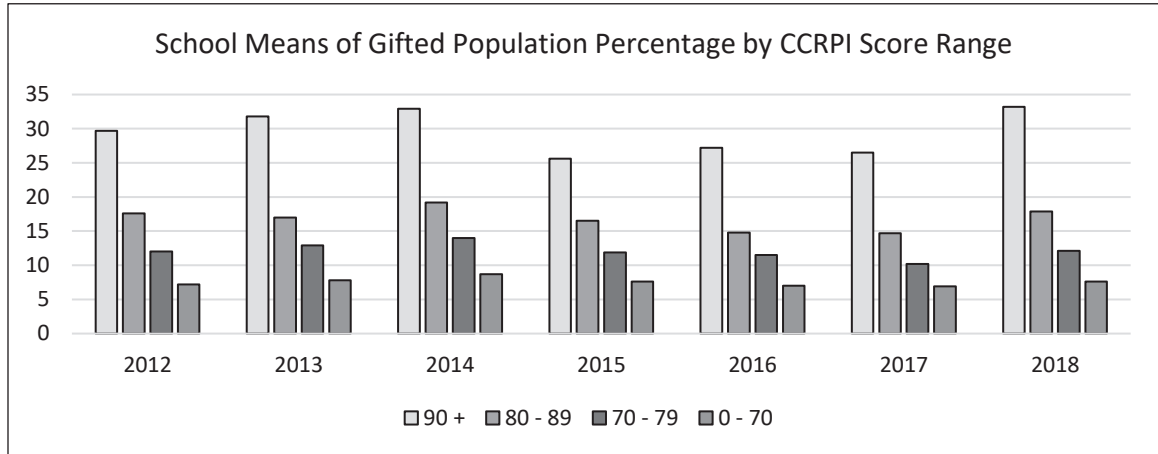


Figure 5. Means of gifted students as a percentage of school population, grouped by school CCRPI score range.

Figure 5 displays school means of gifted student population percentages for all years, grouped by CCRPI score range. It is worth noting that for all years for which data were available, gifted student populations were greater for higher scoring schools and lower for low performing schools.

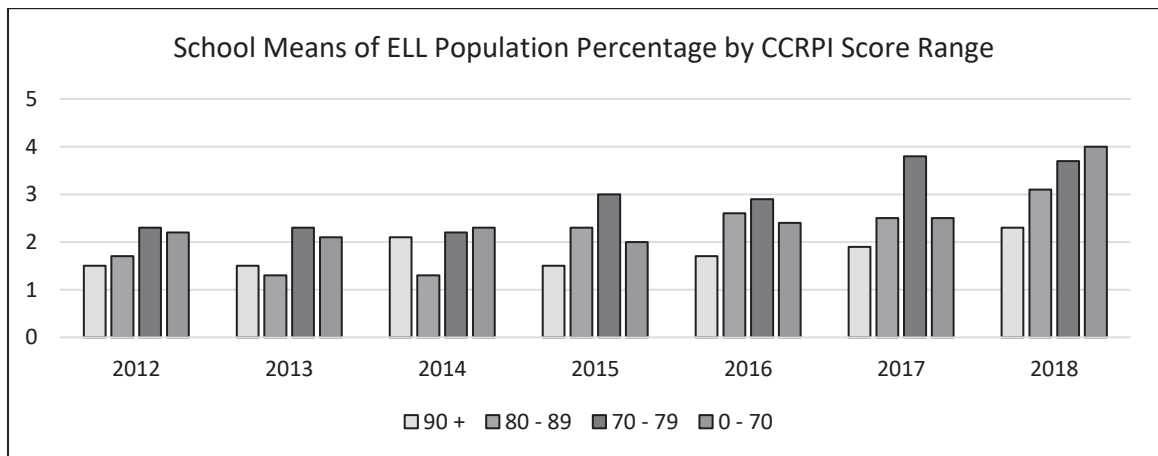


Figure 6. Means of ELL students as a percentage of school population, grouped by school CCRPI score range.

Figure 6 displays school means of students with limited English proficiency population percentages for all years, grouped by CCRPI score range. No noticeable trends are apparent from the data other than the steady growth of ELL student populations across all school groups. Appendix B includes all descriptive statistics for schools in the range of years examined in this study.

### **Research Question 1**

*Research Question 1. Is there a statistically significant relationship between a Georgia high school's student demographic variables and the school's CCRPI score, and if so, to what degree?*

Statistically significant relationships were present in many of the relationships between school-level student demographics and the school CCRPI score. Each demographic was analyzed in the sub-questions for this research question and are presented below. The level of significance was based on a 95% confidence interval; thus, any  $p$ -values less than 0.05 indicated statistical significance. Magnitudes of Pearson correlation coefficients were based on guidelines provided by Cohen (1988).

#### **Research Question 1a**

*Research Question 1a. Is there a statistically significant relationship between a school's percentage of minority students and the school's CCRPI score?*

Table 3

*Correlations of CCRPI Scores and Percentage of Minority Students*

School Year	<i>df</i>	<i>r</i>	<i>p</i>
2012	379	-.506*	.000
2013	384	-.487*	.000
2014	384	-.413*	.000
2015	380	-.419*	.000
2016	376	-.417*	.000
2017	374	-.387*	.000
2018	373	-.423*	.000

*Note.* \* indicates significance at  $p < .05$ .

Table 3 presents the correlations for school years 2012 through 2018 for Georgia high school CCRPI scores and each school's percentage of minority students. Means and standard deviations for all schools and school groups are included in Appendix B. Based on the results of the study, a Georgia high school's percentage of minority students has a consistently moderate negative correlation with the school's CCRPI score that is statistically significant. In 2012, there was a statistically significant, moderate negative correlation between a Georgia high school's CCRPI score and the school's percentage of minority students,  $r(379) = -.506, p = .000 < .05$ . The 2013 and 2014 school years showed similar results,  $r(384) = -.487, p = .000$  and  $r(384) = -.413, p = .000 < .05$ , respectively. In 2015 and 2016, Pearson correlations showed nearly identical results of a moderate negative correlation between CCRPI scores and percentage of minority students,  $r(380) = -.419, p = .000 < .05$  and  $r(376) = -.417, p = .000 < .05$ , respectively. In school year 2017, the strength of the correlation dropped,  $r(374) = -.387, p = .000 < .05$ , but increased again in 2018,  $r(373) = -.423, p = .000 < .05$ . The data indicate that

since its induction, Georgia’s school performance measure for high schools is closely tied to the school’s minority population. As a school’s percentage of minorities increases, the school’s CCRPI score decreases, and as a school’s percentage of minorities decreases, the school’s CCRPI score increases.

**Research Question 1b**

*Research Question 1b. Is there a statistically significant relationship between a school’s percentage of students with limited English proficiency and the school’s CCRPI score?*

Table 4

*Correlations of CCRPI Scores and Percentage of ELL Students*

School Year	<i>df</i>	<i>r</i>	<i>p</i>
2012	379	-.040	.435
2013	384	-.037	.470
2014	384	-.054	.292
2015	380	-.026	.608
2016	376	-.028	.586
2017	374	-.059	.255
2018	373	-.058	.261

*Note.* \* indicates significance at  $p < .05$ .

Table 4 presents the correlations for school years 2012 through 2018 for Georgia high school CCRPI scores and each school’s percentage of students with limited English proficiency. Means and standard deviations for all schools and school groups are included in Appendix B. Based on the results of the study, a Georgia high school’s percentage of students with limited English proficiency has no statistically significant correlation with the school’s CCRPI score. In 2012, there was no statistically significant

correlation between a Georgia high school's CCRPI score and the school's percentage of students with limited English proficiency,  $r(379) = -.040, p = .435 > .05$ . The 2013 school year showed similar results,  $r(384) = -.037, p = .470 > .05$ . In 2014 and 2015, the correlations fluctuated somewhat, but remained statistically insignificant,  $r(384) = -.054, p = .292 > .05$  and  $r(380) = -.026, p = .608 > .05$ , respectively. In the 2016 school year, Pearson correlations results continued to show no statistical significance,  $r(376) = -.028, p = .586 > .05$ . For the latest two years for which data are available, 2017 and 2018, results similarly showed no statistical significance between a school's CCRPI score and the school's percentage of ELL students,  $r(374) = -.059, p = .255 > .05$  and  $r(373) = -.058, p = .261 > .05$ , respectively. Correlation values for all years were weak, with  $p$ -values all greater than 0.05. These results signify no statistically significant correlations between a Georgia high school's CCRPI score and the school's percentage of students with limited English proficiency can be determined from the data.

### **Research Question 1c**

*Research Question 1c. Is there a statistically significant relationship between a school's percentage of economically disadvantaged students and the school's CCRPI score?*

Table 5

*Correlations of CCRPI Scores and Percentage of ED Students*

School Year	<i>df</i>	<i>r</i>	<i>p</i>
2012	379	-.670*	.000
2013	384	-.677*	.000
2014	384	-.647*	.000
2015	380	-.595*	.000
2016	376	-.657*	.000
2017	374	-.633*	.000
2018	373	-.578*	.000

*Note.* \* indicates significance at  $p < .05$ .

Table 5 presents the correlations for school years 2012 through 2018 for Georgia high school CCRPI scores and each school's percentage of economically disadvantaged students. Means and standard deviations for all schools and school groups are included in Appendix B. Based on the results of the study, a Georgia high school's percentage of economically disadvantaged students has a statistically significant and consistently strong negative correlation with the school's CCRPI score. In 2012, there was a statistically significant, negative correlation between a Georgia high school's CCRPI score and the school's percentage of economically disadvantaged students,  $r(379) = -.670, p = .000 < .05$ . The 2013 and 2014 school years showed similar results,  $r(384) = -.677, p = .000 < .05$  and  $r(384) = -.647, p = .000 < .05$ , respectively. In 2015, the Pearson correlation showed slight decrease in the negative correlation between CCRPI scores and percentage of economically disadvantaged students,  $r(380) = -.595, p = .000 < .05$ , but the correlation regained strength in 2016,  $r(376) = -.657, p = .000 < .05$ . In school years

2017 and 2018, the strength of the correlations dropped slightly but remained strong,  $r(374) = -.633, p = .000 < .05$  and  $r(373) = -.578, p = .000 < .05$ , respectively.

The data indicate that since its induction, Georgia’s school performance measure for high schools is more closely tied to the school’s socioeconomic level than the school’s minority population. As a school’s percentage of low socioeconomic student families increases, the school’s CCRPI score decreases; or as a school’s percentage of low socioeconomic student families decreases, the school’s CCRPI score increases. Stated more simply: Georgia high schools with a greater percentage of students in poverty receive lower CCRPI scores than schools with fewer students in poverty.

**Research Question 1d**

*Research Question 1d. Is there a statistically significant relationship between a school’s percentage of students with a disability and the school’s CCRPI score?*

Table 6

*Correlations of CCRPI Scores and Percentage of Students with a Disability*

School Year	<i>df</i>	<i>r</i>	<i>p</i>
2012	379	-.228*	.000
2013	384	-.331*	.000
2014	384	-.331*	.000
2015	380	-.320*	.000
2016	376	-.374*	.000
2017	374	-.318*	.000
2018	373	-.319*	.000

*Note.* \* indicates significance at  $p < .05$ .

Table 6 presents the correlations for school years 2012 through 2018 for Georgia high school CCRPI scores and each school’s percentage of students with a disability.

Means and standard deviations for all schools and school groups are included in Appendix B. Based on the results of the study, a Georgia high school's percentage of students with a disability has a statistically significant, small to moderate negative correlation with the school's CCRPI score. In 2012, there was a statistically significant, small negative correlation between a Georgia high school's CCRPI score and the school's percentage of students with a disability,  $r(379) = -.228, p = .000 < .05$ . Analysis of the 2013 and 2014 school years revealed identical results, with an increase in the magnitude of correlations,  $r(384) = -.331, p = .000 < .05$  and  $r(384) = -.331, p = .000 < .05$ , respectively. In 2015 and 2016, Pearson correlations showed a continued moderate negative correlation between CCRPI scores and percentage of students with a disability,  $r(380) = -.320, p = .000 < .05$  and  $r(376) = -.374, p = .000 < .05$ , respectively. In school years 2017 and 2018 the strength of the correlation dropped slightly,  $r(374) = -.318, p = .000 < .05$  and  $r(373) = -.319, p = .000 < .05$ , respectively. The data indicate that since its induction, Georgia's school performance measure for high schools is moderately correlated to the school's population of students with a disability. As a school's percentage of students with a disability increases, the school's CCRPI score decreases; or as a school's percentage of students with a disability decreases, the school's CCRPI score increases. The data support the premise that a school's percentage of students with a disability is inversely related to the school's CCRPI score.

### **Research Question 1e**

*Research Question 1e. Is there a statistically significant relationship between a school's percentage of gifted students and the school's CCRPI score?*

Table 7

*Correlations of CCRPI Scores and Percentage of Gifted Students*

School Year	<i>df</i>	<i>r</i>	<i>p</i>
2012	344	.642*	.000
2013	348	.670*	.000
2014	350	.679*	.000
2015	351	.564*	.000
2016	355	.671*	.000
2017	353	.676*	.000
2018	347	.701*	.000

*Note.* \* indicates significance at  $p < .05$ .

Table 7 presents the correlations for school years 2012 through 2018 for Georgia high school CCRPI scores and each school's percentage of gifted students. Means and standard deviations for all schools and school groups are included in Appendix B. Based on the results of the study, a Georgia high school's percentage of gifted students has a statistically significant, strong positive correlation with the school's CCRPI score. In 2012, there was a statistically significant, strong positive correlation between a Georgia high school's CCRPI score and the school's percentage of gifted students,  $r(344) = .642$ ,  $p = .000 < .05$ . The 2013 school year had similar results,  $r(348) = .670$ ,  $p = .000 < .05$ . In 2014, the correlation continued to strengthen,  $r(350) = .679$ ,  $p = .000 < .05$ . In 2015, the correlation slightly weakened but continued to be strong,  $r(351) = .564$ ,  $p = .000 < .05$ . From 2016 to 2018, Pearson correlations showed strong and growing positive correlations between CCRPI scores and percentage of gifted students,  $r(355) = .671$ ,  $p = .000 < .05$ ,  $r(353) = .676$ ,  $p = .000 < .05$ , and  $r(347) = .701$ ,  $p = .000 < .05$ , respectively.

The data indicate that since its induction, Georgia's school performance measure for high schools is more closely tied to the school's percentage of gifted students than the socioeconomic levels of its students and the school's minority population. Additionally, the positive correlation between CCRPI scores and the percentage of gifted students has strengthened every year since 2015. The data indicate that as a school's percentage of gifted students increases, the school's CCRPI score also increases, and as a school's percentage of gifted students decreases, the school's CCRPI score also decreases. Stated more simply: Georgia high schools with a greater percentage of gifted students receive higher CCRPI scores than schools with a lower percentage of gifted students.

### **Research Question 2**

*Research Question 2. Which school-level student demographic variables, if any, serve as significant predictors of a Georgia high school's CCRPI score?*

Data from each year were tested for the assumptions necessary for accurate regression analyses. Results of the data screening for each year's data are included in Appendix C. Based on the data, for school years 2012 through 2018, all the assumptions for accurate regression analyses were met. Residual scatterplots were evaluated as a test for assumptions of linearity, normality, and homoscedasticity. No violations of these assumptions were found, as scatterplots showed appropriate spreads with a normal distribution. Finally, the absence of multicollinearity of the independent variables was checked by the variance inflation factor (VIF) values in SPSS. All VIF values were well under the threshold of 10, indicating no multicollinearity of the independent variables.

Ordinary least squares (OLS) multiple regression statistical analyses were conducted to determine the predictive power of a Georgia high school's student

demographics on the school's CCRPI score. The results of the analyses showed each year's model to be a significant predictor of CCRPI scores.

### School Year 2012

In the first year for which data were available, approximately 53.5% of the variance in 2012 CCRPI scores can be explained with the initial 2012 regression model, ( $F(5, 340) = 78.171, p = .000, R^2 = .535, R^2_{adj} = .528$ ). A summary of the initial regression coefficients for 2012 data is presented in Table 8.

Table 8

#### *Initial Multiple Regression Analysis Predicting 2012 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	76.810	2.838		27.061*	.000
% Minority	-.080	.021	-.188	-3.789*	.000
% ELL	.124	.131	.036	.940	.348
% ED	-.176	.036	-.307	-4.909*	.000
% SWD	.099	.148	.027	.668	.505
% Gifted	.539	.075	.376	7.213*	.000

*Note.* \* indicates significance at  $p < .05$ .

For the school year 2012, a school's percentage of gifted students ( $\beta = .376, p = .000$ ), a school's percentage of economically disadvantaged students ( $\beta = -.307, p = .000$ ), and a school's percentage of minority students ( $\beta = -.188, p = .000$ ) all significantly contributed to the model. A school's percentage of English language learners ( $\beta = .036, p = .348$ ) and a school's percentage of students with a disability ( $\beta = .027, p = .505$ ) did not significantly contribute to the model. As such, a school's ELL percentage and a school's SWD percentage were excluded in the final 2012 regression model. The final model results indicated the model significantly predicts CCRPI scores, ( $F(3, 342) = 130.106, p = .000, R^2 = .533, R^2_{adj} = .529$ ). This model

accounts for 53.3% of the variance in CCRPI scores. A summary of the final regression coefficients for 2012 data is presented in Table 9.

Table 9

*Results for Multiple Regression Analysis Predicting 2012 CCRPI Score*

	<i>B</i>	<i>SE</i>	<i>β</i>	<i>t</i>	<i>p</i>
(Constant)	77.895	2.368		32.892*	.000
% Minority	-.079	.020	-.186	-3.895*	.000
% ED	-.172	.035	-.299	-4.898*	.000
% Gifted	.532	.073	.371	7.271*	.000

*Note.* \* indicates significance at  $p < .05$ .

The regression equation for predicting Georgia high school CCRPI scores in 2012 was as follows:

$$CCRPI_{2012} = 77.895 - .079X_{Minority} - .172X_{ED} + .532X_{Gifted} \quad (2)$$

The final 2012 model results indicated that with all other variables held constant, for every percentage increase in a high school’s minority student population or economically disadvantaged student population, the school’s CCRPI score would decrease by .079 point and .172 point, respectively. Conversely, each percentage increase in a school’s gifted student population would increase the school’s CCRPI score by .532 point, for a CCRPI gain of over half a point.

**School Year 2013**

The school year 2013 was the second year for which data were collected and available for CCRPI scores. For 2013, approximately 55.8% of the variance in 2013 CCRPI scores can be explained with the initial regression model, ( $F(5, 344) = 86.831$ ,  $p = .000$ ,  $R^2 = .558$ ,  $R^2_{adj} = .552$ ). A summary of the initial regression coefficients for 2013 data is presented in Table 10.

Table 10

*Initial Multiple Regression Analysis Predicting 2013 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	78.609	2.643		29.740*	.000
% Minority	-.072	.019	-.186	-3.814*	.000
% ELL	.136	.120	.042	1.128	.260
% ED	-.137	.032	-.267	-4.320*	.000
% SWD	-.259	.142	-.073	-1.825	.069
% Gifted	.510	.067	.393	7.662*	.000

*Note.* \* indicates significance at  $p < .05$ .

In 2013, a school's percentage of gifted students ( $\beta = .393, p = .000$ ), a school's percentage of economically disadvantaged students ( $\beta = -.267, p = .000$ ), and a school's percentage of minority students ( $\beta = -.186, p = .000$ ) all significantly contributed to the model. A school's percentage of English language learners ( $\beta = .042, p = .260$ ) and a school's percentage of students with a disability ( $\beta = -.073, p = .069$ ) did not significantly contribute to the model. As such, a school's ELL percentage and a school's SWD percentage were excluded in the final 2013 regression model. The final model results indicated the model significantly predicts CCRPI scores, ( $F(3, 346) = 142.119, p = .000, R^2 = .552, R^2_{adj} = .548$ ). This model accounts for 55.2% of the variance in CCRPI scores. A summary of regression coefficients for 2013 data is presented in Table 11.

Table 11

*Results for Multiple Regression Analysis Predicting 2013 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	75.778	2.139		35.426*	.000
% Minority	-.062	.018	-.159	-3.367*	.001
% ED	-.148	.031	-.289	-4.738*	.000
% Gifted	.540	.065	.416	8.284*	.000

*Note.* \* indicates significance at  $p < .05$ .

The regression equation for predicting Georgia high school CCRPI scores in 2013 was as follows:

$$CCRPI_{2013} = 75.778 - .062X_{Minority} - .148X_{ED} + .540X_{Gifted} \quad (3)$$

The final 2013 model results indicated that with all other variables held constant, for each percentage increase in a school’s minority student population or economically disadvantaged student population, the school’s CCRPI score would decrease by .062 point and .148 point, respectively. Conversely, each percentage increase in a school’s gifted student population would increase the school’s CCRPI score by .540 point.

**School Year 2014**

The school year 2014 was the third year for which data were collected and available for CCRPI scores. Approximately 53.6% of the variance in 2014 CCRPI scores can be explained with the initial regression model, ( $F(5, 346) = 79.930, p = .000, R^2 = .536, R^2_{adj} = .529$ ). A summary of the initial regression coefficients for 2014 data is presented in Table 12.

Table 12

*Initial Multiple Regression Analysis Predicting 2014 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	73.679	2.640		27.909*	.000
% Minority	-.041	.018	-.106	-2.212*	.028
% ELL	-.026	.121	-.008	-.213	.832
% ED	-.119	.027	-.265	-4.433*	.000
% SWD	-.235	.148	-.064	-1.587	.113
% Gifted	.561	.065	.440	8.565*	.000

*Note.* \* indicates significance at  $p < .05$ .

In 2014, a school’s percentage of gifted students ( $\beta = .440, p = .000$ ), a school’s percentage of economically disadvantaged students ( $\beta = -.265, p = .000$ ), and a school’s

percentage of minority students ( $\beta = -.106, p = .028$ ) all significantly contributed to the model. A school's percentage of English language learners ( $\beta = -.008, p = .832$ ) and a school's percentage of students with a disability ( $\beta = -.064, p = .113$ ) did not significantly contribute to the model, so ELL percentages and SWD percentages were excluded in the final 2014 regression model. The final model results indicated the model significantly predicts CCRPI scores, ( $F(3, 348) = 132.147, p = .000, R^2 = .533, R^2_{adj} = .529$ ). This model accounts for 53.3% of the variance in CCRPI scores. A summary of regression coefficients for 2014 data is presented in Table 13.

Table 13

*Results for Multiple Regression Analysis Predicting 2014 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	70.996	2.039		34.815*	.000
% Minority	-.037	.018	-.096	-2.073*	.039
% ED	-.125	.026	-.281	-4.755*	.000
% Gifted	.584	.064	.459	9.163*	.000

*Note.* \* indicates significance at  $p < .05$ .

The regression equation for predicting Georgia high school CCRPI scores in 2014 was as follows:

$$CCRPI_{2014} = 70.996 - .037X_{Minority} - .125X_{ED} + .584X_{Gifted} \quad (4)$$

The final 2014 model results indicated that with all other variables held constant, for each percentage increase in a high school's minority student population or economically disadvantaged student population, the school's CCRPI score would decrease by .037 point and .125 point, respectively. Conversely, every percentage increase in a school's gifted student population would increase the school's CCRPI score by .584 point.

## School Year 2015

The school year 2015 was the fourth year for which data were collected and available for CCRPI scores. Approximately 42.8% of the variance in 2015 CCRPI scores can be explained with the initial regression model, ( $F(5, 347) = 51.926, p = .000, R^2 = .428, R^2_{adj} = .420$ ). A summary of the initial regression coefficients for 2015 data is presented in Table 14.

Table 14

### *Initial Multiple Regression Analysis Predicting 2015 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	86.133	2.937		29.329*	.000
% Minority	-.057	.020	-.148	-2.764*	.006
% ELL	.055	.119	.019	.460	.646
% ED	-.124	.029	-.292	-4.316*	.000
% SWD	-.466	.150	-.138	-3.113*	.002
% Gifted	.323	.072	.263	4.470*	.000

*Note.* \* indicates significance at  $p < .05$ .

In 2015, a school's percentage of economically disadvantaged students ( $\beta = -.292, p = .000$ ), a school's percentage of gifted students ( $\beta = .263, p = .000$ ), a school's percentage of minority students ( $\beta = -.148, p = .006$ ), and a school's percentage of students with a disability ( $\beta = -.138, p = .002$ ) all significantly contributed to the model. A school's percentage of English language learners ( $\beta = .019, p = .646$ ) did not significantly contribute to the model. As such, a school's ELL percentage was excluded in the final 2015 regression model. The final model results indicated the model significantly predicts CCRPI scores, ( $F(4, 348) = 65.002, p = .000, R^2 = .428, R^2_{adj} = .421$ ). This model accounts for 42.8% of the variance in CCRPI scores. A summary of regression coefficients for 2015 data is presented in Table 15.

Table 15

*Results for Multiple Regression Analysis Predicting 2015 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	86.245	2.923		29.502*	.000
% Minority	-.055	.020	-.143	-2.730*	.007
% ED	-.125	.029	-.294	-4.358*	.000
% SWD	-.469	.149	-.139	-3.139*	.002
% Gifted	.323	.072	.263	4.468*	.000

*Note.* \* indicates significance at  $p < .05$ .

The regression equation for predicting Georgia high school CCRPI scores in 2015 was as follows:

$$CCRPI_{2015} = 86.245 - .055X_{Minority} - .125X_{ED} - .469X_{SWD} + .323X_{Gifted} \quad (5)$$

The final 2015 model results indicated that with all other variables held constant, for each percentage increase in a high school's minority student population or economically disadvantaged student population, the school's CCRPI score would decrease by .055 point and .125 point, respectively. Conversely, each percentage increase in a school's gifted student population would increase the school's CCRPI score by .323 point. Additionally, 2015 was the first year a school's population of students with a disability had a significant impact on the CCRPI score; for every percentage increase in the school's SWD population, the school's CCRPI score would decrease by .469 point.

**School Year 2016**

The school year 2016 was the fifth year for which data were collected and available for CCRPI scores. Approximately 54.8% of the variance in 2016 CCRPI scores can be explained using the initial regression model, ( $F(5, 351) = 85.250, p = .000, R^2 = .548, R^2_{adj} = .542$ ). A summary of the initial regression coefficients for 2016 data is presented in Table 16.

Table 16

*Initial Multiple Regression Analysis Predicting 2016 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	83.913	3.095		27.112*	.000
% Minority	-.051	.021	-.114	-2.429*	.016
% ELL	.120	.116	.039	1.038	.300
% ED	-.148	.027	-.311	-5.481*	.000
% SWD	-.375	.164	-.094	-2.287*	.023
% Gifted	.556	.073	.391	7.579*	.000

*Note.* \* indicates significance at  $p < .05$ .

In 2016, a school's percentage of gifted students ( $\beta = .391, p = .000$ ), a school's percentage of economically disadvantaged students ( $\beta = -.311, p = .000$ ), a school's percentage of minority students ( $\beta = -.114, p = .016$ ), and a school's percentage of students with a disability ( $\beta = -.094, p = .023$ ) all significantly contributed to the model. A school's percentage of English language learners ( $\beta = .039, p = .300$ ) did not significantly contribute to the model. As such, a school's ELL percentage was excluded in the final 2016 regression model. The final model results indicated the model significantly predicts CCRPI scores, ( $F(4, 352) = 106.270, p = .000, R^2 = .547, R^2_{adj} = .542$ ). This model accounts for 54.7% of the variance in CCRPI scores. A summary of regression coefficients for 2016 data is presented in Table 17.

Table 17

*Results for Multiple Regression Analysis Predicting 2016 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	84.238	3.079		27.355*	.000
% Minority	-.046	.020	-.102	-2.244*	.025
% ED	-.151	.027	-.317	-5.620*	.000
% SWD	-.383	.164	-.096	-2.334*	.020
% Gifted	.551	.073	.388	7.527*	.000

*Note.* \* indicates significance at  $p < .05$ .

The regression equation for predicting Georgia high school CCRPI scores in 2016 was as follows:

$$CCRPI_{2016} = 84.238 - .046X_{Minority} - .151X_{ED} - .383X_{SWD} + .551X_{Gifted} \quad (6)$$

The final 2016 model results indicated that with all other variables held constant, for every percentage increase in a high school's minority student population or economically disadvantaged student population, the school's CCRPI score would decrease by .046 point and .151 point, respectively. Conversely, every percentage increase in a school's gifted student population would increase the school's CCRPI score by .551 point.

Additionally, 2016 was the second year that a school's population of students with a disability had a significant impact on the CCRPI score; for every percentage increase in the school's SWD population, the school's CCRPI score would decrease by .383 point.

### **School Year 2017**

The school year 2017 was the sixth year for which CCRPI score data were available and collected. Approximately 52.7% of the variance in 2017 CCRPI scores can be explained with the initial regression model, ( $F(5, 349) = 77.810, p = .000, R^2 = .527, R^2_{adj} = .520$ ). A summary of the initial regression coefficients for 2017 data is presented in Table 18.

Table 18

*Initial Multiple Regression Analysis Predicting 2017 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	80.637	2.947		27.362*	.000
% Minority	-.039	.019	-.095	-2.020*	.044
% ELL	.013	.096	.005	.134	.893
% ED	-.117	.024	-.277	-4.845*	.000
% SWD	-.125	.149	-.036	-.839	.402
% Gifted	.575	.069	.450	8.326*	.000

*Note.* \* indicates significance at  $p < .05$ .

In 2017, a school's percentage of gifted students ( $\beta = .450, p = .000$ ), a school's percentage of economically disadvantaged students ( $\beta = -.277, p = .000$ ), and a school's percentage of minority students ( $\beta = -.095, p = .044$ ) all significantly contributed to the model. A school's percentage of English language learners ( $\beta = .005, p = .893$ ) and a school's percentage of students with a disability ( $\beta = -.036, p = .402$ ) did not significantly contribute to the model. As such, a school's ELL percentage and SWD percentage were excluded in the final 2017 regression model. The final model results indicated the model significantly predicts CCRPI scores, ( $F(3, 351) = 129.911, p = .000, R^2 = .526, R^2_{adj} = .522$ ). This model accounts for 52.6% of the variance in CCRPI scores. A summary of regression coefficients for 2017 data is presented in Table 19.

Table 19

*Results for Multiple Regression Analysis Predicting 2017 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	78.831	1.952		40.378*	.000
% Minority	-.036	.018	-.088	-1.965*	.050
% ED	-.117	.024	-.277	-4.894*	.000
% Gifted	.599	.063	.468	9.576*	.000

*Note.* \* indicates significance at  $p < .05$ .

The regression equation for predicting Georgia high school CCRPI scores in 2017 was as follows:

$$CCRPI_{2017} = 78.831 - .036X_{Minority} - .117X_{ED} + .599X_{Gifted} \quad (7)$$

The final 2017 model results indicated that with all other variables held constant, for each percentage increase in a high school’s minority student population or economically disadvantaged student population, the school’s CCRPI score would decrease by .036 point and .117 point, respectively. Conversely, each percentage increase in a school’s gifted student population would increase the school’s CCRPI score by .599 point.

**School Year 2018**

The school year 2018 was the seventh year for which data were collected and available for CCRPI scores. Approximately 54.9% of the variance in 2018 CCRPI scores can be explained with the initial regression model, ( $F(5, 343) = 83.398, p = .000, R^2 = .549, R^2_{adj} = .542$ ). A summary of the initial regression coefficients for 2018 data is presented in Table 20.

Table 20

*Initial Multiple Regression Analysis Predicting 2018 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	70.813	2.920		24.248*	.000
% Minority	-.083	.019	-.194	-4.413*	.000
% ELL	.035	.084	.016	.413	.680
% ED	-.055	.023	-.124	-2.393*	.017
% SWD	-.020	.153	-.005	-.130	.897
% Gifted	.735	.067	.562	11.023*	.000

*Note.* \* indicates significance at  $p < .05$ .

In 2018, a school’s percentage of gifted students ( $\beta = .562, p = .000$ ), a school’s percentage of minority students ( $\beta = -.194, p = .000$ ), and a school’s percentage of

economically disadvantaged students ( $\beta = -.124, p = .017$ ) all significantly contributed to the model. A school's percentage of English language learners ( $\beta = .016, p = .680$ ) and a school's percentage of students with a disability ( $\beta = -.005, p = .897$ ) did not significantly contribute to the model. As such, a school's ELL percentage and SWD percentage were excluded in the final 2018 regression model. The final model results indicated the model significantly predicts CCRPI scores, ( $F(3, 345) = 139.665, p = .000, R^2 = .548, R^2_{adj} = .545$ ). This model accounts for 54.8% of the variance in CCRPI scores. A summary of regression coefficients for 2018 data is presented in Table 21.

Table 21

*Results for Multiple Regression Analysis Predicting 2018 CCRPI Score*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	70.570	1.949		36.216*	.000
% Minority	-.081	.018	-.189	-4.490*	.000
% ED	-.056	.023	-.126	-2.438*	.015
% Gifted	.739	.061	.565	12.097*	.000

*Note.* \* indicates significance at  $p < .05$ .

The regression equation for predicting Georgia high school CCRPI scores in 2018 was as follows:

$$CCRPI_{2018} = 70.570 - .081X_{Minority} - .056X_{ED} + .739X_{Gifted} \quad (8)$$

The final 2018 model results indicated that with all other variables held constant, for each percentage increase in a high school's minority student population or economically disadvantaged student population, the school's CCRPI score would decrease by .081 point and .056 point, respectively. Conversely, each percentage increase in a school's gifted student population would increase the school's CCRPI score by .739 point.

## Summary

This chapter presents a detailed summary of the populations selected for data analysis. Descriptive statistics for schools in the population were organized by year and CCRPI score range and were presented. Trends from the descriptive statistics were discussed. It was noted that, as a group, schools scoring lower on CCRPI had higher means of minority populations, with the exception being the highest performing school group, consisting of schools scoring 90 or above on CCRPI. This occurred across all school years except 2018. Secondly, the descriptive statistics revealed low performing school groups had much higher mean percentages of economically disadvantaged student populations than high performing school groups. Higher-performing school groups had lower means of students with disabilities than lower-performing school groups, but higher means of gifted student populations.

Next, the statistical significance of correlations between the independent variables and dependent variable were discussed, with data summaries presented in tables. It was noted that there were statistically significant correlations between a Georgia high school's CCRPI score and the school's percentage of minorities, the school's percentage of economically disadvantaged students, the school's percentage of students with a disability, and the school's percentage of gifted students. No statistically significant correlations were found between a high school's CCRPI score and the school's percentage of students with limited English proficiency.

Finally, multiple regression analyses were performed and the findings were used to present the predictive power of each independent variable on the dependent variable for each year of data. For all years except 2015, a school's percentage of gifted students

was the most significant predictor of CCRPI scores of the predictors selected for the study. All years for which data were available saw a school's increasing percentage of minority students and a school's increasing percentage of economically disadvantaged students as negatively impacting CCRPI scores. All years also showed a school's increasing percentage of gifted students increasing the school's CCRPI score. Additionally, the models predicted a school's percentage of students with a disability as a significant predictor only for years 2015 and 2016. Equations for all years are presented below to allow for comparison across all years:

$$CCRPI_{2012} = 77.895 - .079X_{Minority} - .172X_{ED} + .532X_{Gifted} \quad (2)$$

$$CCRPI_{2013} = 75.778 - .062X_{Minority} - .148X_{ED} + .540X_{Gifted} \quad (3)$$

$$CCRPI_{2014} = 70.996 - .037X_{Minority} - .125X_{ED} + .584X_{Gifted} \quad (4)$$

$$CCRPI_{2015} = 86.245 - .055X_{Minority} - .125X_{ED} - .469X_{SWD} + .323X_{Gifted} \quad (5)$$

$$CCRPI_{2016} = 84.238 - .046X_{Minority} - .151X_{ED} - .383X_{SWD} + .551X_{Gifted} \quad (6)$$

$$CCRPI_{2017} = 78.831 - .036X_{Minority} - .117X_{ED} + .599X_{Gifted} \quad (7)$$

$$CCRPI_{2018} = 70.570 - .081X_{Minority} - .056X_{ED} + .739X_{Gifted} \quad (8)$$

Chapter 5 discusses the conclusions reached within the scope and context of this study and outlines several recommendations based on the findings. Implications for future research are also included.

## CHAPTER V

### CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this study was to determine the extent to which selected school-level student population demographic characteristics influence a Georgia public high school's College and Career Ready Performance Index (CCRPI) score. The focus of this study was to measure the impact of the independent variables (percentage of student population identified as racial/ethnic minorities, percentage of students with limited English proficiency, percentage of economically disadvantaged students, percentage of students with disabilities, and percentage of gifted students) upon the dependent variable (CCRPI score). This chapter includes a discussion of significant findings and the relation of the findings to previously conducted research on student demographics and school accountability measures. Also included is a discussion on the connections of this study to Cultural Ecological Theory (Ogbu & Simons, 1998) and the implications of the findings for practitioners and policymakers. The chapter concludes with the limitations of this study, recommendations for future research, and a brief summary.

#### **Discussions of the Findings**

*Research Question 1. Is there a statistically significant relationship between a Georgia high school's student demographic variables and the school's CCRPI score, and if so, to what degree?*

Statistically significant relationships were present in all but one of the relationships between school-level student demographics and the school CCRPI score.

Each demographic was analyzed in the sub-questions for Research Question 1 and are discussed below. A 95% confidence interval was used to test for statistical significance for all relationships. Magnitudes for the Pearson correlation coefficients were based on guidelines provided by Cohen (1988).

*Research Question 1a. Is there a statistically significant relationship between a school's percentage of minority students and the school's CCRPI score?*

Grouping schools by CCRPI score range for analysis allowed several interesting trends to be seen more easily. For example, schools scoring 90 or above on CCRPI had a higher mean percentage of minority students than schools scoring in the 80–89 range. However, schools scoring in the bottom two ranges (70–79 and below 70) had greater means of minority students, respectively. Examination of the means and standard deviations of school groups also showed a large/wide standard deviation from the mean percentage of minority students. This large standard deviation may be due to a wide variance within racial/ethnic groups by socioeconomic status, as suggested by Easton-Brooks and Davis (2007) as well as Ogbu and Simons (1998).

Regarding statistical significance, Pearson correlation coefficients were all below the threshold of  $p < .05$ , indicating statistical significance in the correlations between the percentage of minority students and school CCRPI scores. Pearson correlation coefficients ranged from  $-.506$  (in 2012) to  $-.387$  (2017) but generally hovered around the median of  $-.419$ . Such consistently moderate negative correlations suggest that school minority populations are tied to school CCRPI scores, but different minority populations may affect CCRPI scores differently. This supports the findings of previous researchers, namely that Asian immigrant students outperform White students and other minority

counterparts (Chang, 2005; Jimenez & Horowitz, 2013; Musu-Gillette et al., 2016). Cultural Ecological Theory (Ogbu, 2004; Ogbu & Simons, 1998) has been used to explain and defend differing minority performance in formal school settings; specifically, that Black students tend to underperform out of fear of “acting White” (Ogbu, 2004, p. 2). Whiting (2006) addressed these concerns by pointing out that underachieving groups lack a scholar identity. Contrastingly, Asian students, as a whole, outperform White students on standardized tests to avoid appearances of mediocrity, which Asian communities often associate with the White American majority (Jimenez & Horowitz, 2013; Musu-Gillette et al., 2016). The data from Georgia’s current accountability system underscore the claim of Gloria Ladson-Billings (2006) and others that student race/ethnicity impacts school performance measures.

*Research Question 1b. Is there a statistically significant relationship between a school’s percentage of students with limited English proficiency and the school’s CCRPI score?*

Analysis of the data revealed there is no statistically significant correlation between a school’s percentage of students with limited English proficiency and the school’s CCRPI score. The highest  $p$ -value was .608 in 2015, and the lowest  $p$ -value was .255 in 2017. Such results indicated a high probability in there being no significant relationship between the variables. One possible reason for this could be the relatively low percentages of student populations of ELL learners at most schools. Mean percentages of school populations (with standard deviations in parentheses) for years 2012 through 2018 were 2.08 (3.58), 1.99 (3.49), 2.13 (3.54), 2.36 (3.92), 2.52 (4.18), 2.82 (4.65), and 3.60 (5.45), respectively. Such low means and standard deviations

indicate that school populations of English Language Learners remain relatively small for Georgia high schools, and thus the group impact on CCRPI scores is, if not significant, at least difficult to ascertain.

Results from this study contrast with previous research findings. Ellis (2015) conducted a study from a single Georgia high school and concluded ELL student achievement scores were positively correlated to their level of English proficiency. Similarly, Wakeman (2013) found one Georgia high school's scores on standardized Biology exams could be accurately predicted from student scores on an English proficiency exam. Mojica's (2013) study of Pennsylvania schools led her to conclude a strong correlation existed between Pennsylvania middle schools' AYP status and the language proficiency of the school's student body. The works of Ward (2011) and Yudd Moscoso (2000) led them to similar conclusions when studying elementary students. It is possible the relatively low sample sizes in these previous studies may have impacted the findings and conclusions drawn. It is just as possible that the effects of relatively small school populations, such as English Language Learners, are more difficult to extract in studies of a larger scope. Admittedly, it is difficult to determine with certainty how a school's percentage of students with limited English proficiency correlate to the school's CCRPI score. The inconclusivity of the research implies a gap for more extensive examinations of this relationship in future studies.

*Research Question 1c. Is there a statistically significant relationship between a school's percentage of economically disadvantaged students and the school's CCRPI score?*

Analysis of the data revealed, without exception, schools with a greater percentage of students in poverty scored lower on CCRPI than schools with a lower percentage of economically disadvantaged students. Pearson correlation coefficients ranged from -.578 (in 2018) to -.677 (in 2013). Economically disadvantaged (ED) status was the strongest variable negatively correlated to CCRPI in three of the seven years for which data were available (2012, 2013, and 2015). For all other years for which data were available, it was the second-strongest negatively correlated variable. These findings confirm the previous conclusions of Watkins (2017) in his study of metro Atlanta schools: socioeconomic status is strongly tied to school performance.

Although more than 50 years have passed since the publishing of Coleman's report to Congress (Coleman et al., 1966), it is clear from the data that socioeconomic status continues to have a strong negative correlation to school performance. Perhaps the growing income segregation within school districts as explained by Owens et al. (2016) undergirds the continued de facto segregation within education (Palardy, 2013). While cultural communities within larger society may serve to support student navigation of their own personal collective identity (Ogbu, 2004), students at an economic disadvantage have been shown to also be at an academic disadvantage that compounds over time (Ladson-Billings, 2006). Analysis of the data revealed that such partitions in public education persist today, and are continuing to negatively affect students in poverty. If education is supposed to be the great equalizer in providing members of society access to social mobility (DeAngelo & Franke, 2016), the data show it is failing students at an economic disadvantage.

*Research Question 1d. Is there a statistically significant relationship between a school's percentage of students with a disability and the school's CCRPI score?*

Grouping schools by CCRPI score range showed schools scoring 90 or above on CCRPI had a lower mean percentage of students with a disability than schools scoring in the 80–89 range. This trend continued across schools in the bottom two ranges (70–79 and below 70, respectively). However, an approximate difference of only five percent existed between means of school populations across all groupings (see Appendix B). The tight spread of group means with low standard deviations supports the premise that even with only slight differences, school SWD populations are consistently inversely related to CCRPI scores. Pearson correlation coefficients were all below the threshold of  $p < .05$ , indicating statistical significance in the correlations between the percentage of students with a disability and school CCRPI scores. Pearson correlation coefficients ranged from  $-.228$  (in 2012) to  $-.374$  (2016) but generally hovered around the median of  $-.320$ . Such consistently moderate negative correlations suggest that school SWD populations are tied to school CCRPI scores.

In his examination of the 2009 PISA data, Smith (2016) concluded that increased accountability measures have led to fewer students with disabilities being tested. Despite this trend, analysis of available Georgia data suggests that school SWD populations are closely tied to school CCRPI scores. A possible explanation for the moderate negative correlations could be a lack of effective accommodations for students with a disability, as suggested by previous researchers (Blank & Smithson, 2014; Douglas et al., 2016; Zarghami & Schnellert, 2004). For example, efforts to reduce class sizes for students with profound special needs have been shown to be minimally effective at increasing

student learning outcomes (Zarghami & Schnellert, 2004). Blank and Smithson (2014) noted lower student achievement across SWD populations was often due to instructional misalignment from curriculum standards. Whether Georgia's SWD students are being underserved or removed from testing pools is beyond the scope of this study. What is apparent from the data is that, under the current system of school accountability, schools continue to have an incentive to marginalize students with a disability.

*Research Question 1e. Is there a statistically significant relationship between a school's percentage of gifted students and the school's CCRPI score?*

In 2014 and each year since 2016, no single factor was more strongly correlated to a school's CCRPI score than a school's percentage of gifted students. All other years for which data were available showed a school's gifted population percentage as the second-strongest correlated variable. The magnitude of correlations ranged from .564 in 2015 to as high as .701 in 2018. Pearson correlation coefficients were all below the threshold of  $p < .05$ , indicating statistical significance in the correlations between the percentage of gifted students and school CCRPI scores.

One possible explanation for consistently strong correlations between gifted populations and school CCRPI scores aligns with the findings of Bui et al. (2014) and Dean (2011). Both researchers concluded high achievement of gifted students could be largely attributed to their increased exposure to both high-achieving peers and advanced or more rigorous curriculum. The findings from across Georgia in this study support those of Bui et al. (2014) and Dean (2011). Researchers of similar studies have shown that, unfortunately, racial/ethnic minorities, economically disadvantaged students, English language learners, and females continue to be underrepresented in gifted and

talented education programs (Card & Giuliano, 2015). Such underrepresentation can be connected to less rigorous programs of study and lower student achievement. As CCRPI is strongly determined by student achievement scores on standardized tests, it follows that gifted student populations show a strong positive correlation to school CCRPI scores, and underrepresented populations show a moderate negative correlation to school CCRPI scores.

*Research Question 2. Which school-level student demographic variables, if any, serve as significant predictors of a Georgia high school's CCRPI score?*

From 2012 to 2018, a school's percentage of racial/ethnic minorities, percentage of economically disadvantaged students, and percentage of gifted students all served as significant predictors of the school's CCRPI score. In 2015 and 2016, a school's percentage of students with a disability was an added significant predictor of CCRPI. From 2012 to 2018, the regression models accounted for 53.3%, 55.2%, 53.3%, 42.8%, 54.7%, 52.6%, and 54.8% of the variance in CCRPI scores, respectively. The findings in this study support the conclusions of previous researchers. For example, it is clear from the data analysis in this study that the findings of Parr and Bonitz (2015) were accurate: social inequalities continue to negatively affect student learning outcomes, regardless of the methods a state uses for school accountability measures. The transition from AYP to CCRPI in Georgia was touted as a way to minimize the negative effects of other school accountability measures. However, because more than 50% of a school's CCRPI score is derived from student test scores (Georgia Department of Education, 2017b), Georgia's newest measure of accountability continues to be closely tied to student demographics. White et al. (2016) concluded similar outcomes in New Jersey, attributing more than 50%

of the variance in the state's student achievement scores for school accountability measures to student race/ethnicity and socioeconomic status. Findings from this study align with the theoretical framework of Cultural Ecological Theory (Ogbu & Simons, 1998). Ogbu and Simons (1998) argued that minority group classification is based on different histories of cultural group identity and that education of descendants of such minority groups continues to be influenced by societal forces. As previously stated, current accountability measures exhibit the inequalities in education but do little to correct for them (Crowe & Sjoquist, 2016; Custard, 2014; Ladson-Billings, 2006). Specifically, data analysis in this study supports the claim that racial/ethnic minorities and students of low socioeconomic status continue to negatively affect schools under current accountability measures, while gifted and talented students benefit schools under Georgia's accountability system. While Georgia has implemented modifications to the CCRPI calculation many times since its induction, the data support the conclusion that no matter how the CCRPI formula is tweaked, the trends and significance from student demographics remain.

### **Implications for Theory and Practice**

Educational anthropologist John Ogbu defined minorities as any group in a subordinate position of power within the larger culture (Ogbu & Simons, 1998). Therefore, although racial and ethnic minorities were his primary focus of study, Ogbu's Cultural Ecological Theory applies to all student groups examined in this study. Education continues to be perceived as a strongly "White institution" (Ogbu & Simons, 1998, p. 174). Data from this study confirm that such perceptions are likely perpetuated by school accountability measures like CCRPI. Chmielewski (2014) concluded course

placement was significantly correlated to socioeconomic status; low-SES students experienced less access to rigorous coursework than did their high-SES peers, controlling for other factors. Card and Giuliano (2015) found significant underrepresentation in gifted program identification among racial/ethnic minorities, economically disadvantaged students, and English language learners. Dean (2011) and Kanno and Kangas (2014) determined gifted students' access to advanced coursework improved their test scores. But Georgia is like most states in that enrollment into gifted programs relies on a parent and teacher referral system. Thus, the cultural groups identified by Ogbu and Simons (1998) that hold skepticism or mistrust in formal educational institutions are underrepresented in gifted and talented education programs. This may partially explain why these underrepresented student demographic groups are significantly correlated to schools with lower CCRPI scores. School accountability measures like CCRPI may work to perpetuate underachievement by those Ogbu and Simons (1998) described as minorities. The exception to this, at least in Georgia, is gifted students.

Data-based decision-making in Georgia high schools should be carefully scrutinized, as the CCRPI data commonly used are strongly correlated to student race/ethnicity, socioeconomic status, SWD status, and gifted status. As much as 55% of the variance in Georgia high school CCRPI scores can be attributed to these school-level student demographics, controlling for other factors. Instructional and policy decisions being made based on that data can be flawed, and expectations set for schools and their test takers may be unattainable. Teachers and school administrators may bear the burdens and effects of poor school performance scores due to conditions largely outside of their control. Finally, the publication of school performance data and reform efforts

aimed at increasing these scores should be applied with caution. Cycles of low school performance scores and failed reform efforts have been shown to diminish the legitimacy of public education as a whole (Jacobsen et al., 2014).

### **Limitations and Recommendations for Future Research**

There were several limitations in this study. First, the non-experimental research design employed was necessary because the variables to be examined could not be manipulated, as they were preexisting characteristics of students. This approach limits the findings to correlational strengths but does not allow for causality to be concluded. While several school-level student demographic variables were found to be moderately or strongly correlated to school CCRPI scores, it cannot be concluded that the variables were the cause of the scores. The regression model was used to show how the selected school-level student demographics could accurately predict school CCRPI scores, but again, since none of the variables could be manipulated to show a cause and effect relationship, no causality can be presumed.

Secondly, the selected group of student demographic variables examined was limited to the characteristics reported by schools for all years for which CCRPI data were available. The five variables examined limit the precision of the findings that a more specific or strict evaluation could possibly provide. For instance, two of the predictor variables (percentage of racial/ethnic minorities and percentage of economically disadvantaged students) were shown to have wide standard deviations. A future study examining these variables in more detail could add support to this study's findings. For example, this study used a school's percentage of minority students as a predictor variable for school CCRPI scores. Researchers have demonstrated that Asian-American

students tend to score significantly higher on standardized tests than their peers (Chang, 2005; Jimenez & Horowitz, 2013; Ogbu & Simons, 1998). Descriptive statistics from this study may corroborate these findings; however, a more specific examination of how each racial/ethnic subgroup affects CCRPI scores could provide a more accurate prediction model.

Third, this study examined only Georgia public high schools comprised of grades 9 through 12. The findings can only be applied to the population included in the study. Expanding the sample population in future studies to include data from Georgia middle schools and elementary schools, or comparing findings from Georgia with those from other states could increase the generalizability of this study's findings.

Findings from previous studies led researchers to indicate that English language learners may negatively affect school performance measures (Bertrand & Marsh, 2015; Cabrera et al., 2014; Kim et al., 2018; Mojica, 2013). No such conclusions could be drawn from this study. The inconclusive results in this study imply a gap for more extensive research in this area for future studies to examine. One possible explanation for the inconclusivity in this study may be the transient nature of non-English speaking student populations. ELL students have been shown to have higher transient and greater attrition rates than other students (Rumberger & Palardy, 2005). Fluctuations in subgroup populations throughout the school year may partially explain the inconclusive findings. Future studies that acutely examine the performance of English language learners in Georgia schools may be able to better answer these questions, and confirm or refute previous findings.

It should be noted that a select group of students within a single school population may fit the criteria to be included in multiple demographic categories examined in this study. For instance, several students could possibly be classified as racial/ethnic minorities, English language learners, and students at an economic disadvantage. An examination of the impact these select students have on school CCRPI scores and/or school data-based decision-making practices is a potential topic for future research.

### **Conclusions**

This study was conducted using multiple regression analysis to determine the degree to which school-level student demographic variables of percentage of minority students, percentage of students with limited English proficiency, percentage of economically disadvantaged students, percentage of students with a disability, and percentage of gifted students significantly predict the school's performance measure on Georgia's College and Career Ready Performance Index (CCRPI) for the school years 2012-2018. Data were collected and analyzed from all of Georgia's public high schools that were comprised of grades 9-12. Results of the quantitative analysis indicated a school's percentage of gifted students, percentage of economically disadvantaged students, and percentage of minority students were significant predictors of CCRPI scores across all seven years examined. For two of the seven years, a school's percentage of students with a disability was also a significant predictor of CCRPI. Georgia's school accountability measure remains largely determined by student achievement scores on standardized tests. Findings from this study suggest that school CCRPI scores are negatively affected by students of a racial/ethnic minority, students at an economic disadvantage, and at times, students with a disability. Findings from this study also show

that a school's percentage of gifted students positively affects the school's CCRPI. Despite efforts of policy and school improvement goals, achievement gaps persist in Georgia high schools.

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APPENDIX A

Institutional Review Board Approval



**Institutional Review Board (IRB)  
For the Protection of Human Research Participants**

**PROTOCOL EXEMPTION REPORT**

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**Protocol Number:** 03835-2019      **Responsible Researcher:** Jonathan Wiley  
**Supervising Faculty:** E-Ling Hsiao  
**Project Title:** *A Quantitative Examination of Georgia High School CCRPI Scores and School-Level Student Demographics Using Multiple Regression Analysis.*

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**INSTITUTIONAL REVIEW BOARD DETERMINATION:**

This research protocol is **Exempt** from Institutional Review Board (IRB) oversight under Exemption **Category 4**. Your research study may begin immediately. If the nature of the research project changes such that exemption criteria may no longer apply, please consult with the IRB Administrator ([irb@valdosta.edu](mailto:irb@valdosta.edu)) before continuing your research.

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**ADDITIONAL COMMENTS:**

- *Upon completion of the research study all data must be securely maintained (locked file cabinet, password protected computer, etc.) and accessible only by the researcher for a minimum of 3 years.*

*If this box is checked, please submit any documents you revise to the IRB Administrator at [irb@valdosta.edu](mailto:irb@valdosta.edu) to ensure an updated record of your exemption.*

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*Elizabeth Ann Olphie*      05.10.2019  
Elizabeth Ann Olphie, IRB Administrator

*Thank you for submitting an IRB application.  
Please direct questions to [irb@valdosta.edu](mailto:irb@valdosta.edu) or 229-253-2947.*

## APPENDIX B

### Descriptive Statistics for School Years 2012-2018

## School Years 2012-2018 Descriptive Statistics

### School Years 2012-2018 Descriptive Statistics

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
<i>SY 2012</i>							
90 +	20	92.9 (1.7)	40.6 (24.5)	1.5 (1.1)	20.2 (19.7)	6.4 (3.5)	29.7 (14.9)
80 - 89	58	83.6 (2.4)	33.9 (21.0)	1.7 (1.7)	34.9 (18.4)	9.8 (2.5)	17.6 (8.0)
70 - 79	121	74.9 (2.7)	46.0 (24.0)	2.3 (2.9)	54.2 (14.9)	11.2 (3.0)	12.0 (5.4)
0 - 70	182	59.9 (9.0)	70.2 (27.2)	2.2 (4.5)	69.0 (14.8)	11.1 (3.5)	7.2 (4.7)
All	381	70.0 (12.4)	55.3 (29.0)	2.1 (3.6)	56.7 (21.6)	10.7 (3.5)	11.8 (8.7)
<i>SY 2013</i>							
90 +	19	93.0 (2.3)	42.0 (24.8)	1.5 (1.2)	20.5 (21.1)	6.2 (3.5)	31.8 (14.7)
80 - 89	62	83.4 (2.8)	40.6 (24.9)	1.3 (1.4)	40.2 (22.6)	9.5 (3.0)	17.0 (7.6)
70 - 79	124	74.6 (2.8)	43.3 (24.1)	2.3 (3.7)	52.7 (14.8)	10.9 (2.7)	12.9 (6.2)
0 - 70	181	61.0 (7.6)	70.9 (27.3)	2.1 (4.0)	70.3 (16.2)	11.5 (3.1)	7.8 (4.8)
All	386	70.6 (11.4)	55.8 (29.4)	2.0 (3.5)	57.4 (22.3)	10.7 (3.2)	12.5 (8.8)
<i>SY 2014</i>							
90 +	17	92.5 (2.6)	48.1 (25.1)	2.1 (1.4)	23.8 (25.0)	6.1 (3.4)	32.9 (15.7)
80 - 89	46	83.8 (2.6)	35.6 (22.2)	1.3 (1.1)	31.7 (18.7)	9.3 (2.7)	19.2 (8.2)
70 - 79	117	73.7 (2.8)	47.9 (24.9)	2.2 (2.5)	55.0 (21.4)	10.6 (2.6)	14.0 (6.7)
0 - 70	206	60.7 (7.7)	66.0 (29.6)	2.3 (4.4)	74.0 (18.3)	11.5 (3.0)	8.7 (5.0)
All	386	68.8 (11.4)	56.1 (29.4)	2.1 (3.5)	61.0 (25.5)	10.7 (3.1)	12.9 (8.9)
<i>SY 2015</i>							
90 +	29	94.7 (4.2)	48.3 (26.0)	1.5 (1.2)	28.3 (24.6)	7.4 (3.7)	25.6 (11.9)
80 - 89	101	84.1 (2.6)	39.9 (22.4)	2.3 (2.5)	47.1 (22.3)	9.9 (2.7)	16.5 (9.7)
70 - 79	130	74.6 (2.7)	54.1 (27.4)	3.0 (5.6)	62.9 (21.5)	11.2 (2.8)	11.9 (6.6)
0 - 70	122	62.2 (7.1)	75.8 (26.7)	2.0 (3.0)	80.3 (18.9)	11.5 (3.7)	7.6 (4.7)
All	382	74.7 (11.2)	56.8 (29.3)	2.4 (3.9)	61.7 (26.4)	10.6 (3.3)	13.1 (9.1)

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
<i>SY 2016</i>							
90 +	47	96.6 (4.3)	46.6 (24.3)	1.7 (1.6)	28.0 (24.4)	7.8 (3.8)	27.2 (12.5)
80 - 89	90	84.2 (2.9)	41.5 (24.0)	2.6 (4.8)	47.4 (20.4)	10.2 (2.6)	14.8 (6.7)
70 - 79	123	74.8 (2.8)	55.9 (27.0)	2.9 (4.9)	64.1 (19.7)	11.3 (2.5)	11.5 (5.4)
0 - 70	118	60.8 (8.4)	75.5 (26.7)	2.4 (3.6)	83.8 (18.9)	12.0 (3.3)	7.0 (4.2)
All	378	75.3 (13.0)	57.4 (29.1)	2.5 (4.2)	61.8 (27.4)	10.8 (3.3)	13.1 (9.2)
<i>SY 2017</i>							
90 +	54	96.0 (4.0)	47.0 (25.6)	1.9 (1.9)	30.9 (26.4)	7.9 (3.7)	26.5 (11.8)
80 - 89	101	84.5 (2.8)	42.0 (22.4)	2.5 (2.7)	48.2 (20.0)	11.3 (2.6)	14.7 (6.7)
70 - 79	128	75.1 (2.9)	63.1 (26.8)	3.8 (6.5)	68.0 (21.3)	11.4 (2.8)	10.2 (4.7)
0 - 70	93	62.6 (6.8)	73.7 (28.8)	2.5 (4.3)	83.9 (19.8)	12.2 (3.5)	6.9 (4.4)
All	376	77.5 (11.7)	57.7 (28.8)	2.8 (4.7)	61.3 (27.9)	11.0 (3.3)	13.2 (9.2)
<i>SY 2018</i>							
90 +	27	93.9 (1.9)	44.3 (21.1)	2.3 (1.6)	16.1 (13.3)	7.3 (3.6)	33.2 (12.9)
80 - 89	71	84.1 (3.0)	45.9 (23.6)	3.1 (2.8)	38.9 (18.8)	10.3 (2.9)	17.9 (7.0)
70 - 79	122	74.6 (2.7)	48.7 (25.3)	3.7 (4.3)	59.9 (21.6)	11.7 (2.9)	12.1 (5.7)
0 - 70	155	61.2 (8.8)	75.4 (25.9)	4.0 (7.3)	75.9 (22.4)	12.2 (3.3)	7.6 (4.2)
All	375	72.2 (12.2)	58.9 (28.5)	3.6 (5.5)	59.4 (27.6)	11.3 (3.4)	13.2 (9.3)

## 2012 Descriptive Statistics

### 2012 Descriptive Statistics–All Schools

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	381					
Mean	70.04	55.33	2.08	56.73	10.71	11.82
SD	12.40	29.03	3.58	21.60	3.45	8.65
Minimum	12.80	2.00	0.00	5.00	0.00	0.10
Maximum	97.30	100.00	40.00	100.00	25.00	71.80
Skewness	-0.61	0.14	5.95	-0.38	0.02	2.11
Kurtosis	1.27	-1.23	51.87	-0.51	1.92	9.04

### 2012 Descriptive Statistics–Schools with CCRPI Scores of 90+

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	20					
Mean	92.94	40.60	1.45	20.20	6.43	29.67
SD	1.66	24.52	1.10	19.74	3.47	14.82
Minimum	90.10	17.00	0.00	5.00	0.00	11.00
Maximum	97.30	100.00	3.00	78.00	11.70	71.80
Skewness	0.59	1.53	0.27	2.12	-0.56	1.52
Kurtosis	1.34	1.67	-1.21	4.05	-0.66	2.75

### 2012 Descriptive Statistics–Schools with CCRPI Scores of 80-89

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	58					
Mean	83.59	33.91	1.69	34.90	9.84	17.60
SD	2.40	20.96	1.73	18.41	2.54	7.95
Minimum	80.00	2.00	0.00	8.00	1.90	2.10
Maximum	89.60	97.00	9.00	92.00	15.60	39.90
Skewness	0.50	0.84	1.91	1.20	-0.04	0.44
Kurtosis	-0.37	0.60	4.99	1.52	0.82	0.15

2012 Descriptive Statistics—Schools with CCRPI Scores of 70-79

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	121					
Mean	74.94	45.99	2.25	54.20	11.15	12.00
SD	2.66	24.00	2.92	14.82	3.00	5.36
Minimum	70.00	2.00	0.00	21.00	2.80	0.70
Maximum	79.70	100.00	15.00	94.00	17.80	31.50
Skewness	-0.03	0.43	2.25	0.04	-0.12	0.74
Kurtosis	-0.98	-0.61	5.66	-0.03	-0.39	1.28

2012 Descriptive Statistics—Schools with CCRPI Scores of < 70

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	182					
Mean	59.94	70.18	2.18	68.96	11.09	7.23
SD	8.97	27.23	4.49	14.82	3.48	4.66
Minimum	12.80	4.00	0.00	28.00	0.00	0.10
Maximum	69.90	100.00	40.00	100.00	22.20	25.10
Skewness	-1.87	-0.56	5.88	-0.33	-0.04	0.61
Kurtosis	5.03	-0.89	43.01	-0.36	2.35	0.46

2012 Descriptive Statistics

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
All	381	70.0 (12.4)	55.3 (29.0)	2.1 (3.6)	56.7 (21.6)	10.7 (3.5)	11.8 (8.7)
90 +	20	92.9 (1.7)	40.6 (24.5)	1.5 (1.1)	20.2 (19.7)	6.4 (3.5)	29.7 (14.9)
80 - 89	58	83.6 (2.4)	33.9 (21.0)	1.7 (1.7)	34.9 (18.4)	9.8 (2.5)	17.6 (8.0)
70 - 79	121	74.9 (2.7)	46.0 (24.0)	2.3 (2.9)	54.2 (14.9)	11.2 (3.0)	12.0 (5.4)
0 - 70	182	59.9 (9.0)	70.2 (27.2)	2.2 (4.5)	69.0 (14.8)	11.1 (3.5)	7.2 (4.7)

## 2013 Descriptive Statistics

### 2013 Descriptive Statistics–All Schools

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	386					
Mean	70.56	55.75	1.99	57.37	10.74	12.46
SD	11.42	29.40	3.49	22.25	3.22	8.80
Minimum	28.30	2.00	0.00	0.00	0.00	0.10
Maximum	99.30	100.00	39.00	100.00	21.80	71.60
Skewness	-0.29	0.10	6.08	-0.40	-0.26	2.11
Kurtosis	0.34	-1.26	53.64	-0.42	1.31	8.67

### 2013 Descriptive Statistics–Schools with CCRPI Scores of 90+

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	19					
Mean	92.97	42.00	1.47	20.53	6.19	31.79
SD	2.34	24.82	1.17	21.14	3.48	14.66
Minimum	90.10	18.00	0.00	5.00	0.40	16.50
Maximum	99.30	100.00	4.00	82.00	11.30	71.60
Skewness	1.06	1.51	0.53	2.04	-0.58	1.58
Kurtosis	1.48	1.34	-0.43	3.59	-0.92	2.38

### 2013 Descriptive Statistics–Schools with CCRPI Scores of 80-89

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	62					
Mean	83.39	40.56	1.34	40.15	9.49	17.00
SD	2.77	24.90	1.35	22.64	3.03	7.63
Minimum	80.00	2.00	0.00	10.00	1.20	3.80
Maximum	89.80	100.00	6.00	100.00	16.00	38.30
Skewness	0.82	1.02	1.23	0.80	-0.09	0.57
Kurtosis	-0.46	0.57	1.69	-0.18	0.50	-0.07

2013 Descriptive Statistics—Schools with CCRPI Scores of 70-79

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	124					
Mean	74.63	43.32	2.27	52.73	10.89	12.94
SD	2.81	24.13	3.71	14.83	2.70	6.20
Minimum	70.10	4.00	0.00	21.00	4.00	2.10
Maximum	79.80	98.00	35.00	94.00	21.80	41.50
Skewness	0.19	0.24	5.91	0.11	0.65	1.28
Kurtosis	-1.05	-0.98	49.15	-0.33	1.45	3.58

2013 Descriptive Statistics—Schools with CCRPI Scores of < 70

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	181					
Mean	61.02	70.91	2.07	70.30	11.54	7.79
SD	7.58	27.25	3.96	16.17	3.08	4.82
Minimum	28.30	5.00	0.00	0.00	0.00	0.10
Maximum	69.90	100.00	39.00	100.00	21.00	23.70
Skewness	-1.35	-0.571	5.48	-0.89	-0.37	0.67
Kurtosis	2.18	-0.93	42.99	2.52	1.80	0.38

2013 Descriptive Statistics

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
All	386	70.6 (11.4)	55.8 (29.4)	2.0 (3.5)	57.4 (22.3)	10.7 (3.2)	12.5 (8.8)
90 +	19	93.0 (2.3)	42.0 (24.8)	1.5 (1.2)	20.5 (21.1)	6.2 (3.5)	31.8 (14.7)
80 - 89	62	83.4 (2.8)	40.6 (24.9)	1.3 (1.4)	40.2 (22.6)	9.5 (3.0)	17.0 (7.6)
70 - 79	124	74.6 (2.8)	43.3 (24.1)	2.3 (3.7)	52.7 (14.8)	10.9 (2.7)	12.9 (6.2)
0 - 70	181	61.0 (7.6)	70.9 (27.3)	2.1 (4.0)	70.3 (16.2)	11.5 (3.1)	7.8 (4.8)

## 2014 Descriptive Statistics

### 2014 Descriptive Statistics–All Schools

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	386					
Mean	68.78	56.08	2.13	61.01	10.73	12.86
SD	11.39	29.40	3.54	25.47	3.12	8.94
Minimum	33.20	1.00	0.00	0.00	0.00	0.10
Maximum	99.50	100.00	38.00	100.00	21.70	70.80
Skewness	-0.19	0.10	5.86	-0.22	-0.29	2.02
Kurtosis	0.56	-1.27	49.62	-0.74	1.26	7.76

### 2014 Descriptive Statistics–Schools with CCRPI Scores of 90+

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	17					
Mean	92.50	48.12	2.06	23.76	6.12	32.89
SD	2.60	25.09	1.39	24.99	3.43	15.73
Minimum	90.20	19.00	0.00	5.00	0.40	11.30
Maximum	99.50	100.00	5.00	100.00	10.30	70.80
Skewness	1.60	1.05	0.36	2.23	-0.75	1.11
Kurtosis	2.51	0.20	-0.37	5.09	-0.82	1.01

### 2014 Descriptive Statistics–Schools with CCRPI Scores of 80-89

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	46					
Mean	83.82	35.59	1.28	31.65	9.26	19.17
SD	2.64	22.19	1.13	18.72	2.74	8.22
Minimum	80.00	3.00	0.00	6.00	1.20	5.30
Maximum	89.70	100.00	5.00	79.00	14.70	35.40
Skewness	0.44	1.28	1.06	0.98	-0.77	0.09
Kurtosis	-0.57	1.80	1.60	0.49	1.39	-1.05

2014 Descriptive Statistics—Schools with CCRPI Scores of 70-79

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	117					
Mean	73.74	47.85	2.21	55.03	10.64	13.96
SD	2.83	24.92	2.52	21.39	2.62	6.66
Minimum	70.00	1.00	0.00	16.00	3.90	2.20
Maximum	79.90	100.00	15.00	100.00	20.50	45.10
Skewness	0.70	0.31	2.11	0.56	0.29	1.19
Kurtosis	-0.59	-0.81	5.99	-0.41	0.91	3.73

2014 Descriptive Statistics—Schools with CCRPI Scores of < 70

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	206					
Mean	60.65	65.98	2.28	74.04	11.49	8.73
SD	7.70	29.63	4.40	18.29	3.00	5.00
Minimum	33.20	4.00	0.00	0.00	0.00	0.10
Maximum	69.90	100.00	38.00	100.00	21.70	29.30
Skewness	-1.48	-0.40	5.44	-0.32	-0.18	0.60
Kurtosis	2.45	-1.17	37.76	0.08	1.12	0.77

2014 Descriptive Statistics

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
All	386	68.8 (11.4)	56.1 (29.4)	2.1 (3.5)	61.0 (25.5)	10.7 (3.1)	12.9 (8.9)
90 +	17	92.5 (2.6)	48.1 (25.1)	2.1 (1.4)	23.8 (25.0)	6.1 (3.4)	32.9 (15.7)
80 - 89	46	83.8 (2.6)	35.6 (22.2)	1.3 (1.1)	31.7 (18.7)	9.3 (2.7)	19.2 (8.2)
70 - 79	117	73.7 (2.8)	47.9 (24.9)	2.2 (2.5)	55.0 (21.4)	10.6 (2.6)	14.0 (6.7)
0 - 70	206	60.7 (7.7)	66.0 (29.6)	2.3 (4.4)	74.0 (18.3)	11.5 (3.0)	8.7 (5.0)

## 2015 Descriptive Statistics

### 2015 Descriptive Statistics–All Schools

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	382					
Mean	74.66	56.82	2.36	61.66	10.63	13.05
SD	11.21	29.34	3.92	26.41	3.32	9.12
Minimum	36.50	2.00	0.00	5.00	0.00	0.30
Maximum	108.40	100.00	40.00	100.00	22.80	65.70
Skewness	-0.31	0.09	5.62	-0.18	-0.17	1.95
Kurtosis	0.58	-1.29	45.44	-0.90	1.59	6.59

### 2015 Descriptive Statistics–Schools with CCRPI Scores of 90+

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	29					
Mean	94.72	48.28	1.48	28.31	7.42	25.58
SD	4.22	25.97	1.18	24.62	3.68	11.90
Minimum	90.10	17.00	0.00	5.00	0.30	6.80
Maximum	108.40	100.00	4.00	100.00	13.00	65.70
Skewness	1.49	0.93	0.60	1.69	-0.69	1.49
Kurtosis	2.77	-0.18	-0.39	2.72	-0.72	3.90

### 2015 Descriptive Statistics–Schools with CCRPI Scores of 80-89

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	101					
Mean	84.07	39.85	2.33	47.12	9.85	16.51
SD	2.59	22.36	2.50	22.29	2.73	9.67
Minimum	80.00	2.00	0.00	9.00	0.60	1.80
Maximum	89.90	99.00	11.00	100.00	16.30	63.50
Skewness	0.39	0.54	1.60	0.54	-0.69	2.06
Kurtosis	-0.69	-0.30	2.43	-0.31	1.53	6.50

2015 Descriptive Statistics—Schools with CCRPI Scores of 70-79

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	130					
Mean	74.59	54.13	2.95	62.93	11.15	11.89
SD	2.68	27.40	5.60	21.48	2.75	6.61
Minimum	70.20	4.00	0.00	6.00	4.50	0.30
Maximum	79.90	100.00	40.00	100.00	18.90	38.60
Skewness	0.27	0.17	4.96	-0.11	0.00	1.21
Kurtosis	-0.98	-1.14	29.15	-0.14	-0.52	2.73

2015 Descriptive Statistics—Schools with CCRPI Scores of < 70

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	122					
Mean	62.17	75.78	1.97	80.27	11.48	7.63
SD	7.13	26.71	2.98	18.94	3.66	4.70
Minimum	36.50	10.00	0.00	32.00	0.00	0.30
Maximum	69.90	100.00	19.00	100.00	22.80	27.20
Skewness	-1.64	-0.91	3.16	-0.69	0.09	0.95
Kurtosis	2.74	-0.41	12.55	-0.58	1.88	1.82

2015 Descriptive Statistics

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
All	382	74.7 (11.2)	56.8 (29.3)	2.4 (3.9)	61.7 (26.4)	10.6 (3.3)	13.1 (9.1)
90 +	29	94.7 (4.2)	48.3 (26.0)	1.5 (1.2)	28.3 (24.6)	7.4 (3.7)	25.6 (11.9)
80 - 89	101	84.1 (2.6)	39.9 (22.4)	2.3 (2.5)	47.1 (22.3)	9.9 (2.7)	16.5 (9.7)
70 - 79	130	74.6 (2.7)	54.1 (27.4)	3.0 (5.6)	62.9 (21.5)	11.2 (2.8)	11.9 (6.6)
0 - 70	122	62.2 (7.1)	75.8 (26.7)	2.0 (3.0)	80.3 (18.9)	11.5 (3.7)	7.6 (4.7)

## 2016 Descriptive Statistics

### 2016 Descriptive Statistics–All Schools

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	378					
Mean	75.34	57.44	2.52	61.80	10.83	13.08
SD	13.04	29.05	4.18	27.40	3.27	9.19
Minimum	22.90	2.00	0.00	0.00	0.00	0.10
Maximum	110.30	100.00	41.00	100.00	19.60	71.40
Skewness	-0.31	0.06	5.03	-0.16	-0.50	1.99
Kurtosis	0.68	-1.29	36.28	-0.96	1.16	7.07

### 2016 Descriptive Statistics–Schools with CCRPI Scores of 90+

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	47					
Mean	96.55	46.64	1.74	28.04	7.79	27.17
SD	4.30	24.30	1.59	24.41	3.83	12.51
Minimum	90.20	6.00	0.00	4.00	0.00	4.10
Maximum	110.30	100.00	8.00	100.00	13.30	71.40
Skewness	0.79	0.96	1.55	1.62	-0.71	1.20
Kurtosis	1.03	0.15	3.91	2.22	-0.47	3.13

### 2016 Descriptive Statistics–Schools with CCRPI Scores of 80-89

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	90					
Mean	84.18	41.46	2.62	47.43	10.21	14.83
SD	2.88	23.99	4.76	20.36	2.60	6.70
Minimum	80.00	2.00	0.00	12.00	4.80	3.50
Maximum	89.70	99.00	39.00	100.00	18.60	47.00
Skewness	0.37	0.54	5.47	0.68	0.53	1.57
Kurtosis	-1.00	-0.58	38.70	0.18	0.67	5.23

2016 Descriptive Statistics—Schools with CCRPI Scores of 70-79

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	123					
Mean	74.76	55.94	2.89	64.12	11.33	11.54
SD	2.76	27.02	4.87	19.67	2.53	5.41
Minimum	70.00	2.00	0.00	30.00	3.20	1.30
Maximum	79.70	100.00	41.00	100.00	19.60	31.00
Skewness	0.02	0.08	4.70	0.41	0.12	0.84
Kurtosis	-1.28	-1.08	31.24	-0.80	0.49	1.76

2016 Descriptive Statistics—Schools with CCRPI Scores of < 70

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	118					
Mean	60.76	75.51	2.36	83.78	11.99	6.97
SD	8.43	26.71	3.59	18.89	3.34	4.19
Minimum	22.90	12.00	0.00	0.00	0.00	0.10
Maximum	69.90	100.00	22.00	100.00	18.60	19.40
Skewness	-1.72	-0.88	3.40	-1.34	-0.71	0.57
Kurtosis	3.90	-0.54	13.63	2.36	1.31	-0.02

2016 Descriptive Statistics

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
All	378	75.3 (13.0)	57.4 (29.1)	2.5 (4.2)	61.8 (27.4)	10.8 (3.3)	13.1 (9.2)
90 +	47	96.6 (4.3)	46.6 (24.3)	1.7 (1.6)	28.0 (24.4)	7.8 (3.8)	27.2 (12.5)
80 - 89	90	84.2 (2.9)	41.5 (24.0)	2.6 (4.8)	47.4 (20.4)	10.2 (2.6)	14.8 (6.7)
70 - 79	123	74.8 (2.8)	55.9 (27.0)	2.9 (4.9)	64.1 (19.7)	11.3 (2.5)	11.5 (5.4)
0 - 70	118	60.8 (8.4)	75.5 (26.7)	2.4 (3.6)	83.8 (18.9)	12.0 (3.3)	7.0 (4.2)

## 2017 Descriptive Statistics

### 2017 Descriptive Statistics–All Schools

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	376					
Mean	77.50	57.72	2.82	61.27	11.04	13.17
SD	11.72	28.81	4.65	27.86	3.33	9.16
Minimum	39.60	2.00	0.00	0.00	0.00	0.20
Maximum	108.20	100.00	47.00	100.00	20.50	73.60
Skewness	-0.18	0.05	5.06	-0.11	-0.47	1.99
Kurtosis	0.17	-1.29	36.23	-1.03	1.31	7.25

### 2017 Descriptive Statistics–Schools with CCRPI Scores of 90+

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	54					
Mean	95.95	47.00	1.85	30.91	7.94	26.49
SD	4.01	25.62	1.87	26.39	3.67	11.81
Minimum	90.20	6.00	0.00	4.00	0.00	6.70
Maximum	108.20	100.00	10.00	100.00	14.10	73.60
Skewness	0.75	0.67	1.78	1.43	-0.74	1.53
Kurtosis	0.84	-0.46	5.47	1.42	-0.36	4.60

### 2017 Descriptive Statistics–Schools with CCRPI Scores of 80-89

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	101					
Mean	84.45	41.97	2.46	48.24	11.25	14.67
SD	2.76	22.42	2.71	20.02	2.57	6.69
Minimum	80.00	2.00	0.00	14.00	6.10	2.50
Maximum	89.90	100.00	15.00	100.00	18.30	39.80
Skewness	0.14	0.47	2.13	0.70	0.50	1.28
Kurtosis	-0.95	-0.40	5.55	0.08	-0.16	2.61

2017 Descriptive Statistics—Schools with CCRPI Scores of 70-79

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	128					
Mean	75.05	63.09	3.76	67.96	11.38	10.18
SD	2.92	26.81	6.48	21.34	2.79	4.73
Minimum	70.00	9.00	0.00	27.00	0.00	0.80
Maximum	79.80	100.00	47.00	100.00	19.00	27.40
Skewness	-0.04	-0.16	4.20	0.14	-0.14	0.87
Kurtosis	-1.26	-1.30	22.45	-1.08	1.69	2.11

2017 Descriptive Statistics—Schools with CCRPI Scores of < 70

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	93					
Mean	62.61	73.65	2.48	83.85	12.16	6.91
SD	6.77	28.80	4.28	19.81	3.53	4.41
Minimum	39.60	4.00	0.00	0.00	0.00	0.20
Maximum	69.90	100.00	31.00	100.00	20.50	17.40
Skewness	-1.47	-0.87	4.40	-1.41	-0.55	0.54
Kurtosis	2.00	-0.55	24.04	2.40	1.17	-0.59

2017 Descriptive Statistics

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
All	376	77.5 (11.7)	57.7 (28.8)	2.8 (4.7)	61.3 (27.9)	11.0 (3.3)	13.2 (9.2)
90 +	54	96.0 (4.0)	47.0 (25.6)	1.9 (1.9)	30.9 (26.4)	7.9 (3.7)	26.5 (11.8)
80 - 89	101	84.5 (2.8)	42.0 (22.4)	2.5 (2.7)	48.2 (20.0)	11.3 (2.6)	14.7 (6.7)
70 - 79	128	75.1 (2.9)	63.1 (26.8)	3.8 (6.5)	68.0 (21.3)	11.4 (2.8)	10.2 (4.7)
0 - 70	93	62.6 (6.8)	73.7 (28.8)	2.5 (4.3)	83.9 (19.8)	12.2 (3.5)	6.9 (4.4)

## 2018 Descriptive Statistics

### 2018 Descriptive Statistics–All Schools

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	375					
Mean	72.23	58.88	3.60	59.38	11.34	13.17
SD	12.22	28.49	5.45	27.63	3.36	9.34
Minimum	28.00	3.00	0.00	0.00	0.00	0.10
Maximum	97.10	100.00	50.00	100.00	24.70	75.60
Skewness	-0.54	0.01	4.55	-0.04	-0.16	2.05
Kurtosis	1.06	-1.29	29.24	-0.98	2.18	7.71

### 2018 Descriptive Statistics–Schools with CCRPI Scores of 90+

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	27					
Mean	93.92	44.26	2.26	16.11	7.25	33.15
SD	1.94	21.14	1.61	13.30	3.59	12.86
Minimum	90.80	17.00	0.00	4.00	0.50	18.30
Maximum	97.10	98.00	5.00	59.00	12.90	75.60
Skewness	0.21	1.08	0.26	1.93	-0.74	1.69
Kurtosis	-1.17	0.67	-1.01	3.79	-0.27	3.79

### 2018 Descriptive Statistics–Schools with CCRPI Scores of 80-89

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	71					
Mean	84.08	45.89	3.11	38.90	10.31	17.85
SD	2.96	23.55	2.76	18.81	2.91	7.00
Minimum	80.10	3.00	0.00	8.00	2.40	2.40
Maximum	89.70	100.00	14.00	100.00	18.20	36.80
Skewness	0.42	0.43	1.47	1.44	-0.13	0.32
Kurtosis	-1.04	-0.43	2.80	2.98	1.38	-0.01

2018 Descriptive Statistics—Schools with CCRPI Scores of 70-79

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	122					
Mean	74.56	48.72	3.69	59.93	11.74	12.08
SD	2.69	25.32	4.32	21.61	2.86	5.70
Minimum	70.00	3.00	0.00	18.00	6.70	0.90
Maximum	79.80	100.00	23.00	100.00	24.70	39.10
Skewness	0.20	0.40	1.88	0.37	1.26	1.24
Kurtosis	-0.86	-0.78	3.87	-0.79	3.11	4.04

2018 Descriptive Statistics—Schools with CCRPI Scores of < 70

	CCRPI	% Minority	% ELL	% ED	% SWD	% Gifted
N	155					
Mean	61.18	75.37	3.99	75.87	12.21	7.60
SD	8.84	25.86	7.27	22.38	3.26	4.16
Minimum	28.00	7.00	0.00	0.00	0.00	0.10
Maximum	69.90	100.00	50.00	100.00	24.50	18.80
Skewness	-1.82	-0.89	4.18	-0.71	-0.46	0.43
Kurtosis	3.22	-0.41	20.51	0.17	2.87	-0.36

2018 Descriptive Statistics

CCRPI Range	N	CCRPI <i>M (SD)</i>	% Minority <i>M (SD)</i>	% ELL <i>M (SD)</i>	% ED <i>M (SD)</i>	% SWD <i>M (SD)</i>	% Gifted <i>M (SD)</i>
All	375	72.2 (12.2)	58.9 (28.5)	3.6 (5.5)	59.4 (27.6)	11.3 (3.4)	13.2 (9.3)
90 +	27	93.9 (1.9)	44.3 (21.1)	2.3 (1.6)	16.1 (13.3)	7.3 (3.6)	33.2 (12.9)
80 - 89	71	84.1 (3.0)	45.9 (23.6)	3.1 (2.8)	38.9 (18.8)	10.3 (2.9)	17.9 (7.0)
70 - 79	122	74.6 (2.7)	48.7 (25.3)	3.7 (4.3)	59.9 (21.6)	11.7 (2.9)	12.1 (5.7)
0 - 70	155	61.2 (8.8)	75.4 (25.9)	4.0 (7.3)	75.9 (22.4)	12.2 (3.3)	7.6 (4.2)

## APPENDIX C

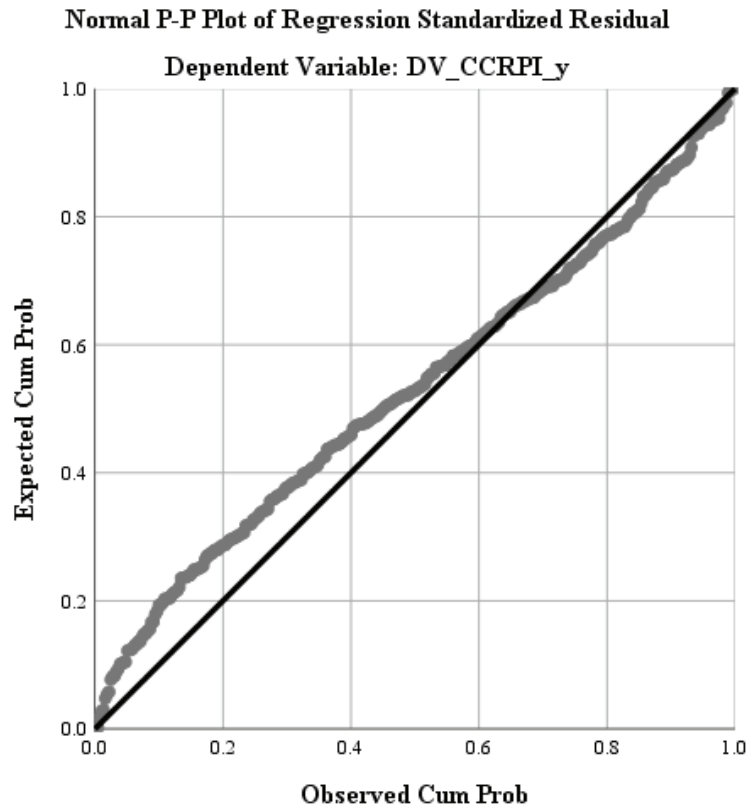
### Test Results of Regression Assumptions for School Years 2012-2018

## 2012 Data Assumptions Test Results

2012 Regression Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	Collinearity Statistics	
	<i>B</i>	Std. Error	Beta			Tolerance	VIF
(Constant)	76.810	2.838		27.061	.000		
1 % Minority	-.080	.021	-.188	-3.789	.000	.554	1.805
% ELL	.124	.131	.036	.940	.348	.950	1.053
% ED	-.176	.036	-.307	-4.909	.000	.349	2.861
% SWD	.099	.148	.027	.668	.505	.811	1.233
% Gifted	.539	.075	.376	7.213	.000	.504	1.985

Note. a. Dependent Variable: CCRPI

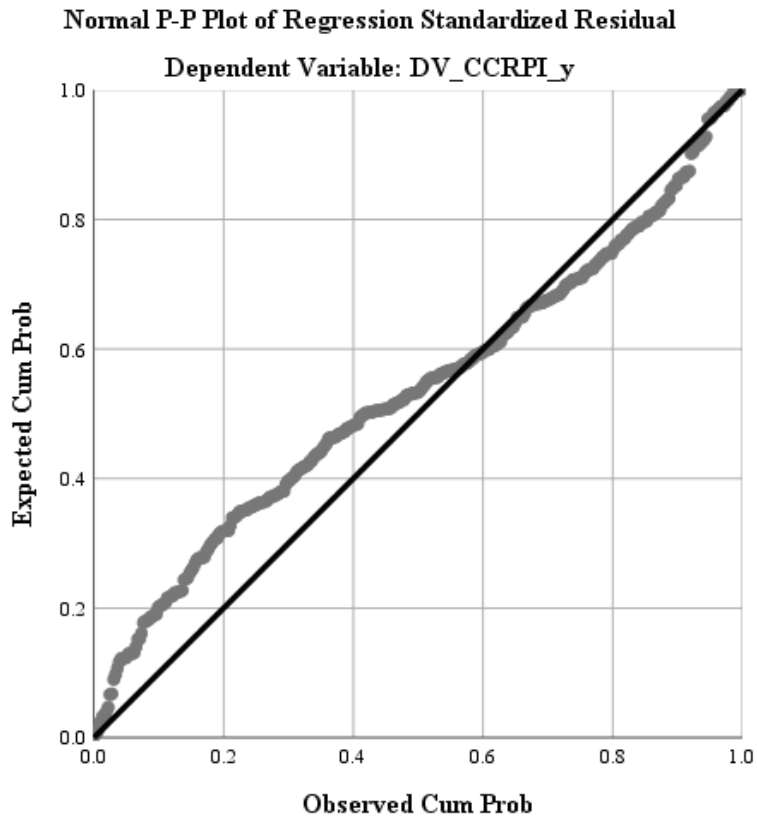


## 2013 Data Assumptions Test Results

2013 Regression Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	Collinearity Statistics	
	<i>B</i>	Std. Error	Beta			Tolerance	VIF
(Constant)	78.609	2.643		29.740	.000		
% Minority	-.072	.019	-.186	-3.814	.000	.540	1.850
% ELL	.136	.120	.042	1.128	.260	.949	1.054
% ED	-.137	.032	-.267	-4.320	.000	.335	2.983
% SWD	-.259	.142	-.073	-1.825	.069	.800	1.249
% Gifted	.510	.067	.393	7.662	.000	.487	2.051

Note. a. Dependent Variable: DV\_CCRPI\_y

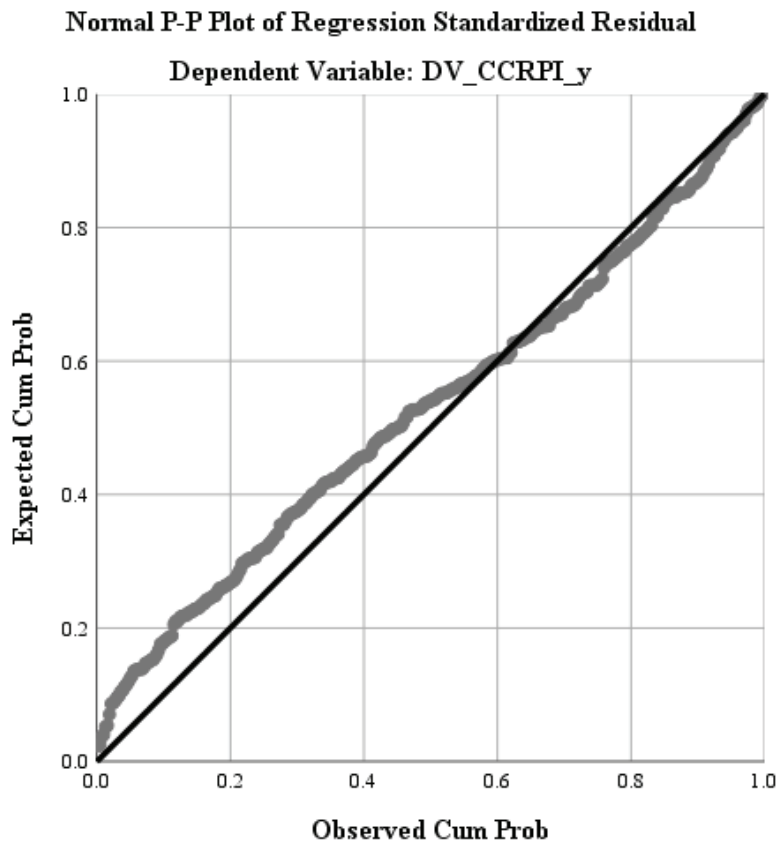


## 2014 Data Assumptions Test Results

2014 Regression Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	Collinearity Statistics	
	<i>B</i>	Std. Error	Beta			Tolerance	VIF
(Constant)	73.679	2.640		27.909	.000		
1 % Minority	-.041	.018	-.106	-2.212	.028	.590	1.696
% ELL	-.026	.121	-.008	-.213	.832	.952	1.051
% ED	-.119	.027	-.265	-4.433	.000	.374	2.672
% SWD	-.235	.148	-.064	-1.587	.113	.815	1.227
% Gifted	.561	.065	.440	8.565	.000	.508	1.969

Note. a. Dependent Variable: DV\_CCRPI\_y

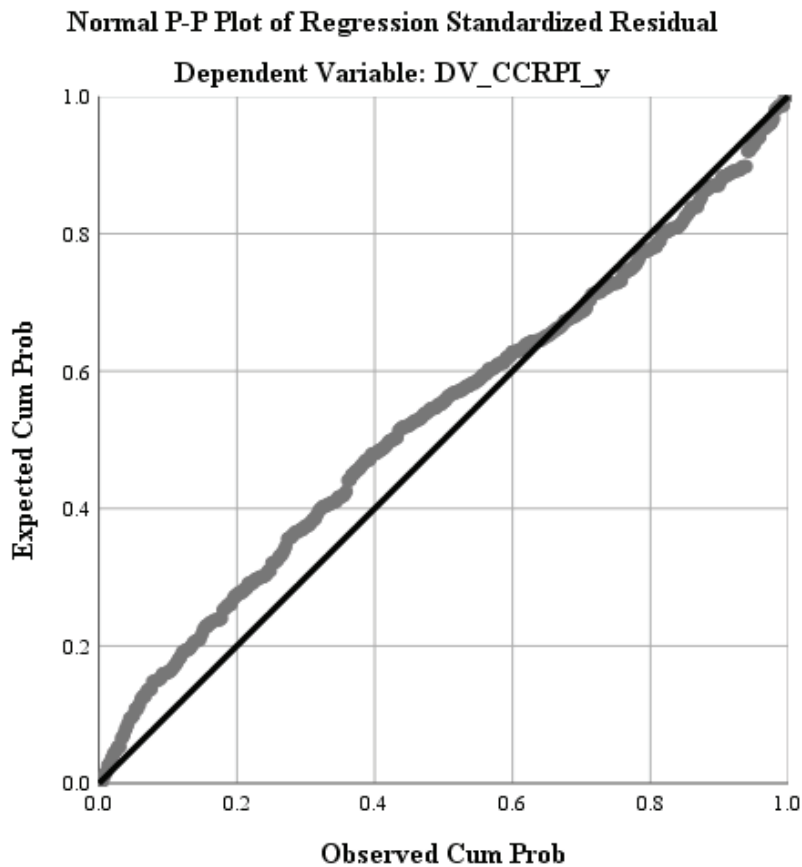


## 2015 Data Assumptions Test Results

2015 Regression Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	Collinearity Statistics	
	<i>B</i>	Std. Error	Beta			Tolerance	VIF
(Constant)	86.133	2.937		29.329	.000		
1 % Minority	-.057	.020	-.148	-2.764	.006	.573	1.746
% ELL	.055	.119	.019	.460	.646	.954	1.048
% ED	-.124	.029	-.292	-4.316	.000	.360	2.781
% SWD	-.466	.150	-.138	-3.113	.002	.839	1.191
% Gifted	.323	.072	.263	4.470	.000	.476	2.100

Note. a. Dependent Variable: DV\_CCRPI\_y

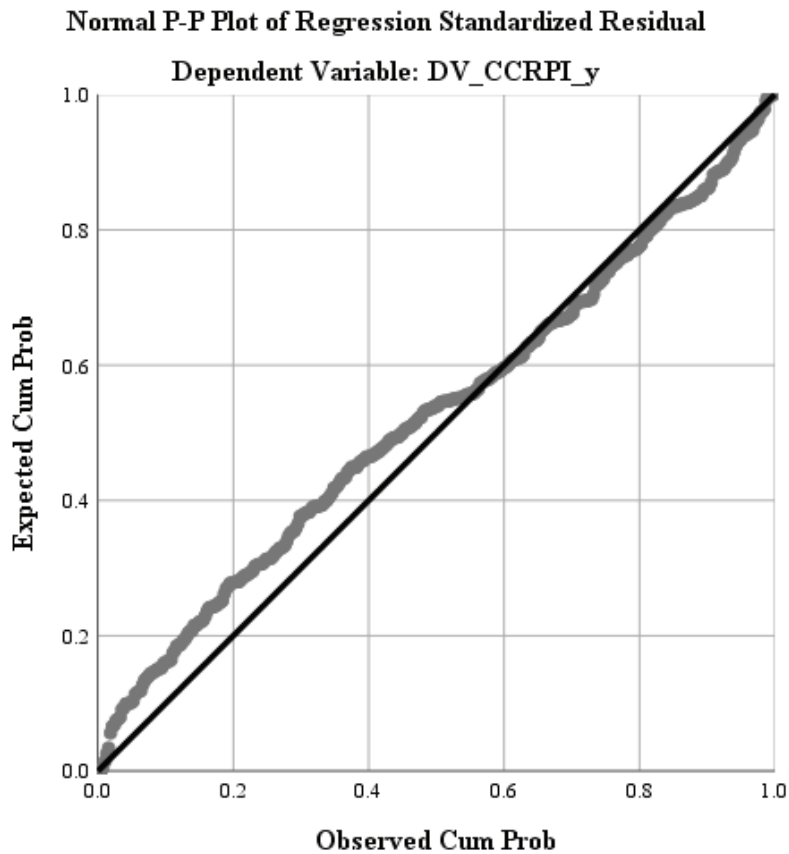


## 2016 Data Assumptions Test Results

2016 Regression Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	Collinearity Statistics	
	<i>B</i>	Std. Error	Beta			Tolerance	VIF
(Constant)	83.913	3.095		27.112	.000		
1 % Minority	-.051	.021	-.114	-2.429	.016	.586	1.706
% ELL	.120	.116	.039	1.038	.300	.932	1.073
% ED	-.148	.027	-.311	-5.481	.000	.400	2.499
% SWD	-.375	.164	-.094	-2.287	.023	.761	1.315
% Gifted	.556	.073	.391	7.579	.000	.482	2.073

Note. a. Dependent Variable: DV\_CCRPI\_y

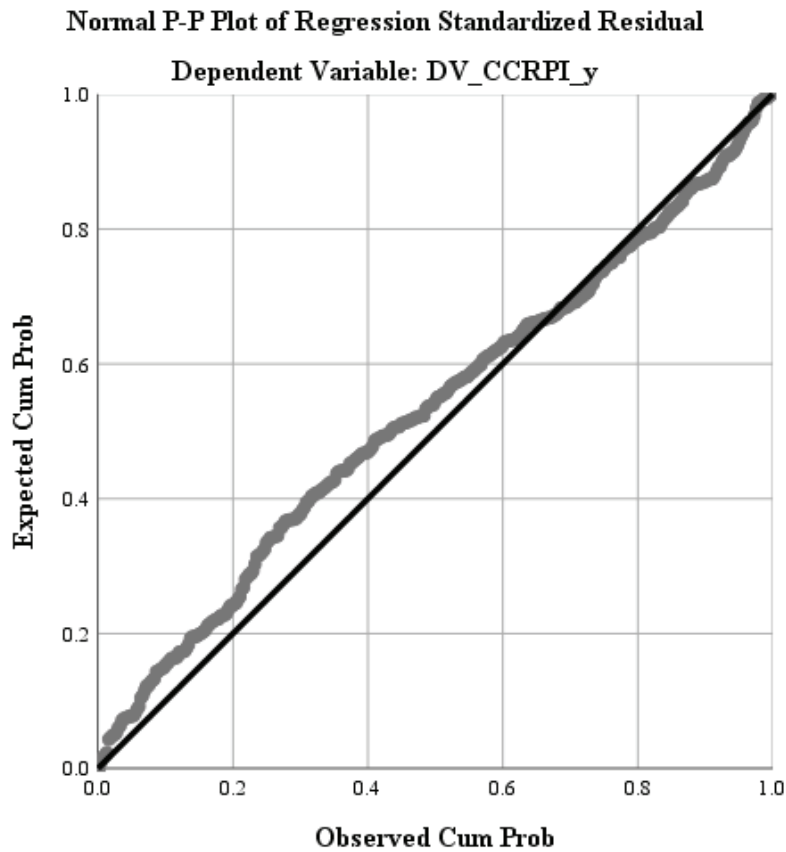


## 2017 Data Assumptions Test Results

2017 Regression Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	Collinearity Statistics	
	<i>B</i>	Std. Error	Beta			Tolerance	VIF
(Constant)	80.637	2.947		27.362	.000		
1 % Minority	-.039	.019	-.095	-2.020	.044	.614	1.630
% ELL	.013	.096	.005	.134	.893	.926	1.080
% ED	-.117	.024	-.277	-4.845	.000	.415	2.411
% SWD	-.125	.149	-.036	-.839	.402	.754	1.327
% Gifted	.575	.069	.450	8.326	.000	.464	2.153

Note. a. Dependent Variable: DV\_CCRPI\_y



## 2018 Data Assumptions Test Results

2018 Regression Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	Collinearity Statistics	
	<i>B</i>	Std. Error	Beta			Tolerance	VIF
(Constant)	70.813	2.920		24.248	.000		
1 % Minority	-.083	.019	-.194	-4.413	.000	.681	1.469
% ELL	.035	.084	.016	.413	.680	.931	1.075
% ED	-.055	.023	-.124	-2.393	.017	.487	2.051
% SWD	-.020	.153	-.005	-.130	.897	.747	1.339
% Gifted	.735	.067	.562	11.023	.000	.506	1.975

Note. a. Dependent Variable: DV\_CCRPI\_y

